



U.S. Department of Justice

Environment and Natural Resources Division

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February 4, 2021

MEMORANDUM

To: ENRD Section Chiefs and Deputy Section Chiefs

From: Jean E. Williams *jew*
Deputy Assistant Attorney General

Re: Withdrawal of Memoranda and Policy Documents

On January 20, 2021, President Biden signed Executive Order 13,990, *Protecting Public Health and the Environment and Restoring Science To Tackle the Climate Crisis*, 86 Fed. Reg. 7037 (Jan. 25, 2021). Section 1 of the Executive Order states:

It is . . . the policy of my Administration to listen to the science; to improve public health and protect our environment; to ensure access to clean air and water; to limit exposure to dangerous chemicals and pesticides; to hold polluters accountable, including those who disproportionately harm communities of color and low-income communities; to reduce greenhouse gas emissions; to bolster resilience to the impacts of climate change; to restore and expand our national treasures and monuments; and to prioritize both environmental justice and the creation of the well-paying union jobs necessary to deliver on these goals.

The Executive Order directs agencies to “immediately review and, as appropriate and consistent with applicable law, take action to address” certain regulations or other agency actions “that conflict with these important national objectives, and to immediately commence work to confront the climate crisis.”

Accordingly, the following documents are hereby withdrawn, effective immediately:

1. “Enforcement Principles and Priorities,” January 14, 2021;
2. “Additional Recommendations on Enforcement Discretion,” January 14, 2021;
3. “Guidance Regarding Newly Promulgated Rule Restricting Third-Party Payments, 28 C.F.R. § 50.28,” January 13, 2021;
4. “Equitable Mitigation in Civil Environmental Enforcement Cases,” January 12, 2021;

5. “Civil Enforcement Discretion in Certain Clean Water Act Matters Involving Prior State Proceedings,” July 27, 2020;
6. “Supplemental Environmental Projects (“SEPs”) in Civil Settlements with Private Defendants,” March 12, 2020;
7. “Using Supplemental Environmental Projects (“SEPs”) in Settlements with State and Local Governments,” August 21, 2019;
8. “Enforcement Principles and Priorities,” March 12, 2018; and
9. “Settlement Payments to Third Parties in ENRD Cases,” January 9, 2018.

Because these memoranda are inconsistent with longstanding Division policy and practice and because they may impede the full exercise of enforcement discretion in the Division’s cases, I have determined that withdrawal is appropriate pursuant to Executive Order 13,990. After further assessment, the Division may issue new guidance regarding matters addressed in the now-withdrawn documents.

The Division is also undertaking a review of Title 5 of the *Justice Manual* to determine whether any current sections in Title 5 reference the now-withdrawn memoranda and should be amended or withdrawn. *See Justice Manual* § 1-1.300.



EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

February 23, 2021
(House Rules)

STATEMENT OF ADMINISTRATION POLICY

H.R. 803 – Protecting America’s Wilderness and Public Lands Act

(Rep. DeGette, D-CO, and 3 cosponsors)

The Administration calls for restoring balance to the management of our public lands and waters, creating jobs, confronting the ongoing decline of nature, and aligning the management of America’s public lands and waters with our nation’s climate, conservation, and clean energy goals. Because this legislation furthers those goals, the Administration strongly supports House passage of H.R. 803.

H.R. 803 combines eight separate measures that, among other things, permanently protect public lands and waters in Colorado, California, and Washington by designating approximately 1.5 million acres of wilderness and incorporating more than 1,000 river miles into the National Wild and Scenic Rivers System. It contains provisions to create and maintain additional recreational access by authorizing new trails, services, and facilities.

The legislation contains provisions that protect important public lands, including public lands in Colorado, through community-supported land use designations that limit inappropriate development and maintain recreational access. It designates Camp Hale as the Nation’s first National Historic Landscape to honor World War II veterans and Colorado’s military legacy. Furthermore, it provides permanent protection of more than 1 million acres around the Grand Canyon National Park from new mining claims. The Grand Canyon is a majestic national treasure, drawing Americans from across the country to visit, and numerous Tribal Nations regard it as a sacred place.

H.R. 803 puts in place protections for some of our nation’s most iconic natural and cultural resources and safeguards recreational opportunities for the benefit of current and future generations, while creating jobs and investing in the recreation economy. It is also consistent with the recommendation of scientists that, to safeguard the health and productivity of the natural systems upon which we all depend, the Nation must pursue a goal of conserving at least 30 percent of U.S. lands and ocean by 2030. The Administration looks forward to working with the Congress on this legislation to ensure the best durable management of these special areas.

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PUBLIC LAW 117-2—MAR. 11, 2021

AMERICAN RESCUE PLAN ACT OF 2021

Public Law 117–2
117th Congress

An Act

Mar. 11, 2021
[H.R. 1319]

American Rescue
Plan Act of 2021.
15 USC 9001
note.
Appropriation
authorizations.

To provide for reconciliation pursuant to title II of S. Con. Res. 5.

*Be it enacted by the Senate and House of Representatives of
the United States of America in Congress assembled,*

SECTION 1. SHORT TITLE.

This Act may be cited as the “American Rescue Plan Act of 2021”.

SEC. 2. TABLE OF CONTENTS.

The table of contents for this Act is as follows:

- Sec. 1. Short title.
Sec. 2. Table of contents.

TITLE I—COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY

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- Sec. 1001. Food supply chain and agriculture pandemic response.
Sec. 1002. Emergency rural development grants for rural health care.
Sec. 1003. Pandemic program administration funds.
Sec. 1004. Funding for the USDA Office of Inspector General for oversight of COVID–19-related programs.
Sec. 1005. Farm loan assistance for socially disadvantaged farmers and ranchers.
Sec. 1006. USDA assistance and support for socially disadvantaged farmers, ranchers, forest land owners and operators, and groups.
Sec. 1007. Use of the Commodity Credit Corporation for commodities and associated expenses.

Subtitle B—Nutrition

- Sec. 1101. Supplemental nutrition assistance program.
Sec. 1102. Additional assistance for SNAP online purchasing and technology improvements.
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Sec. 1107. Meals and supplements reimbursements for individuals who have not attained the age of 25.
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TITLE II—COMMITTEE ON HEALTH, EDUCATION, LABOR, AND PENSIONS

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Sec. 2002. Emergency assistance to non-public schools.
Sec. 2003. Higher Education Emergency Relief Fund.
Sec. 2004. Maintenance of effort and maintenance of equity.
Sec. 2005. Outlying areas.
Sec. 2006. Gallaudet University.
Sec. 2007. Student aid administration.
Sec. 2008. Howard University.

- Sec. 2009. National Technical Institute for the Deaf.
- Sec. 2010. Institute of Education Sciences.
- Sec. 2011. Program administration.
- Sec. 2012. Office of Inspector General.
- Sec. 2013. Modification of revenue requirements for proprietary institutions of higher education.
- Sec. 2014. Funding for the Individuals with Disabilities Education Act.

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- Sec. 2021. National Endowment for the Arts.
- Sec. 2022. National Endowment for the Humanities.
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- Sec. 2206. Corporation for National and Community Service and the National Service Trust.

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- Sec. 2402. Funding for SARS-CoV-2 genomic sequencing and surveillance.
- Sec. 2403. Funding for global health.
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- Sec. 9901. Coronavirus State and Local Fiscal Recovery Funds.

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TITLE I—COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY

Subtitle A—Agriculture

7 USC 7501 note. **SEC. 1001. FOOD SUPPLY CHAIN AND AGRICULTURE PANDEMIC RESPONSE.**

(a) **APPROPRIATION.**—In addition to amounts otherwise available, there is appropriated to the Secretary of Agriculture for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$4,000,000,000, to remain available until expended, to carry out this section.

Grants.
Loans.

(b) **USE OF FUNDS.**—The Secretary of Agriculture shall use the amounts made available pursuant to subsection (a)—

- Determination.
- (1) to purchase food and agricultural commodities;
 - (2) to purchase and distribute agricultural commodities (including fresh produce, dairy, seafood, eggs, and meat) to individuals in need, including through delivery to nonprofit organizations and through restaurants and other food related entities, as determined by the Secretary, that may receive, store, process, and distribute food items;
 - (3) to make grants and loans for small or mid-sized food processors or distributors, seafood processing facilities and processing vessels, farmers markets, producers, or other organizations to respond to COVID-19, including for measures to protect workers against COVID-19; and
 - (4) to make loans and grants and provide other assistance to maintain and improve food and agricultural supply chain resiliency.

(c) **ANIMAL HEALTH.**—

(1) **COVID-19 ANIMAL SURVEILLANCE.**—The Secretary of Agriculture shall conduct monitoring and surveillance of susceptible animals for incidence of SARS-CoV-2.

(2) **FUNDING.**—Out of the amounts made available under subsection (a), the Secretary shall use \$300,000,000 to carry out this subsection.

(d) OVERTIME FEES.—

(1) SMALL ESTABLISHMENT; VERY SMALL ESTABLISHMENT DEFINITIONS.—The terms “small establishment” and “very small establishment” have the meaning given those terms in the final rule entitled “Pathogen Reduction; Hazard Analysis and Critical Control Point (HACCP) Systems” published in the Federal Register on July 25, 1996 (61 Fed. Reg. 38806).

Definition.

(2) OVERTIME INSPECTION COST REDUCTION.—Notwithstanding section 10703 of the Farm Security and Rural Investment Act of 2002 (7 U.S.C. 2219a), the Act of June 5, 1948 (21 U.S.C. 695), section 25 of the Poultry Products Inspection Act (21 U.S.C. 468), and section 24 of the Egg Products Inspection Act (21 U.S.C. 1053), and any regulations promulgated by the Department of Agriculture implementing such provisions of law and subject to the availability of funds under paragraph (3), the Secretary of Agriculture shall reduce the amount of overtime inspection costs borne by federally-inspected small establishments and very small establishments engaged in meat, poultry, or egg products processing and subject to the requirements of the Federal Meat Inspection Act (21 U.S.C. 601 et seq.), the Poultry Products Inspection Act (21 U.S.C. 451 et seq.), or the Egg Products Inspection Act (21 U.S.C. 1031 et seq.), for inspection activities carried out during the period of fiscal years 2021 through 2030.

Time period.

(3) FUNDING.—Out of the amounts made available under subsection (a), the Secretary shall use \$100,000,000 to carry out this subsection.

SEC. 1002. EMERGENCY RURAL DEVELOPMENT GRANTS FOR RURAL HEALTH CARE.

7 USC 2204b-2 note.

(a) GRANTS.—The Secretary of Agriculture (in this section referred to as the “Secretary”) shall use the funds made available by this section to establish an emergency pilot program for rural development not later than 150 days after the date of enactment of this Act to provide grants to eligible applicants (as defined in section 3570.61(a) of title 7, Code of Federal Regulations) to be awarded by the Secretary based on rural development needs related to the COVID-19 pandemic.

Deadline.

(b) USES.—An eligible applicant to whom a grant is awarded under this section may use the grant funds for costs, including those incurred prior to the issuance of the grant, as determined by the Secretary, of facilities which primarily serve rural areas (as defined in section 343(a)(13)(C) of the Consolidated Farm and Rural Development Act (7 U.S.C. 1991(a)(13)(C)), which are located in a rural area, the median household income of the population to be served by which is less than the greater of the poverty line or the applicable percentage (determined under section 3570.63(b) of title 7, Code of Federal Regulations) of the State nonmetropolitan median household income, and for which the performance of any construction work completed with grant funds shall meet the condition set forth in section 9003(f) of the Farm Security and Rural Investment Act of 2002 (7 U.S.C. 8103(f)), to—

- (1) increase capacity for vaccine distribution;
- (2) provide medical supplies to increase medical surge capacity;

Reimbursement.

(3) reimburse for revenue lost during the COVID-19 pandemic, including revenue losses incurred prior to the awarding of the grant;

(4) increase telehealth capabilities, including underlying health care information systems;

(5) construct temporary or permanent structures to provide health care services, including vaccine administration or testing;

(6) support staffing needs for vaccine administration or testing; and

(7) engage in any other efforts to support rural development determined to be critical to address the COVID-19 pandemic, including nutritional assistance to vulnerable individuals, as approved by the Secretary.

(c) FUNDING.—In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$500,000,000, to remain available until September 30, 2023, to carry out this section, of which not more than 3 percent may be used by the Secretary for administrative purposes and not more than 2 percent may be used by the Secretary for technical assistance as defined in section 306(a)(26) of the Consolidated Farm and Rural Development Act (7 U.S.C. 1926(a)(26)).

SEC. 1003. PANDEMIC PROGRAM ADMINISTRATION FUNDS.

In addition to amounts otherwise available, there are appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$47,500,000, to remain available until expended, for necessary administrative expenses associated with carrying out this subtitle.

SEC. 1004. FUNDING FOR THE USDA OFFICE OF INSPECTOR GENERAL FOR OVERSIGHT OF COVID-19-RELATED PROGRAMS.

In addition to amounts otherwise made available, there is appropriated to the Office of the Inspector General of the Department of Agriculture for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$2,500,000, to remain available until September 30, 2022, for audits, investigations, and other oversight activities of projects and activities carried out with funds made available to the Department of Agriculture related to the COVID-19 pandemic.

7 USC 1921 note.

SEC. 1005. FARM LOAN ASSISTANCE FOR SOCIALLY DISADVANTAGED FARMERS AND RANCHERS.

(a) PAYMENTS.—

(1) APPROPRIATION.—In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021, out of amounts in the Treasury not otherwise appropriated, such sums as may be necessary, to remain available until expended, for the cost of loan modifications and payments under this section.

Effective date.

(2) PAYMENTS.—The Secretary shall provide a payment in an amount up to 120 percent of the outstanding indebtedness of each socially disadvantaged farmer or rancher as of January 1, 2021, to pay off the loan directly or to the socially disadvantaged farmer or rancher (or a combination of both), on each—

(A) direct farm loan made by the Secretary to the socially disadvantaged farmer or rancher; and

(B) farm loan guaranteed by the Secretary the borrower of which is the socially disadvantaged farmer or rancher.

(b) DEFINITIONS.—In this section:

(1) FARM LOAN.—The term “farm loan” means—

(A) a loan administered by the Farm Service Agency under subtitle A, B, or C of the Consolidated Farm and Rural Development Act (7 U.S.C. 1922 et seq.); and

(B) a Commodity Credit Corporation Farm Storage Facility Loan.

(2) SECRETARY.—The term “Secretary” means the Secretary of Agriculture.

(3) SOCIALLY DISADVANTAGED FARMER OR RANCHER.—The term “socially disadvantaged farmer or rancher” has the meaning given the term in section 2501(a) of the Food, Agriculture, Conservation, and Trade Act of 1990 (7 U.S.C. 2279(a)).

SEC. 1006. USDA ASSISTANCE AND SUPPORT FOR SOCIALLY DISADVANTAGED FARMERS, RANCHERS, FOREST LAND OWNERS AND OPERATORS, AND GROUPS.

7 USC 2279 note.

(a) APPROPRIATION.—In addition to amounts otherwise available, there is appropriated to the Secretary of Agriculture for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$1,010,000,000, to remain available until expended, to carry out this section.

(b) ASSISTANCE.—The Secretary of Agriculture shall use the amounts made available pursuant to subsection (a) for purposes described in this subsection by—

(1) using not less than 5 percent of the total amount of funding provided under subsection (a) to provide outreach, mediation, financial training, capacity building training, cooperative development training and support, and other technical assistance on issues concerning food, agriculture, agricultural credit, agricultural extension, rural development, or nutrition to socially disadvantaged farmers, ranchers, or forest landowners, or other members of socially disadvantaged groups;

(2) using not less than 5 percent of the total amount of funding provided under subsection (a) to provide grants and loans to improve land access for socially disadvantaged farmers, ranchers, or forest landowners, including issues related to heirs' property in a manner as determined by the Secretary;

(3) using not less than 0.5 percent of the total amount of funding provided under subsection (a) to fund the activities of one or more equity commissions that will address racial equity issues within the Department of Agriculture and its programs;

(4) using not less than 5 percent of the total amount of funding provided under subsection (a) to support and supplement agricultural research, education, and extension, as well as scholarships and programs that provide internships and pathways to Federal employment, by—

(A) using not less than 1 percent of the total amount of funding provided under subsection (a) at colleges or universities eligible to receive funds under the Act of August 30, 1890 (commonly known as the “Second Morrill Act”) (7 U.S.C. 321 et seq.), including Tuskegee University;

(B) using not less than 1 percent of the total amount of funding provided under subsection (a) at 1994 Institutions (as defined in section 532 of the Equity in Educational Land-Grant Status Act of 1994 (7 U.S.C. 301 note; Public Law 103-382));

(C) using not less than 1 percent of the total amount of funding provided under subsection (a) at Alaska Native serving institutions and Native Hawaiian serving institutions eligible to receive grants under subsections (a) and (b), respectively, of section 1419B of the National Agricultural Research, Extension, and Teaching Policy Act of 1977 (7 U.S.C. 3156);

(D) using not less than 1 percent of the total amount of funding provided under subsection (a) at Hispanic-serving institutions eligible to receive grants under section 1455 of the National Agricultural Research, Extension, and Teaching Policy Act of 1977 (7 U.S.C. 3241); and

(E) using not less than 1 percent of the total amount of funding provided under subsection (a) at the insular area institutions of higher education located in the territories of the United States, as referred to in section 1489 of the National Agricultural Research, Extension, and Teaching Policy Act of 1977 (7 U.S.C. 3361); and

(5) using not less than 5 percent of the total amount of funding provided under subsection (a) to provide financial assistance to socially disadvantaged farmers, ranchers, or forest landowners that are former farm loan borrowers that suffered related adverse actions or past discrimination or bias in Department of Agriculture programs, as determined by the Secretary.

(c) DEFINITIONS.—In this section:

(1) NONINDUSTRIAL PRIVATE FOREST LAND.—The term “non-industrial private forest land” has the meaning given the term in section 1201(a)(18) of the Food Security Act of 1985 (16 U.S.C. 3801(a)(18)).

(2) SOCIALLY DISADVANTAGED FARMER, RANCHER, OR FOREST LANDOWNER.—The term “socially disadvantaged farmer, rancher, or forest landowner” means a farmer, rancher, or owner or operator of nonindustrial private forest land who is a member of a socially disadvantaged group.

(3) SOCIALLY DISADVANTAGED GROUP.—The term “socially disadvantaged group” has the meaning given the term in section 2501(a) of the Food, Agriculture, Conservation, and Trade Act of 1990 (7 U.S.C. 2279(a)).

SEC. 1007. USE OF THE COMMODITY CREDIT CORPORATION FOR COMMODITIES AND ASSOCIATED EXPENSES.

In addition to amounts otherwise made available, there are appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$800,000,000, to remain available until September 30, 2022, to use the Commodity Credit Corporation to acquire and make available commodities under section 406(b) of the Food for Peace Act (7 U.S.C. 1736(b)) and for expenses under such section.

Subtitle B—Nutrition

SEC. 1101. SUPPLEMENTAL NUTRITION ASSISTANCE PROGRAM.

(a) **VALUE OF BENEFITS.**—Section 702(a) of division N of the Consolidated Appropriations Act, 2021 (Public Law 116-260) is amended by striking “June 30, 2021” and inserting “September 30, 2021”. 7 USC 2011 note.

(b) **SNAP ADMINISTRATIVE EXPENSES.**—In addition to amounts otherwise available, there is hereby appropriated for fiscal year 2021, out of any amounts in the Treasury not otherwise appropriated, \$1,150,000,000, to remain available until September 30, 2023, with amounts to be obligated for each of fiscal years 2021, 2022, and 2023, for the costs of State administrative expenses associated with carrying out this section and administering the supplemental nutrition assistance program established under the Food and Nutrition Act of 2008 (7 U.S.C. 2011 et seq.), of which—

(1) \$15,000,000 shall be for necessary expenses of the Secretary of Agriculture (in this section referred to as the “Secretary”) for management and oversight of the program; and

(2) \$1,135,000,000 shall be for the Secretary to make grants to each State agency for each of fiscal years 2021 through 2023 as follows:

(A) 75 percent of the amounts available shall be allocated to States based on the share of each State of households that participate in the supplemental nutrition assistance program as reported to the Department of Agriculture for the most recent 12-month period for which data are available, adjusted by the Secretary (as of the date of the enactment of this Act) for participation in disaster programs under section 5(h) of the Food and Nutrition Act of 2008 (7 U.S.C. 2014(h)); and

(B) 25 percent of the amounts available shall be allocated to States based on the increase in the number of households that participate in the supplemental nutrition assistance program as reported to the Department of Agriculture over the most recent 12-month period for which data are available, adjusted by the Secretary (as of the date of the enactment of this Act) for participation in disaster programs under section 5(h) of the Food and Nutrition Act of 2008 (7 U.S.C. 2014(h)). Time period.

SEC. 1102. ADDITIONAL ASSISTANCE FOR SNAP ONLINE PURCHASING AND TECHNOLOGY IMPROVEMENTS. 7 USC 2016 note.

(a) **FUNDING.**—In addition to amounts otherwise made available, there is appropriated for fiscal year 2021, out of any amounts in the Treasury not otherwise appropriated, \$25,000,000 to remain available through September 30, 2026, to carry out this section.

(b) **USE OF FUNDS.**—The Secretary of Agriculture may use the amounts made available pursuant to subsection (a)—

(1) to make technological improvements to improve online purchasing in the supplemental nutrition assistance program established under the Food and Nutrition Act of 2008 (7 U.S.C. 2011 et seq.);

(2) to modernize electronic benefit transfer technology;

(3) to support the mobile technologies demonstration projects and the use of mobile technologies authorized under

section 7(h)(14) of the Food and Nutrition Act of 2008 (7 U.S.C. 2016(h)(14)); and

(4) to provide technical assistance to educate retailers on the process and technical requirements for the online acceptance of the supplemental nutrition assistance program benefits, for mobile payments, and for electronic benefit transfer modernization initiatives.

SEC. 1103. ADDITIONAL FUNDING FOR NUTRITION ASSISTANCE PROGRAMS.

134 Stat. 2095. Section 704 of division N of the Consolidated Appropriations Act, 2021 (Public Law 116-260) is amended—

(1) by striking “In addition” and inserting the following: “(a) COVID-19 RESPONSE FUNDING.—In addition”; and

(2) by adding at the end the following—

“(b) ADDITIONAL FUNDING.—In addition to any other funds made available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$1,000,000,000 to remain available until September 30, 2027, for the Secretary of Agriculture to provide grants to the Commonwealth of Northern Mariana Islands, Puerto Rico, and American Samoa for nutrition assistance, of which \$30,000,000 shall be available to provide grants to the Commonwealth of Northern Mariana Islands for such assistance.”.

SEC. 1104. COMMODITY SUPPLEMENTAL FOOD PROGRAM.

In addition to amounts otherwise made available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$37,000,000, to remain available until September 30, 2022, for activities authorized by section 4(a) of the Agriculture and Consumer Protection Act of 1973 (7 U.S.C. 612c note).

42 USC 1786
note.

SEC. 1105. IMPROVEMENTS TO WIC BENEFITS.

(a) DEFINITIONS.—In this section:

(1) APPLICABLE PERIOD.—The term “applicable period” means a period—

(A) beginning after the date of enactment of this Act, as selected by a State agency; and

(B) ending not later than the earlier of—

(i) 4 months after the date described in subparagraph (A); or

(ii) September 30, 2021.

(2) CASH-VALUE VOUCHER.—The term “cash-value voucher” has the meaning given the term in section 246.2 of title 7, Code of Federal Regulations (as in effect on the date of the enactment of this Act).

(3) PROGRAM.—The term “program” means the special supplemental nutrition program for women, infants, and children established by section 17 of the Child Nutrition Act of 1966 (42 U.S.C. 1786).

(4) QUALIFIED FOOD PACKAGE.—The term “qualified food package” means each of the following food packages (as defined in section 246.10(e) of title 7, Code of Federal Regulations (as in effect on the date of the enactment of this Act)):

(A) Food package III—Participants with qualifying conditions.

(B) Food Package IV—Children 1 through 4 years.

(C) Food Package V—Pregnant and partially (mostly) breastfeeding women.

(D) Food Package VI—Postpartum women.

(E) Food Package VII—Fully breastfeeding.

(5) SECRETARY.—The term “Secretary” means the Secretary of Agriculture.

(6) STATE AGENCY.—The term “State agency” has the meaning given the term in section 17(b) of the Child Nutrition Act of 1966 (42 U.S.C. 1786(b)).

(b) AUTHORITY TO INCREASE AMOUNT OF CASH-VALUE VOUCHER.—During the public health emergency declared by the Secretary of Health and Human Services under section 319 of the Public Health Service Act (42 U.S.C. 247d) on January 31, 2020, with respect to the Coronavirus Disease 2019 (COVID-19), and in response to challenges relating to that public health emergency, the Secretary may, in carrying out the program, increase the amount of a cash-value voucher under a qualified food package to an amount that is less than or equal to \$35.

(c) APPLICATION OF INCREASED AMOUNT OF CASH-VALUE VOUCHER TO STATE AGENCIES.—

(1) NOTIFICATION.—An increase to the amount of a cash-value voucher under subsection (b) shall apply to any State agency that notifies the Secretary of—

(A) the intent to use that increased amount, without further application; and

(B) the applicable period selected by the State agency during which that increased amount shall apply.

(2) USE OF INCREASED AMOUNT.—A State agency that makes a notification to the Secretary under paragraph (1) shall use the increased amount described in that paragraph—

(A) during the applicable period described in that notification; and

(B) only during a single applicable period.

(d) SUNSET.—The authority of the Secretary under subsection (b), and the authority of a State agency to increase the amount of a cash-value voucher under subsection (c), shall terminate on September 30, 2021.

(e) FUNDING.—In addition to amounts otherwise made available, there is appropriated to the Secretary, out of funds in the Treasury not otherwise appropriated, \$490,000,000 to carry out this section, to remain available until September 30, 2022.

SEC. 1106. WIC PROGRAM MODERNIZATION.

In addition to amounts otherwise available, there are appropriated to the Secretary of Agriculture, out of amounts in the Treasury not otherwise appropriated, \$390,000,000 for fiscal year 2021, to remain available until September 30, 2024, to carry out outreach, innovation, and program modernization efforts, including appropriate waivers and flexibility, to increase participation in and redemption of benefits under programs established under section 17 of the Child Nutrition Act of 1966 (7 U.S.C. 1431), except that such waivers may not relate to the content of the WIC Food Packages (as defined in section 246.10(e) of title 7, Code of Federal Regulations (as in effect on the date of enactment of this Act)), or the nondiscrimination requirements under section 246.8 of title 7, Code of Federal Regulations (as in effect on the date of enactment of this Act).

42 USC 1766
note.

SEC. 1107. MEALS AND SUPPLEMENTS REIMBURSEMENTS FOR INDIVIDUALS WHO HAVE NOT ATTAINED THE AGE OF 25.

(a) PROGRAM FOR AT-RISK SCHOOL CHILDREN.—Beginning on the date of enactment of this section, notwithstanding paragraph (1)(A) of section 17(r) of the Richard B. Russell National School Lunch Act (42 U.S.C. 1766(r)), during the COVID-19 public health emergency declared under section 319 of the Public Health Service Act (42 U.S.C. 247d), the Secretary shall reimburse institutions that are emergency shelters under such section 17(r) (42 U.S.C. 1766(r)) for meals and supplements served to individuals who, at the time of such service—

(1) have not attained the age of 25; and

(2) are receiving assistance, including non-residential assistance, from such emergency shelter.

(b) PARTICIPATION BY EMERGENCY SHELTERS.—Beginning on the date of enactment of this section, notwithstanding paragraph (5)(A) of section 17(t) of the Richard B. Russell National School Lunch Act (42 U.S.C. 1766(t)), during the COVID-19 public health emergency declared under section 319 of the Public Health Service Act (42 U.S.C. 247d), the Secretary shall reimburse emergency shelters under such section 17(t) (42 U.S.C. 1766(t)) for meals and supplements served to individuals who, at the time of such service have not attained the age of 25.

(c) DEFINITIONS.—In this section:

(1) EMERGENCY SHELTER.—The term “emergency shelter” has the meaning given the term under section 17(t)(1) of the Richard B. Russell National School Lunch Act (42 U.S.C. 1766(t)(1)).

(2) SECRETARY.—The term “Secretary” means the Secretary of Agriculture.

SEC. 1108. PANDEMIC EBT PROGRAM.

Section 1101 of the Families First Coronavirus Response Act (7 U.S.C. 2011 note; Public Law 116-127) is amended—

(1) in subsection (a)—

(A) by striking “During fiscal years 2020 and 2021” and inserting “In any school year in which there is a public health emergency designation”; and

(B) by inserting “or in a covered summer period following a school session” after “in session”;

(2) in subsection (g), by striking “During fiscal year 2020, the” and inserting “The”;

(3) in subsection (h)(1)—

(A) by inserting “either” after “at least 1 child enrolled in such a covered child care facility and”; and

(B) by inserting “or a Department of Agriculture grant-funded nutrition assistance program in the Commonwealth of the Northern Mariana Islands, Puerto Rico, or American Samoa” before “shall be eligible to receive assistance”;

(4) by redesignating subsections (i) and (j) as subsections (j) and (k), respectively;

(5) by inserting after subsection (h) the following:

“(i) EMERGENCIES DURING SUMMER.—The Secretary of Agriculture may permit a State agency to extend a State agency plan approved under subsection (b) for not more than 90 days for the purpose of operating the plan during a covered summer period, during which time schools participating in the school lunch program

Plan.
Time period.

under the Richard B. Russell National School Lunch Act or the school breakfast program under section 4 of the Child Nutrition Act of 1966 (42 U.S.C. 1773) and covered child care facilities shall be deemed closed for purposes of this section.”;

(6) in subsection (j) (as so redesignated)—

(A) by redesignating paragraphs (2) through (6) as paragraphs (3) through (7), respectively;

(B) by inserting after paragraph (1) the following:

“(2) COVERED SUMMER PERIOD.—The term ‘covered summer period’ means a summer period that follows a school year during which there was a public health emergency designation.”; and

Definition.

(C) in paragraph (5) (as so redesignated), by striking “or another coronavirus with pandemic potential”; and

(7) in subsection (k) (as so redesignated), by inserting “Federal agencies,” before “State agencies”.

TITLE II—COMMITTEE ON HEALTH, EDUCATION, LABOR, AND PENSIONS

Subtitle A—Education Matters

PART 1—DEPARTMENT OF EDUCATION

SEC. 2001. ELEMENTARY AND SECONDARY SCHOOL EMERGENCY RELIEF FUND.

20 USC 3401
note.

(a) IN GENERAL.—In addition to amounts otherwise available through the Education Stabilization Fund, there is appropriated to the Department of Education for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$122,774,800,000, to remain available through September 30, 2023, to carry out this section.

(b) GRANTS.—From funds provided under subsection (a), the Secretary shall—

(1) use \$800,000,000 for the purposes of identifying homeless children and youth and providing homeless children and youth with—

(A) wrap-around services in light of the challenges of COVID-19; and

(B) assistance needed to enable homeless children and youth to attend school and participate fully in school activities; and

(2) from the remaining amounts, make grants to each State educational agency in accordance with this section.

(c) ALLOCATIONS TO STATES.—The amount of each grant under subsection (b) shall be allocated by the Secretary to each State in the same proportion as each State received under part A of title I of the Elementary and Secondary Education Act of 1965 in the most recent fiscal year.

(d) SUBGRANTS TO LOCAL EDUCATIONAL AGENCIES.—

(1) IN GENERAL.—Each State shall allocate not less than 90 percent of the grant funds awarded to the State under this section as subgrants to local educational agencies (including charter schools that are local educational agencies) in the State in proportion to the amount of funds such local

educational agencies and charter schools that are local educational agencies received under part A of title I of the Elementary and Secondary Education Act of 1965 in the most recent fiscal year.

Deadline.

(2) AVAILABILITY OF FUNDS.—Each State shall make allocations under paragraph (1) to local educational agencies in an expedited and timely manner and, to the extent practicable, not later than 60 days after the receipt of such funds.

(e) USES OF FUNDS.—A local educational agency that receives funds under this section—

(1) shall reserve not less than 20 percent of such funds to address learning loss through the implementation of evidence-based interventions, such as summer learning or summer enrichment, extended day, comprehensive afterschool programs, or extended school year programs, and ensure that such interventions respond to students' academic, social, and emotional needs and address the disproportionate impact of the coronavirus on the student subgroups described in section 1111(b)(2)(B)(xi) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6311(b)(2)(B)(xi)), students experiencing homelessness, and children and youth in foster care; and

(2) shall use the remaining funds for any of the following:

(A) Any activity authorized by the Elementary and Secondary Education Act of 1965.

(B) Any activity authorized by the Individuals with Disabilities Education Act.

(C) Any activity authorized by the Adult Education and Family Literacy Act.

(D) Any activity authorized by the Carl D. Perkins Career and Technical Education Act of 2006.

Coordination.

(E) Coordination of preparedness and response efforts of local educational agencies with State, local, Tribal, and territorial public health departments, and other relevant agencies, to improve coordinated responses among such entities to prevent, prepare for, and respond to coronavirus.

(F) Activities to address the unique needs of low-income children or students, children with disabilities, English learners, racial and ethnic minorities, students experiencing homelessness, and foster care youth, including how outreach and service delivery will meet the needs of each population.

Procedures.

(G) Developing and implementing procedures and systems to improve the preparedness and response efforts of local educational agencies.

(H) Training and professional development for staff of the local educational agency on sanitation and minimizing the spread of infectious diseases.

(I) Purchasing supplies to sanitize and clean the facilities of a local educational agency, including buildings operated by such agency.

(J) Planning for, coordinating, and implementing activities during long-term closures, including providing meals to eligible students, providing technology for online learning to all students, providing guidance for carrying out requirements under the Individuals with Disabilities Education Act and ensuring other educational services can

continue to be provided consistent with all Federal, State, and local requirements.

(K) Purchasing educational technology (including hardware, software, and connectivity) for students who are served by the local educational agency that aids in regular and substantive educational interaction between students and their classroom instructors, including low-income students and children with disabilities, which may include assistive technology or adaptive equipment.

(L) Providing mental health services and supports, including through the implementation of evidence-based full-service community schools.

(M) Planning and implementing activities related to summer learning and supplemental afterschool programs, including providing classroom instruction or online learning during the summer months and addressing the needs of low-income students, children with disabilities, English learners, migrant students, students experiencing homelessness, and children in foster care.

(N) Addressing learning loss among students, including low-income students, children with disabilities, English learners, racial and ethnic minorities, students experiencing homelessness, and children and youth in foster care, of the local educational agency, including by—

(i) administering and using high-quality assessments that are valid and reliable, to accurately assess students' academic progress and assist educators in meeting students' academic needs, including through differentiating instruction;

(ii) implementing evidence-based activities to meet the comprehensive needs of students;

(iii) providing information and assistance to parents and families on how they can effectively support students, including in a distance learning environment; and

(iv) tracking student attendance and improving student engagement in distance education.

(O) School facility repairs and improvements to enable operation of schools to reduce risk of virus transmission and exposure to environmental health hazards, and to support student health needs.

(P) Inspection, testing, maintenance, repair, replacement, and upgrade projects to improve the indoor air quality in school facilities, including mechanical and non-mechanical heating, ventilation, and air conditioning systems, filtering, purification and other air cleaning, fans, control systems, and window and door repair and replacement.

(Q) Developing strategies and implementing public health protocols including, to the greatest extent practicable, policies in line with guidance from the Centers for Disease Control and Prevention for the reopening and operation of school facilities to effectively maintain the health and safety of students, educators, and other staff.

Strategies.

(R) Other activities that are necessary to maintain the operation of and continuity of services in local educational agencies and continuing to employ existing staff of the local educational agency.

(f) STATE FUNDING.—With funds not otherwise allocated under subsection (d), a State—

(1) shall reserve not less than 5 percent of the total amount of grant funds awarded to the State under this section to carry out, directly or through grants or contracts, activities to address learning loss by supporting the implementation of evidence-based interventions, such as summer learning or summer enrichment, extended day, comprehensive afterschool programs, or extended school year programs, and ensure that such interventions respond to students' academic, social, and emotional needs and address the disproportionate impact of the coronavirus on the student subgroups described in section 1111(b)(2)(B)(xi) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6311(b)(2)(B)(xi)), students experiencing homelessness, and children and youth in foster care, including by providing additional support to local educational agencies to fully address such impacts;

(2) shall reserve not less than 1 percent of the total amount of grant funds awarded to the State under this section to carry out, directly or through grants or contracts, the implementation of evidence-based summer enrichment programs, and ensure such programs respond to students' academic, social, and emotional needs and address the disproportionate impact of the coronavirus on the student populations described in section 1111(b)(2)(B)(xi) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6311(b)(2)(B)(xi)), students experiencing homelessness, and children and youth in foster care;

(3) shall reserve not less than 1 percent of the total amount of grant funds awarded to the State under this section to carry out, directly or through grants or contracts, the implementation of evidence-based comprehensive afterschool programs, and ensure such programs respond to students' academic, social, and emotional needs and address the disproportionate impact of the coronavirus on the student populations described in section 1111(b)(2)(B)(xi) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6311(b)(2)(B)(xi)), students experiencing homelessness, and children and youth in foster care; and

(4) may reserve not more than one-half of 1 percent of the total amount of grant funds awarded to the State under this section for administrative costs and the remainder for emergency needs as determined by the State educational agency to address issues responding to coronavirus, which may be addressed through the use of grants or contracts.

Deadline.

(g) REALLOCATION.—A State shall return to the Secretary any funds received under this section that the State does not award within 1 year of receiving such funds and the Secretary shall reallocate such funds to the remaining States in accordance with subsection (c).

(h) DEFINITIONS.—In this section—

(1) the terms “child”, “children with disabilities”, “distance education”, “elementary school”, “English learner”, “evidence-

based”, “secondary school”, “local educational agency”, “parent”, “Secretary”, “State educational agency”, and “technology” have the meanings given those terms in section 8101 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7801);

(2) the term “full-service community school” has the meaning given that term in section 4622(2) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7272(2)); and

(3) the term “State” means each of the 50 States, the District of Columbia, and the Commonwealth of Puerto Rico.

(i) SAFE RETURN TO IN-PERSON INSTRUCTION.—

(1) IN GENERAL.—A local educational agency receiving funds under this section shall develop and make publicly available on the local educational agency’s website, not later than 30 days after receiving the allocation of funds described in paragraph (d)(1), a plan for the safe return to in-person instruction and continuity of services.

Plan.
Public
information.
Web posting.
Deadline.

(2) COMMENT PERIOD.—Before making the plan described in paragraph (1) publicly available, the local educational agency shall seek public comment on the plan and take such comments into account in the development of the plan.

(3) PREVIOUS PLANS.—If a local educational agency has developed a plan for the safe return to in-person instruction before the date of enactment of this Act that meets the requirements described in paragraphs (1) and (2), such plan shall be deemed to satisfy the requirements under this subsection.

SEC. 2002. EMERGENCY ASSISTANCE TO NON-PUBLIC SCHOOLS.

(a) IN GENERAL.—In addition to amounts otherwise available through the Emergency Assistance to Non-Public Schools Program, there is appropriated to the Department of Education for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$2,750,000,000, to remain available through September 30, 2023, for making allocations to Governors under the Emergency Assistance to Non-Public Schools Program to provide services or assistance to non-public schools that enroll a significant percentage of low-income students and are most impacted by the qualifying emergency.

(b) LIMITATIONS.—Funds provided under subsection (a) shall not be used to provide reimbursements to any non-public school.

SEC. 2003. HIGHER EDUCATION EMERGENCY RELIEF FUND.

In addition to amounts otherwise available, there is appropriated to the Department of Education for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$39,584,570,000, to remain available through September 30, 2023, for making allocations to institutions of higher education in accordance with the same terms and conditions of section 314 of the Coronavirus Response and Relief Supplemental Appropriations Act, 2021 (division M of Public Law 116-260), except that—

(1) subsection (a)(1) of such section 314 shall be applied by substituting “91 percent” for “89 percent”;

Applicability.

(2) subsection (a)(2) of such section 314 shall be applied—

Applicability.

(A) in the matter preceding subparagraph (A), by substituting “under the heading ‘Higher Education’ in the Department of Education Appropriations Act, 2020” for “in the Further Consolidated Appropriations Act, 2020 (Public Law 116-94)”; and

(B) in subparagraph (B), by substituting “under the heading ‘Higher Education’ in the Department of Education Appropriations Act, 2020” for “in the Further Consolidated Appropriations Act, 2020 (Public Law 116-94)”;

(3) an institution that receives an allocation apportioned in accordance with clause (iii) of subsection (a)(2)(A) of such section 314 that has a total endowment size of less than \$1,000,000 (including an institution that does not have an endowment) shall be treated by the Secretary as having a total endowment size of \$1,000,000 for the purposes of such clause (iii);

Applicability.

(4) subsection (a)(4) of such section 314 shall be applied by substituting “1 percent” for “3 percent”;

(5) except as provided in paragraphs (7) and (9) of subsection (d) of such section 314, an institution shall use a portion of funds received under this section to—

(A) implement evidence-based practices to monitor and suppress coronavirus in accordance with public health guidelines; and

(B) conduct direct outreach to financial aid applicants about the opportunity to receive a financial aid adjustment due to the recent unemployment of a family member or independent student, or other circumstances, described in section 479A of the Higher Education Act of 1965 (20 U.S.C. 1087tt);

(6) the following shall not apply to funds provided or received in accordance with this section—

(A) subsection (b) of such section 314;

(B) paragraph (2) of subsection (c) of such section 314;

(C) paragraphs (1), (2), (4), (5), (6), and (8) of subsection (d) of such section 314;

(D) subsections (e) and (f) of such section 314; and

(E) section 316 of the Coronavirus Response and Relief Supplemental Appropriations Act, 2021 (division M of Public Law 116-260); and

(7) an institution that receives an allocation under this section apportioned in accordance with subparagraphs (A) through (D) of subsection (a)(1) of such section 314 shall use not less than 50 percent of such allocation to provide emergency financial aid grants to students in accordance with subsection (c)(3) of such section 314.

SEC. 2004. MAINTENANCE OF EFFORT AND MAINTENANCE OF EQUITY.

(a) STATE MAINTENANCE OF EFFORT.—

(1) IN GENERAL.—As a condition of receiving funds under section 2001, a State shall maintain support for elementary and secondary education, and for higher education (which shall include State funding to institutions of higher education and State need-based financial aid, and shall not include support for capital projects or for research and development or tuition and fees paid by students), in each of fiscal years 2022 and 2023 at least at the proportional levels of such State’s support for elementary and secondary education and for higher education relative to such State’s overall spending, averaged over fiscal years 2017, 2018, and 2019.

(2) WAIVER.—For the purpose of relieving fiscal burdens incurred by States in preventing, preparing for, and responding

to the coronavirus, the Secretary of Education may waive any maintenance of effort requirements associated with the Education Stabilization Fund.

(b) STATE MAINTENANCE OF EQUITY.—

(1) HIGH-NEED LOCAL EDUCATIONAL AGENCIES.—As a condition of receiving funds under section 2001, a State educational agency shall not, in fiscal year 2022 or 2023, reduce State funding (as calculated on a per-pupil basis) for any high-need local educational agency in the State by an amount that exceeds the overall per-pupil reduction in State funds, if any, across all local educational agencies in such State in such fiscal year.

(2) HIGHEST POVERTY LOCAL EDUCATIONAL AGENCIES.—Notwithstanding paragraph (1), as a condition of receiving funds under section 2001, a State educational agency shall not, in fiscal year 2022 or 2023, reduce State funding (as calculated on a per-pupil basis) for any highest poverty local educational agency below the level of funding (as calculated on a per-pupil basis) provided to each such local educational agency in fiscal year 2019.

(c) LOCAL EDUCATIONAL AGENCY MAINTENANCE OF EQUITY FOR HIGH-POVERTY SCHOOLS.—

(1) IN GENERAL.—As a condition of receiving funds under section 2001, a local educational agency shall not, in fiscal year 2022 or 2023—

(A) reduce per-pupil funding (from combined State and local funding) for any high-poverty school served by such local educational agency by an amount that exceeds—

(i) the total reduction in local educational agency funding (from combined State and local funding) for all schools served by the local educational agency in such fiscal year (if any); divided by

(ii) the number of children enrolled in all schools served by the local educational agency in such fiscal year; or

(B) reduce per-pupil, full-time equivalent staff in any high-poverty school by an amount that exceeds—

(i) the total reduction in full-time equivalent staff in all schools served by such local educational agency in such fiscal year (if any); divided by

(ii) the number of children enrolled in all schools served by the local educational agency in such fiscal year.

(2) EXCEPTION.—Paragraph (1) shall not apply to a local educational agency in fiscal year 2022 or 2023 that meets at least 1 of the following criteria in such fiscal year:

(A) Such local educational agency has a total enrollment of less than 1,000 students.

(B) Such local educational agency operates a single school.

(C) Such local educational agency serves all students within each grade span with a single school.

(D) Such local educational agency demonstrates an exceptional or uncontrollable circumstance, such as unpredictable changes in student enrollment or a precipitous decline in the financial resources of such agency, as determined by the Secretary of Education.

Determination.

(d) DEFINITIONS.—In this section:

(1) **ELEMENTARY EDUCATION; SECONDARY EDUCATION.**—The terms “elementary education” and “secondary education” have the meaning given such terms under State law.

(2) **HIGHEST POVERTY LOCAL EDUCATIONAL AGENCY.**—The term “highest poverty local educational agency” means a local educational agency that is among the group of local educational agencies in the State that—

(A) in rank order, have the highest percentages of economically disadvantaged students in the State, on the basis of the most recent satisfactory data available from the Department of Commerce (or, for local educational agencies for which no such data are available, such other data as the Secretary of Education determines are satisfactory); and

(B) collectively serve not less than 20 percent of the State’s total enrollment of students served by all local educational agencies in the State.

(3) **HIGH-NEED LOCAL EDUCATIONAL AGENCY.**—The term “high-need local educational agency” means a local educational agency that is among the group of local educational agencies in the State that—

(A) in rank order, have the highest percentages of economically disadvantaged students in the State, on the basis of the most recent satisfactory data available from the Department of Commerce (or, for local educational agencies for which no such data are available, such other data as the Secretary of Education determines are satisfactory); and

(B) collectively serve not less than 50 percent of the State’s total enrollment of students served by all local educational agencies in the State.

(4) **HIGH-POVERTY SCHOOL.**—

(A) **IN GENERAL.**—The term “high-poverty school” means, with respect to a school served by a local educational agency, a school that is in the highest quartile of schools served by such local educational agency based on the percentage of economically disadvantaged students served, as determined by the State in accordance with subparagraph (B).

(B) **DETERMINATION.**—In making the determination under subparagraph (A), a State shall select a measure of poverty established for the purposes of this paragraph by the Secretary of Education and apply such measure consistently to all schools in the State.

(5) **OVERALL PER-PUPIL REDUCTION IN STATE FUNDS.**—The term “overall per-pupil reduction in State funds” means, with respect to a fiscal year—

(A) the amount of any reduction in the total amount of State funds provided to all local educational agencies in the State in such fiscal year compared to the total amount of such funds provided to all local educational agencies in the State in the previous fiscal year; divided by

(B) the aggregate number of children enrolled in all schools served by all local educational agencies in the State in the fiscal year for which the determination is being made.

(6) STATE.—The term “State” means each of the 50 States, the District of Columbia, and the Commonwealth of Puerto Rico.

SEC. 2005. OUTLYING AREAS.

Time period.

In addition to amounts otherwise available, there is appropriated to the Department of Education for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$850,000,000, to remain available through September 30, 2023, for the Secretary of Education to allocate awards to the outlying areas on the basis of their respective needs, as determined by the Secretary, to be allocated not more than 30 calendar days after the date of enactment of this Act.

SEC. 2006. GALLAUDET UNIVERSITY.

In addition to amounts otherwise available, there is appropriated to the Department of Education for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$19,250,000, to remain available through September 30, 2023, for the Kendall Demonstration Elementary School, the Model Secondary School for the Deaf, and Gallaudet University to prevent, prepare for, and respond to coronavirus, including to defray expenses associated with coronavirus (including lost revenue, reimbursement for expenses already incurred, technology costs associated with a transition to distance education, faculty and staff trainings, and payroll) and to provide financial aid grants to students, which may be used for any component of the student’s cost of attendance.

SEC. 2007. STUDENT AID ADMINISTRATION.

In addition to amounts otherwise available, there is appropriated to the Department of Education for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$91,130,000, to remain available through September 30, 2023, for Student Aid Administration within the Department of Education to prevent, prepare for, and respond to coronavirus including direct outreach to students and borrowers about financial aid, economic impact payments, means-tested benefits, unemployment assistance, and tax benefits, for which the students and borrowers may be eligible.

SEC. 2008. HOWARD UNIVERSITY.

In addition to amounts otherwise available, there is appropriated to the Department of Education for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$35,000,000, to remain available through September 30, 2023, for Howard University to prevent, prepare for, and respond to coronavirus, including to defray expenses associated with coronavirus (including lost revenue, reimbursement for expenses already incurred, technology costs associated with a transition to distance education, faculty and staff trainings, and payroll) and to provide financial aid grants to students, which may be used for any component of the student’s cost of attendance.

SEC. 2009. NATIONAL TECHNICAL INSTITUTE FOR THE DEAF.

In addition to amounts otherwise available, there is appropriated to the Department of Education for fiscal year 2021, out of any money in the Treasury not otherwise appropriated,

\$19,250,000, to remain available through September 30, 2023, for the National Technical Institute for the Deaf to prevent, prepare for, and respond to coronavirus, including to defray expenses associated with coronavirus (including lost revenue, reimbursement for expenses already incurred, technology costs associated with a transition to distance education, faculty and staff training, and payroll) and to provide financial aid grants to students, which may be used for any component of the student's cost of attendance.

SEC. 2010. INSTITUTE OF EDUCATION SCIENCES.

In addition to amounts otherwise available, there is appropriated to the Department of Education for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$100,000,000, to remain available through September 30, 2023, for the Institute of Education Sciences to carry out research related to addressing learning loss caused by the coronavirus among the student subgroups described in section 1111(b)(2)(B)(xi) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6311(b)(2)(B)(xi)) and students experiencing homelessness and children and youth in foster care, and to disseminate such findings to State educational agencies and local educational agencies and other appropriate entities.

SEC. 2011. PROGRAM ADMINISTRATION.

In addition to amounts otherwise available, there is appropriated to the Department of Education for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$15,000,000, to remain available through September 30, 2024, for Program Administration within the Department of Education to prevent, prepare for, and respond to coronavirus, and for salaries and expenses necessary to implement this part.

SEC. 2012. OFFICE OF INSPECTOR GENERAL.

In addition to amounts otherwise available, there is appropriated to the Department of Education for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$5,000,000, to remain available until expended, for the Office of Inspector General of the Department of Education, for salaries and expenses necessary for oversight, investigations, and audits of programs, grants, and projects funded under this part carried out by the Office of Inspector General.

SEC. 2013. MODIFICATION OF REVENUE REQUIREMENTS FOR PROPRIETARY INSTITUTIONS OF HIGHER EDUCATION.

(a) IN GENERAL.—Section 487(a)(24) of the Higher Education Act of 1965 (20 U.S.C. 1094(a)(24)) is amended by striking “funds provided under this title” and inserting “Federal funds that are disbursed or delivered to or on behalf of a student to be used to attend such institution (referred to in this paragraph and subsection (d) as ‘Federal education assistance funds’)”.

(b) IMPLEMENTATION OF NON-FEDERAL REVENUE REQUIREMENT.—Section 487(d) of the Higher Education Act of 1965 (20 U.S.C. 1094(d)) is amended—

(1) in the subsection heading, by striking “Non-title IV” and inserting “Non-Federal”; and

(2) in paragraph (1)(C), by striking “funds for a program under this title” and inserting “Federal education assistance funds”.

(c) **EFFECTIVE DATE.**—The amendments made under this section shall—

20 USC 1094
note.

(1) be subject to the master calendar requirements under section 482 of the Higher Education Act of 1965 (20 U.S.C. 1089) and the public involvement and negotiated rulemaking requirements under section 492 of the Higher Education Act of 1965 (20 U.S.C. 1098a), except that such negotiated rulemaking shall commence not earlier than October 1, 2021; and

(2) apply to institutional fiscal years beginning on or after January 1, 2023.

Applicability.

SEC. 2014. FUNDING FOR THE INDIVIDUALS WITH DISABILITIES EDUCATION ACT.

(a) **AMOUNTS FOR IDEA.**—There is appropriated to the Secretary of Education for fiscal year 2021, out of any money in the Treasury not otherwise appropriated—

(1) \$2,580,000,000 for grants to States under part B of the Individuals with Disabilities Education Act;

(2) \$200,000,000 for preschool grants under section 619 of the Individuals with Disabilities Education Act; and

(3) \$250,000,000 for programs for infants and toddlers with disabilities under part C of the Individuals with Disabilities Education Act.

(b) **GENERAL PROVISIONS.**—Any amount appropriated under subsection (a) is in addition to other amounts appropriated or made available for the applicable purpose.

PART 2—MISCELLANEOUS

SEC. 2021. NATIONAL ENDOWMENT FOR THE ARTS.

In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$135,000,000, to remain available until expended, under the National Foundation on the Arts and the Humanities Act of 1965, as follows:

(1) Forty percent shall be for grants, and relevant administrative expenses, to State arts agencies and regional arts organizations that support organizations' programming and general operating expenses to cover up to 100 percent of the costs of the programs which the grants support, to prevent, prepare for, respond to, and recover from the coronavirus.

(2) Sixty percent shall be for direct grants, and relevant administrative expenses, that support organizations' programming and general operating expenses to cover up to 100 percent of the costs of the programs which the grants support, to prevent, prepare for, respond to, and recover from the coronavirus.

SEC. 2022. NATIONAL ENDOWMENT FOR THE HUMANITIES.

In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$135,000,000, to remain available until expended, under the National Foundation on the Arts and the Humanities Act of 1965, as follows:

(1) Forty percent shall be for grants, and relevant administrative expenses, to State humanities councils that support humanities organizations' programming and general operating expenses to cover up to 100 percent of the costs of the programs

which the grants support, to prevent, prepare for, respond to, and recover from the coronavirus.

(2) Sixty percent shall be for direct grants, and relevant administrative expenses, that support humanities organizations' programming and general operating expenses to cover up to 100 percent of the costs of the programs which the grants support, to prevent, prepare for, respond to, and recover from the coronavirus.

SEC. 2023. INSTITUTE OF MUSEUM AND LIBRARY SERVICES.

In addition to amounts otherwise available, there is appropriated to the Institute of Museum and Library Services for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$200,000,000, to remain available until expended, for necessary expenses to carry out museum and library services. The Director of the Institute of Museum and Library Services shall award not less than 89 percent of such funds to State library administrative agencies by applying the formula in section 221(b) of the Museum and Library Services Act, except that—

Applicability.

(1) section 221(b)(3)(A) of such Act shall be applied by substituting “\$2,000,000” for “\$680,000” and by substituting “\$200,000” for “\$60,000”; and

(2) section 221(b)(3)(C) and subsections (b) and (c) of section 223 of such Act shall not apply to funds provided under this section.

Subtitle B—Labor Matters

SEC. 2101. FUNDING FOR DEPARTMENT OF LABOR WORKER PROTECTION ACTIVITIES.

(a) APPROPRIATION.—In addition to amounts otherwise made available, out of any funds in the Treasury not otherwise appropriated, there are appropriated to the Secretary of Labor for fiscal year 2021, \$200,000,000, to remain available until September 30, 2023, for the Wage and Hour Division, the Office of Workers' Compensation Programs, the Office of the Solicitor, the Mine Safety and Health Administration, and the Occupational Safety and Health Administration to carry out COVID-19 related worker protection activities, and for the Office of Inspector General for oversight of the Secretary's activities to prevent, prepare for, and respond to COVID-19.

(b) ALLOCATION OF AMOUNTS.—Amounts appropriated under subsection (a) shall be allocated as follows:

(1) Not less than \$100,000,000 shall be for the Occupational Safety and Health Administration, of which \$10,000,000 shall be for Susan Harwood training grants and not less than \$5,000,000 shall be for enforcement activities related to COVID-19 at high risk workplaces including health care, meat and poultry processing facilities, agricultural workplaces and correctional facilities.

(2) \$12,500,000 shall be for the Office of Inspector General.

Subtitle C—Human Services and Community Supports

SEC. 2201. CHILD CARE AND DEVELOPMENT BLOCK GRANT PROGRAM.

(a) CHILD CARE AND DEVELOPMENT BLOCK GRANT FUNDING.—In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any amounts in the Treasury not otherwise appropriated, \$14,990,000,000, to remain available through September 30, 2021, to carry out the program authorized under section 658C of the Child Care and Development Block Grant Act of 1990 (42 U.S.C. 9858a) without regard to requirements in sections 658E(c)(3)(E) or 658G of such Act (42 U.S.C. 9858c(c)(3)(E), 9858e). Payments made to States, territories, Indian Tribes, and Tribal organizations from funds made available under this subsection shall be obligated in fiscal year 2021 or the succeeding 2 fiscal years. States, territories, Indian Tribes, and Tribal organizations are authorized to use such funds to provide child care assistance to health care sector employees, emergency responders, sanitation workers, and other workers deemed essential during the response to coronavirus by public officials, without regard to the income eligibility requirements of section 658P(4) of the Child Care and Development Block Grant Act (42 U.S.C. 9858n(4)).

Time period.

(b) ADMINISTRATIVE COSTS.—In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any amounts in the Treasury not otherwise appropriated, \$35,000,000, to remain available through September 30, 2025, for the costs of providing technical assistance and conducting research and for the administrative costs to carry out this section and section 2202 of this subtitle.

(c) SUPPLEMENT NOT SUPPLANT.—Amounts made available to carry out this section shall be used to supplement and not supplant other Federal, State, and local public funds expended to provide child care services for eligible individuals.

SEC. 2202. CHILD CARE STABILIZATION.

42 USC 9858
note.

(a) DEFINITIONS.—In this section:

(1) COVID-19 PUBLIC HEALTH EMERGENCY.—The term “COVID-19 public health emergency” means the public health emergency declared by the Secretary of Health and Human Services under section 319 of the Public Health Service Act (42 U.S.C. 247d) on January 31, 2020, with respect to COVID-19, including any renewal of the declaration.

(2) ELIGIBLE CHILD CARE PROVIDER.—The term “eligible child care provider” means—

(A) an eligible child care provider as defined in section 658P of the Child Care and Development Block Grant Act of 1990 (42 U.S.C. 9858n); or

(B) a child care provider that is licensed, regulated, or registered in the State, territory, or Indian Tribe on the date of enactment of this Act and meets applicable State and local health and safety requirements.

(b) CHILD CARE STABILIZATION FUNDING.—In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any amounts in the Treasury not otherwise appropriated, \$23,975,000,000, to remain available through September

30, 2021, for grants under this section in accordance with the Child Care and Development Block Grant Act of 1990.

(c) GRANTS.—From the amounts appropriated to carry out this section and under the authority of section 658O of the Child Care and Development Block Grant Act of 1990 (42 U.S.C. 9858m) and this section, the Secretary shall award to each lead agency a child care stabilization grant, without regard to the requirements in subparagraphs (C) and (E) of section 658E(c)(3), and in section 658G, of the Child Care and Development Block Grant Act of 1990 (42 U.S.C. 9858c(c)(3), 9858e). Such grant shall be allotted in accordance with section 658O of the Child Care and Development Block Grant Act of 1990 (42 U.S.C. 9858m).

(d) STATE RESERVATIONS AND SUBGRANTS.—

(1) RESERVATION.—A lead agency for a State that receives a child care stabilization grant pursuant to subsection (c) shall reserve not more than 10 percent of such grant funds to administer subgrants, provide technical assistance and support for applying for and accessing the subgrant opportunity, publicize the availability of the subgrants, carry out activities to increase the supply of child care, and provide technical assistance to help child care providers implement policies as described in paragraph (2)(D)(i).

(2) SUBGRANTS TO QUALIFIED CHILD CARE PROVIDERS.—

(A) IN GENERAL.—The lead agency shall use the remainder of the grant funds awarded pursuant to subsection (c) to make subgrants to qualified child care providers described in subparagraph (B), regardless of such a provider's previous receipt of other Federal assistance, to support the stability of the child care sector during and after the COVID-19 public health emergency.

(B) QUALIFIED CHILD CARE PROVIDER.—To be qualified to receive a subgrant under this paragraph, a provider shall be an eligible child care provider that on the date of submission of an application for the subgrant, was either—

(i) open and available to provide child care services;

or

(ii) closed due to public health, financial hardship, or other reasons relating to the COVID-19 public health emergency.

(C) SUBGRANT AMOUNT.—The amount of such a subgrant to a qualified child care provider shall be based on the provider's stated current operating expenses, including costs associated with providing or preparing to provide child care services during the COVID-19 public health emergency, and to the extent practicable, cover sufficient operating expenses to ensure continuous operations for the intended period of the subgrant.

(D) APPLICATION.—The lead agency shall—

(i) make available on the lead agency's website an application for qualified child care providers that includes certifications that, for the duration of the subgrant—

(I) the provider applying will, when open and available to provide child care services, implement policies in line with guidance from the corresponding State, Tribal, and local authorities, and

in accordance with State, Tribal, and local orders, and, to the greatest extent possible, implement policies in line with guidance from the Centers for Disease Control and Prevention;

(II) for each employee, the provider will pay not less than the full compensation, including any benefits, that was provided to the employee as of the date of submission of the application for the subgrant (referred to in this subclause as “full compensation”), and will not take any action that reduces the weekly amount of the employee’s compensation below the weekly amount of full compensation, or that reduces the employee’s rate of compensation below the rate of full compensation, including the involuntary furloughing of any employee employed on the date of submission of the application for the subgrant; and

(III) the provider will provide relief from co-payments and tuition payments for the families enrolled in the provider’s program, to the extent possible, and prioritize such relief for families struggling to make either type of payment; and
 (ii) accept and process applications submitted under this subparagraph on a rolling basis, and provide subgrant funds in advance of provider expenditures, except as provided in subsection (e)(2).

(E) OBLIGATION.—The lead agency shall notify the Secretary if it is unable to obligate at least 50 percent of the funds received pursuant to subsection (c) that are available for subgrants described in this paragraph within 9 months of the date of enactment of this Act.

Notification.
Deadline.

(e) USES OF FUNDS.—

(1) IN GENERAL.—A qualified child care provider that receives funds through such a subgrant shall use the funds for at least one of the following:

(A) Personnel costs, including payroll and salaries or similar compensation for an employee (including any sole proprietor or independent contractor), employee benefits, premium pay, or costs for employee recruitment and retention.

(B) Rent (including rent under a lease agreement) or payment on any mortgage obligation, utilities, facility maintenance or improvements, or insurance.

(C) Personal protective equipment, cleaning and sanitization supplies and services, or training and professional development related to health and safety practices.

(D) Purchases of or updates to equipment and supplies to respond to the COVID-19 public health emergency.

(E) Goods and services necessary to maintain or resume child care services.

(F) Mental health supports for children and employees.

(2) REIMBURSEMENT.—The qualified child care provider may use the subgrant funds to reimburse the provider for sums obligated or expended before the date of enactment of this Act for the cost of a good or service described in paragraph (1) to respond to the COVID-19 public health emergency.

(f) SUPPLEMENT NOT SUPPLANT.—Amounts made available to carry out this section shall be used to supplement and not supplant other Federal, State, and local public funds expended to provide child care services for eligible individuals.

SEC. 2203. HEAD START.

In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any amounts in the Treasury not otherwise appropriated, \$1,000,000,000, to remain available through September 30, 2022, to carry out the Head Start Act, including for Federal administrative expenses. After reserving funds for Federal administrative expenses, the Secretary shall allocate all remaining amounts to Head Start agencies for one-time grants, and shall allocate to each Head Start agency an amount that bears the same ratio to the portion available for allocations as the number of enrolled children served by the Head Start agency bears to the number of enrolled children served by all Head Start agencies.

SEC. 2204. PROGRAMS FOR SURVIVORS.

(a) IN GENERAL.—Section 303 of the Family Violence Prevention and Services Act (42 U.S.C. 10403) is amended by adding at the end the following:

“(d) ADDITIONAL FUNDING.—For the purposes of carrying out this title, in addition to amounts otherwise made available for such purposes, there are appropriated, out of any amounts in the Treasury not otherwise appropriated, for fiscal year 2021, to remain available until expended except as otherwise provided in this subsection, each of the following:

“(1) \$180,000,000 to carry out sections 301 through 312, to be allocated in the manner described in subsection (a)(2), except that—

“(A) a reference in subsection (a)(2) to an amount appropriated under subsection (a)(1) shall be considered to be a reference to an amount appropriated under this paragraph;

“(B) the matching requirement in section 306(c)(4) and condition in section 308(d)(3) shall not apply; and

“(C) each reference in section 305(e) to ‘the end of the following fiscal year’ shall be considered to be a reference to ‘the end of fiscal year 2025’; and

“(D) funds made available to a State in a grant under section 306(a) and obligated in a timely manner shall be available for expenditure, by the State or a recipient of funds from the grant, through the end of fiscal year 2025;

“(2) \$18,000,000 to carry out section 309.

“(3) \$2,000,000 to carry out section 313, of which \$1,000,000 shall be allocated to support Indian communities.”.

(b) COVID-19 PUBLIC HEALTH EMERGENCY DEFINED.—In this section, the term “COVID-19 public health emergency” means the public health emergency declared by the Secretary of Health and Human Services under section 319 of the Public Health Service Act (42 U.S.C. 247d) on January 31, 2020, with respect to COVID-19, including any renewal of the declaration.

(c) GRANTS TO SUPPORT CULTURALLY SPECIFIC POPULATIONS.—

(1) IN GENERAL.—In addition to amounts otherwise made available, there is appropriated, out of any amounts in the Treasury not otherwise appropriated, to the Secretary of Health

and Human Services (in this section referred to as the “Secretary”), \$49,500,000 for fiscal year 2021, to be available until expended, to carry out this subsection (excluding Federal administrative costs, for which funds are appropriated under subsection (e)).

(2) USE OF FUNDS.—From amounts appropriated under paragraph (1), the Secretary acting through the Director of the Family Violence Prevention and Services Program, shall—

(A) support culturally specific community-based organizations to provide culturally specific activities for survivors of sexual assault and domestic violence, to address emergent needs resulting from the COVID-19 public health emergency and other public health concerns; and

(B) support culturally specific community-based organizations that provide culturally specific activities to promote strategic partnership development and collaboration in responding to the impact of COVID-19 and other public health concerns on survivors of sexual assault and domestic violence.

(d) GRANTS TO SUPPORT SURVIVORS OF SEXUAL ASSAULT.—

(1) IN GENERAL.—In addition to amounts otherwise made available, there is appropriated, out of any amounts in the Treasury not otherwise appropriated, to the Secretary, \$198,000,000 for fiscal year 2021, to be available until expended, to carry out this subsection (excluding Federal administrative costs, for which funds are appropriated under subsection (e)).

(2) USE OF FUNDS.—From amounts appropriated under paragraph (1), the Secretary acting through the Director of the Family Violence Prevention and Services Program, shall assist rape crisis centers in transitioning to virtual services and meeting the emergency needs of survivors.

(e) ADMINISTRATIVE COSTS.—In addition to amounts otherwise made available, there is appropriated to the Secretary, out of any amounts in the Treasury not otherwise appropriated, \$2,500,000 for fiscal year 2021, to remain available until expended, for the Federal administrative costs of carrying out subsections (c) and (d).

SEC. 2205. CHILD ABUSE PREVENTION AND TREATMENT.

In addition to amounts otherwise available, there is appropriated to the Secretary of Health and Human Services for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, the following amounts, to remain available through September 30, 2023:

(1) \$250,000,000 for carrying out the program authorized under section 201 of the Child Abuse Prevention and Treatment Act (42 U.S.C. 5116), which shall be allocated without regard to section 204(4) of such Act (42 U.S.C. 5116d(4)) and shall be allotted to States in accordance with section 203 of such Act (42 U.S.C. 5116b), except that—

(A) in subsection (b)(1)(A) of such section 203, “70 percent” shall be deemed to be “100 percent”; and

(B) subsections (b)(1)(B) and (c) of such section 203 shall not apply; and

(2) \$100,000,000 for carrying out the State grant program authorized under section 106 of the Child Abuse Prevention and Treatment Act (42 U.S.C. 5106a), which shall be allocated without regard to section 112(a)(2) of such Act (42 U.S.C. 5106h(a)(2)).

SEC. 2206. CORPORATION FOR NATIONAL AND COMMUNITY SERVICE AND THE NATIONAL SERVICE TRUST.

(a) CORPORATION FOR NATIONAL AND COMMUNITY SERVICE.—In addition to amounts otherwise made available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, to the Corporation for National and Community Service, \$852,000,000, to remain available through September 30, 2024, to carry out subsection (b), except that amounts to carry out subsection (b)(7) shall remain available until September 30, 2026.

(b) ALLOCATION OF AMOUNTS.—Amounts provided by subsection (a) shall be allocated as follows:

(1) AMERICORPS STATE AND NATIONAL.—\$620,000,000 shall be used—

(A) to increase the living allowances of participants in national service programs; and

(B) to make funding adjustments to existing (as of the date of enactment of this Act) awards and award new and additional awards to entities to support programs described in paragraphs (1)(B), (2)(B), (3)(B), (4)(B), and (5)(B) of subsection (a), and subsection (b)(2), of section 122 of the National and Community Service Act of 1990 (42 U.S.C. 12572), whether or not the entities are already grant recipients under such provisions on the date of enactment of this Act, and notwithstanding section 122(a)(1)(B)(vi) of the National and Community Service Act of 1990 (42 U.S.C. 12572(a)(1)(B)(vi)), by—

(i) prioritizing entities serving communities disproportionately impacted by COVID-19 and utilizing culturally competent and multilingual strategies in the provision of services; and

(ii) taking into account the diversity of communities and participants served by such entities, including racial, ethnic, socioeconomic, linguistic, or geographic diversity.

(2) STATE COMMISSIONS.—\$20,000,000 shall be used to make adjustments to existing (as of the date of enactment of this Act) awards and new and additional awards, including awards to State Commissions on National and Community Service, under section 126(a) of the National and Community Service Act of 1990 (42 U.S.C. 12576(a)).

(3) VOLUNTEER GENERATION FUND.—\$20,000,000 shall be used for expenses authorized under section 501(a)(4)(F) of the National and Community Service Act of 1990 (42 U.S.C. 12681(a)(4)(F)), which, notwithstanding section 198P(d)(1)(B) of that Act (42 U.S.C. 12653p(d)(1)(B)), shall be for grants awarded by the Corporation for National and Community Service on a competitive basis.

(4) AMERICORPS VISTA.—\$80,000,000 shall be used for the purposes described in section 101 of the Domestic Volunteer Service Act of 1973 (42 U.S.C. 4951), including to increase

the living allowances of volunteers, described in section 105(b) of the Domestic Volunteer Service Act of 1973 (42 U.S.C. 4955(b)).

(5) NATIONAL SENIOR SERVICE CORPS.—\$30,000,000 shall be used for the purposes described in section 200 of the Domestic Volunteer Service Act of 1973 (42 U.S.C. 5000).

(6) ADMINISTRATIVE COSTS.—\$73,000,000 shall be used for the Corporation for National and Community Service for administrative expenses to carry out programs and activities funded by subsection (a).

(7) OFFICE OF INSPECTOR GENERAL.—\$9,000,000 shall be used for the Office of Inspector General of the Corporation for National and Community Service for salaries and expenses necessary for oversight and audit of programs and activities funded by subsection (a).

(c) NATIONAL SERVICE TRUST.—In addition to amounts otherwise made available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$148,000,000, to remain available until expended, for administration of the National Service Trust, and for payment to the Trust for the provision of educational awards pursuant to section 145(a)(1)(A) of the National and Community Service Act of 1990 (42 U.S.C. 12601(a)(1)(A)).

Subtitle D—Public Health

SEC. 2301. FUNDING FOR COVID-19 VACCINE ACTIVITIES AT THE CENTERS FOR DISEASE CONTROL AND PREVENTION.

42 USC 247d
note.

(a) IN GENERAL.—In addition to amounts otherwise available, there is appropriated to the Secretary of Health and Human Services (in this subtitle referred to as the “Secretary”) for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$7,500,000,000, to remain available until expended, to carry out activities to plan, prepare for, promote, distribute, administer, monitor, and track COVID-19 vaccines.

(b) USE OF FUNDS.—The Secretary, acting through the Director of the Centers for Disease Control and Prevention, and in consultation with other agencies, as applicable, shall, in conducting activities referred to in subsection (a)—

Consultation.

(1) conduct activities to enhance, expand, and improve nationwide COVID-19 vaccine distribution and administration, including activities related to distribution of ancillary medical products and supplies related to vaccines; and

(2) provide technical assistance, guidance, and support to, and award grants or cooperative agreements to, State, local, Tribal, and territorial public health departments for enhancement of COVID-19 vaccine distribution and administration capabilities, including—

(A) the distribution and administration of vaccines licensed under section 351 of the Public Health Service Act (42 U.S.C. 262) or authorized under section 564 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 360bbb-3) and ancillary medical products and supplies related to vaccines;

(B) the establishment and expansion, including staffing support, of community vaccination centers, particularly in underserved areas;

(C) the deployment of mobile vaccination units, particularly in underserved areas;

(D) information technology, standards-based data, and reporting enhancements, including improvements necessary to support standards-based sharing of data related to vaccine distribution and vaccinations and systems that enhance vaccine safety, effectiveness, and uptake, particularly among underserved populations;

(E) facilities enhancements;

(F) communication with the public regarding when, where, and how to receive COVID-19 vaccines; and

(G) transportation of individuals to facilitate vaccinations, including at community vaccination centers and mobile vaccination units, particularly for underserved populations.

(c) SUPPLEMENTAL FUNDING FOR STATE VACCINATION GRANTS.—

(1) DEFINITIONS.—In this subsection:

(A) BASE FORMULA.—The term “base formula” means the allocation formula that applied to the Public Health Emergency Preparedness cooperative agreement in fiscal year 2020.

(B) ALTERNATIVE ALLOCATION.—The term “alternative allocation” means an allocation to each State, territory, or locality calculated using the percentage derived from the allocation received by such State, territory, or locality of the aggregate amount of fiscal year 2020 Public Health Emergency Preparedness cooperative agreement awards under section 319C-1 of the Public Health Service Act (42 U.S.C. 247d-3a).

(2) SUPPLEMENTAL FUNDING.—

Deadline.

(A) IN GENERAL.—Not later than 21 days after the date of enactment of this Act, the Secretary shall, out of amounts described in subsection (a), provide supplemental funding to any State, locality, or territory that received less of the amounts that were appropriated under title III of division M of Public Law 116-260 for vaccination grants to be issued by the Centers for Disease Control and Prevention than such State, locality, or territory would have received had such amounts been allocated using the alternative allocation.

(B) AMOUNT.—The amount of supplemental funding provided under this subsection shall be equal to the difference between—

(i) the amount the State, locality, or territory received, or would receive, under the base formula; and

(ii) the amount the State, locality, or territory would receive under the alternative allocation.

SEC. 2302. FUNDING FOR VACCINE CONFIDENCE ACTIVITIES.

In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$1,000,000,000, to remain available until expended, to carry out activities, acting

through the Director of the Centers for Disease Control and Prevention—

(1) to strengthen vaccine confidence in the United States, including its territories and possessions;

(2) to provide further information and education with respect to vaccines licensed under section 351 of the Public Health Service Act (42 U.S.C. 262) or authorized under section 564 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 360bbb-3); and

(3) to improve rates of vaccination throughout the United States, including its territories and possessions, including through activities described in section 313 of the Public Health Service Act, as amended by section 311 of division BB of the Consolidated Appropriations Act, 2021 (Public Law 116-260).

SEC. 2303. FUNDING FOR SUPPLY CHAIN FOR COVID-19 VACCINES, THERAPEUTICS, AND MEDICAL SUPPLIES.

In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$6,050,000,000, to remain available until expended, for necessary expenses with respect to research, development, manufacturing, production, and the purchase of vaccines, therapeutics, and ancillary medical products and supplies to prevent, prepare, or respond to—

(1) SARS-CoV-2 or any viral variant mutating therefrom with pandemic potential; and

(2) COVID-19 or any disease with potential for creating a pandemic.

SEC. 2304. FUNDING FOR COVID-19 VACCINE, THERAPEUTIC, AND DEVICE ACTIVITIES AT THE FOOD AND DRUG ADMINISTRATION.

In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$500,000,000, to remain available until expended, to be used for the evaluation of the continued performance, safety, and effectiveness, including with respect to emerging COVID-19 variants, of vaccines, therapeutics, and diagnostics approved, cleared, licensed, or authorized for use for the treatment, prevention, or diagnosis of COVID-19; facilitation of advanced continuous manufacturing activities related to production of vaccines and related materials; facilitation and conduct of inspections related to the manufacturing of vaccines, therapeutics, and devices delayed or cancelled for reasons related to COVID-19; review of devices authorized for use for the treatment, prevention, or diagnosis of COVID-19; and oversight of the supply chain and mitigation of shortages of vaccines, therapeutics, and devices approved, cleared, licensed, or authorized for use for the treatment, prevention, or diagnosis of COVID-19 by the Food and Drug Administration.

SEC. 2305. REDUCED COST-SHARING.

(a) IN GENERAL.—Section 1402 of the Patient Protection and Affordable Care Act is amended by redesignating subsection (f) as subsection (g) and by inserting after subsection (e) the following new subsection:

“(f) SPECIAL RULE FOR INDIVIDUALS WHO RECEIVE UNEMPLOYMENT COMPENSATION DURING 2021.—For purposes of this section,

in the case of an individual who has received, or has been approved to receive, unemployment compensation for any week beginning during 2021, for the plan year in which such week begins—

“(1) such individual shall be treated as meeting the requirements of subsection (b)(2), and

“(2) for purposes of subsections (c) and (d), there shall not be taken into account any household income of the individual in excess of 133 percent of the poverty line for a family of the size involved.”

42 USC 18071
note.

(b) EFFECTIVE DATE.—The amendment made by this section shall apply to plan years beginning after December 31, 2020.

Subtitle E—Testing

42 USC 247d
note.

SEC. 2401. FUNDING FOR COVID-19 TESTING, CONTACT TRACING, AND MITIGATION ACTIVITIES.

(a) IN GENERAL.—In addition to amounts otherwise available, there is appropriated to the Secretary of Health and Human Services (in this subtitle referred to as the “Secretary”) for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$47,800,000,000, to remain available until expended, to carry out activities to detect, diagnose, trace, and monitor SARS-CoV-2 and COVID-19 infections and related strategies to mitigate the spread of COVID-19.

(b) USE OF FUNDS.—From amounts appropriated by subsection (a), the Secretary shall—

(1) implement a national, evidence-based strategy for testing, contact tracing, surveillance, and mitigation with respect to SARS-CoV-2 and COVID-19, including through activities authorized under section 319(a) of the Public Health Service Act;

(2) provide technical assistance, guidance, and support, and award grants or cooperative agreements to State, local, and territorial public health departments for activities to detect, diagnose, trace, and monitor SARS-CoV-2 and COVID-19 infections and related strategies and activities to mitigate the spread of COVID-19;

(3) support the development, manufacturing, procurement, distribution, and administration of tests to detect or diagnose SARS-CoV-2 and COVID-19, including through—

(A) support for the development, manufacture, procurement, and distribution of supplies necessary for administering tests, such as personal protective equipment; and

(B) support for the acquisition, construction, alteration, or renovation of non-federally owned facilities for the production of diagnostics and ancillary medical products and supplies where the Secretary determines that such an investment is necessary to ensure the production of sufficient amounts of such supplies;

(4) establish and expand Federal, State, local, and territorial testing and contact tracing capabilities, including—

(A) through investments in laboratory capacity, such as—

(i) academic and research laboratories, or other laboratories that could be used for processing of COVID-19 testing;

- (ii) community-based testing sites and community-based organizations; or
- (iii) mobile health units, particularly in medically underserved areas; and
- (B) with respect to quarantine and isolation of contacts;
- (5) enhance information technology, data modernization, and reporting, including improvements necessary to support sharing of data related to public health capabilities;
- (6) award grants to, or enter into cooperative agreements or contracts with, State, local, and territorial public health departments to establish, expand, and sustain a public health workforce; and
- (7) to cover administrative and program support costs necessary to conduct activities related to subparagraph (a).

SEC. 2402. FUNDING FOR SARS-COV-2 GENOMIC SEQUENCING AND SURVEILLANCE.

42 USC 289g-5
note.

(a) **IN GENERAL.**—In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021 out of any money in the Treasury not otherwise appropriated, \$1,750,000,000, to remain available until expended, to strengthen and expand activities and workforce related to genomic sequencing, analytics, and disease surveillance.

(b) **USE OF FUNDS.**—From amounts appropriated by subsection (a), the Secretary, acting through the Director of the Centers for Disease Control and Prevention, shall—

- (1) conduct, expand, and improve activities to sequence genomes, identify mutations, and survey the circulation and transmission of viruses and other organisms, including strains of SARS-CoV-2;
- (2) award grants or cooperative agreements to State, local, Tribal, or territorial public health departments or public health laboratories—
 - (A) to increase their capacity to sequence genomes of circulating strains of viruses and other organisms, including SARS-CoV-2;
 - (B) to identify mutations in viruses and other organisms, including SARS-CoV-2;
 - (C) to use genomic sequencing to identify outbreaks and clusters of diseases or infections, including COVID-19; and
 - (D) to develop effective disease response strategies based on genomic sequencing and surveillance data;
- (3) enhance and expand the informatics capabilities of the public health workforce; and
- (4) award grants for the construction, alteration, or renovation of facilities to improve genomic sequencing and surveillance capabilities at the State and local level.

Grants.

SEC. 2403. FUNDING FOR GLOBAL HEALTH.

In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021, out of any amounts in the Treasury not otherwise appropriated, \$750,000,000, to remain available until expended, for activities to be conducted acting through the Director of the Centers for Disease Control and Prevention to combat SARS-CoV-2, COVID-19, and other emerging infectious disease threats globally, including efforts related to global health security, global disease detection and response, global health

protection, global immunization, and global coordination on public health.

SEC. 2404. FUNDING FOR DATA MODERNIZATION AND FORECASTING CENTER.

In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$500,000,000, to remain available until expended, for activities to be conducted acting through the Director of the Centers for Disease Control and Prevention to support public health data surveillance and analytics infrastructure modernization initiatives at the Centers for Disease Control and Prevention, and establish, expand, and maintain efforts to modernize the United States disease warning system to forecast and track hotspots for COVID-19, its variants, and emerging biological threats, including academic and workforce support for analytics and informatics infrastructure and data collection systems.

Subtitle F—Public Health Workforce

42 USC 295 note. **SEC. 2501. FUNDING FOR PUBLIC HEALTH WORKFORCE.**

(a) **IN GENERAL.**—In addition to amounts otherwise available, there is appropriated to the Secretary of Health and Human Services (in this subtitle referred to as the “Secretary”) for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$7,660,000,000, to remain available until expended, to carry out activities related to establishing, expanding, and sustaining a public health workforce, including by making awards to State, local, and territorial public health departments.

(b) **USE OF FUNDS FOR PUBLIC HEALTH DEPARTMENTS.**—Amounts made available to an awardee pursuant to subsection (a) shall be used for the following:

(1) Costs, including wages and benefits, related to the recruiting, hiring, and training of individuals—

(A) to serve as case investigators, contact tracers, social support specialists, community health workers, public health nurses, disease intervention specialists, epidemiologists, program managers, laboratory personnel, informaticians, communication and policy experts, and any other positions as may be required to prevent, prepare for, and respond to COVID-19; and

(B) who are employed by—

(i) the State, territorial, or local public health department involved; or

(ii) a nonprofit private or public organization with demonstrated expertise in implementing public health programs and established relationships with such State, territorial, or local public health departments, particularly in medically underserved areas.

(2) Personal protective equipment, data management and other technology, or other necessary supplies.

(3) Administrative costs and activities necessary for awardees to implement activities funded under this section.

(4) Subawards from recipients of awards under subsection (a) to local health departments for the purposes of the activities funded under this section.

SEC. 2502. FUNDING FOR MEDICAL RESERVE CORPS.

In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$100,000,000, to remain available until expended, for carrying out section 2813 of the Public Health Service Act (42 U.S.C. 300hh-15).

Subtitle G—Public Health Investments**SEC. 2601. FUNDING FOR COMMUNITY HEALTH CENTERS AND COMMUNITY CARE.**

42 USC 254b
note.

(a) **IN GENERAL.**—In addition to amounts otherwise available, there is appropriated to the Secretary of Health and Human Services (in this subtitle referred to as the “Secretary”) for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$7,600,000,000, to remain available until expended, for necessary expenses for awarding grants and cooperative agreements under section 330 of the Public Health Service Act (42 U.S.C. 254b) to be awarded without regard to the time limitation in subsection (e)(3) and subsections (e)(6)(A)(iii), (e)(6)(B)(iii), and (r)(2)(B) of such section 330, and for necessary expenses for awarding grants to Federally qualified health centers, as described in section 1861(aa)(4)(B) of the Social Security Act (42 U.S.C. 1395x(aa)(4)(B)), and for awarding grants or contracts to Papa Ola Lokahi and to qualified entities under sections 4 and 6 of the Native Hawaiian Health Care Improvement Act (42 U.S.C. 11703, 11705). Of the total amount appropriated by the preceding sentence, not less than \$20,000,000 shall be for grants or contracts to Papa Ola Lokahi and to qualified entities under sections 4 and 6 of the Native Hawaiian Health Care Improvement Act (42 U.S.C. 11703, 11705).

(b) **USE OF FUNDS.**—Amounts made available to an awardee pursuant to subsection (a) shall be used—

(1) to plan, prepare for, promote, distribute, administer, and track COVID-19 vaccines, and to carry out other vaccine-related activities;

(2) to detect, diagnose, trace, and monitor COVID-19 infections and related activities necessary to mitigate the spread of COVID-19, including activities related to, and equipment or supplies purchased for, testing, contact tracing, surveillance, mitigation, and treatment of COVID-19;

(3) to purchase equipment and supplies to conduct mobile testing or vaccinations for COVID-19, to purchase and maintain mobile vehicles and equipment to conduct such testing or vaccinations, and to hire and train laboratory personnel and other staff to conduct such mobile testing or vaccinations, particularly in medically underserved areas;

(4) to establish, expand, and sustain the health care workforce to prevent, prepare for, and respond to COVID-19, and to carry out other health workforce-related activities;

(5) to modify, enhance, and expand health care services and infrastructure; and

(6) to conduct community outreach and education activities related to COVID-19.

(c) **PAST EXPENDITURES.**—An awardee may use amounts awarded pursuant to subsection (a) to cover the costs of the awardee carrying out any of the activities described in subsection (b) during

Time period.

the period beginning on the date of the declaration of a public health emergency by the Secretary under section 319 of the Public Health Service Act (42 U.S.C. 247d) on January 31, 2020, with respect to COVID-19 and ending on the date of such award.

SEC. 2602. FUNDING FOR NATIONAL HEALTH SERVICE CORPS.

(a) **IN GENERAL.**—In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$800,000,000, to remain available until expended, for carrying out sections 338A, 338B, and 338I of the Public Health Service Act (42 U.S.C. 254l, 254l-1, 254q-1) with respect to the health workforce.

(b) **STATE LOAN REPAYMENT PROGRAMS.**—

(1) **IN GENERAL.**—Of the amount made available pursuant to subsection (a), \$100,000,000 shall be made available for providing primary health services through grants to States under section 338I(a) of the Public Health Service Act (42 U.S.C. 254q-1(a)).

(2) **CONDITIONS.**—With respect to grants described in paragraph (1) using funds made available under such paragraph:

(A) Section 338I(b) of the Public Health Service Act (42 U.S.C. 254q-1(b)) shall not apply.

(B) Notwithstanding section 338I(d)(2) of the Public Health Service Act (42 U.S.C. 254q-1(d)(2)), not more than 10 percent of an award to a State from such amounts, may be used by the State for costs of administering the State loan repayment program.

SEC. 2603. FUNDING FOR NURSE CORPS.

In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$200,000,000, to remain available until expended, for carrying out section 846 of the Public Health Service Act (42 U.S.C. 297n).

42 USC 256h
note.

SEC. 2604. FUNDING FOR TEACHING HEALTH CENTERS THAT OPERATE GRADUATE MEDICAL EDUCATION.

(a) **IN GENERAL.**—In addition to amounts otherwise available, and notwithstanding the capped amount referenced in sections 340H(b)(2) and 340H(d)(2) of the Public Health Service Act (42 U.S.C. 256h(b)(2) and (d)(2)), there is appropriated to the Secretary for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$330,000,000, to remain available until September 30, 2023, for the program of payments to teaching health centers that operate graduate medical education under section 340H of the Public Health Service Act (42 U.S.C. 256h) and for teaching health center development grants authorized under section 749A of the Public Health Service Act (42 U.S.C. 293l-1).

(b) **USE OF FUNDS.**—Amounts made available pursuant to subsection (a) shall be used for the following activities:

(1) For making payments to establish new approved graduate medical residency training programs pursuant to section 340H(a)(1)(C) of the Public Health Service Act (42 U.S.C. 256h(a)(1)(C)).

(2) To provide an increase to the per resident amount described in section 340H(a)(2) of the Public Health Service Act (42 U.S.C. 256h(a)(2)) of \$10,000.

(3) For making payments under section 340H(a)(1)(A) of the Public Health Service Act (42 U.S.C. 256h(a)(1)(A)) to qualified teaching health centers for maintenance of filled positions at existing approved graduate medical residency training programs.

(4) For making payments under section 340H(a)(1)(B) of the Public Health Service Act (42 U.S.C. 256h(a)(1)(B)) for the expansion of existing approved graduate medical residency training programs.

(5) For making awards under section 749A of the Public Health Service Act (42 U.S.C. 2931-1) to teaching health centers for the purpose of establishing new accredited or expanded primary care residency programs.

(6) To cover administrative costs and activities necessary for qualified teaching health centers receiving payments under section 340H of the Public Health Service Act (42 U.S.C. 256h) to carry out activities under such section.

SEC. 2605. FUNDING FOR FAMILY PLANNING.

In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$50,000,000, to remain available until expended, for necessary expenses for making grants and contracts under section 1001 of the Public Health Service Act (42 U.S.C. 300).

Subtitle H—Mental Health and Substance Use Disorder

SEC. 2701. FUNDING FOR BLOCK GRANTS FOR COMMUNITY MENTAL HEALTH SERVICES.

In addition to amounts otherwise available, there is appropriated to the Secretary of Health and Human Services (in this subtitle referred to as the “Secretary”) for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$1,500,000,000, to remain available until expended, for carrying out subpart I of part B of title XIX of the Public Health Service Act (42 U.S.C. 300x et seq.), subpart III of part B of title XIX of such Act (42 U.S.C. 300x-51 et seq.), and section 505(c) of such Act (42 U.S.C. 290aa-4(c)) with respect to mental health. Notwithstanding section 1952 of the Public Health Service Act (42 U.S.C. 300x-62), any amount awarded to a State out of amounts appropriated by this section shall be expended by the State by September 30, 2025.

SEC. 2702. FUNDING FOR BLOCK GRANTS FOR PREVENTION AND TREATMENT OF SUBSTANCE ABUSE.

In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$1,500,000,000, to remain available until expended, for carrying out subpart II of part B of title XIX of the Public Health Service Act (42 U.S.C. 300x-21 et seq.), subpart III of part B of title XIX of such Act (42 U.S.C. 300x-51 et seq.), section 505(d) of such Act (42 U.S.C. 290aa-4(d)) with respect to substance abuse, and section 515(d) of such Act (42 U.S.C. 290bb-21(d)). Notwithstanding section 1952

Deadline.

of the Public Health Service Act (42 U.S.C. 300x-62), any amount awarded to a State out of amounts appropriated by this section shall be expended by the State by September 30, 2025.

42 USC 294n
note prec.

SEC. 2703. FUNDING FOR MENTAL HEALTH AND SUBSTANCE USE DISORDER TRAINING FOR HEALTH CARE PROFESSIONALS, PARAPROFESSIONALS, AND PUBLIC SAFETY OFFICERS.

(a) IN GENERAL.—In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$80,000,000, to remain available until expended, for the purpose described in subsection (b).

Grants.
Contracts.

(b) USE OF FUNDING.—The Secretary, acting through the Administrator of the Health Resources and Services Administration, shall, taking into consideration the needs of rural and medically underserved communities, use amounts appropriated by subsection (a) to award grants or contracts to health professions schools, academic health centers, State or local governments, Indian Tribes and Tribal organizations, or other appropriate public or private nonprofit entities (or consortia of entities, including entities promoting multidisciplinary approaches), to plan, develop, operate, or participate in health professions and nursing training activities for health care students, residents, professionals, paraprofessionals, trainees, and public safety officers, and employers of such individuals, in evidence-informed strategies for reducing and addressing suicide, burnout, mental health conditions, and substance use disorders among health care professionals.

42 USC 294n
note prec.

SEC. 2704. FUNDING FOR EDUCATION AND AWARENESS CAMPAIGN ENCOURAGING HEALTHY WORK CONDITIONS AND USE OF MENTAL HEALTH AND SUBSTANCE USE DISORDER SERVICES BY HEALTH CARE PROFESSIONALS.

(a) IN GENERAL.—In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$20,000,000, to remain available until expended, for the purpose described in subsection (b).

Consultation.

(b) USE OF FUNDS.—The Secretary, acting through the Director of the Centers for Disease Control and Prevention and in consultation with the medical professional community, shall use amounts appropriated by subsection (a) to carry out a national evidence-based education and awareness campaign directed at health care professionals and first responders (such as emergency medical service providers), and employers of such professionals and first responders. Such awareness campaign shall—

(1) encourage primary prevention of mental health conditions and substance use disorders and secondary and tertiary prevention by encouraging health care professionals to seek support and treatment for their own mental health and substance use concerns; and

(2) help such professionals to identify risk factors in themselves and others and respond to such risks.

42 USC 294n
note prec.

SEC. 2705. FUNDING FOR GRANTS FOR HEALTH CARE PROVIDERS TO PROMOTE MENTAL HEALTH AMONG THEIR HEALTH PROFESSIONAL WORKFORCE.

(a) IN GENERAL.—In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021, out

of any money in the Treasury not otherwise appropriated, \$40,000,000, to remain available until expended, for the purpose described in subsection (b).

(b) **USE OF FUNDS.**—The Secretary, acting through the Administrator of the Health Resources and Services Administration, shall, taking into consideration the needs of rural and medically underserved communities, use amounts appropriated by subsection (a) to award grants or contracts to entities providing health care, including health care providers associations and Federally qualified health centers, to establish, enhance, or expand evidence-informed programs or protocols to promote mental health among their providers, other personnel, and members.

Contracts.

SEC. 2706. FUNDING FOR COMMUNITY-BASED FUNDING FOR LOCAL SUBSTANCE USE DISORDER SERVICES.

42 USC 290dd-3 note.

(a) **IN GENERAL.**—In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$30,000,000, to remain available until expended, to carry out the purpose described in subsection (b).

(b) **USE OF FUNDS.**—

(1) **IN GENERAL.**—The Secretary, acting through the Assistant Secretary for Mental Health and Substance Use and in consultation with the Director of the Centers for Disease Control and Prevention, shall award grants to support States; local, Tribal, and territorial governments; Tribal organizations; nonprofit community-based organizations; and primary and behavioral health organizations to support community-based overdose prevention programs, syringe services programs, and other harm reduction services.

Grants.

(2) **USE OF GRANT FUNDS.**—Grant funds awarded under this section to eligible entities shall be used for preventing and controlling the spread of infectious diseases and the consequences of such diseases for individuals with substance use disorder, distributing opioid overdose reversal medication to individuals at risk of overdose, connecting individuals at risk for, or with, a substance use disorder to overdose education, counseling, and health education, and encouraging such individuals to take steps to reduce the negative personal and public health impacts of substance use or misuse.

SEC. 2707. FUNDING FOR COMMUNITY-BASED FUNDING FOR LOCAL BEHAVIORAL HEALTH NEEDS.

42 USC 290aa note.

(a) **IN GENERAL.**—In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$50,000,000, to remain available until expended, to carry out the purpose described in subsection (b).

(b) **USE OF FUNDS.**—

(1) **IN GENERAL.**—The Secretary, acting through the Assistant Secretary for Mental Health and Substance Use, shall award grants to State, local, Tribal, and territorial governments, Tribal organizations, nonprofit community-based entities, and primary care and behavioral health organizations to address increased community behavioral health needs worsened by the COVID-19 public health emergency.

Grants.

(2) **USE OF GRANT FUNDS.**—Grant funds awarded under this section to eligible entities shall be used for promoting

care coordination among local entities; training the mental and behavioral health workforce, relevant stakeholders, and community members; expanding evidence-based integrated models of care; addressing surge capacity for mental and behavioral health needs; providing mental and behavioral health services to individuals with mental health needs (including co-occurring substance use disorders) as delivered by behavioral and mental health professionals utilizing telehealth services; and supporting, enhancing, or expanding mental and behavioral health preventive and crisis intervention services.

SEC. 2708. FUNDING FOR THE NATIONAL CHILD TRAUMATIC STRESS NETWORK.

In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$10,000,000, to remain available until expended, for carrying out section 582 of the Public Health Service Act (42 U.S.C. 290hh-1) with respect to addressing the problem of high-risk or medically underserved persons who experience violence-related stress.

SEC. 2709. FUNDING FOR PROJECT AWARE.

In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$30,000,000, to remain available until expended, for carrying out section 520A of the Public Health Service Act (42 U.S.C. 290bb-32) with respect to advancing wellness and resiliency in education.

SEC. 2710. FUNDING FOR YOUTH SUICIDE PREVENTION.

In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$20,000,000, to remain available until expended, for carrying out sections 520E and 520E-2 of the Public Health Service Act (42 U.S.C. 290bb-36, 290bb-36b).

SEC. 2711. FUNDING FOR BEHAVIORAL HEALTH WORKFORCE EDUCATION AND TRAINING.

In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$100,000,000, to remain available until expended, for carrying out section 756 of the Public Health Service Act (42 U.S.C. 294e-1).

SEC. 2712. FUNDING FOR PEDIATRIC MENTAL HEALTH CARE ACCESS.

In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$80,000,000, to remain available until expended, for carrying out section 330M of the Public Health Service Act (42 U.S.C. 254c-19).

SEC. 2713. FUNDING FOR EXPANSION GRANTS FOR CERTIFIED COMMUNITY BEHAVIORAL HEALTH CLINICS.

In addition to amounts otherwise available, there is appropriated to the Secretary, acting through the Assistant Secretary for Mental Health and Substance Use, for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$420,000,000, to remain available until expended, for grants to

communities and community organizations that meet the criteria for Certified Community Behavioral Health Clinics pursuant to section 223(a) of the Protecting Access to Medicare Act of 2014 (42 U.S.C. 1396a note).

Subtitle I—Exchange Grant Program

SEC. 2801. ESTABLISHING A GRANT PROGRAM FOR EXCHANGE MODERNIZATION.

42 USC 18031
note.

(a) **IN GENERAL.**—Out of funds appropriated under subsection (b), the Secretary of Health and Human Services (in this subtitle referred to as the “Secretary”) shall award grants to each American Health Benefits Exchange established under section 1311(b) of the Patient Protection and Affordable Care Act (42 U.S.C. 18031(b)) (other than an Exchange established by the Secretary under section 1321(c) of such Act (42 U.S.C. 18041(c))) that submits to the Secretary an application at such time and in such manner, and containing such information, as specified by the Secretary, for purposes of enabling such Exchange to modernize or update any system, program, or technology utilized by such Exchange to ensure such Exchange is compliant with all applicable requirements.

(b) **FUNDING.**—In addition to amounts otherwise available, there is appropriated, for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$20,000,000, to remain available until September 30, 2022, for carrying out this section.

Subtitle J—Continued Assistance to Rail Workers

SEC. 2901. ADDITIONAL ENHANCED BENEFITS UNDER THE RAILROAD UNEMPLOYMENT INSURANCE ACT.

(a) **IN GENERAL.**—Section 2(a)(5)(A) of the Railroad Unemployment Insurance Act (45 U.S.C. 352(a)(5)(A)) is amended—

(1) in the first sentence—

(A) by striking “March 14, 2021” and inserting “September 6, 2021”;

(B) by striking “or July 1, 2020” and inserting “July 1, 2020, or July 1, 2021”; and

(2) in the fourth sentence, by striking “March 14, 2021” and inserting “September 6, 2021”.

(b) **CLARIFICATION ON AUTHORITY TO USE FUNDS.**—Funds appropriated under subparagraph (B) of section 2(a)(5) of the Railroad Unemployment Insurance Act (45 U.S.C. 352(a)(5)) shall be available to cover the cost of recovery benefits provided under such section 2(a)(5) by reason of the amendments made by subsection (a) as well as to cover the cost of such benefits provided under such section 2(a)(5) as in effect on the day before the date of enactment of this Act.

45 USC 352 note.

SEC. 2902. EXTENDED UNEMPLOYMENT BENEFITS UNDER THE RAILROAD UNEMPLOYMENT INSURANCE ACT.

(a) **IN GENERAL.**—Section 2(c)(2)(D) of the Railroad Unemployment Insurance Act (45 U.S.C. 352(c)(2)(D)) is amended—

(1) in clause (i)—

(A) in subclause (I), by striking “185 days” and inserting “330 days”;

(B) in subclause (II),

(i) by striking “19 consecutive 14-day periods” and inserting “33 consecutive 14-day periods”; and

(ii) by striking “6 consecutive 14-day periods” and inserting “20 consecutive 14-day periods”;

(2) in clause (ii)—

(A) by striking “120 days of unemployment” and inserting “265 days of unemployment”;

(B) by striking “12 consecutive 14-day periods” and inserting “27 consecutive 14-day periods”; and

(C) by striking “6 consecutive 14-day periods” and inserting “20 consecutive 14-day periods”;

(3) in clause (iii)—

(A) by striking “June 30, 2021” and inserting “June 30, 2022”; and

(B) by striking “the provisions of clauses (i) and (ii) shall not apply to any employee whose extended benefit period under subparagraph (B) begins after March 14, 2021, and shall not apply to any employee with respect to any registration period beginning after April 5, 2021.” and inserting “the provisions of clauses (i) and (ii) shall not apply to any employee with respect to any registration period beginning after September 6, 2021.”; and

(4) in clause (v), by adding at the end the following: “In addition to the amount appropriated by the preceding two sentences, out of any funds in the Treasury not otherwise appropriated, there are appropriated \$2,000,000 to cover the cost of additional extended unemployment benefits provided under this subparagraph, to remain available until expended.”.

45 USC 352 note.

(b) **CLARIFICATION ON AUTHORITY TO USE FUNDS.**—Funds appropriated under the first, second, or third sentence of clause (v) of section 2(c)(2)(D) of the Railroad Unemployment Insurance Act shall be available to cover the cost of additional extended unemployment benefits provided under such section 2(c)(2)(D) by reason of the amendments made by subsection (a) as well as to cover the cost of such benefits provided under such section 2(c)(2)(D) as in effect on the day before the date of enactment of this Act.

SEC. 2903. EXTENSION OF WAIVER OF THE 7-DAY WAITING PERIOD FOR BENEFITS UNDER THE RAILROAD UNEMPLOYMENT INSURANCE ACT.

(a) **IN GENERAL.**—Section 2112(a) of the CARES Act (15 U.S.C. 9030(a)) is amended by striking “March 14, 2021” and inserting “September 6, 2021”.

15 USC 9030 note.

(b) **CLARIFICATION ON AUTHORITY TO USE FUNDS.**—Funds appropriated under section 2112(c) of the CARES Act (15 U.S.C. 9030(c)) shall be available to cover the cost of additional benefits payable due to section 2112(a) of such Act by reason of the amendments made by subsection (a) as well as to cover the cost of such benefits payable due to such section 2112(a) as in effect on the day before the date of enactment of this Act.

SEC. 2904. RAILROAD RETIREMENT BOARD AND OFFICE OF THE INSPECTOR GENERAL FUNDING.

In addition to amounts otherwise made available, there are appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated—

(1) \$27,975,000, to remain available until expended, for the Railroad Retirement Board, to prevent, prepare for, and respond to coronavirus, of which—

(A) \$6,800,000 shall be for additional hiring and overtime bonuses as needed to administer the Railroad Unemployment Insurance Act; and

(B) \$21,175,000 shall be to supplement, not supplant, existing resources devoted to operations and improvements for the Information Technology Investment Initiatives of the Railroad Retirement Board; and

(2) \$500,000, to remain available until expended, for the Railroad Retirement Board Office of Inspector General for audit, investigatory and review activities.

Subtitle K—Ratepayer Protection**SEC. 2911. FUNDING FOR LIHEAP.**

In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any amounts in the Treasury not otherwise appropriated, \$4,500,000,000, to remain available through September 30, 2022, for additional funding to provide payments under section 2602(b) of the Low-Income Home Energy Assistance Act of 1981 (42 U.S.C. 8621(b)), except that—

(1) \$2,250,000,000 of such amounts shall be allocated as though the total appropriation for such payments for fiscal year 2021 was less than \$1,975,000,000; and

(2) section 2607(b)(2)(B) of such Act (42 U.S.C. 8626(b)(2)(B)) shall not apply to funds appropriated under this section for fiscal year 2021.

SEC. 2912. FUNDING FOR WATER ASSISTANCE PROGRAM.

15 USC 9058b.

(a) **IN GENERAL.**—In addition to amounts otherwise available, there is appropriated to the Secretary of Health and Human Services (in this section referred to as the “Secretary”) for fiscal year 2021, out of any amounts in the Treasury not otherwise appropriated, \$500,000,000, to remain available until expended, for grants to States and Indian Tribes to assist low-income households, particularly those with the lowest incomes, that pay a high proportion of household income for drinking water and wastewater services, by providing funds to owners or operators of public water systems or treatment works to reduce arrearages of and rates charged to such households for such services.

(b) **ALLOTMENT.**—The Secretary shall—

(1) allot amounts appropriated in this section to a State or Indian Tribe based on—

(A) the percentage of households in the State, or under the jurisdiction of the Indian Tribe, with income equal or less than 150 percent of the Federal poverty line; and

(B) the percentage of households in the State, or under the jurisdiction of the Indian Tribe, that spend more than 30 percent of monthly income on housing; and

(2) reserve up to 3 percent of the amount appropriated in this section for Indian Tribes and tribal organizations.

(c) DEFINITION.—In this section, the term “State” means each of the 50 States of the United States, the District of Columbia, the Commonwealth of Puerto Rico, American Samoa, Guam, the United States Virgin Islands, and the Commonwealth of the Northern Mariana Islands.

Subtitle L—Assistance for Older Americans, Grandfamilies, and Kinship Families

SEC. 2921. SUPPORTING OLDER AMERICANS AND THEIR FAMILIES.

(a) APPROPRIATION.—In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$1,434,000,000, to remain available until expended, to carry out the Older Americans Act of 1965.

(b) ALLOCATION OF AMOUNTS.—Amounts made available by subsection (a) shall be available as follows:

(1) \$750,000,000 shall be available to carry out part C of title III of such Act.

(2) \$25,000,000 shall be available to carry out title VI of such Act, including part C of such title.

(3) \$460,000,000 shall be available to carry out part B of title III of such Act, including for—

(A) supportive services of the types made available for fiscal year 2020;

(B) efforts related to COVID-19 vaccination outreach, including education, communication, transportation, and other activities to facilitate vaccination of older individuals; and

(C) prevention and mitigation activities related to COVID-19 focused on addressing extended social isolation among older individuals, including activities for investments in technological equipment and solutions or other strategies aimed at alleviating negative health effects of social isolation due to long-term stay-at-home recommendations for older individuals for the duration of the COVID-19 public health emergency.

(4) \$44,000,000 shall be available to carry out part D of title III of such Act.

(5) \$145,000,000 shall be available to carry out part E of title III of such Act.

(6) \$10,000,000 shall be available to carry out the long-term care ombudsman program under title VII of such Act.

42 USC 3020g.

SEC. 2922. NATIONAL TECHNICAL ASSISTANCE CENTER ON GRANDFAMILIES AND KINSHIP FAMILIES.

(a) IN GENERAL.—In addition to amounts otherwise available, there is appropriated to the Secretary of Health and Human Services for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$10,000,000, to remain available through September 30, 2025, for the Secretary, acting through the Administrator of the Administration for Community Living, to establish,

directly or through grants or contracts, a National Technical Assistance Center on Grandfamilies and Kinship Families (in this section referred to as the “Center”) to provide training, technical assistance, and resources for government programs, nonprofit and other community-based organizations, and Indian Tribes, Tribal organizations, and urban Indian organizations, that serve grandfamilies and kinship families to support the health and well-being of members of grandfamilies and kinship families, including caregivers, children, and their parents. The Center shall focus primarily on serving grandfamilies and kinship families in which the primary caregiver is an adult age 55 or older, or the child has one or more disabilities.

(b) ACTIVITIES OF THE CENTER.—The Center shall—

(1) engage experts to stimulate the development of new and identify existing evidence-based, evidence-informed, and exemplary practices or programs related to health promotion (including mental health and substance use disorder treatment), education, nutrition, housing, financial needs, legal issues, disability self-determination, caregiver support, and other issues to help serve caregivers, children, and their parents in grandfamilies and kinship families;

(2) encourage and support the implementation of the evidence-based, evidence-informed, and exemplary practices or programs identified under paragraph (1) to support grandfamilies and kinship families and to promote coordination of services for grandfamilies and kinship families across systems that support them;

(3) facilitate learning across States, territories, Indian Tribes, Tribal organizations, and urban Indian organizations for providing technical assistance, resources, and training related to issues described in paragraph (1) to individuals and entities across systems that directly work with grandfamilies and kinship families;

(4) help government programs, nonprofit and other community-based organizations, and Indian Tribes, Tribal organizations, and urban Indian organizations, serving grandfamilies and kinship families, to plan and coordinate responses to assist grandfamilies and kinship families during national, State, Tribal, territorial, and local emergencies and disasters; and

(5) assist government programs, and nonprofit and other community-based organizations, in promoting equity and implementing culturally and linguistically appropriate approaches as the programs and organizations serve grandfamilies and kinship families.

TITLE III—COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS

Subtitle A—Defense Production Act of 1950

SEC. 3101. COVID-19 EMERGENCY MEDICAL SUPPLIES ENHANCEMENT.

50 USC 4511
note.

(a) SUPPORTING ENHANCED USE OF THE DEFENSE PRODUCTION ACT OF 1950.—In addition to funds otherwise available, there is appropriated, for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$10,000,000,000, to remain available

until September 30, 2025, to carry out titles I, III, and VII of such Act in accordance with subsection (b).

(b) **MEDICAL SUPPLIES AND EQUIPMENT.**—

(1) **TESTING, PPE, VACCINES, AND OTHER MATERIALS.**— Except as provided in paragraph (2), amounts appropriated in subsection (a) shall be used for the purchase, production (including the construction, repair, and retrofitting of government-owned or private facilities as necessary), or distribution of medical supplies and equipment (including durable medical equipment) related to combating the COVID-19 pandemic, including—

(A) in vitro diagnostic products for the detection of SARS-CoV-2 or the diagnosis of the virus that causes COVID-19, and the reagents and other materials necessary for producing, conducting, or administering such products, and the machinery, equipment, laboratory capacity, or other technology necessary to produce such products;

(B) face masks and personal protective equipment, including face shields, nitrile gloves, N-95 filtering face-piece respirators, and any other masks or equipment (including durable medical equipment) needed to respond to the COVID-19 pandemic, and the materials, machinery, additional manufacturing lines or facilities, or other technology necessary to produce such equipment; and

(C) drugs, devices, and biological products that are approved, cleared, licensed, or authorized for use in treating or preventing COVID-19 and symptoms related to COVID-19, and any materials, manufacturing machinery, additional manufacturing or fill-finish lines or facilities, technology, or equipment (including durable medical equipment) necessary to produce or use such drugs, biological products, or devices (including syringes, vials, or other supplies or equipment related to delivery, distribution, or administration).

Effective date.
President.

(2) **RESPONDING TO PUBLIC HEALTH EMERGENCIES.**—After September 30, 2022, amounts appropriated in subsection (a) may be used for any activity authorized by paragraph (1), or any other activity necessary to meet critical public health needs of the United States, with respect to any pathogen that the President has determined has the potential for creating a public health emergency.

Subtitle B—Housing Provisions

15 USC 9058c.

SEC. 3201. EMERGENCY RENTAL ASSISTANCE.

(a) **FUNDING.**—

(1) **APPROPRIATION.**—In addition to amounts otherwise available, there is appropriated to the Secretary of the Treasury for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$21,550,000,000, to remain available until September 30, 2027, for making payments to eligible grantees under this section—

(2) **RESERVATION OF FUNDS.**—Of the amount appropriated under paragraph (1), the Secretary shall reserve—

(A) \$305,000,000 for making payments under this section to the Commonwealth of Puerto Rico, the United States

Virgin Islands, Guam, the Commonwealth of the Northern Mariana Islands, and American Samoa;

(B) \$30,000,000 for costs of the Secretary for the administration of emergency rental assistance programs and technical assistance to recipients of any grants made by the Secretary to provide financial and other assistance to renters;

(C) \$3,000,000 for administrative expenses of the Inspector General relating to oversight of funds provided in this section; and

(D) \$2,500,000,000 for payments to high-need grantees as provided in this section.

(b) ALLOCATION OF FUNDS TO ELIGIBLE GRANTEEES.—

(1) ALLOCATION FOR STATES AND UNITS OF LOCAL GOVERNMENT.—

(A) IN GENERAL.—The amount appropriated under paragraph (1) of subsection (a) that remains after the application of paragraph (2) of such subsection shall be allocated to eligible grantees described in subparagraphs (A) and (B) of subsection (f)(1) in the same manner as the amount appropriated under section 501 of subtitle A of title V of division N of the Consolidated Appropriations Act, 2021 (Public Law 116-260) is allocated to States and units of local government under subsection (b)(1) of such section, except that section 501(b) of such subtitle A shall be applied—

Applicability.

(i) without regard to clause (i) of paragraph (1)(A);

(ii) by deeming the amount appropriated under paragraph (1) of subsection (a) of this Act that remains after the application of paragraph (2) of such subsection to be the amount deemed to apply for purposes of applying clause (ii) of section 501(b)(1)(A) of such subtitle A;

(iii) by substituting “\$152,000,000” for “\$200,000,000” each place such term appears;

(iv) in subclause (I) of such section 501(b)(1)(A)(v), by substituting “under section 3201 of the American Rescue Plan Act of 2021” for “under section 501 of subtitle A of title V of division N of the Consolidated Appropriations Act, 2021”; and

(v) in subclause (II) of such section 501(b)(1)(A)(v), by substituting “local government elects to receive funds from the Secretary under section 3201 of the American Rescue Plan Act of 2021 and will use the funds in a manner consistent with such section” for “local government elects to receive funds from the Secretary under section 501 of subtitle A of title V of division N of the Consolidated Appropriations Act, 2021 and will use the funds in a manner consistent with such section”.

(B) PRO RATA ADJUSTMENT.—The Secretary shall make pro rata adjustments in the amounts of the allocations determined under subparagraph (A) of this paragraph for entities described in such subparagraph as necessary to ensure that the total amount of allocations made pursuant to such subparagraph does not exceed the remainder appropriated amount described in such subparagraph.

Applicability.

(2) ALLOCATIONS FOR TERRITORIES.—The amount reserved under subsection (a)(2)(A) shall be allocated to eligible grantees described in subsection (f)(1)(C) in the same manner as the amount appropriated under section 501(a)(2)(A) of subtitle A of title V of division N of the Consolidated Appropriations Act, 2021 (Public Law 116-260) is allocated under section 501(b)(3) of such subtitle A to eligible grantees described under subparagraph (C) of such section 501(b)(3), except that section 501(b)(3) of such subtitle A shall be applied—

(A) in subparagraph (A), by inserting “of section 3201 of the American Rescue Plan Act of 2021” after “the amount reserved under subsection (a)(2)(A)”; and

(B) in clause (i) of subparagraph (B), by substituting “the amount equal to 0.3 percent of the amount appropriated under subsection (a)(1)” with “the amount equal to 0.3 percent of the amount appropriated under subsection (a)(1) of section 3201 of the American Rescue Plan Act of 2021”.

(3) HIGH-NEED GRANTEEES.—The Secretary shall allocate funds reserved under subsection (a)(2)(D) to eligible grantees with a high need for assistance under this section, with the number of very low-income renter households paying more than 50 percent of income on rent or living in substandard or overcrowded conditions, rental market costs, and change in employment since February 2020 used as the factors for allocating funds.

(c) PAYMENT SCHEDULE.—

Deadline.

(1) IN GENERAL.—The Secretary shall pay all eligible grantees not less than 40 percent of each such eligible grantee’s total allocation provided under subsection (b) within 60 days of enactment of this Act.

Procedure.
Requirement.

(2) SUBSEQUENT PAYMENTS.—The Secretary shall pay to eligible grantees additional amounts in tranches up to the full amount of each such eligible grantee’s total allocation in accordance with a procedure established by the Secretary, provided that any such procedure established by the Secretary shall require that an eligible grantee must have obligated not less than 75 percent of the funds already disbursed by the Secretary pursuant to this section prior to disbursement of additional amounts.

(d) USE OF FUNDS.—

(1) IN GENERAL.—An eligible grantee shall only use the funds provided from payments made under this section as follows:

Time period.

(A) FINANCIAL ASSISTANCE.—

(i) IN GENERAL.—Subject to clause (ii) of this subparagraph, funds received by an eligible grantee from payments made under this section shall be used to provide financial assistance to eligible households, not to exceed 18 months, including the payment of—

(I) rent;

(II) rental arrears;

(III) utilities and home energy costs;

(IV) utilities and home energy costs arrears;

and

(V) other expenses related to housing, as defined by the Secretary.

(ii) **LIMITATION.**—The aggregate amount of financial assistance an eligible household may receive under this section, when combined with financial assistance provided under section 501 of subtitle A of title V of division N of the Consolidated Appropriations Act, 2021 (Public Law 116-260), shall not exceed 18 months.

(B) **HOUSING STABILITY SERVICES.**—Not more than 10 percent of funds received by an eligible grantee from payments made under this section may be used to provide case management and other services intended to help keep households stably housed.

(C) **ADMINISTRATIVE COSTS.**—Not more than 15 percent of the total amount paid to an eligible grantee under this section may be used for administrative costs attributable to providing financial assistance, housing stability services, and other affordable rental housing and eviction prevention activities, including for data collection and reporting requirements related to such funds.

(D) **OTHER AFFORDABLE RENTAL HOUSING AND EVICTION PREVENTION ACTIVITIES.**—An eligible grantee may use any funds from payments made under this section that are unobligated on October 1, 2022, for purposes in addition to those specified in this paragraph, provided that—

(i) such other purposes are affordable rental housing and eviction prevention purposes, as defined by the Secretary, serving very low-income families (as such term is defined in section 3(b) of the United States Housing Act of 1937 (42 U.S.C. 1437a(b))); and

(ii) prior to obligating any funds for such purposes, the eligible grantee has obligated not less than 75 percent of the total funds allocated to such eligible grantee in accordance with this section.

(2) **DISTRIBUTION OF ASSISTANCE.**—Amounts appropriated under subsection (a)(1) of this section shall be subject to the same terms and conditions that apply under paragraph (4) of section 501(c) of subtitle A of title V of division N of the Consolidated Appropriations Act, 2021 (Public Law 116-260) to amounts appropriated under subsection (a)(1) of such section 501.

(e) **REALLOCATION OF FUNDS.**—

(1) **IN GENERAL.**—Beginning March 31, 2022, the Secretary shall reallocate funds allocated to eligible grantees in accordance with subsection (b) but not yet paid in accordance with subsection (c)(2) according to a procedure established by the Secretary.

Effective date.
Procedure.

(2) **ELIGIBILITY FOR REALLOCATED FUNDS.**—The Secretary shall require an eligible grantee to have obligated 50 percent of the total amount of funds allocated to such eligible grantee under subsection (b) to be eligible to receive funds reallocated under paragraph (1) of this subsection.

Requirement.

(3) **PAYMENT OF REALLOCATED FUNDS BY THE SECRETARY.**—The Secretary shall pay to each eligible grantee eligible for a payment of reallocated funds described in paragraph (2) of this subsection the amount allocated to such eligible grantee in accordance with the procedure established by the Secretary in accordance with paragraph (1) of this subsection.

(4) **USE OF REALLOCATED FUNDS.**—Eligible grantees may use any funds received in accordance with this subsection only for purposes specified in paragraph (1) of subsection (d).

(f) **DEFINITIONS.**—In this section:

(1) **ELIGIBLE GRANTEE.**—The term “eligible grantee” means any of the following:

(A) The 50 States of the United States and the District of Columbia.

(B) A unit of local government (as defined in paragraph (5)).

(C) The Commonwealth of Puerto Rico, the United States Virgin Islands, Guam, the Commonwealth of the Northern Mariana Islands, and American Samoa.

(2) **ELIGIBLE HOUSEHOLD.**—The term “eligible household” means a household of 1 or more individuals who are obligated to pay rent on a residential dwelling and with respect to which the eligible grantee involved determines that—

(A) 1 or more individuals within the household has—

(i) qualified for unemployment benefits; or

(ii) experienced a reduction in household income, incurred significant costs, or experienced other financial hardship during or due, directly or indirectly, to the coronavirus pandemic;

(B) 1 or more individuals within the household can demonstrate a risk of experiencing homelessness or housing instability; and

(C) the household is a low-income family (as such term is defined in section 3(b) of the United States Housing Act of 1937 (42 U.S.C. 1437a(b)).

(3) **INSPECTOR GENERAL.**—The term “Inspector General” means the Inspector General of the Department of the Treasury.

(4) **SECRETARY.**—The term “Secretary” means the Secretary of the Treasury.

(5) **UNIT OF LOCAL GOVERNMENT.**—The term “unit of local government” has the meaning given such term in section 501 of subtitle A of title V of division N of the Consolidated Appropriations Act, 2021 (Public Law 116-260).

(g) **AVAILABILITY.**—Funds provided to an eligible grantee under a payment made under this section shall remain available through September 30, 2025.

(h) **EXTENSION OF AVAILABILITY UNDER PROGRAM FOR EXISTING FUNDING.**—Paragraph (1) of section 501(e) of subtitle A of title V of division N of the Consolidated Appropriations Act, 2021 (Public Law 116-260) is amended by striking “December 31, 2021” and inserting “September 30, 2022”.

134 Stat. 2074.

42 USC 1437f
note.

SEC. 3202. EMERGENCY HOUSING VOUCHERS.

(a) **APPROPRIATION.**—In addition to amounts otherwise available, there is appropriated to the Secretary of Housing and Urban Development (in this section referred to as the “Secretary”) for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$5,000,000,000, to remain available until September 30, 2030, for—

(1) incremental emergency vouchers under subsection (b);

(2) renewals of the vouchers under subsection (b);

(3) fees for the costs of administering vouchers under subsection (b) and other eligible expenses defined by notice to prevent, prepare, and respond to coronavirus to facilitate the leasing of the emergency vouchers, such as security deposit assistance and other costs related to retention and support of participating owners; and

(4) adjustments in the calendar year 2021 section 8 renewal funding allocation, including mainstream vouchers, for public housing agencies that experience a significant increase in voucher per-unit costs due to extraordinary circumstances or that, despite taking reasonable cost savings measures, would otherwise be required to terminate rental assistance for families as a result of insufficient funding.

(b) EMERGENCY VOUCHERS.—

(1) IN GENERAL.—The Secretary shall provide emergency rental assistance vouchers under subsection (a), which shall be tenant-based rental assistance under section 8(o) of the United States Housing Act of 1937 (42 U.S.C. 1437f(o)).

(2) QUALIFYING INDIVIDUALS OR FAMILIES DEFINED.—For the purposes of this section, qualifying individuals or families are those who are—

(A) homeless (as such term is defined in section 103(a) of the McKinney-Vento Homeless Assistance Act (42 U.S.C. 11302(a));

(B) at risk of homelessness (as such term is defined in section 401(1) of the McKinney-Vento Homeless Assistance Act (42 U.S.C. 11360(1)));

(C) fleeing, or attempting to flee, domestic violence, dating violence, sexual assault, stalking, or human trafficking, as defined by the Secretary; or

(D) recently homeless, as determined by the Secretary, and for whom providing rental assistance will prevent the family's homelessness or having high risk of housing instability.

(3) ALLOCATION.—The Secretary shall notify public housing agencies of the number of emergency vouchers provided under this section to be allocated to the agency not later than 60 days after the date of the enactment of this Act, in accordance with a formula that includes public housing agency capacity and ensures geographic diversity, including with respect to rural areas, among public housing agencies administering the Housing Choice Voucher program.

Notification.
Deadline.

(4) TERMS AND CONDITIONS.—

(A) ELECTION TO ADMINISTER.—The Secretary shall establish a procedure for public housing agencies to accept or decline the emergency vouchers allocated to the agency in accordance with the formula under subparagraph (3).

Procedure.

(B) FAILURE TO USE VOUCHERS PROMPTLY.—If a public housing agency fails to lease its authorized vouchers under subsection (b) on behalf of eligible families within a reasonable period of time, the Secretary may revoke and redistribute any unleased vouchers and associated funds, including administrative fees and costs referred to in subsection (a)(3), to other public housing agencies according to the formula under paragraph (3).

(5) WAIVERS AND ALTERNATIVE REQUIREMENTS.—The Secretary may waive or specify alternative requirements for any

provision of the United States Housing Act of 1937 (42 U.S.C. 1437 et seq.) or regulation applicable to such statute other than requirements related to fair housing, nondiscrimination, labor standards, and the environment, upon a finding that the waiver or alternative requirement is necessary to expedite or facilitate the use of amounts made available in this section.

(6) **TERMINATION OF VOUCHERS UPON TURNOVER.**—After September 30, 2023, a public housing agency may not reissue any vouchers made available under this section when assistance for the family assisted ends.

(c) **TECHNICAL ASSISTANCE AND OTHER COSTS.**—The Secretary may use not more than \$20,000,000 of the amounts made available under this section for the costs to the Secretary of administering and overseeing the implementation of this section and the Housing Choice Voucher program generally, including information technology, financial reporting, and other costs. Of the amounts set aside under this subsection, the Secretary may use not more than \$10,000,000, without competition, to make new awards or increase prior awards to existing technical assistance providers to provide an immediate increase in capacity building and technical assistance to public housing agencies.

Notice.

(d) **IMPLEMENTATION.**—The Secretary may implement the provisions of this section by notice.

SEC. 3203. EMERGENCY ASSISTANCE FOR RURAL HOUSING.

In addition to amounts otherwise available, there is appropriated to the Secretary of Agriculture for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$100,000,000, to remain available until September 30, 2022, to provide grants under section 521(a)(2) of the Housing Act of 1949 or agreements entered into in lieu of debt forgiveness or payments for eligible households as authorized by section 502(c)(5)(D) of the Housing Act of 1949, for temporary adjustment of income losses for residents of housing financed or assisted under section 514, 515, or 516 of the Housing Act of 1949 who have experienced income loss but are not currently receiving Federal rental assistance.

42 USC 8101
note.

SEC. 3204. HOUSING COUNSELING.

(a) **APPROPRIATION.**—In addition to amounts otherwise available, there is appropriated to the Neighborhood Reinvestment Corporation (in this section referred to as the “Corporation”) for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$100,000,000, to remain available until September 30, 2025, for grants to housing counseling intermediaries approved by the Department of Housing and Urban Development, State housing finance agencies, and NeighborWorks organizations for providing housing counseling services, as authorized under the Neighborhood Reinvestment Corporation Act (42 U.S.C. 8101–8107) and consistent with the discretion set forth in section 606(a)(5) of such Act (42 U.S.C. 8105(a)(5)) to design and administer grant programs. Of the grant funds made available under this subsection, not less than 40 percent shall be provided to counseling organizations that—

(1) target housing counseling services to minority and low-income populations facing housing instability; or

(2) provide housing counseling services in neighborhoods having high concentrations of minority and low-income populations.

(b) **LIMITATION.**—The aggregate amount provided to NeighborWorks organizations under this section shall not exceed 15 percent of the total of grant funds made available by subsection (a).

(c) **ADMINISTRATION AND OVERSIGHT.**—The Corporation may retain a portion of the amounts provided under this section, in a proportion consistent with its standard rate for program administration in order to cover its expenses related to program administration and oversight.

(d) **HOUSING COUNSELING SERVICES DEFINED.**— For the purposes of this section, the term “housing counseling services” means—

(1) housing counseling provided directly to households facing housing instability, such as eviction, default, foreclosure, loss of income, or homelessness;

(2) education, outreach, training, technology upgrades, and other program related support; and

(3) operational oversight funding for grantees and subgrantees that receive funds under this section.

SEC. 3205. HOMELESSNESS ASSISTANCE AND SUPPORTIVE SERVICES PROGRAM.

42 USC 12721
note.

(a) **APPROPRIATION.**—In addition to amounts otherwise available, there is appropriated to the Secretary of Housing and Urban Development (in this section referred to as the “Secretary”) for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$5,000,000,000, to remain available until September 30, 2025, except that amounts authorized under subsection (d)(3) shall remain available until September 30, 2029, for assistance under title II of the Cranston-Gonzalez National Affordable Housing Act (42 U.S.C. 12721 et seq.) for the following activities to primarily benefit qualifying individuals or families:

(1) Tenant-based rental assistance.

(2) The development and support of affordable housing pursuant to section 212(a) of the Cranston-Gonzalez National Affordable Housing Act (42 U.S.C. 12742(a)) (“the Act” herein).

(3) Supportive services to qualifying individuals or families not already receiving such supportive services, including—

(A) activities listed in section 401(29) of the McKinney-Vento Homeless Assistance Act (42 U.S.C. 11360(29));

(B) housing counseling; and

(C) homeless prevention services.

(4) The acquisition and development of non-congregate shelter units, all or a portion of which may—

(A) be converted to permanent affordable housing;

(B) be used as emergency shelter under subtitle B of title IV of the McKinney-Vento Homeless Assistance Act (42 U.S.C. 11371–11378);

(C) be converted to permanent housing under subtitle C of title IV of the McKinney-Vento Homeless Assistance Act (42 U.S.C. 11381–11389); or

(D) remain as non-congregate shelter units.

(b) **QUALIFYING INDIVIDUALS OR FAMILIES DEFINED.**—For the purposes of this section, qualifying individuals or families are those who are—

(1) homeless, as defined in section 103(a) of the McKinney-Vento Homeless Assistance Act (42 U.S.C. 11302(a));

(2) at-risk of homelessness, as defined in section 401(1) of the McKinney-Vento Homeless Assistance Act (42 U.S.C. 11360(1));

(3) fleeing, or attempting to flee, domestic violence, dating violence, sexual assault, stalking, or human trafficking, as defined by the Secretary;

(4) in other populations where providing supportive services or assistance under section 212(a) of the Act (42 U.S.C. 12742(a)) would prevent the family's homelessness or would serve those with the greatest risk of housing instability; or

(5) veterans and families that include a veteran family member that meet one of the preceding criteria.

(c) TERMS AND CONDITIONS.—

(1) FUNDING RESTRICTIONS.—The cost limits in section 212(e) (42 U.S.C. 12742(e)), the commitment requirements in section 218(g) (42 U.S.C. 12748(g)), the matching requirements in section 220 (42 U.S.C. 12750), and the set-aside for housing developed, sponsored, or owned by community housing development organizations required in section 231 of the Act (42 U.S.C. 12771) shall not apply for amounts made available in this section.

(2) ADMINISTRATIVE COSTS.—Notwithstanding sections 212(c) and (d)(1) of the Act (42 U.S.C. 12742(c) and (d)(1)), of the funds made available in this section for carrying out activities authorized in this section, a grantee may use up to fifteen percent of its allocation for administrative and planning costs.

(3) OPERATING EXPENSES.—Notwithstanding sections 212(a) and (g) of the Act (42 U.S.C. 12742(a) and (g)), a grantee may use up to an additional five percent of its allocation for the payment of operating expenses of community housing development organizations and nonprofit organizations carrying out activities authorized under this section, but only if—

(A) such funds are used to develop the capacity of the community housing development organization or nonprofit organization in the jurisdiction or insular area to carry out activities authorized under this section; and

(B) the community housing development organization or nonprofit organization complies with the limitation on assistance in section 234(b) of the Act (42 U.S.C. 12774(b)).

(4) CONTRACTING.—A grantee, when contracting with service providers engaged directly in the provision of services under paragraph (a)(3), shall, to the extent practicable, enter into contracts in amounts that cover the actual total program costs and administrative overhead to provide the services contracted.

(d) ALLOCATION.—

(1) FORMULA ASSISTANCE.—Except as provided in paragraphs (2) and (3), the Secretary shall allocate amounts made available under this section pursuant to section 217 of the Act (42 U.S.C. 12747) to grantees that received allocations pursuant to that same formula in fiscal year 2021, and shall make such allocations within 30 days of enactment of this Act.

(2) TECHNICAL ASSISTANCE.—Up to \$25,000,000 of the amounts made available under this section shall be used, without competition, to make new awards or increase prior awards

Deadline.

to existing technical assistance providers to provide an immediate increase in capacity building and technical assistance available to any grantees implementing activities or projects consistent with this section.

(3) **OTHER COSTS.**—Up to \$50,000,000 of the amounts made available under this section shall be used for the administrative costs to oversee and administer implementation of this section and the HOME program generally, including information technology, financial reporting, and other costs.

(4) **WAIVERS OR ALTERNATIVE REQUIREMENTS.**—The Secretary may waive or specify alternative requirements for any provision of the Cranston-Gonzalez National Affordable Housing Act (42 U.S.C. 12701 et seq.) and titles I and IV of the McKinney-Vento Homelessness Act (42 U.S.C. 11301 et seq., 11360 et seq.) or regulation for the administration of the amounts made available under this section other than requirements related to fair housing, nondiscrimination, labor standards, and the environment, upon a finding that the waiver or alternative requirement is necessary to expedite or facilitate the use of amounts made available under this section.

SEC. 3206. HOMEOWNER ASSISTANCE FUND.

15 USC 9058d.

(a) **APPROPRIATION.**—In addition to amounts otherwise available, there is appropriated to the Secretary of the Treasury for the Homeowner Assistance Fund established under subsection (c) for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$9,961,000,000, to remain available until September 30, 2025, for qualified expenses that meet the purposes specified under subsection (c) and expenses described in subsection (d)(1).

(b) **DEFINITIONS.**—In this section:

(1) **CONFORMING LOAN LIMIT.**—The term “conforming loan limit” means the applicable limitation governing the maximum original principal obligation of a mortgage secured by a single-family residence, a mortgage secured by a 2-family residence, a mortgage secured by a 3-family residence, or a mortgage secured by a 4-family residence, as determined and adjusted annually under section 302(b)(2) of the Federal National Mortgage Association Charter Act (12 U.S.C. 1717(b)(2)) and section 305(a)(2) of the Federal Home Loan Mortgage Corporation Act (12 U.S.C. 1454(a)(2)).

(2) **DWELLING.**—The term “dwelling” means any building, structure, or portion thereof which is occupied as, or designed or intended for occupancy as, a residence by one or more individuals.

(3) **ELIGIBLE ENTITY.**—The term “eligible entity” means—
 (A) a State; or
 (B) any entity eligible for payment under subsection

(f).

(4) **MORTGAGE.**—The term “mortgage” means any credit transaction—

(A) that is secured by a mortgage, deed of trust, or other consensual security interest on a principal residence of a borrower that is (i) a 1- to 4-unit dwelling, or (ii) residential real property that includes a 1- to 4-unit dwelling; and

(B) the unpaid principal balance of which was, at the time of origination, not more than the conforming loan limit.

(5) FUND.—The term “Fund” means the Homeowner Assistance Fund established under subsection (c).

(6) SECRETARY.—The term “Secretary” means the Secretary of the Treasury.

(7) STATE.—The term “State” means any State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin Islands, and the Commonwealth of the Northern Mariana Islands.

(c) ESTABLISHMENT OF FUND.—

Effective date.

(1) ESTABLISHMENT; QUALIFIED EXPENSES.—There is established in the Department of the Treasury a Homeowner Assistance Fund to mitigate financial hardships associated with the coronavirus pandemic by providing such funds as are appropriated by subsection (a) to eligible entities for the purpose of preventing homeowner mortgage delinquencies, defaults, foreclosures, loss of utilities or home energy services, and displacements of homeowners experiencing financial hardship after January 21, 2020, through qualified expenses related to mortgages and housing, which include—

(A) mortgage payment assistance;

(B) financial assistance to allow a homeowner to reinstate a mortgage or to pay other housing related costs related to a period of forbearance, delinquency, or default;

(C) principal reduction;

(D) facilitating interest rate reductions;

(E) payment assistance for—

(i) utilities, including electric, gas, home energy, and water;

(ii) internet service, including broadband internet access service, as defined in section 8.1(b) of title 47, Code of Federal Regulations (or any successor regulation);

(iii) homeowner’s insurance, flood insurance, and mortgage insurance; and

(iv) homeowner’s association, condominium association fees, or common charges;

Time period.

(F) reimbursement of funds expended by a State, local government, or designated entity under subsection (f) during the period beginning on January 21, 2020, and ending on the date that the first funds are disbursed by the eligible entity under the Homeowner Assistance Fund, for the purpose of providing housing or utility payment assistance to homeowners or otherwise providing funds to prevent foreclosure or post-foreclosure eviction of a homeowner or prevent mortgage delinquency or loss of housing or utilities as a response to the coronavirus disease (COVID) pandemic; and

Determination.

(G) any other assistance to promote housing stability for homeowners, including preventing mortgage delinquency, default, foreclosure, post-foreclosure eviction of a homeowner, or the loss of utility or home energy services, as determined by the Secretary.

(2) TARGETING.—Not less than 60 percent of amounts made to each eligible entity allocated amounts under subsection (d) or (f) shall be used for qualified expenses that assist homeowners having incomes equal to or less than 100 percent of the area median income for their household size or equal to or less than 100 percent of the median income for the United States, as determined by the Secretary of Housing and Urban Development, whichever is greater. The eligible entity shall prioritize remaining funds to socially disadvantaged individuals.

Determination.

(d) ALLOCATION OF FUNDS.—

(1) ADMINISTRATION.—Of any amounts made available under this section, the Secretary shall reserve—

(A) to the Department of the Treasury, an amount not to exceed \$40,000,000 to administer and oversee the Fund, and to provide technical assistance to eligible entities for the creation and implementation of State and tribal programs to administer assistance from the Fund; and

(B) to the Inspector General of the Department of the Treasury, an amount to not exceed \$2,600,000 for oversight of the program under this section.

(2) FOR STATES.—After the application of paragraphs (1), (4), and (5) of this subsection and subject to paragraph (3) of this subsection, the Secretary shall allocate the remaining funds available within the Homeowner Assistance Fund to each State of the United States, the District of Columbia, and the Commonwealth of Puerto Rico based on homeowner need, for such State relative to all States of the United States, the District of Columbia, and the Commonwealth of Puerto Rico, as of the date of the enactment of this Act, which is determined by reference to—

Determination.
Time period.

(A) the average number of unemployed individuals measured over a period of time not fewer than 3 months and not more than 12 months; and

(B) the total number of mortgagors with—

(i) mortgage payments that are more than 30 days past due; or

(ii) mortgages in foreclosure.

(3) SMALL STATE MINIMUM.—

(A) IN GENERAL.—Each State of the United States, the District of Columbia, and the Commonwealth of Puerto Rico shall receive no less than \$50,000,000 for the purposes established in (c).

(B) PRO RATA ADJUSTMENTS.—The Secretary shall adjust on a pro rata basis the amount of the payments for each State of the United States, the District of Columbia, and the Commonwealth of Puerto Rico determined under this subsection without regard to this subparagraph to the extent necessary to comply with the requirements of subparagraph (A).

(4) TERRITORY SET-ASIDE.—Notwithstanding any other provision of this section, of the amounts appropriated under subsection (a), the Secretary shall reserve \$30,000,000 to be disbursed to Guam, American Samoa, the United States Virgin Islands, and the Commonwealth of the Northern Mariana Islands based on each such territory's share of the combined total population of all such territories, as determined by the

Determinations.

Secretary. For the purposes of this paragraph, population shall be determined based on the most recent year for which data are available from the United States Census Bureau.

(5) TRIBAL SET-ASIDE.—The Secretary shall allocate funds to any eligible entity designated under subsection (f) pursuant to the requirements of that subsection.

(e) DISTRIBUTION OF FUNDS TO STATES.—

Deadlines.

(1) IN GENERAL.—The Secretary shall make payments, beginning not later than 45 days after enactment of this Act, from amounts allocated under subsection (d) to eligible entities that have notified the Secretary that they request to receive payment from the Fund and that the eligible entity will use such payments in compliance with this section.

(2) REALLOCATION.—If a State does not request allocated funds by the 45th day after the date of enactment of this Act, such State shall not be eligible for a payment from the Secretary pursuant to this section, and the Secretary shall, by the 180th day after the date of enactment of this Act, reallocate any funds that were not requested by such State among the States that have requested funds by the 45th day after the date of enactment of this Act. For any such reallocation of funds, the Secretary shall adhere to the requirements of subsection (d), except for paragraph (1), to the greatest extent possible, provided that the Secretary shall also take into consideration in determining such reallocation a State's remaining need and a State's record of using payments from the Fund to serve homeowners at disproportionate risk of mortgage default, foreclosure, or displacement, including homeowners having incomes equal to or less than 100 percent of the area median income for their household size or 100 percent of the median income for the United States, as determined by the Secretary of Housing and Urban Development, whichever is greater, and minority homeowners.

(f) TRIBAL SET-ASIDE.—

(1) SET-ASIDE.—Notwithstanding any other provision of this section, of the amounts appropriated under subsection (a), the Secretary shall use 5 percent to make payments to entities that are eligible for payments under clauses (i) and (ii) of section 501(b)(2)(A) of subtitle A of title V of division N of the Consolidated Appropriations Act, 2021 (Public Law 116-260) for the purposes described in subsection (c).

Deadline.
Notification.

(2) ALLOCATION AND PAYMENT.—The Secretary shall allocate the funds set aside under paragraph (1) using the allocation formulas described in clauses (i) and (ii) of section 501(b)(2)(A) of subtitle A of title V of division N of the Consolidated Appropriations Act, 2021 (Public Law 116-260), and shall make payments of such amounts beginning no later than 45 days after enactment of this Act to entities eligible for payment under clauses (i) and (ii) of section 501(b)(2)(A) of subtitle A of title V of division N of the Consolidated Appropriations Act, 2021 (Public Law 116-260) that notify the Secretary that they request to receive payments allocated from the Fund by the Secretary for purposes described under subsection (c) and will use such payments in compliance with this section.

(3) ADJUSTMENT.—Allocations provided under this subsection may be further adjusted as provided by section

501(b)(2)(B) of subtitle A of title V of division N of the Consolidated Appropriations Act, 2021 (Public Law 116-260).

SEC. 3207. RELIEF MEASURES FOR SECTION 502 AND 504 DIRECT LOAN BORROWERS.

(a) **APPROPRIATION.**—In addition to amounts otherwise available, there is appropriated to the Secretary of Agriculture (in this section referred to as the “Secretary”) for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$39,000,000, to remain available until September 30, 2023, for direct loans made under sections 502 and 504 of the Housing Act of 1949 (42 U.S.C. 1472, 1474).

(b) **ADMINISTRATIVE EXPENSES.**—The Secretary may use not more than 3 percent of the amounts appropriated under this section for administrative purposes.

SEC. 3208. FAIR HOUSING ACTIVITIES.

(a) **APPROPRIATION.**—In addition to amounts otherwise available, there is appropriated to the Secretary of Housing and Urban Development (in this section referred to as the “Secretary”) for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$20,000,000, to remain available until September 30, 2023, for the Fair Housing Initiatives Program under section 561 of the Housing and Community Development Act of 1987 (42 U.S.C. 3616a) to ensure fair housing organizations have additional resources to address fair housing inquiries, complaints, investigations, education and outreach activities, and costs of delivering or adapting services, during or relating to the coronavirus pandemic.

(b) **ADMINISTRATIVE EXPENSES.**—The Secretary may use not more than 3 percent of the amounts appropriated under this section for administrative purposes.

Subtitle C—Small Business (SSBCI)

SEC. 3301. STATE SMALL BUSINESS CREDIT INITIATIVE.

(a) **STATE SMALL BUSINESS CREDIT INITIATIVE.**—

(1) **IN GENERAL.**—The State Small Business Credit Initiative Act of 2010 (12 U.S.C. 5701 et seq.) is amended—

(A) in section 3003—

12 USC 5702.

(i) in subsection (b)—

(I) by amending paragraph (1) to read as follows:

“(1) **IN GENERAL.**—Not later than 30 days after the date of enactment of subsection (d), the Secretary shall allocate Federal funds to participating States so that each State is eligible to receive an amount equal to what the State would receive under the 2021 allocation, as determined under paragraph (2).”;

Deadline.
Allocation.

(II) in paragraph (2)—

(aa) by striking “2009” each place such term appears and inserting “2021”;

(bb) by striking “2008” each place such term appears and inserting “2020”;

(cc) in subparagraph (A), by striking “The Secretary” and inserting “With respect to States other than Tribal governments, the Secretary”;

- (dd) in subparagraph (C)(i), by striking “2007” and inserting “2019”; and
 (ee) by adding at the end the following:
 “(C) SEPARATE ALLOCATION FOR TRIBAL GOVERNMENTS.—
- Determination. “(i) IN GENERAL.—With respect to States that are Tribal governments, the Secretary shall determine the 2021 allocation by allocating \$500,000,000 among the Tribal governments in the proportion the Secretary determines appropriate, including with consideration to available employment and economic data regarding each such Tribal government.
- Deadlines. “(ii) NOTICE OF INTENT; TIMING OF ALLOCATION.—With respect to allocations to States that are Tribal governments, the Secretary may—
 “(I) require Tribal governments that individually or jointly wish to participate in the Program to file a notice of intent with the Secretary not later than 30 days after the date of enactment of subsection (d); and
 “(II) notwithstanding paragraph (1), allocate Federal funds to participating Tribal governments not later than 60 days after the date of enactment of subsection (d).
- Determination. “(D) EMPLOYMENT DATA.—If the Secretary determines that employment data with respect to a State is unavailable from the Bureau of Labor Statistics of the Department of Labor, the Secretary shall consider such other economic and employment data that is otherwise available for purposes of determining the employment data of such State.”; and
 (III) by striking paragraph (3); and
 (ii) in subsection (c)—
 (I) in paragraph (1)(A)(iii), by inserting before the period the following: “that have delivered loans or investments to eligible businesses”; and
 (II) by amending paragraph (4) to read as follows:
 “(4) TERMINATION OF AVAILABILITY OF AMOUNTS NOT TRANSFERRED.—
- Time periods. “(A) IN GENERAL.—Any portion of a participating State’s allocated amount that has not been transferred to the State under this section may be deemed by the Secretary to be no longer allocated to the State and no longer available to the State and shall be returned to the general fund of the Treasury or reallocated as described under subparagraph (B), if—
 “(i) the second $\frac{1}{3}$ of a State’s allocated amount has not been transferred to the State before the end of the end of the 3-year period beginning on the date that the Secretary approves the State for participation; or
 “(ii) the last $\frac{1}{3}$ of a State’s allocated amount has not been transferred to the State before the end of the end of the 6-year period beginning on the date that the Secretary approves the State for participation.

“(B) REALLOCATION.—Any amount deemed by the Secretary to be no longer allocated to a State and no longer available to such State under subparagraph (A) may be reallocated by the Secretary to other participating States. In making such a reallocation, the Secretary shall not take into account the minimum allocation requirements under subsection (b)(2)(B) or the specific allocation for Tribal governments described under subsection (b)(2)(C).”;

(B) in section 3004(d), by striking “date of enactment of this Act” each place it appears and inserting “date of the enactment of section 3003(d)”;

12 USC 5703.

(C) in section 3005(b), by striking “date of enactment of this Act” each place it appears and inserting “date of the enactment of section 3003(d)”;

12 USC 5704.

(D) in section 3006(b)(4), by striking “date of enactment of this Act” and inserting “date of the enactment of section 3003(d)”;

12 USC 5705.

(E) in section 3007(b), by striking “March 31, 2011” and inserting “March 31, 2022”;

12 USC 5706.

(F) in section 3009, by striking “date of enactment of this Act” each place it appears and inserting “date of the enactment of section 3003(d)”;

12 USC 5708.

(G) in section 3011(b), by striking “date of the enactment of this Act” each place it appears and inserting “date of the enactment of section 3003(d)”.

12 USC 5710.

(2) APPROPRIATION.—

12 USC 5701
note.

(A) IN GENERAL.—In addition to amounts otherwise available, there is hereby appropriated to the Secretary of the Treasury for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$10,000,000,000, to remain available until expended, to provide support to small businesses responding to and recovering from the economic effects of the COVID-19 pandemic, ensure business enterprises owned and controlled by socially and economically disadvantaged individuals have access to credit and investments, provide technical assistance to help small businesses applying for various support programs, and to pay reasonable costs of administering such Initiative.

(B) RESCISSION.—With respect to amounts appropriated under subparagraph (A)—

(i) the Secretary of the Treasury shall complete all disbursements and remaining obligations before September 30, 2030; and

Deadline.

(ii) any amounts that remain unexpended (whether obligated or unobligated) on September 30, 2030, shall be rescinded and deposited into the general fund of the Treasury.

(b) ADDITIONAL ALLOCATIONS TO SUPPORT BUSINESS ENTERPRISES OWNED AND CONTROLLED BY SOCIALLY AND ECONOMICALLY DISADVANTAGED INDIVIDUALS.—Section 3003 of the State Small Business Credit Initiative Act of 2010 (12 U.S.C. 5702) is amended by adding at the end the following:

“(d) ADDITIONAL ALLOCATIONS TO SUPPORT BUSINESS ENTERPRISES OWNED AND CONTROLLED BY SOCIALLY AND ECONOMICALLY DISADVANTAGED INDIVIDUALS.—Of the amounts appropriated for fiscal year 2021 to carry out the Program, the Secretary shall—

Regulations.
Requirements.

“(1) allocate \$1,500,000,000 to States from funds allocated under this section and, by regulation or other guidance, prescribe Program requirements that the funds be expended for business enterprises owned and controlled by socially and economically disadvantaged individuals; and

Determination.

“(2) allocate such amounts to States based on the needs of business enterprises owned and controlled by socially and economically disadvantaged individuals, as determined by the Secretary, in each State, and not subject to the allocation formula described under subsection (b).

Determination.

“(e) INCENTIVE ALLOCATIONS TO SUPPORT BUSINESS ENTERPRISES OWNED AND CONTROLLED BY SOCIALLY AND ECONOMICALLY DISADVANTAGED INDIVIDUALS.—Of the amounts appropriated for fiscal year 2021 to carry out the Program, the Secretary shall set aside \$1,000,000,000 for an incentive program under which the Secretary shall increase the second $\frac{1}{3}$ and last $\frac{1}{3}$ allocations for States that demonstrate robust support, as determined by the Secretary, for business concerns owned and controlled by socially and economically disadvantaged individuals in the deployment of prior allocation amounts.”

(c) ADDITIONAL ALLOCATIONS TO SUPPORT VERY SMALL BUSINESSES.—Section 3003 of the State Small Business Credit Initiative Act of 2010 (12 U.S.C. 5702), as amended by subsection (b), is further amended by adding at the end the following:

“(f) ADDITIONAL ALLOCATIONS TO SUPPORT VERY SMALL BUSINESSES.—

“(1) IN GENERAL.—Of the amounts appropriated to carry out the Program, the Secretary shall allocate not less than \$500,000,000 to States from funds allocated under this section to be expended for very small businesses.

“(2) VERY SMALL BUSINESS DEFINED.—In this subsection, the term ‘very small business’—

“(A) means a business with fewer than 10 employees; and

“(B) may include independent contractors and sole proprietors.”

(d) TECHNICAL ASSISTANCE.—Section 3009 of the State Small Business Credit Initiative Act of 2010 (12 U.S.C. 5708) is amended by adding at the end the following:

“(e) TECHNICAL ASSISTANCE.—Of the amounts appropriated for fiscal year 2021 to carry out the Program, \$500,000,000 may be used by the Secretary to—

“(1) provide funds to States to carry out a technical assistance plan under which a State will provide legal, accounting, and financial advisory services, either directly or contracted with legal, accounting, and financial advisory firms, with priority given to business enterprises owned and controlled by socially and economically disadvantaged individuals, to very small businesses and business enterprises owned and controlled by socially and economically disadvantaged individuals applying for—

“(A) State programs under the Program; and

“(B) other State or Federal programs that support small businesses;

“(2) transfer amounts to the Minority Business Development Agency, so that the Agency may use such amounts in a manner the Agency determines appropriate, including

through contracting with third parties, to provide technical assistance to business enterprises owned and controlled by socially and economically disadvantaged individuals applying to—

“(A) State programs under the Program; and

“(B) other State or Federal programs that support small businesses; and

“(3) contract with legal, accounting, and financial advisory firms (with priority given to business enterprises owned and controlled by socially and economically disadvantaged individuals), to provide technical assistance to business enterprises owned and controlled by socially and economically disadvantaged individuals applying to—

“(A) State programs under the Program; and

“(B) other State or Federal programs that support small businesses.”.

(e) INCLUSION OF TRIBAL GOVERNMENTS.—Section 3002(10) of the State Small Business Credit Initiative Act of 2010 (12 U.S.C. 5701(10)) is amended—

(1) in subparagraph (C), by striking “and” at the end;

(2) in subparagraph (D), by striking the period at the end and inserting “; and”; and

(3) by adding at the end the following:

“(E) a Tribal government, or a group of Tribal governments that jointly apply for an allocation.”.

(f) DEFINITIONS.—Section 3002 of the State Small Business Credit Initiative Act of 2010 (12 U.S.C. 5701) is amended by adding at the end the following:

“(15) BUSINESS ENTERPRISE OWNED AND CONTROLLED BY SOCIALLY AND ECONOMICALLY DISADVANTAGED INDIVIDUALS.—The term ‘business enterprise owned and controlled by socially and economically disadvantaged individuals’ means a business that—

“(A) if privately owned, 51 percent is owned by one or more socially and economically disadvantaged individuals;

“(B) if publicly owned, 51 percent of the stock is owned by one or more socially and economically disadvantaged individuals; and

“(C) in the case of a mutual institution, a majority of the Board of Directors, account holders, and the community which the institution services is predominantly comprised of socially and economically disadvantaged individuals.

“(16) COMMUNITY DEVELOPMENT FINANCIAL INSTITUTION.—The term ‘community development financial institution’ has the meaning given that term under section 103 of the Riegle Community Development and Regulatory Improvement Act of 1994.

“(17) MINORITY DEPOSITORY INSTITUTION.—The term ‘minority depository institution’ has the meaning given that term under section 308(b) of the Financial Institutions Reform, Recovery, and Enforcement Act of 1989.

“(18) SOCIALLY AND ECONOMICALLY DISADVANTAGED INDIVIDUAL.—The term ‘socially and economically disadvantaged individual’ means an individual who is a socially disadvantaged individual or an economically disadvantaged individual, as such

terms are defined, respectively, under section 8 of the Small Business Act (15 U.S.C. 637) and the regulations thereunder.

“(19) TRIBAL GOVERNMENT.—The term ‘Tribal government’ means the recognized governing body of any Indian or Alaska Native tribe, band, nation, pueblo, village, community, component band, or component reservation, individually identified (including parenthetically) in the list published most recently as of the date of enactment of this paragraph pursuant to section 104 of the Federally Recognized Indian Tribe List Act of 1994 (25 U.S.C. 5131).”.

12 USC 5701
note.

(g) RULE OF APPLICATION.—The amendments made by this section shall apply with respect to funds appropriated under this section and funds appropriated on and after the date of enactment of this section.

Subtitle D—Public Transportation

49 USC 5301
note.

SEC. 3401. FEDERAL TRANSIT ADMINISTRATION GRANTS.

(a) FEDERAL TRANSIT ADMINISTRATION APPROPRIATION.—

(1) IN GENERAL.—In addition to amounts otherwise made available, there are appropriated for fiscal year 2021, out of any funds in the Treasury not otherwise appropriated, \$30,461,355,534, to remain available until September 30, 2024, that shall—

(A) be for grants to eligible recipients under sections 5307, 5309, 5310, and 5311 of title 49, United States Code, to prevent, prepare for, and respond to coronavirus; and

(B) not be subject to any prior restriction on the total amount of funds available for implementation or execution of programs authorized under sections 5307, 5310, or 5311 of such title.

(2) AVAILABILITY OF FUNDS FOR OPERATING EXPENSES.—

Effective date.

(A) IN GENERAL.—Notwithstanding subsection (a)(1) or (b) of section 5307 and section 5310(b)(2)(A) of title 49, United States Code, funds provided under this section, other than subsection (b)(4), shall be available for the operating expenses of transit agencies to prevent, prepare for, and respond to the coronavirus public health emergency, including, beginning on January 20, 2020—

Reimbursement.

(i) reimbursement for payroll of public transportation (including payroll and expenses of private providers of public transportation);

(ii) operating costs to maintain service due to lost revenue due as a result of the coronavirus public health emergency, including the purchase of personal protective equipment; and

Payments.

(iii) paying the administrative leave of operations or contractor personnel due to reductions in service.

(B) USE OF FUNDS.—Funds described in subparagraph (A) shall be—

(i) available for immediate obligation, notwithstanding the requirement for such expenses to be included in a transportation improvement program, long-range transportation plan, statewide transportation plan, or statewide transportation improvement

program under sections 5303 and 5304 of title 49, United States Code;

(ii) directed to payroll and operations of public transportation (including payroll and expenses of private providers of public transportation), unless the recipient certifies to the Administrator of the Federal Transit Administration that the recipient has not furloughed any employees;

(iii) used to provide a Federal share of the costs for any grant made under this section of 100 percent.

(b) ALLOCATION OF FUNDS.—

(1) URBANIZED AREA FORMULA GRANTS.—

(A) IN GENERAL.—Of the amounts made available under subsection (a), \$26,086,580,227 shall be for grants to recipients and subrecipients under section 5307 of title 49, United States Code, and shall be administered as if such funds were provided under section 5307 of such title.

(B) ALLOCATION.—Amounts made available under subparagraph (A) shall be apportioned to urbanized areas based on data contained in the National Transit Database such that—

Apportionment.

(i) each urbanized area shall receive an apportionment of an amount that, when combined with amounts that were otherwise made available to such urbanized area for similar activities to prevent, prepare for, and respond to coronavirus, is equal to 132 percent of the urbanized area's 2018 operating costs; and

(ii) for funds remaining after the apportionment described in clause (i), such funds shall be apportioned such that each urbanized area that did not receive an apportionment under clause (i) shall receive an apportionment equal to 25 percent of the urbanized area's 2018 operating costs.

(2) FORMULA GRANTS FOR THE ENHANCED MOBILITY OF SENIORS AND INDIVIDUALS WITH DISABILITIES.—

(A) IN GENERAL.—Of the amounts made available under subsection (a), \$50,000,000 shall be for grants to recipients or subrecipients eligible under section 5310 of title 49, United States Code, and shall be apportioned in accordance with such section.

Apportionment.

(B) ALLOCATION RATIO.—Amounts made available under subparagraph (A) shall be allocated in the same ratio as funds were provided under section 5310 of title 49, United States Code, for fiscal year 2020.

(3) FORMULA GRANTS FOR RURAL AREAS.—

(A) IN GENERAL.—Of the amounts made available under subsection (a), \$317,214,013 shall be for grants to recipients or subrecipients eligible under section 5311 of title 49, United States Code, and shall be administered as if the funds were provided under section 5311 of such title, and shall be apportioned in accordance with such section, except as described in paragraph (B).

Apportionment.

(B) ALLOCATION RATIO.—Amounts made available under subparagraph (A) to States, as defined in section 5302 of title 49, United States Code, shall be allocated to such States based on data contained in the National Transit Database, such that—

(i) any State that received an amount for similar activities to prevent, prepare for, and respond to coronavirus that is equal to or greater than 150 percent of the combined 2018 rural operating costs of the recipients and subrecipients in such State shall receive an amount equal to 5 percent of such State's 2018 rural operating costs;

(ii) any State that does not receive an allocation under clause (i) that received an amount for similar activities to prevent, prepare for, and respond to coronavirus that is equal to or greater than 140 percent of the combined 2018 rural operating costs of the recipients and subrecipients in that State shall receive an amount equal to 10 percent of such State's 2018 rural operating costs; and

(iii) any State that does not receive an allocation under clauses (i) or (ii) shall receive an amount equal to 20 percent of such State's 2018 rural operating costs.

(4) CAPITAL INVESTMENTS.—

(A) IN GENERAL.—Of the amounts made available under subsection (a)—

(i) \$1,425,000,000 shall be for grants administered under subsections (d) and (e) of section 5309 of title 49, United States Code; and

(ii) \$250,000,000 shall be for grants administered under subsection (h) of section 5309 of title 49, United States Code.

(B) FUNDING DISTRIBUTION.—

(i) IN GENERAL.—Of the amounts made available in subparagraph (A)(i), \$1,250,000,000 shall be provided to each recipient for all projects with existing full funding grant agreements that received allocations for fiscal year 2019 or 2020, except that recipients with projects open for revenue service are not eligible to receive a grant under this subparagraph. Funds shall be provided proportionally based on the non-capital investment grant share of the amount allocated.

(ii) ALLOCATION.—Of the amounts made available in subparagraph (A)(i), \$175,000,000 shall be provided to each recipient for all projects with existing full funding grant agreements that received an allocation only prior to fiscal year 2019, except that projects open for revenue service are not eligible to receive a grant under this subparagraph and no project may receive more than 40 percent of the amounts provided under this clause. The Administrator of the Federal Transit Administration shall proportionally distribute funds in excess of such percent to recipients for which the percent of funds does not exceed 40 percent. Funds shall be provided proportionally based on the non-capital investment grant share of the amount allocated.

(iii) ELIGIBLE RECIPIENTS.—For amounts made available in subparagraph (A)(ii), eligible recipients shall be any recipient of an allocation under subsection (h) of section 5309 of title 49, United States Code,

or an applicant in the project development phase described in paragraph (2) of such subsection.

(iv) AMOUNT.—Amounts distributed under clauses (i), (ii), and (iii) of subparagraph (A) shall be provided notwithstanding the limitation of any calculation of the maximum amount of Federal financial assistance for the project under subsection (k)(2)(C)(ii) or (h)(7) of section 5309 of title 49, United States Code.

(5) SECTION 5311(F) SERVICES.—

(A) IN GENERAL.—Of the amounts made available under subsection (a) and in addition to the amounts made available under paragraph (3), \$100,000,000 shall be available for grants to recipients for bus operators that partner with recipients or subrecipients of funds under section 5311(f) of title 49, United States Code.

(B) ALLOCATION RATIO.—Notwithstanding paragraph (3), the Administrator of the Federal Transit Administration shall allocate amounts under subparagraph (A) in the same ratio as funds were provided under section 5311 of title 49, United States Code, for fiscal year 2020.

(C) EXCEPTION.—If a State or territory does not have bus providers eligible under section 5311(f) of title 49, United States Code, funds under this paragraph may be used by such State or territory for any expense eligible under section 5311 of title 49, United States Code.

(6) PLANNING.—

(A) IN GENERAL.—Of the amounts made available under subsection (a), \$25,000,000 shall be for grants to recipients eligible under section 5307 of title 49, United States Code, for the planning of public transportation associated with the restoration of services as the coronavirus public health emergency concludes and shall be available in accordance with such section.

(B) AVAILABILITY OF FUNDS FOR ROUTE PLANNING.—Amounts made available under subparagraph (A) shall be available for route planning designed to—

(i) increase ridership and reduce travel times, while maintaining or expanding the total level of vehicle revenue miles of service provided in the planning period; or

(ii) make service adjustments to increase the quality or frequency of service provided to low-income riders and disadvantaged neighborhoods or communities.

(C) LIMITATION.—Amounts made available under subparagraph (A) shall not be used for route planning related to transitioning public transportation service provided as of the date of receipt of funds to a transportation network company or other third-party contract provider, unless the existing provider of public transportation service is a third-party contract provider.

(7) RECIPIENTS AND SUBRECIPIENTS REQUIRING ADDITIONAL ASSISTANCE.—

(A) IN GENERAL.—Of the amounts made available under subsection (a), \$2,207,561,294 shall be for grants to eligible recipients or subrecipients of funds under sections 5307 or 5311 of title 49, United States Code, that,

as a result of COVID-19, require additional assistance for costs related to operations, personnel, cleaning, and sanitization combating the spread of pathogens on transit systems, and debt service payments incurred to maintain operations and avoid layoffs and furloughs.

(B) ADMINISTRATION.—Funds made available under subparagraph (A) shall, after allocation, be administered as if provided under paragraph (1) or (3), as applicable.

(C) APPLICATION REQUIREMENTS.—

(i) IN GENERAL.—The Administrator of the Federal Transit Administration may not allocate funds to an eligible recipient or subrecipient of funds under chapter 53 of title 49, United States Code, unless the recipient provides to the Administrator—

(I) estimates of financial need;

(II) data on reductions in farebox or other sources of local revenue for sustained operations;

(III) a spending plan for such funds; and

(IV) demonstration of expenditure of greater than 90 percent of funds available to the applicant from funds made available for similar activities in fiscal year 2020.

(ii) DEADLINES.—The Administrator of the Federal Transit Administration shall—

(I) not later than 180 days after the date of enactment of this Act, issue a Notice of Funding Opportunity for assistance under this paragraph; and

(II) not later than 120 days after the application deadline established in the Notice of Funding Opportunity under subclause (I), make awards under this paragraph to selected applicants.

(iii) EVALUATION.—

(I) IN GENERAL.—Applications for assistance under this paragraph shall be evaluated by the Administrator of the Federal Transit Administration based on the level of financial need demonstrated by an eligible recipient or subrecipient, including projections of future financial need to maintain service as a percentage of the 2018 operating costs that has not been replaced by the funds made available to the eligible recipient or subrecipient under paragraphs (1) through (5) of this subsection when combined with the amounts allocated to such eligible recipient or subrecipient from funds previously made available for the operating expenses of transit agencies related to the response to the COVID-19 public health emergency.

(II) RESTRICTION.—Amounts made available under this paragraph shall only be available for operating expenses.

(iv) STATE APPLICANTS.—A State may apply for assistance under this paragraph on behalf of an eligible recipient or subrecipient or a group of eligible recipients or subrecipients.

(D) UNOBLIGATED FUNDS.—If amounts made available under this paragraph remain unobligated on September

Estimates.

Data.

Spending plan.

Notice.

30, 2023, such amounts shall be available for any purpose eligible under sections 5307 or 5311 of title 49, United States Code.

TITLE IV—COMMITTEE ON HOMELAND SECURITY AND GOVERNMENTAL AFFAIRS

SEC. 4001. EMERGENCY FEDERAL EMPLOYEE LEAVE FUND.

5 USC 6301 note.

(a) ESTABLISHMENT; APPROPRIATION.—There is established in the Treasury the Emergency Federal Employee Leave Fund (in this section referred to as the “Fund”), to be administered by the Director of the Office of Personnel Management, for the purposes set forth in subsection (b). In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$570,000,000, which shall be deposited into the Fund and remain available through September 30, 2022. The Fund is available for reasonable expenses incurred by the Office of Personnel Management in administering this section.

(b) PURPOSE.—Amounts in the Fund shall be available for reimbursement to an agency for the use of paid leave under this section by any employee of the agency who is unable to work because the employee—

Reimbursement.

(1) is subject to a Federal, State, or local quarantine or isolation order related to COVID-19;

(2) has been advised by a health care provider to self-quarantine due to concerns related to COVID-19;

(3) is caring for an individual who is subject to such an order or has been so advised;

(4) is experiencing symptoms of COVID-19 and seeking a medical diagnosis;

(5) is caring for a son or daughter of such employee if the school or place of care of the son or daughter has been closed, if the school of such son or daughter requires or makes optional a virtual learning instruction model or requires or makes optional a hybrid of in-person and virtual learning instruction models, or the child care provider of such son or daughter is unavailable, due to COVID-19 precautions;

(6) is experiencing any other substantially similar condition;

(7) is caring for a family member with a mental or physical disability or who is 55 years of age or older and incapable of self-care, without regard to whether another individual other than the employee is available to care for such family member, if the place of care for such family member is closed or the direct care provider is unavailable due to COVID-19; or

(8) is obtaining immunization related to COVID-19 or is recovering from any injury, disability, illness, or condition related to such immunization.

(c) LIMITATIONS.—

(1) PERIOD OF AVAILABILITY.—Paid leave under this section may only be provided to and used by an employee during the period beginning on the date of enactment of this Act and ending on September 30, 2021.

(2) TOTAL HOURS; AMOUNT.—Paid leave under this section—

(A) shall be provided to an employee in an amount not to exceed 600 hours of paid leave for each full-time employee, and in the case of a part-time employee, employee on an uncommon tour of duty, or employee with a seasonal work schedule, in an amount not to exceed the proportional equivalent of 600 hours to the extent amounts in the Fund remain available for reimbursement;

(B) shall be paid at the same hourly rate as other leave payments; and

(C) may not be provided to an employee if the leave would result in payments greater than \$2,800 in aggregate for any biweekly pay period for a full-time employee, or a proportionally equivalent biweekly limit for a part-time employee.

(3) RELATIONSHIP TO OTHER LEAVE.—Paid leave under this section—

(A) is in addition to any other leave provided to an employee; and

(B) may not be used by an employee concurrently with any other paid leave.

(4) CALCULATION OF RETIREMENT BENEFIT.—Any paid leave provided to an employee under this section shall reduce the total service used to calculate any Federal civilian retirement benefit.

(d) EMPLOYEE DEFINED.—In this section, the term “employee” means—

(1) an individual in the executive branch for whom annual and sick leave is provided under subchapter I of chapter 63 of title 5, United States Code;

(2) an individual employed by the United States Postal Service;

(3) an individual employed by the Postal Regulatory Commission; and

(4) an employee of the Public Defender Service for the District of Columbia and the District of Columbia Courts.

SEC. 4002. FUNDING FOR THE GOVERNMENT ACCOUNTABILITY OFFICE.

In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$77,000,000, to remain available until September 30, 2025, for necessary expenses of the Government Accountability Office to prevent, prepare for, and respond to Coronavirus and to support oversight of the Coronavirus response and of funds provided in this Act or any other Act pertaining to the Coronavirus pandemic.

SEC. 4003. PANDEMIC RESPONSE ACCOUNTABILITY COMMITTEE FUNDING AVAILABILITY.

In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$40,000,000, to remain available until September 30, 2025, for the Pandemic Response Accountability Committee to support oversight of the Coronavirus response and of funds provided in this Act or any other Act pertaining to the Coronavirus pandemic.

SEC. 4004. FUNDING FOR THE WHITE HOUSE.

In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$12,800,000, to remain available until September 30, 2021, for necessary expenses for the White House, to prevent, prepare for, and respond to coronavirus.

SEC. 4005. FEDERAL EMERGENCY MANAGEMENT AGENCY APPROPRIATION.

In addition to amounts otherwise available, there is appropriated to the Federal Emergency Management Agency for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$50,000,000,000, to remain available until September 30, 2025, to carry out the purposes of the Disaster Relief Fund for costs associated with major disaster declarations.

SEC. 4006. FUNERAL ASSISTANCE.

(a) **IN GENERAL.**—For the emergency declaration issued by the President on March 13, 2020, pursuant to section 501(b) of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5191(b)), and for any subsequent major disaster declaration that supersedes such emergency declaration, the President shall provide financial assistance to an individual or household to meet disaster-related funeral expenses under section 408(e)(1) of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5174(e)(1)), for which the Federal cost share shall be 100 percent.

42 USC 5174
note.
President.

(b) **USE OF FUNDS.**—Funds appropriated under section 4005 may be used to carry out subsection (a) of this section.

SEC. 4007. EMERGENCY FOOD AND SHELTER PROGRAM FUNDING.

In addition to amounts otherwise made available, there is appropriated to the Federal Emergency Management Agency for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$400,000,000, to remain available until September 30, 2025, for the emergency food and shelter program.

SEC. 4008. HUMANITARIAN RELIEF.

In addition to amounts otherwise made available, there is appropriated to the Federal Emergency Management Agency for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$110,000,000, to remain available until September 30, 2025, for the emergency food and shelter program for the purposes of providing humanitarian relief to families and individuals encountered by the Department of Homeland Security.

SEC. 4009. CYBERSECURITY AND INFRASTRUCTURE SECURITY AGENCY.

In addition to amounts otherwise made available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$650,000,000, to remain available until September 30, 2023, for the Cybersecurity and Infrastructure Security Agency for cybersecurity risk mitigation.

SEC. 4010. APPROPRIATION FOR THE UNITED STATES DIGITAL SERVICE.

In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury

not otherwise appropriated, \$200,000,000, to remain available until September 30, 2024, for the United States Digital Service.

SEC. 4011. APPROPRIATION FOR THE TECHNOLOGY MODERNIZATION FUND.

In addition to amounts otherwise appropriated, there is appropriated to the General Services Administration for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$1,000,000,000, to remain available until September 30, 2025, to carry out the purposes of the Technology Modernization Fund.

SEC. 4012. APPROPRIATION FOR THE FEDERAL CITIZEN SERVICES FUND.

In addition to amounts otherwise available, there is appropriated to the General Services Administration for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$150,000,000, to remain available until September 30, 2024, to carry out the purposes of the Federal Citizen Services Fund.

SEC. 4013. AFG AND SAFER PROGRAM FUNDING.

In addition to amounts otherwise made available, there is appropriated to the Federal Emergency Management Agency for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$300,000,000, to remain available until September 30, 2025, of which \$100,000,000 shall be for assistance to firefighter grants and \$200,000,000 shall be for staffing for adequate fire and emergency response grants.

SEC. 4014. EMERGENCY MANAGEMENT PERFORMANCE GRANT FUNDING.

In addition to amounts otherwise made available, there is appropriated to the Federal Emergency Management Agency for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$100,000,000, to remain available until September 30, 2025, for emergency management performance grants.

SEC. 4015. EXTENSION OF REIMBURSEMENT AUTHORITY FOR FEDERAL CONTRACTORS.

Section 3610 of the CARES Act (Public Law 116–136; 134 Stat. 414) is amended by striking “September 30, 2020” and inserting “September 30, 2021”.

41 USC 6301
note prec.

5 USC 8101 note.

SEC. 4016. ELIGIBILITY FOR WORKERS’ COMPENSATION BENEFITS FOR FEDERAL EMPLOYEES DIAGNOSED WITH COVID–19.

(a) **IN GENERAL.**—Subject to subsection (c), a covered employee shall, with respect to any claim made by or on behalf of the covered employee for benefits under subchapter I of chapter 81 of title 5, United States Code, be deemed to have an injury proximately caused by exposure to the novel coronavirus arising out of the nature of the covered employee’s employment. Such covered employee, or a beneficiary of such an employee, shall be entitled to such benefits for such claim, including disability compensation, medical services, and survivor benefits.

(b) **DEFINITIONS.**—In this section:

(1) **COVERED EMPLOYEE.**—

(A) **IN GENERAL.**—The term “covered employee” means an individual—

(i) who is an employee under section 8101(1) of title 5, United States Code, employed in the Federal

Time period.

service at anytime during the period beginning on January 27, 2020, and ending on January 27, 2023;

(ii) who is diagnosed with COVID-19 during such period; and

(iii) who, during a covered exposure period prior to such diagnosis, carries out duties that—

(I) require contact with patients, members of the public, or co-workers; or

(II) include a risk of exposure to the novel coronavirus.

(B) TELEWORKING EXCEPTION.—The term “covered employee” does not include any employee otherwise covered by subparagraph (A) who is exclusively teleworking during a covered exposure period, regardless of whether such employment is full time or part time.

(2) COVERED EXPOSURE PERIOD.—The term “covered exposure period” means, with respect to a diagnosis of COVID-19, the period beginning on a date to be determined by the Secretary of Labor.

Determination.

(3) NOVEL CORONAVIRUS.—The term “novel coronavirus” means SARS-CoV-2 or another coronavirus declared to be a pandemic by public health authorities.

(c) LIMITATION.—

(1) DETERMINATIONS MADE ON OR BEFORE THE DATE OF ENACTMENT.—This section shall not apply with respect to a covered employee who is determined to be entitled to benefits under subchapter I of chapter 81 of title 5, United States Code, for a claim described in subsection (a) if such determination is made on or before the date of enactment of this Act.

(2) LIMITATION ON DURATION OF BENEFITS.—No funds are authorized to be appropriated to pay, and no benefits may be paid for, claims approved on the basis of subsection (a) after September 30, 2030. No administrative costs related to any such claim may be paid after such date.

Termination date.

(d) EMPLOYEES’ COMPENSATION FUND.—

(1) IN GENERAL.—The costs of benefits for claims approved on the basis of subsection (a) shall not be included in the annual statement of the cost of benefits and other payments of an agency or instrumentality under section 8147(b) of title 5, United States Code.

(2) FAIR SHARE PROVISION.—Costs of administration for claims described in paragraph (1)—

(A) may be paid from the Employees’ Compensation Fund; and

(B) shall not be subject to the fair share provision in section 8147(c) of title 5, United States Code.

TITLE V—COMMITTEE ON SMALL BUSINESS AND ENTREPRENEURSHIP

SEC. 5001. MODIFICATIONS TO PAYCHECK PROTECTION PROGRAM.

(a) ELIGIBILITY OF CERTAIN NONPROFIT ENTITIES FOR COVERED LOANS UNDER THE PAYCHECK PROTECTION PROGRAM.—

(1) IN GENERAL.—Section 7(a)(36) of the Small Business Act (15 U.S.C. 636(a)(36)), as amended by the Economic Aid

- to Hard-Hit Small Businesses, Nonprofits, and Venues Act (title III of division N of Public Law 116-260), is amended—
- 134 Stat. 1993. (A) in subparagraph (A)—
- (i) in clause (xv), by striking “and” at the end;
 - (ii) in clause (xvi), by striking the period at the end and inserting “; and”; and
 - (iii) by adding at the end the following:

Definition. “(xvii) the term ‘additional covered nonprofit entity’—

 - “(I) means an organization described in any paragraph of section 501(c) of the Internal Revenue Code of 1986, other than paragraph (3), (4), (6), or (19), and exempt from tax under section 501(a) of such Code; and
 - “(II) does not include any entity that, if the entity were a business concern, would be described in section 120.110 of title 13, Code of Federal Regulations (or in any successor regulation or other related guidance or rule that may be issued by the Administrator) other than a business concern described in paragraph (a) or (k) of such section.”; and
- (B) in subparagraph (D)—
- (i) in clause (iii), by adding at the end the following:

“(III) ELIGIBILITY OF CERTAIN ORGANIZATIONS.—Subject to the provisions in this subparagraph, during the covered period—

 - “(aa) a nonprofit organization shall be eligible to receive a covered loan if the nonprofit organization employs not more than 500 employees per physical location of the organization; and
 - “(bb) an additional covered nonprofit entity and an organization that, but for subclauses (I)(dd) and (II)(dd) of clause (vii), would be eligible for a covered loan under clause (vii) shall be eligible to receive a covered loan if the entity or organization employs not more than 300 employees per physical location of the entity or organization.”; and
 - (ii) by adding at the end the following:

“(ix) ELIGIBILITY OF ADDITIONAL COVERED NON-PROFIT ENTITIES.—An additional covered nonprofit entity shall be eligible to receive a covered loan if—

 - “(I) the additional covered nonprofit entity does not receive more than 15 percent of its receipts from lobbying activities;
 - “(II) the lobbying activities of the additional covered nonprofit entity do not comprise more than 15 percent of the total activities of the organization;
 - “(III) the cost of the lobbying activities of the additional covered nonprofit entity did not exceed \$1,000,000 during the most recent tax year of the additional covered nonprofit entity that ended prior to February 15, 2020; and

“(IV) the additional covered nonprofit entity employs not more than 300 employees.”.

(2) ELIGIBILITY FOR SECOND DRAW LOANS.—Paragraph (37)(A)(i) of section 7(a) of the Small Business Act (15 U.S.C. 636(a)), as added by the Economic Aid to Hard-Hit Small Businesses, Nonprofits, and Venues Act (title III of division N of Public Law 116-260), is amended by inserting “‘additional covered nonprofit entity’,” after “the terms”.

134 Stat. 2001.

(b) ELIGIBILITY OF INTERNET PUBLISHING ORGANIZATIONS FOR COVERED LOANS UNDER THE PAYCHECK PROTECTION PROGRAM.—

(1) IN GENERAL.—Section 7(a)(36)(D) of the Small Business Act (15 U.S.C. 636(a)(36)(D)), as amended by subsection (a), is further amended—

(A) in clause (iii), by adding at the end the following:

“(IV) ELIGIBILITY OF INTERNET PUBLISHING ORGANIZATIONS.—A business concern or other organization that was not eligible to receive a covered loan the day before the date of enactment of this subclause, is assigned a North American Industry Classification System code of 519130, certifies in good faith as an Internet-only news publisher or Internet-only periodical publisher, and is engaged in the collection and distribution of local or regional and national news and information shall be eligible to receive a covered loan for the continued provision of news, information, content, or emergency information if—

“(aa) the business concern or organization employs not more than 500 employees, or the size standard established by the Administrator for that North American Industry Classification code, per physical location of the business concern or organization; and

“(bb) the business concern or organization makes a good faith certification that proceeds of the loan will be used to support expenses at the component of the business concern or organization that supports local or regional news.”;

Certification.

(B) in clause (iv)—

(i) in subclause (III), by striking “and” at the end;

(ii) in subclause (IV)(bb), by striking the period at the end and inserting “; and”; and

(iii) by adding at the end the following:

“(V) any business concern or other organization that was not eligible to receive a covered loan the day before the date of enactment of this subclause, is assigned a North American Industry Classification System code of 519130, certifies in good faith as an Internet-only news publisher or Internet-only periodical publisher, and is engaged in the collection and distribution of local or regional and national news and information, if the business concern or organization—

Certification.

“(aa) employs not more than 500 employees, or the size standard established by the Administrator for that North American

Industry Classification code, per physical location of the business concern or organization; and

“(bb) is majority owned or controlled by a business concern or organization that is assigned a North American Industry Classification System code of 519130.”;

(C) in clause (v), by striking “clause (iii)(II), (iv)(IV), or (vii)” and inserting “subclause (II), (III), or (IV) of clause (iii), subclause (IV) or (V) of clause (iv), clause (vii), or clause (ix)”;

(D) in clause (viii)(II)—

(i) by striking “business concern made eligible by clause (iii)(II) or clause (iv)(IV) of this subparagraph” and inserting “business concern made eligible by subclause (II) or (IV) of clause (iii) or subclause (IV) or (V) of clause (iv) of this subparagraph”;

(ii) by inserting “or organization” after “business concern” each place it appears.

(2) ELIGIBILITY FOR SECOND DRAW LOANS.—Section 7(a)(37)(A)(iv)(II) of the Small Business Act, as amended by the Economic Aid to Hard-Hit Small Businesses, Nonprofits, and Venues Act (title III of division N of Public Law 116-260), is amended by striking “clause (iii)(II), (iv)(IV), or (vii)” and inserting “subclause (II), (III), or (IV) of clause (iii), subclause (IV) or (V) of clause (iv), clause (vii), or clause (ix)”.

134 Stat. 2002.

(c) COORDINATION WITH CONTINUATION COVERAGE PREMIUM ASSISTANCE.—

(1) PAYCHECK PROTECTION PROGRAM.—Section 7A(a)(12) of the Small Business Act (as redesignated, transferred, and amended by section 304(b) of the Economic Aid to Hard-Hit Small Businesses, Nonprofits, and Venues Act (Public Law 116-260)) is amended—

134 Stat. 1993.

(A) by striking “CARES Act or” and inserting “CARES Act,”; and

(B) by inserting before the period at the end the following: “, or premiums taken into account in determining the credit allowed under section 6432 of the Internal Revenue Code of 1986”.

(2) PAYCHECK PROTECTION PROGRAM SECOND DRAW.—Section 7(a)(37)(J)(iii)(I) of the Small Business Act, as amended by the Economic Aid to Hard-Hit Small Businesses, Nonprofits, and Venues Act (title III of division N of Public Law 116-260), is amended—

134 Stat. 2005.

(A) by striking “or” at the end of item (aa);

(B) by striking the period at the end of item (bb) and inserting “; or”; and

(C) by adding at the end the following new item:

“(cc) premiums taken into account in determining the credit allowed under section 6432 of the Internal Revenue Code of 1986.”.

15 USC 636 note.

(3) APPLICABILITY.—The amendments made by this subsection shall apply only with respect to applications for forgiveness of covered loans made under paragraphs (36) or (37) of section 7(a) of the Small Business Act, as amended by the Economic Aid to Hard-Hit Small Businesses, Nonprofits, and Venues Act (title III of division N of Public Law 116-260),

that are received on or after the date of the enactment of this Act.

(d) COMMITMENT AUTHORITY AND APPROPRIATIONS.—

(1) COMMITMENT AUTHORITY.—Section 1102(b)(1) of the CARES Act (Public Law 116-136) is amended by striking “\$806,450,000,000” and inserting “\$813,700,000,000”.

134 Stat. 293,
660, 2019.

(2) DIRECT APPROPRIATIONS.—In addition to amounts otherwise available, there is appropriated to the Administrator of the Small Business Administration for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$7,250,000,000, to remain available until expended, for carrying out this section.

SEC. 5002. TARGETED EIDL ADVANCE.

15 USC 9009
note.

(a) DEFINITIONS.—In this section—

(1) the term “Administrator” means the Administrator of the Small Business Administration; and

(2) the terms “covered entity” and “economic loss” have the meanings given the terms in section 331(a) of the Economic Aid to Hard-Hit Small Businesses, Nonprofits, and Venues Act (title III of division N of Public Law 116-260).

(b) APPROPRIATIONS.—In addition to amounts otherwise available, there is appropriated to the Administrator for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$15,000,000,000—

(1) to remain available until expended; and

(2) of which, the Administrator shall use—

(A) \$10,000,000,000 to make payments to covered entities that have not received the full amounts to which the covered entities are entitled under section 331 of the Economic Aid to Hard-Hit Small Businesses, Nonprofits, and Venues Act (title III of division N of Public Law 116-260); and

(B) \$5,000,000,000 to make payments under section 1110(e) of the CARES Act (15 U.S.C. 9009(e)), each of which shall be—

(i) made to a covered entity that—

(I) has suffered an economic loss of greater than 50 percent; and

(II) employs not more than 10 employees;

(ii) in an amount that is \$5,000; and

(iii) with respect to the covered entity to which the payment is made, in addition to any payment made to the covered entity under section 1110(e) of the CARES Act (15 U.S.C. 9009(e)) or section 331 of the Economic Aid to Hard-Hit Small Businesses, Nonprofits, and Venues Act (title III of division N of Public Law 116-260).

SEC. 5003. SUPPORT FOR RESTAURANTS.

15 USC 9009c.

(a) DEFINITIONS.—In this section:

(1) ADMINISTRATOR.—The term “Administrator” means the Administrator of the Small Business Administration.

(2) AFFILIATED BUSINESS.—The term “affiliated business” means a business in which an eligible entity has an equity or right to profit distributions of not less than 50 percent, or in which an eligible entity has the contractual authority to control the direction of the business, provided that such

Determination.
Agreement date.

affiliation shall be determined as of any arrangements or agreements in existence as of March 13, 2020.

(3) COVERED PERIOD.—The term “covered period” means the period—

(A) beginning on February 15, 2020; and

Determination.
Deadline.

(B) ending on December 31, 2021, or a date to be determined by the Administrator that is not later than 2 years after the date of enactment of this section.

(4) ELIGIBLE ENTITY.—The term “eligible entity”—

(A) means a restaurant, food stand, food truck, food cart, caterer, saloon, inn, tavern, bar, lounge, brewpub, tasting room, taproom, licensed facility or premise of a beverage alcohol producer where the public may taste, sample, or purchase products, or other similar place of business in which the public or patrons assemble for the primary purpose of being served food or drink;

(B) includes an entity described in subparagraph (A) that is located in an airport terminal or that is a Tribally-owned concern; and

(C) does not include—

(i) an entity described in subparagraph (A) that—

(I) is a State or local government-operated business;

Agreement date.

(II) as of March 13, 2020, owns or operates (together with any affiliated business) more than 20 locations, regardless of whether those locations do business under the same or multiple names; or

(III) has a pending application for or has received a grant under section 324 of the Economic Aid to Hard-Hit Small Businesses, Nonprofits, and Venues Act (title III of division N of Public Law 116-260); or

(ii) a publicly-traded company.

(5) EXCHANGE; ISSUER; SECURITY.—The terms “exchange”, “issuer”, and “security” have the meanings given those terms in section 3(a) of the Securities Exchange Act of 1934 (15 U.S.C. 78c(a)).

(6) FUND.—The term “Fund” means the Restaurant Revitalization Fund established under subsection (b).

(7) PANDEMIC-RELATED REVENUE LOSS.—The term “pandemic-related revenue loss” means, with respect to an eligible entity—

(A) except as provided in subparagraphs (B), (C), and (D), the gross receipts, as established using such verification documentation as the Administrator may require, of the eligible entity during 2020 subtracted from the gross receipts of the eligible entity in 2019, if such sum is greater than zero;

(B) if the eligible entity was not in operation for the entirety of 2019—

(i) the difference between—

(I) the product obtained by multiplying the average monthly gross receipts of the eligible entity in 2019 by 12; and

- (II) the product obtained by multiplying the average monthly gross receipts of the eligible entity in 2020 by 12; or
 - (i) an amount based on a formula determined by the Administrator; Determination.
 - (C) if the eligible entity opened during the period beginning on January 1, 2020, and ending on the day before the date of enactment of this section— Time period.
 - (i) the expenses described in subsection (c)(5)(A) that were incurred by the eligible entity minus any gross receipts received; or
 - (ii) an amount based on a formula determined by the Administrator; or Determination.
 - (D) if the eligible entity has not yet opened as of the date of application for a grant under subsection (c), but has incurred expenses described in subsection (c)(5)(A) as of the date of enactment of this section—
 - (i) the amount of those expenses; or
 - (ii) an amount based on a formula determined by the Administrator. Determination.

For purposes of this paragraph, the pandemic-related revenue losses for an eligible entity shall be reduced by any amounts received from a covered loan made under paragraph (36) or (37) of section 7(a) of the Small Business Act (15 U.S.C. 636(a)) in 2020 or 2021.

(8) PAYROLL COSTS.—The term “payroll costs” has the meaning given the term in section 7(a)(36)(A) of the Small Business Act (15 U.S.C. 636(a)(36)(A)), except that such term shall not include—

(A) qualified wages (as defined in subsection (c)(3) of section 2301 of the CARES Act) taken into account in determining the credit allowed under such section 2301; or

(B) premiums taken into account in determining the credit allowed under section 6432 of the Internal Revenue Code of 1986.

(9) PUBLICLY-TRADED COMPANY.—The term “publicly-traded company” means an entity that is majority owned or controlled by an entity that is an issuer, the securities of which are listed on a national securities exchange under section 6 of the Securities Exchange Act of 1934 (15 U.S.C. 78f).

(10) TRIBALLY-OWNED CONCERN.—The term “Tribally-owned concern” has the meaning given the term in section 124.3 of title 13, Code of Federal Regulations, or any successor regulation.

(b) RESTAURANT REVITALIZATION FUND.—

(1) IN GENERAL.—There is established in the Treasury of the United States a fund to be known as the Restaurant Revitalization Fund.

(2) APPROPRIATIONS.—

(A) IN GENERAL.—In addition to amounts otherwise available, there is appropriated to the Restaurant Revitalization Fund for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$28,600,000,000, to remain available until expended.

(B) DISTRIBUTION.—

(i) IN GENERAL.—Of the amounts made available under subparagraph (A)—

(I) \$5,000,000,000 shall be available to eligible entities with gross receipts during 2019 of not more than \$500,000; and

(II) \$23,600,000,000 shall be available to the Administrator to award grants under subsection (c) in an equitable manner to eligible entities of different sizes based on annual gross receipts.

(ii) ADJUSTMENTS.—The Administrator may make adjustments as necessary to the distribution of funds under clause (i)(II) based on demand and the relative local costs in the markets in which eligible entities operate.

Effective date.
Determination.

(C) GRANTS AFTER INITIAL PERIOD.—Notwithstanding subparagraph (B), on and after the date that is 60 days after the date of enactment of this section, or another period of time determined by the Administrator, the Administrator may make grants using amounts appropriated under subparagraph (A) to any eligible entity regardless of the annual gross receipts of the eligible entity.

(3) USE OF FUNDS.—The Administrator shall use amounts in the Fund to make grants described in subsection (c).

(c) RESTAURANT REVITALIZATION GRANTS.—

(1) IN GENERAL.—Except as provided in subsection (b) and paragraph (3), the Administrator shall award grants to eligible entities in the order in which applications are received by the Administrator.

(2) APPLICATION.—

(A) CERTIFICATION.—An eligible entity applying for a grant under this subsection shall make a good faith certification that—

(i) the uncertainty of current economic conditions makes necessary the grant request to support the ongoing operations of the eligible entity; and

(ii) the eligible entity has not applied for or received a grant under section 324 of the Economic Aid to Hard-Hit Small Businesses, Nonprofits, and Venues Act (title III of division N of Public Law 116-260).

(B) BUSINESS IDENTIFIERS.—In accepting applications for grants under this subsection, the Administrator shall prioritize the ability of each applicant to use their existing business identifiers over requiring other forms of registration or identification that may not be common to their industry and imposing additional burdens on applicants.

(3) PRIORITY IN AWARDING GRANTS.—

Time period.

(A) IN GENERAL.—During the initial 21-day period in which the Administrator awards grants under this subsection, the Administrator shall prioritize awarding grants to eligible entities that are small business concerns owned and controlled by women (as defined in section 3(n) of the Small Business Act (15 U.S.C. 632(n))), small business concerns owned and controlled by veterans (as defined in section 3(q) of such Act (15 U.S.C. 632(q))), or socially and economically disadvantaged small business concerns (as defined in section 8(a)(4)(A) of the Small Business Act

(15 U.S.C. 637(a)(4)(A))). The Administrator may take such steps as necessary to ensure that eligible entities described in this subparagraph have access to grant funding under this section after the end of such 21-day period.

(B) CERTIFICATION.—For purposes of establishing priority under subparagraph (A), an applicant shall submit a self-certification of eligibility for priority with the grant application.

(4) GRANT AMOUNT.—

(A) AGGREGATE MAXIMUM AMOUNT.—The aggregate amount of grants made to an eligible entity and any affiliated businesses of the eligible entity under this subsection—

(i) shall not exceed \$10,000,000; and

(ii) shall be limited to \$5,000,000 per physical location of the eligible entity.

(B) DETERMINATION OF GRANT AMOUNT.—

(i) IN GENERAL.—Except as provided in this paragraph, the amount of a grant made to an eligible entity under this subsection shall be equal to the pandemic-related revenue loss of the eligible entity.

(ii) RETURN TO TREASURY.—Any amount of a grant made under this subsection to an eligible entity based on estimated receipts that is greater than the actual gross receipts of the eligible entity in 2020 shall be returned to the Treasury.

(5) USE OF FUNDS.—During the covered period, an eligible entity that receives a grant under this subsection may use the grant funds for the following expenses incurred as a direct result of, or during, the COVID-19 pandemic:

(A) Payroll costs.

(B) Payments of principal or interest on any mortgage obligation (which shall not include any prepayment of principal on a mortgage obligation).

(C) Rent payments, including rent under a lease agreement (which shall not include any prepayment of rent).

(D) Utilities.

(E) Maintenance expenses, including—

(i) construction to accommodate outdoor seating; and

(ii) walls, floors, deck surfaces, furniture, fixtures, and equipment.

(F) Supplies, including protective equipment and cleaning materials.

(G) Food and beverage expenses that are within the scope of the normal business practice of the eligible entity before the covered period.

(H) Covered supplier costs, as defined in section 7A(a) of the Small Business Act (as redesignated, transferred, and amended by section 304(b) of the Economic Aid to Hard-Hit Small Businesses, Nonprofits, and Venues Act (Public Law 116-260)).

(I) Operational expenses.

(J) Paid sick leave.

(K) Any other expenses that the Administrator determines to be essential to maintaining the eligible entity.

(6) RETURNING FUNDS.—If an eligible entity that receives a grant under this subsection fails to use all grant funds or permanently ceases operations on or before the last day of the covered period, the eligible entity shall return to the Treasury any funds that the eligible entity did not use for the allowable expenses under paragraph (5).

15 USC 9013.

SEC. 5004. COMMUNITY NAVIGATOR PILOT PROGRAM.

(a) DEFINITIONS.—In this section:

(1) ADMINISTRATION.—The term “Administration” means the Small Business Administration.

(2) ADMINISTRATOR.—The term “Administrator” means the Administrator of the Small Business Administration.

(3) COMMUNITY NAVIGATOR SERVICES.—The term “community navigator services” means the outreach, education, and technical assistance provided by community navigators that target eligible businesses to increase awareness of, and participation in, programs of the Small Business Administration.

(4) COMMUNITY NAVIGATOR.—The term “community navigator” means a community organization, community financial institution as defined in section 7(a)(36)(A) of the Small Business Act (15 U.S.C. 636(a)(36)(A)), or other private nonprofit organization engaged in the delivery of community navigator services.

(5) ELIGIBLE BUSINESS.—The term “eligible business” means any small business concern, with priority for small business concerns owned and controlled by women (as defined in section 3(n) of the Small Business Act (15 U.S.C. 632(n))), small business concerns owned and controlled by veterans (as defined in section 3(q) of such Act (15 U.S.C. 632(q))), and socially and economically disadvantaged small business concerns (as defined in section 8(a)(4)(A) of the Small Business Act (15 U.S.C. 637(a)(4)(A))).

(6) PRIVATE NONPROFIT ORGANIZATION.—The term “private nonprofit organization” means an entity that is described in section 501(c) of the Internal Revenue Code of 1986 and exempt from tax under section 501(a) of such Code.

(7) RESOURCE PARTNER.—The term “resource partner” means—

(A) a small business development center (as defined in section 3 of the Small Business Act (15 U.S.C. 632));

(B) a women’s business center (as described in section 29 of the Small Business Act (15 U.S.C. 656)); and

(C) a chapter of the Service Corps of Retired Executives (as defined in section 8(b)(1)(B) of the Act (15 U.S.C. 637(b)(1)(B))).

(8) SMALL BUSINESS CONCERN.—The term “small business concern” has the meaning given under section 3 of the Small Business Act (15 U.S.C. 632).

(9) STATE.—The term “State” means a State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Commonwealth of the Northern Mariana Islands, and Guam, or an agency, instrumentality, or fiscal agent thereof.

(10) UNIT OF GENERAL LOCAL GOVERNMENT.—The term “unit of general local government” means a county, city, town, village, or other general purpose political subdivision of a State.

(b) COMMUNITY NAVIGATOR PILOT PROGRAM.—

(1) IN GENERAL.—The Administrator of the Small Business Administration shall establish a Community Navigator pilot program to make grants to, or enter into contracts or cooperative agreements with, private nonprofit organizations, resource partners, States, Tribes, and units of local government to ensure the delivery of free community navigator services to current or prospective owners of eligible businesses in order to improve access to assistance programs and resources made available because of the COVID-19 pandemic by Federal, State, Tribal, and local entities.

Grants.
Contracts.

(2) APPROPRIATIONS.—In addition to amounts otherwise available, there is appropriated to the Administrator for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$100,000,000, to remain available until September 30, 2022, for carrying out this subsection.

(c) OUTREACH AND EDUCATION.—

(1) PROMOTION.—The Administrator shall develop and implement a program to promote community navigator services to current or prospective owners of eligible businesses.

(2) CALL CENTER.—The Administrator shall establish a telephone hotline to offer information about Federal programs to assist eligible businesses and offer referral services to resource partners, community navigators, potential lenders, and other persons that the Administrator determines appropriate for current or prospective owners of eligible businesses.

Determination.

(3) OUTREACH.—The Administrator shall—

(A) conduct outreach and education, in the 10 most commonly spoken languages in the United States, to current or prospective owners of eligible businesses on community navigator services and other Federal programs to assist eligible businesses;

(B) improve the website of the Administration to describe such community navigator services and other Federal programs; and

(C) implement an education campaign by advertising in media targeted to current or prospective owners of eligible businesses.

(4) APPROPRIATIONS.—In addition to amounts otherwise available, there is appropriated to the Administrator for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$75,000,000, to remain available until September 30, 2022, for carrying out this subsection.

(d) SUNSET.—The authority of the Administrator to make grants under this section shall terminate on December 31, 2025.

SEC. 5005. SHUTTERED VENUE OPERATORS.

(a) IN GENERAL.—In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$1,250,000,000, to remain available until expended, to carry out section 324 of the Economic Aid to Hard-Hit Small Businesses, Nonprofits, and Venues Act (title III of division N of Public Law 116-260), of which \$500,000 shall be used to provide technical assistance to help applicants access the System for Award Management (or any successor thereto) or to assist applicants with an alternative grant application system.

(b) REDUCTION OF SHUTTERED VENUES ASSISTANCE FOR NEW PPP RECIPIENTS.—Section 324 of the Economic Aid to Hard-Hit Small Businesses, Nonprofits, and Venues Act (title III of division N of Public Law 116-260), is amended—

134 Stat. 2024.

(1) in subsection (a)(1)(A)(vi)—

(A) by striking subclause (III);

(B) by redesignating subclause (IV) as subclause (III);

and

(C) in subclause (III), as so redesignated, by striking “subclauses (I), (II), and (III)” and inserting “subclauses (I) and (II)”; and

134 Stat. 2029.

(2) in subsection (c)(1)—

(A) in subparagraph (A), in the matter preceding clause (i), by striking “A grant” and inserting “Subject to subparagraphs (B) and (C), a grant”; and

(B) by adding at the end the following:

“(C) REDUCTION FOR RECIPIENTS OF NEW PPP LOANS.—

Effective date.

“(i) IN GENERAL.—The otherwise applicable amount of a grant under subsection (b)(2) to an eligible person or entity shall be reduced by the total amount of loans guaranteed under paragraph (36) or (37) of section 7(a) of the Small Business Act (15 U.S.C. 636(a)) that are received on or after December 27, 2020 by the eligible person or entity.

“(ii) APPLICATION TO GOVERNMENTAL ENTITIES.—For purposes of applying clause (i) to an eligible person or entity owned by a State or a political subdivision of a State, the relevant entity—

“(I) shall be the eligible person or entity; and

“(II) shall not include entities of the State or political subdivision other than the eligible person or entity.”.

SEC. 5006. DIRECT APPROPRIATIONS.

(a) IN GENERAL.—In addition to amounts otherwise available, there is appropriated to the Administrator for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, to remain available until expended—

(1) \$840,000,000 for administrative expenses, including to prevent, prepare for, and respond to the COVID-19 pandemic, domestically or internationally, including administrative expenses related to paragraphs (36) and (37) of section 7(a) of the Small Business Act, section 324 of the Economic Aid to Hard-Hit Small Businesses, Nonprofits, and Venues Act (title III of division N of Public Law 116-260), section 5002 of this title, and section 5003 of this title; and

(2) \$460,000,000 to carry out the disaster loan program authorized by section 7(b) of the Small Business Act (15 U.S.C. 636(b)), of which \$70,000,000 shall be for the cost of direct loans authorized by such section and \$390,000,000 shall be for administrative expenses to carry out such program.

(b) INSPECTOR GENERAL.—In addition to amounts otherwise available, there is appropriated to the Inspector General of the Small Business Administration for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$25,000,000, to remain available until expended, for necessary expenses of the Office of Inspector General.

TITLE VI—COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

SEC. 6001. ECONOMIC ADJUSTMENT ASSISTANCE.

(a) ECONOMIC DEVELOPMENT ADMINISTRATION APPROPRIATION.—In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$3,000,000,000, to remain available until September 30, 2022, to the Department of Commerce for economic adjustment assistance as authorized by sections 209 and 703 of the Public Works and Economic Development Act of 1965 (42 U.S.C. 3149 and 3233) to prevent, prepare for, and respond to coronavirus and for necessary expenses for responding to economic injury as a result of coronavirus.

(b) Of the funds provided by this section, up to 2 percent shall be used for Federal costs to administer such assistance utilizing temporary Federal personnel as may be necessary consistent with the requirements applicable to such administrative funding in fiscal year 2020 to prevent, prepare for, and respond to coronavirus and which shall remain available until September 30, 2027.

(c) Of the funds provided by this section, 25 percent shall be for assistance to States and communities that have suffered economic injury as a result of job and gross domestic product losses in the travel, tourism, or outdoor recreation sectors.

SEC. 6002. FUNDING FOR POLLUTION AND DISPARATE IMPACTS OF THE COVID-19 PANDEMIC.

(a) IN GENERAL.—In addition to amounts otherwise available, there is appropriated to the Environmental Protection Agency for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$100,000,000, to remain available until expended, to address health outcome disparities from pollution and the COVID-19 pandemic, of which—

(1) \$50,000,000, shall be for grants, contracts, and other agency activities that identify and address disproportionate environmental or public health harms and risks in minority populations or low-income populations under—

(A) section 103(b) of the Clean Air Act (42 U.S.C. 7403(b));

(B) section 1442 of the Safe Drinking Water Act (42 U.S.C. 300j-1);

(C) section 104(k)(7)(A) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9604(k)(7)(A)); and

(D) sections 791 through 797 of the Energy Policy Act of 2005 (42 U.S.C. 16131 through 16137); and

(2) \$50,000,000 shall be for grants and activities authorized under subsections (a) through (c) of section 103 of the Clean Air Act (42 U.S.C. 7403) and grants and activities authorized under section 105 of such Act (42 U.S.C. 7405).

(b) ADMINISTRATION OF FUNDS.—

(1) Of the funds made available pursuant to subsection (a)(1), the Administrator shall reserve 2 percent for administrative costs necessary to carry out activities funded pursuant to such subsection.

(2) Of the funds made available pursuant to subsection (a)(2), the Administrator shall reserve 5 percent for activities funded pursuant to such subsection other than grants.

SEC. 6003. UNITED STATES FISH AND WILDLIFE SERVICE.

(a) INSPECTION, INTERDICTION, AND RESEARCH RELATED TO CERTAIN SPECIES AND COVID-19.—In addition to amounts otherwise made available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$95,000,000 to remain available until expended, to carry out the provisions of the Fish and Wildlife Act of 1956 (16 U.S.C. 742a et seq.) and the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.) through direct expenditure, contracts, and grants, of which—

(1) \$20,000,000 shall be for wildlife inspections, interdictions, investigations, and related activities, and for efforts to address wildlife trafficking;

(2) \$30,000,000 shall be for the care of captive species listed under the Endangered Species Act of 1973, for the care of rescued and confiscated wildlife, and for the care of Federal trust species in facilities experiencing lost revenues due to COVID-19; and

(3) \$45,000,000 shall be for research and extension activities to strengthen early detection, rapid response, and science-based management to address wildlife disease outbreaks before they become pandemics and strengthen capacity for wildlife health monitoring to enhance early detection of diseases that have capacity to jump the species barrier and pose a risk in the United States, including the development of a national wildlife disease database.

(b) LACEY ACT PROVISIONS.—In addition to amounts otherwise made available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$10,000,000, to remain available until expended, to carry out the provisions of section 42(a) of title 18, United States Code, and the Lacey Act Amendments of 1981 (16 U.S.C. 3371–3378).

**TITLE VII—COMMITTEE ON COMMERCE,
SCIENCE, AND TRANSPORTATION**

**Subtitle A—Transportation and
Infrastructure**

SEC. 7101. GRANTS TO THE NATIONAL RAILROAD PASSENGER CORPORATION.

(a) NORTHEAST CORRIDOR APPROPRIATION.—In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$970,388,160, to remain available until September 30, 2024, for grants as authorized under section 11101(a) of the FAST Act (Public Law 114-94) to prevent, prepare for, and respond to coronavirus.

(b) NATIONAL NETWORK APPROPRIATION.—In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$729,611,840, to remain available until September 30, 2024, for

grants as authorized under section 11101(b) of the FAST Act (Public Law 114-94) to prevent, prepare for, and respond to coronavirus.

(c) LONG-DISTANCE SERVICE RESTORATION AND EMPLOYEE RECALLS.—Not less than \$165,926,000 of the aggregate amounts made available under subsections (a) and (b) shall be for use by the National Railroad Passenger Corporation to— Effective dates.

(1) restore, not later than 90 days after the date of enactment of this Act, the frequency of rail service on long-distance routes (as defined in section 24102 of title 49, United States Code) that the National Railroad Passenger Corporation reduced the frequency of on or after July 1, 2020, and continue to operate such service at such frequency; and Deadline.

(2) recall and manage employees furloughed on or after October 1, 2020, as a result of efforts to prevent, prepare for, and respond to coronavirus. Furloughs.

(d) USE OF FUNDS IN LIEU OF CAPITAL PAYMENTS.—Not less than \$109,805,000 of the aggregate amounts made available under subsections (a) and (b)—

(1) shall be for use by the National Railroad Passenger Corporation in lieu of capital payments from States and commuter rail passenger transportation providers that are subject to the cost allocation policy under section 24905(c) of title 49, United States Code; and

(2) notwithstanding sections 24319(g) and 24905(c)(1)(A)(i) of title 49, United States Code, such amounts do not constitute cross-subsidization of commuter rail passenger transportation.

(e) USE OF FUNDS FOR STATE PAYMENTS FOR STATE-SUPPORTED ROUTES.—

(1) IN GENERAL.—Of the amounts made available under subsection (b), \$174,850,000 shall be for use by the National Railroad Passenger Corporation to offset amounts required to be paid by States for covered State-supported routes.

(2) FUNDING SHARE.—The share of funding provided under paragraph (1) with respect to a covered State-supported route shall be distributed as follows:

(A) Each covered State-supported route shall receive 7 percent of the costs allocated to the route in fiscal year 2019 under the cost allocation methodology adopted pursuant to section 209 of the Passenger Rail Investment and Improvement Act of 2008 (Public Law 110-432).

(B) Any remaining amounts after the distribution described in subparagraph (A) shall be apportioned to each covered State-supported route in proportion to the passenger revenue of such route and other revenue allocated to such route in fiscal year 2019 divided by the total passenger revenue and other revenue allocated to all covered State-supported routes in fiscal year 2019. Apportionment.

(3) COVERED STATE-SUPPORTED ROUTE DEFINED.—In this subsection, the term “covered State-supported route” means a State-supported route, as such term is defined in section 24102 of title 49, United States Code, but does not include a State-supported route for which service was terminated on or before February 1, 2020. Termination date.

(f) USE OF FUNDS FOR DEBT REPAYMENT OR PREPAYMENT.—Not more than \$100,885,000 of the aggregate amounts made available under subsections (a) and (b) shall be—

(1) for the repayment or prepayment of debt incurred by the National Railroad Passenger Corporation under financing arrangements entered into prior to the date of enactment of this Act; and

(2) to pay required reserves, costs, and fees related to such debt, including for loans from the Department of Transportation and loans that would otherwise have been paid from National Railroad Passenger Corporation revenues.

(g) PROJECT MANAGEMENT OVERSIGHT.—Not more than \$2,000,000 of the aggregate amounts made available under subsections (a) and (b) shall be for activities authorized under section 11101(c) of the FAST Act (Public Law 114-94).

15 USC 9121.

SEC. 7102. RELIEF FOR AIRPORTS.

(a) IN GENERAL.—

(1) IN GENERAL.—In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any funds in the Treasury not otherwise appropriated, \$8,000,000,000, to remain available until September 30, 2024, for assistance to sponsors of airports, as such terms are defined in section 47102 of title 49, United States Code, to be made available to prevent, prepare for, and respond to coronavirus.

(2) REQUIREMENTS AND LIMITATIONS.—Amounts made available under this section—

(A) may not be used for any purpose not directly related to the airport; and

(B) may not be provided to any airport that was allocated in excess of 4 years of operating funds to prevent, prepare for, and respond to coronavirus in fiscal year 2020.

Applicability.

(b) ALLOCATIONS.—The following terms shall apply to the amounts made available under this section:

(1) OPERATING EXPENSES AND DEBT SERVICE PAYMENTS.—

(A) IN GENERAL.—Not more than \$6,492,000,000 shall be made available for primary airports, as such term is defined in section 47102 of title 49, United States Code, and certain cargo airports, for costs related to operations, personnel, cleaning, sanitization, janitorial services, combating the spread of pathogens at the airport, and debt service payments.

(B) DISTRIBUTION.— Amounts made available under this paragraph—

(i) shall not be subject to the reduced apportionments under section 47114(f) of title 49, United States Code;

(ii) shall first be apportioned as set forth in sections 47114(c)(1)(A), 47114(c)(1)(C)(i), 47114(c)(1)(C)(ii), 47114(c)(2)(A), 47114(c)(2)(B), and 47114(c)(2)(E) of title 49, United States Code; and

(iii) shall not be subject to a maximum apportionment limit set forth in section 47114(c)(1)(B) of title 49, United States Code.

(C) REMAINING AMOUNTS.—Any amount remaining after distribution under subparagraph (B) shall be distributed to the sponsor of each primary airport (as such term is defined in section 47102 of title 49, United States Code) based on each such primary airport's passenger enplanements compared to the total passenger

enplanements of all such primary airports in calendar year 2019.

(2) FEDERAL SHARE FOR DEVELOPMENT PROJECTS.—

(A) IN GENERAL.—Not more than \$608,000,000 allocated under subsection (a)(1) shall be available to pay a Federal share of 100 percent of the costs for any grant awarded in fiscal year 2021, or in fiscal year 2020 with less than a 100-percent Federal share, for an airport development project (as such term is defined in section 47102 of title 49).

(B) REMAINING AMOUNTS.—Any amount remaining under this paragraph shall be distributed as described in paragraph (1)(C).

(3) NONPRIMARY AIRPORTS.—

(A) IN GENERAL.—Not more than \$100,000,000 shall be made available for general aviation and commercial service airports that are not primary airports (as such terms are defined in section 47102 of title 49, United States Code) for costs related to operations, personnel, cleaning, sanitization, janitorial services, combating the spread of pathogens at the airport, and debt service payments.

(B) DISTRIBUTION.—Amounts made available under this paragraph shall be apportioned to each non-primary airport based on the categories published in the most current National Plan of Integrated Airport Systems, reflecting the percentage of the aggregate published eligible development costs for each such category, and then dividing the allocated funds evenly among the eligible airports in each category, rounding up to the nearest thousand dollars.

(C) REMAINING AMOUNTS.—Any amount remaining under this paragraph shall be distributed as described in paragraph (1)(C).

(4) AIRPORT CONCESSIONS.—

(A) IN GENERAL.—Not more than \$800,000,000 shall be made available for sponsors of primary airports to provide relief from rent and minimum annual guarantees to airport concessions, of which at least \$640,000,000 shall be available to provide relief to eligible small airport concessions and of which at least \$160,000,000 shall be available to provide relief to eligible large airport concessions located at primary airports.

(B) DISTRIBUTION.—The amounts made available for each set-aside in this paragraph shall be distributed to the sponsor of each primary airport (as such term is defined in section 47102 of title 49, United States Code) based on each such primary airport's passenger enplanements compared to the total passenger enplanements of all such primary airports in calendar year 2019.

(C) CONDITIONS.—As a condition of approving a grant under this paragraph—

(i) the sponsor shall provide such relief from the date of enactment of this Act until the sponsor has provided relief equaling the total grant amount, to the extent practicable and to the extent permissible under State laws, local laws, and applicable trust indentures; and

(ii) for each set-aside, the sponsor shall provide relief from rent and minimum annual guarantee obligations to each eligible airport concession in an amount that reflects each eligible airport concession's proportional share of the total amount of the rent and minimum annual guarantees of those eligible airport concessions at such airport.

(c) ADMINISTRATION.—

(1) ADMINISTRATIVE EXPENSES.—The Administrator of the Federal Aviation Administration may retain up to 0.1 percent of the funds provided under this section to fund the award of, and oversight by the Administrator of, grants made under this section.

(2) WORKFORCE RETENTION REQUIREMENTS.—

Extension.
Retention date.

(A) REQUIRED RETENTION.—As a condition for receiving funds provided under this section, an airport shall continue to employ, through September 30, 2021, at least 90 percent of the number of individuals employed (after making adjustments for retirements or voluntary employee separations) by the airport as of March 27, 2020.

Determination.

(B) WAIVER OF RETENTION REQUIREMENT.—The Secretary shall waive the workforce retention requirement if the Secretary determines that—

(i) the airport is experiencing economic hardship as a direct result of the requirement; or

(ii) the requirement reduces aviation safety or security.

(C) EXCEPTION.—The workforce retention requirement shall not apply to nonhub airports or nonprimary airports receiving funds under this section.

(D) NONCOMPLIANCE.—Any financial assistance provided under this section to an airport that fails to comply with the workforce retention requirement described in subparagraph (A), and does not otherwise qualify for a waiver or exception under this paragraph, shall be subject to clawback by the Secretary.

(d) DEFINITIONS.—In this section:

(1) ELIGIBLE LARGE AIRPORT CONCESSION.—The term “eligible large airport concession” means a concession (as defined in section 23.3 of title 49, Code of Federal Regulations), that is in-terminal and has maximum gross receipts, averaged over the previous three fiscal years, of more than \$56,420,000.

(2) ELIGIBLE SMALL AIRPORT CONCESSION.—The term “eligible small airport concession” means a concession (as defined in section 23.3 of title 49, Code of Federal Regulations), that is in-terminal and—

Time period.

(A) a small business with maximum gross receipts, averaged over the previous 3 fiscal years, of less than \$56,420,000; or

(B) is a joint venture (as defined in section 23.3 of title 49, Code of Federal Regulations).

49 USC 106 note. **SEC. 7103. EMERGENCY FAA EMPLOYEE LEAVE FUND.**

(a) ESTABLISHMENT; APPROPRIATION.—There is established in the Federal Aviation Administration the Emergency FAA Employee Leave Fund (in this section referred to as the “Fund”), to be

administered by the Administrator of the Federal Aviation Administration, for the purposes set forth in subsection (b). In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$9,000,000, which shall be deposited into the Fund and remain available through September 30, 2022.

(b) PURPOSE.—Amounts in the Fund shall be available to the Administrator for the use of paid leave under this section by any employee of the Administration who is unable to work because the employee—

(1) is subject to a Federal, State, or local quarantine or isolation order related to COVID-19;

(2) has been advised by a health care provider to self-quarantine due to concerns related to COVID-19;

(3) is caring for an individual who is subject to such an order or has been so advised;

(4) is experiencing symptoms of COVID-19 and seeking a medical diagnosis;

(5) is caring for a son or daughter of such employee if the school or place of care of the son or daughter has been closed, if the school of such son or daughter requires or makes optional a virtual learning instruction model or requires or makes optional a hybrid of in-person and virtual learning instruction models, or the child care provider of such son or daughter is unavailable, due to COVID-19 precautions;

(6) is experiencing any other substantially similar condition;

(7) is caring for a family member with a mental or physical disability or who is 55 years of age or older and incapable of self-care, without regard to whether another individual other than the employee is available to care for such family member, if the place of care for such family member is closed or the direct care provider is unavailable due to COVID-19; or

(8) is obtaining immunization related to COVID-19 or is recovering from any injury, disability, illness, or condition related to such immunization.

(c) LIMITATIONS.—

(1) PERIOD OF AVAILABILITY.—Paid leave under this section may only be provided to and used by an employee of the Administration during the period beginning on the date of enactment of this section and ending on September 30, 2021.

(2) TOTAL HOURS; AMOUNT.—Paid leave under this section—

(A) shall be provided to an employee of the Administration in an amount not to exceed 600 hours of paid leave for each full-time employee, and in the case of a part-time employee, employee on an uncommon tour of duty, or employee with a seasonal work schedule, in an amount not to exceed the proportional equivalent of 600 hours to the extent amounts in the Fund remain available for reimbursement;

(B) shall be paid at the same hourly rate as other leave payments; and

(C) may not be provided to an employee if the leave would result in payments greater than \$2,800 in aggregate for any biweekly pay period for a full-time employee, or a proportionally equivalent biweekly limit for a part-time employee.

(3) RELATIONSHIP TO OTHER LEAVE.—Paid leave under this section—

(A) is in addition to any other leave provided to an employee of the Administration; and

(B) may not be used by an employee of the Administration concurrently with any other paid leave.

(4) CALCULATION OF RETIREMENT BENEFIT.—Any paid leave provided to an employee of the Administration under this section shall reduce the total service used to calculate any Federal civilian retirement benefit.

49 USC 114 note. **SEC. 7104. EMERGENCY TSA EMPLOYEE LEAVE FUND.**

(a) ESTABLISHMENT; APPROPRIATION.—There is established in the Transportation Security Administration (in this section referred to as the “Administration”) the Emergency TSA Employee Leave Fund (in this section referred to as the “Fund”), to be administered by the Administrator of the Administration, for the purposes set forth in subsection (b). In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$13,000,000, which shall be deposited into the Fund and remain available through September 30, 2022.

(b) PURPOSE.—Amounts in the Fund shall be available to the Administration for the use of paid leave under this section by any employee of the Administration who is unable to work because the employee—

(1) is subject to a Federal, State, or local quarantine or isolation order related to COVID-19;

(2) has been advised by a health care provider to self-quarantine due to concerns related to COVID-19;

(3) is caring for an individual who is subject to such an order or has been so advised;

(4) is experiencing symptoms of COVID-19 and seeking a medical diagnosis;

(5) is caring for a son or daughter of such employee if the school or place of care of the son or daughter has been closed, if the school of such son or daughter requires or makes optional a virtual learning instruction model or requires or makes optional a hybrid of in-person and virtual learning instruction models, or the child care provider of such son or daughter is unavailable, due to COVID-19 precautions;

(6) is experiencing any other substantially similar condition;

(7) is caring for a family member with a mental or physical disability or who is 55 years of age or older and incapable of self-care, without regard to whether another individual other than the employee is available to care for such family member, if the place of care for such family member is closed or the direct care provider is unavailable due to COVID-19; or

(8) is obtaining immunization related to COVID-19 or is recovering from any injury, disability, illness, or condition related to such immunization.

(c) LIMITATIONS.—

(1) PERIOD OF AVAILABILITY.—Paid leave under this section may only be provided to and used by an employee of the Administration during the period beginning on the date of enactment of this section and ending on September 30, 2021.

(2) TOTAL HOURS; AMOUNT.—Paid leave under this section—

(A) shall be provided to an employee of the Administration in an amount not to exceed 600 hours of paid leave for each full-time employee, and in the case of a part-time employee, employee on an uncommon tour of duty, or employee with a seasonal work schedule, in an amount not to exceed the proportional equivalent of 600 hours to the extent amounts in the Fund remain available for reimbursement;

(B) shall be paid at the same hourly rate as other leave payments; and

(C) may not be provided to an employee if the leave would result in payments greater than \$2,800 in aggregate for any biweekly pay period for a full-time employee, or a proportionally equivalent biweekly limit for a part-time employee.

(3) RELATIONSHIP TO OTHER LEAVE.—Paid leave under this section—

(A) is in addition to any other leave provided to an employee of the Administration; and

(B) may not be used by an employee of the Administration concurrently with any other paid leave.

(4) CALCULATION OF RETIREMENT BENEFIT.—Any paid leave provided to an employee of the Administration under this section shall reduce the total service used to calculate any Federal civilian retirement benefit.

Subtitle B—Aviation Manufacturing Jobs Protection

SEC. 7201. DEFINITIONS.

15 USC 9131.

In this subtitle:

(1) ELIGIBLE EMPLOYEE GROUP.—The term “eligible employee group” means the portion of an employer’s United States workforce that—

(A) does not exceed 25 percent of the employer’s total United States workforce as of April 1, 2020; and

(B) contains only employees with a total compensation level of \$200,000 or less per year; and

(C) is engaged in aviation manufacturing activities and services, or maintenance, repair, and overhaul activities and services.

(2) AVIATION MANUFACTURING COMPANY.—The term “aviation manufacturing company” means a corporation, firm, or other business entity—

(A) that—

(i) actively manufactures an aircraft, aircraft engine, propeller, or a component, part, or systems of an aircraft or aircraft engine under a Federal Aviation Administration production approval;

(ii) holds a certificate issued under part 145 of title 14, Code of Federal Regulations, for maintenance, repair, and overhaul of aircraft, aircraft engines, components, or propellers; or

(iii) operates a process certified to SAE AS9100 related to the design, development, or provision of an

aviation product or service, including a part, component, or assembly;

(B) which—

(i) is established, created, or organized in the United States or under the laws of the United States; and

(ii) has significant operations in, and a majority of its employees engaged in aviation manufacturing activities and services, or maintenance, repair, and overhaul activities and services based in the United States;

(C) which has involuntarily furloughed or laid off at least 10 percent of its workforce in 2020 as compared to 2019 or has experienced at least a 15 percent decline in 2020 revenues as compared to 2019;

(D) that, as supported by sworn financial statements or other appropriate data, has identified the eligible employee group and the amount of total compensation level for the eligible employee group;

(E) that agrees to provide private contributions and maintain the total compensation level for the eligible employee group for the duration of an agreement under this subtitle;

(F) that agrees to provide immediate notice and justification to the Secretary of involuntary furloughs or layoffs exceeding 10 percent of the workforce that is not included in an eligible employee group for the duration of an agreement and receipt of public contributions under this subtitle;

(G) that has not conducted involuntary furloughs or reduced pay rates or benefits for the eligible employee group, subject to the employer's right to discipline or terminate an employee in accordance with employer policy, between the date of application and the date on which such a corporation, firm, or other business entity enters into an agreement with the Secretary under this subtitle; and

(H) that—

(i) in the case of a corporation, firm, or other business entity including any parent company or subsidiary of such a corporation, firm, or other business entity, that holds any type or production certificate or similar authorization issued under section 44704 of title 49, United States Code, with respect to a transport-category airplane covered under part 25 of title 14, Code of Federal Regulations, certificated with a passenger seating capacity of 50 or more, agrees to refrain from conducting involuntary layoffs or furloughs, or reducing pay rates and benefits, for the eligible employee group, subject to the employer's right to discipline or terminate an employee in accordance with employer policy from the date of agreement until September 30, 2021, or the duration of the agreement and receipt of public contributions under this subtitle, whichever period ends later; or

(ii) in the case of corporation, firm, or other business entity not specified under subparagraph (i), agrees

Time period.

to refrain from conducting involuntary layoffs or furloughs, or reducing pay rates and benefits, for the eligible employee group, subject to the employer's right to discipline or terminate an employee in accordance with employer policy for the duration of the agreement and receipt of public contributions under this subtitle.

(3) **EMPLOYEE.**—The term “employee” has the meaning given that term in section 3 of the Fair Labor Standards Act of 1938 (29 U.S.C. 203).

(4) **EMPLOYER.**—The term “employer” means an aviation manufacturing company that is an employer (as defined in section 3 of the Fair Labor Standards Act of 1938 (29 U.S.C. 203)).

(5) **PRIVATE CONTRIBUTION.**—The term “private contribution” means the contribution funded by the employer under this subtitle to maintain 50 percent of the eligible employee group's total compensation level, and combined with the public contribution, is sufficient to maintain the total compensation level for the eligible employee group as of April 1, 2020.

(6) **PUBLIC CONTRIBUTION.**—The term “public contribution” means the contribution funded by the Federal Government under this subtitle to provide 50 percent of the eligible employees group's total compensation level, and combined with the private contribution, is sufficient to maintain the total compensation level for those in the eligible employee group as of April 1, 2020.

Effective date.

(7) **SECRETARY.**—The term “Secretary” means the Secretary of Transportation.

(8) **TOTAL COMPENSATION LEVEL.**—The term “total compensation level” means the level of total base compensation and benefits being provided to an eligible employee group employee, excluding overtime and premium pay, and excluding any Federal, State, or local payroll taxes paid, as of April 1, 2020.

Effective date.

SEC. 7202. PAYROLL SUPPORT PROGRAM.

(a) **IN GENERAL.**—The Secretary shall establish a payroll support program and enter into agreements with employers who meet the eligibility criteria specified in subsection (b) and are not ineligible under subsection (c), to provide public contributions to supplement compensation of an eligible employee group. There is appropriated for fiscal year 2021, out of amounts in the Treasury not otherwise appropriated, \$3,000,000,000, to remain available until September 30, 2023, for the Secretary to carry out the payroll support program authorized under the preceding sentence for which 1 percent of the funds may be used for implementation costs and administrative expenses.

Contracts.
15 USC 9132.

(b) **ELIGIBILITY.**—The Secretary shall enter into an agreement and provide public contributions, for a term no longer than 6 months, solely with an employer that agrees to use the funds received under an agreement exclusively for the continuation of employee wages, salaries, and benefits, to maintain the total compensation level for the eligible employee group as of April 1, 2020 for the duration of the agreement, and to facilitate the retention, rehire, or recall of employees of the employer, except that such funds may not be used for back pay of returning rehired or recalled employees.

Time period.
Effective date.

(c) **INELIGIBILITY.**—The Secretary may not enter into any agreement under this section with an employer who was allowed a credit under section 2301 of the CARES Act (26 U.S.C. 3111 note) for the immediately preceding calendar quarter ending before such agreement is entered into, who received financial assistance under section 4113 of the CARES Act (15 U.S.C. 9073), or who is currently expending financial assistance under the paycheck protection program established under section 7(a)(36) of the Small Business Act (15 U.S.C. 636(a)(36)), as of the date the employer submits an application under the payroll support program established under subsection (a).

(d) **REDUCTIONS.**—To address any shortfall in assistance that would otherwise be provided under this subtitle, the Secretary shall reduce, on a pro rata basis, the financial assistance provided under this subtitle.

(e) **AGREEMENT DEADLINE.**—No agreement may be entered into by the Secretary under the payroll support program established under subsection (a) after the last day of the 6 month period that begins on the effective date of the first agreement entered into under such program.

Subtitle C—Airlines

15 USC 9141.

SEC. 7301. AIR TRANSPORTATION PAYROLL SUPPORT PROGRAM EXTENSION.

Applicability.

(a) **DEFINITIONS.**—The definitions in section 40102(a) of title 49, United States Code, shall apply with respect to terms used in this section, except that—

(1) the term “catering functions” means preparation, assembly, or both, of food, beverages, provisions and related supplies for delivery, and the delivery of such items, directly to aircraft or to a location on or near airport property for subsequent delivery to aircraft;

(2) the term “contractor” means—

(A) a person that performs, under contract with a passenger air carrier conducting operations under part 121 of title 14, Code of Federal Regulations—

(i) catering functions; or

(ii) functions on the property of an airport that are directly related to the air transportation of persons, property, or mail, including the loading and unloading of property on aircraft, assistance to passengers under part 382 of title 14, Code of Federal Regulations, security, airport ticketing and check-in functions, ground-handling of aircraft, or aircraft cleaning and sanitization functions and waste removal; or

(B) a subcontractor that performs such functions;

(3) the term “employee” means an individual, other than a corporate officer, who is employed by an air carrier or a contractor;

(4) the term “eligible air carrier” means an air carrier that—

(A) received financial assistance pursuant section 402(a)(1) of division N of the Consolidated Appropriations Act, 2021 (Public Law 116-260);

Effective date.

(B) provides air transportation as of March 31, 2021;

(C) has not conducted involuntary furloughs or reduced pay rates or benefits between March 31, 2021, and the date on which the air carrier makes a certification to the Secretary pursuant to subparagraph (D); and

Time period.

(D) certifies to the Secretary that such air carrier will—

Certification.
Extensions.

(i) refrain from conducting involuntary furloughs or reducing pay rates or benefits until September 30, 2021, or the date on which assistance provided under this section is exhausted, whichever is later;

(ii) refrain from purchasing an equity security of the air carrier or the parent company of the air carrier that is listed on a national securities exchange through September 30, 2022;

(iii) refrain from paying dividends, or making other capital distributions, with respect to common stock (or equivalent interest) of such air carrier through September 30, 2022;

(iv) during the 2-year period beginning April 1, 2021, and ending April 1, 2023, refrain from paying—

Time periods.

(I) any officer or employee of the air carrier whose total compensation exceeded \$425,000 in calendar year 2019 (other than an employee whose compensation is determined through an existing collective bargaining agreement entered into prior to the date of enactment of this Act)—

(aa) total compensation that exceeds, during any 12 consecutive months of such 2-year period, the total compensation received by the officer or employee from the air carrier in calendar year 2019; or

(bb) severance pay or other benefits upon termination of employment with the air carrier which exceeds twice the maximum total compensation received by the officer or employee from the air carrier in calendar year 2019; and

(II) any officer or employee of the air carrier whose total compensation exceeded \$3,000,000 in calendar year 2019 during any 12 consecutive months of such period total compensation in excess of the sum of—

(aa) \$3,000,000; and

(bb) 50 percent of the excess over \$3,000,000 of the total compensation received by the officer or employee from the air carrier in calendar year 2019.

(5) the term “eligible contractor” means a contractor that—

(A) received financial assistance pursuant to section 402(a)(2) of division N of the Consolidated Appropriations Act, 2021 (Public Law 116-260);

(B) performs one or more of the functions described under paragraph (2) as of March 31, 2021;

Effective date.

(C) has not conducted involuntary furloughs or reduced pay rates or benefits between March 31, 2021, and the date on which the contractor makes a certification to the Secretary pursuant to subparagraph (D); and

Time period.

(D) certifies to the Secretary that such contractor will—

Certification.
Extensions.

(i) refrain from conducting involuntary furloughs or reducing pay rates or benefits until September 30, 2021, or the date on which assistance provided under this section is exhausted, whichever is later;

(ii) refrain from purchasing an equity security of the contractor or the parent company of the contractor that is listed on a national securities exchange through September 30, 2022;

(iii) refrain from paying dividends, or making other capital distributions, with respect to common stock (or equivalent interest) of the contractor through September 30, 2022;

Time periods.

(iv) during the 2-year period beginning April 1, 2021, and ending April 1, 2023, refrain from paying—

(I) any officer or employee of the contractor whose total compensation exceeded \$425,000 in calendar year 2019 (other than an employee whose compensation is determined through an existing collective bargaining agreement entered into prior to the date of enactment of this Act)—

(aa) total compensation that exceeds, during any 12 consecutive months of such 2-year period, the total compensation received by the officer or employee from the contractor in calendar year 2019; or

(bb) severance pay or other benefits upon termination of employment with the contractor which exceeds twice the maximum total compensation received by the officer or employee from the contractor in calendar year 2019; and

(II) any officer or employee of the contractor whose total compensation exceeded \$3,000,000 in calendar year 2019 during any 12 consecutive months of such period total compensation in excess of the sum of—

(aa) \$3,000,000; and

(bb) 50 percent of the excess over \$3,000,000 of the total compensation received by the officer or employee from the contractor in calendar year 2019.

(6) the term “Secretary” means the Secretary of the Treasury.

(b) PAYROLL SUPPORT GRANTS.—

(1) IN GENERAL.—The Secretary shall make available to eligible air carriers and eligible contractors, financial assistance exclusively for the continuation of payment of employee wages, salaries, and benefits to—

(A) eligible air carriers, in an aggregate amount of \$14,000,000,000; and

(B) eligible contractors, in an aggregate amount of \$1,000,000,000.

(2) APPORTIONMENTS.—

Deadline.

(A) IN GENERAL.—The Secretary shall apportion funds to eligible air carriers and eligible contractors in accordance with the requirements of this section not later than April 15, 2021.

(B) ELIGIBLE AIR CARRIERS.—The Secretary shall apportion funds made available under paragraph (1)(A) to each eligible air carrier in the ratio that—

- (i) the amount received by the air carrier pursuant to section 403(a) of division N of the Consolidated Appropriations Act, 2021 (Public Law 116-260) bears to
- (ii) \$15,000,000,000.

(C) ELIGIBLE CONTRACTORS.—The Secretary shall apportion, to each eligible contractor, an amount equal to the total amount such contractor received pursuant to section 403(a) of division N of the Consolidated Appropriations Act, 2021 (Public Law 116-260).

(3) IN GENERAL.—

(A) FORMS; TERMS AND CONDITIONS.—The Secretary shall provide financial assistance to an eligible air carrier or eligible contractor under this section in the same form and on the same terms and conditions as determined by pursuant to section 403(b)(1)(A) of subtitle A of title IV of division N of the Consolidated Appropriations Act, 2021 (Pub. L. No. 116-260).

(B) PROCEDURES.—The Secretary shall publish streamlined and expedited procedures not later than 5 days after the date of enactment of this section for eligible air carriers and eligible contractors to submit requests for financial assistance under this section.

Publication.
Deadline.

(C) DEADLINE FOR IMMEDIATE PAYROLL ASSISTANCE.—Not later than 10 days after the date of enactment of this section, the Secretary shall make initial payments to air carriers and contractors that submit requests for financial assistance approved by the Secretary.

Payments.

(4) TAXPAYER PROTECTION.—The Secretary shall receive financial instruments issued by recipients of financial assistance under this section in the same form and amount, and under the same terms and conditions, as determined by the Secretary under section 408 of subtitle A of title IV of division N of the Consolidated Appropriations Act, 2021 (Pub. L. No. 116-260).

Determination.

(5) ADMINISTRATIVE EXPENSES.—Of the amounts made available under paragraph (1)(A), \$10,000,000 shall be made available to the Secretary for costs and administrative expenses associated with providing financial assistance under this section.

(c) FUNDING.—In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$15,000,000,000, to remain available until expended, to carry out this section.

Subtitle D—Consumer Protection and Commerce Oversight

15 USC 2066
note.

SEC. 7401. FUNDING FOR CONSUMER PRODUCT SAFETY FUND TO PROTECT CONSUMERS FROM POTENTIALLY DANGEROUS PRODUCTS RELATED TO COVID-19.

(a) APPROPRIATION.—In addition to amounts otherwise available, there is appropriated to the Consumer Product Safety Commission for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$50,000,000, to remain available until September 30, 2026, for the purposes described in subsection (b).

(b) PURPOSES.—The funds made available in subsection (a) shall only be used for purposes of the Consumer Product Safety Commission to—

(1) carry out the requirements in title XX of division FF of the Consolidated Appropriations Act, 2021 (Public Law 116-260);

(2) enhance targeting, surveillance, and screening of consumer products, particularly COVID-19 products, entering the United States at ports of entry, including ports of entry for de minimis shipments;

Coordination.

(3) enhance monitoring of internet websites for the offering for sale of new and used violative consumer products, particularly COVID-19 products, and coordination with retail and resale websites to improve identification and elimination of listings of such products;

(4) increase awareness and communication particularly of COVID-19 product related risks and other consumer product safety information; and

Data.

(5) improve the Commission's data collection and analysis system especially with a focus on consumer product safety risks resulting from the COVID-19 pandemic to socially disadvantaged individuals and other vulnerable populations.

(c) DEFINITIONS.—In this section—

(1) the term “Commission” means the Consumer Product Safety Commission;

(2) the term “violative consumer products” means consumer products in violation of an applicable consumer product safety standard under the Consumer Product Safety Act (15 U.S.C. 2051 et seq.) or any similar rule, regulation, standard, or ban under any other Act enforced by the Commission;

(3) the term “COVID-19 emergency period” means the period during which a public health emergency declared pursuant to section 319 of the Public Health Service Act (42 U.S.C. 247d) with respect to the 2019 novel coronavirus (COVID-19), including under any renewal of such declaration, is in effect; and

(4) the term “COVID-19 products” means consumer products, as defined by section 3(a)(5) of the Consumer Product Safety Act (15 U.S.C. 2052(a)(5)), whose risks have been significantly affected by COVID-19 or whose sales have materially increased during the COVID-19 emergency period as a result of the COVID-19 pandemic.

SEC. 7402. FUNDING FOR E-RATE SUPPORT FOR EMERGENCY EDUCATIONAL CONNECTIONS AND DEVICES. 47 USC 254 note.

(a) **REGULATIONS REQUIRED.**—Not later than 60 days after the date of the enactment of this Act, the Commission shall promulgate regulations providing for the provision, from amounts made available from the Emergency Connectivity Fund, of support under paragraphs (1)(B) and (2) of section 254(h) of the Communications Act of 1934 (47 U.S.C. 254(h)) to an eligible school or library, for the purchase during a COVID-19 emergency period of eligible equipment or advanced telecommunications and information services (or both), for use by—

Deadline.

(1) in the case of a school, students and staff of the school at locations that include locations other than the school; and

(2) in the case of a library, patrons of the library at locations that include locations other than the library.

(b) **SUPPORT AMOUNT.**—In providing support under the covered regulations, the Commission shall reimburse 100 percent of the costs associated with the eligible equipment, advanced telecommunications and information services, or eligible equipment and advanced telecommunications and information services, except that any reimbursement of a school or library for the costs associated with any eligible equipment may not exceed an amount that the Commission determines, with respect to the request by the school or library for the reimbursement, is reasonable.

Reimbursement.
Determination.

(c) **EMERGENCY CONNECTIVITY FUND.**—

(1) **ESTABLISHMENT.**—There is established in the Treasury of the United States a fund to be known as the “Emergency Connectivity Fund”.

(2) **APPROPRIATION.**—In addition to amounts otherwise available, there is appropriated to the Emergency Connectivity Fund for fiscal year 2021, out of any money in the Treasury not otherwise appropriated—

(A) \$7,171,000,000, to remain available until September 30, 2030, for—

(i) the provision of support under the covered regulations; and

(ii) the Commission to adopt, and the Commission and the Universal Service Administrative Company to administer, the covered regulations; and

(B) \$1,000,000, to remain available until September 30, 2030, for the Inspector General of the Commission to conduct oversight of support provided under the covered regulations.

(3) **LIMITATION.**—Not more than 2 percent of the amount made available under paragraph (2)(A) may be used for the purposes described in clause (ii) of such paragraph.

(4) **RELATIONSHIP TO UNIVERSAL SERVICE CONTRIBUTIONS.**—Support provided under the covered regulations shall be provided from amounts made available from the Emergency Connectivity Fund and not from contributions under section 254(d) of the Communications Act of 1934 (47 U.S.C. 254(d)).

(d) **DEFINITIONS.**—In this section:

(1) **ADVANCED TELECOMMUNICATIONS AND INFORMATION SERVICES.**—The term “advanced telecommunications and information services” means advanced telecommunications and information services, as such term is used in section 254(h) of the Communications Act of 1934 (47 U.S.C. 254(h)).

(2) COMMISSION.—The term “Commission” means the Federal Communications Commission.

(3) CONNECTED DEVICE.—The term “connected device” means a laptop computer, tablet computer, or similar end-user device that is capable of connecting to advanced telecommunications and information services.

(4) COVERED REGULATIONS.—The term “covered regulations” means the regulations promulgated under subsection (a).

(5) COVID-19 EMERGENCY PERIOD.—The term “COVID-19 emergency period” means a period that—

(A) begins on the date of a determination by the Secretary of Health and Human Services pursuant to section 319 of the Public Health Service Act (42 U.S.C. 247d) that a public health emergency exists as a result of COVID-19; and

(B) ends on the June 30 that first occurs after the date that is 1 year after the date on which such determination (including any renewal thereof) terminates.

(6) ELIGIBLE EQUIPMENT.—The term “eligible equipment” means the following:

(A) Wi-Fi hotspots.

(B) Modems.

(C) Routers.

(D) Devices that combine a modem and router.

(E) Connected devices.

(7) ELIGIBLE SCHOOL OR LIBRARY.—The term “eligible school or library” means an elementary school, secondary school, or library (including a Tribal elementary school, Tribal secondary school, or Tribal library) eligible for support under paragraphs (1)(B) and (2) of section 254(h) of the Communications Act of 1934 (47 U.S.C. 254(h)).

(8) EMERGENCY CONNECTIVITY FUND.—The term “Emergency Connectivity Fund” means the fund established under subsection (c)(1).

(9) LIBRARY.—The term “library” includes a library consortium.

(10) WI-FI.—The term “Wi-Fi” means a wireless networking protocol based on Institute of Electrical and Electronics Engineers standard 802.11 (or any successor standard).

(11) WI-FI HOTSPOT.—The term “Wi-Fi hotspot” means a device that is capable of—

(A) receiving advanced telecommunications and information services; and

(B) sharing such services with a connected device through the use of Wi-Fi.

SEC. 7403. FUNDING FOR DEPARTMENT OF COMMERCE INSPECTOR GENERAL.

In addition to amounts otherwise available, there is appropriated to the Office of the Inspector General of the Department of Commerce for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$3,000,000, to remain available until September 30, 2022, for oversight of activities supported with funds appropriated to the Department of Commerce to prevent, prepare for, and respond to COVID-19.

SEC. 7404. FEDERAL TRADE COMMISSION FUNDING FOR COVID-19 RELATED WORK.

(a) **APPROPRIATION.**—In addition to amounts otherwise available, there is appropriated to the Federal Trade Commission for fiscal year 2021, \$30,400,000, to remain available until September 30, 2026, for the purposes described in subsection (b).

(b) **PURPOSES.**—From the amount appropriated under subsection (a), the Federal Trade Commission shall use—

(1) \$4,400,000 to process and monitor consumer complaints received into the Consumer Sentinel Network, including increased complaints received regarding unfair or deceptive acts or practices related to COVID-19;

(2) \$2,000,000 for consumer-related education, including in connection with unfair or deceptive acts or practices related to COVID-19; and

(3) \$24,000,000 to fund full-time employees of the Federal Trade Commission to address unfair or deceptive acts or practices, including those related to COVID-19.

Subtitle E—Science and Technology

SEC. 7501. NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY.

In addition to amounts otherwise made available, there are appropriated to the National Institute of Standards and Technology for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$150,000,000, to remain available until September 30, 2022, to fund awards for research, development, and testbeds to prevent, prepare for, and respond to coronavirus. None of the funds provided by this section shall be subject to cost share requirements.

SEC. 7502. NATIONAL SCIENCE FOUNDATION.

In addition to amounts otherwise made available, there are appropriated to the National Science Foundation for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$600,000,000, to remain available until September 30, 2022, to fund or extend new and existing research grants, cooperative agreements, scholarships, fellowships, and apprenticeships, and related administrative expenses to prevent, prepare for, and respond to coronavirus.

Subtitle F—Corporation for Public Broadcasting

SEC. 7601. SUPPORT FOR THE CORPORATION FOR PUBLIC BROADCASTING.

In addition to amounts otherwise made available, there is appropriated to the Corporation for Public Broadcasting for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$175,000,000, to remain available until expended, to prevent, prepare for, and respond to coronavirus, including for fiscal stabilization grants to public telecommunications entities, as defined in section 397 of the Communications Act of 1934 (47 U.S.C. 397), with no deduction for administrative or other costs of the Corporation, to maintain programming and services and

preserve small and rural stations threatened by declines in non-Federal revenues.

TITLE VIII—COMMITTEE ON VETERANS' AFFAIRS

SEC. 8001. FUNDING FOR CLAIMS AND APPEALS PROCESSING.

In addition to amounts otherwise made available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$272,000,000, to remain available until September 30, 2023, pursuant to sections 308, 310, 7101 through 7113, 7701, and 7703 of title 38, United States Code.

SEC. 8002. FUNDING AVAILABILITY FOR MEDICAL CARE AND HEALTH NEEDS.

In addition to amounts otherwise made available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$14,482,000,000, to remain available until September 30, 2023, for allocation under chapters 17, 20, 73, and 81 of title 38, United States Code, of which not more than \$4,000,000,000 shall be available pursuant to section 1703 of title 38, United States Code for health care furnished through the Veterans Community Care program in sections 1703(c)(1) and 1703(c)(5) of such title.

SEC. 8003. FUNDING FOR SUPPLY CHAIN MODERNIZATION.

In addition to amounts otherwise made available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$100,000,000, to remain available until September 30, 2022, for the supply chain modernization initiative under sections 308, 310, and 7301(b) of title 38, United States Code.

SEC. 8004. FUNDING FOR STATE HOMES.

In addition to amounts otherwise made available, there are appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated—

(1) \$500,000,000, to remain available until expended, for allocation under sections 8131 through 8137 of title 38, United States Code: and

(2) \$250,000,000, to remain available until September 30, 2022, for a one-time only obligation and expenditure to existing State extended care facilities for veterans in proportion to each State's share of the total resident capacity in such facilities as of the date of enactment of this Act where such capacity includes only veterans on whose behalf the Department pays a per diem payment pursuant to section 1741 or 1745 of title 38, United States Code.

SEC. 8005. FUNDING FOR THE DEPARTMENT OF VETERANS AFFAIRS OFFICE OF INSPECTOR GENERAL.

In addition to amounts otherwise made available, there is appropriated to the Office of Inspector General of the Department of Veterans Affairs for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$10,000,000, to remain available until expended, for audits, investigations, and other oversight

of projects and activities carried out with funds made available to the Department of Veterans Affairs.

SEC. 8006. COVID-19 VETERAN RAPID RETRAINING ASSISTANCE PROGRAM.

36 USC 3001
note prec.

(a) **IN GENERAL.**—The Secretary of Veterans Affairs shall carry out a program under which the Secretary shall provide up to 12 months of retraining assistance to an eligible veteran for the pursuit of a covered program of education. Such retraining assistance shall be in addition to any other entitlement to educational assistance or benefits for which a veteran is, or has been, eligible.

(b) **ELIGIBLE VETERANS.**—

(1) **IN GENERAL.**—In this section, the term “eligible veteran” means a veteran who—

(A) as of the date of the receipt by the Department of Veterans Affairs of an application for assistance under this section, is at least 22 years of age but not more than 66 years of age;

(B) as of such date, is unemployed by reason of the covered public health emergency, as certified by the veteran;

(C) as of such date, is not eligible to receive educational assistance under chapter 30, 31, 32, 33, or 35 of title 38, United States Code, or chapter 1606 of title 10, United States Code;

(D) is not enrolled in any Federal or State jobs program;

(E) is not in receipt of compensation for a service-connected disability rated totally disabling by reason of unemployability; and

(F) will not be in receipt of unemployment compensation (as defined in section 85(b) of the Internal Revenue Code of 1986), including any cash benefit received pursuant to subtitle A of title II of division A of the CARES Act (Public Law 116-136), as of the first day on which the veteran would receive a housing stipend payment under this section.

(2) **TREATMENT OF VETERANS WHO TRANSFER ENTITLEMENT.**—For purposes of paragraph (1)(C), a veteran who has transferred all of the veteran’s entitlement to educational assistance under section 3319 of title 38, United States Code, shall be considered to be a veteran who is not eligible to receive educational assistance under chapter 33 of such title.

(3) **FAILURE TO COMPLETE.**—A veteran who receives retraining assistance under this section to pursue a program of education and who fails to complete the program of education shall not be eligible to receive additional assistance under this section.

(c) **COVERED PROGRAMS OF EDUCATION.**—

(1) **IN GENERAL.**—For purposes of this section, a covered program of education is a program of education (as such term is defined in section 3452(b) of title 38, United States Code) for training, pursued on a full-time or part-time basis—

(A) that—

(i) is approved under chapter 36 of such title;

(ii) does not lead to a bachelors or graduate degree;

and

(iii) is designed to provide training for a high-demand occupation, as determined under paragraph (3); or

(B) that is a high technology program of education offered by a qualified provider, under the meaning given such terms in section 116 of the Harry W. Colmery Veterans Educational Assistance Act of 2017 (Public Law 115-48; 38 U.S.C. 3001 note).

(2) ACCREDITED PROGRAMS.—In the case of an accredited program of education, the program of education shall not be considered a covered program of education under this section if the program has received a show cause order from the accreditor of the program during the five-year period preceding the date of the enactment of this Act.

List.

(3) DETERMINATION OF HIGH-DEMAND OCCUPATIONS.—In carrying out this section, the Secretary shall use the list of high-demand occupations compiled by the Commissioner of Labor Statistics.

(4) FULL-TIME DEFINED.—For purposes of this subsection, the term “full-time” has the meaning given such term under section 3688 of title 38, United States Code.

(d) AMOUNT OF ASSISTANCE.—

(1) RETRAINING ASSISTANCE.—The Secretary of Veterans Affairs shall provide to an eligible veteran pursuing a covered program of education under the retraining assistance program under this section an amount equal to the amount of educational assistance payable under section 3313(c)(1)(A) of title 38, United States Code, for each month the veteran pursues the covered program of education. Such amount shall be payable directly to the educational institution offering the covered program of education pursued by the veteran as follows:

(A) 50 percent of the total amount payable shall be paid when the eligible veteran begins the program of education.

(B) 25 percent of the total amount payable shall be paid when the eligible veteran completes the program of education.

(C) 25 percent of the total amount payable shall be paid when the eligible veteran finds employment in a field related to the program of education.

(2) FAILURE TO COMPLETE.—

(A) PRO-RATED PAYMENTS.—In the case of a veteran who pursues a covered program of education under the retraining assistance program under this section, but who does not complete the program of education, the Secretary shall pay to the educational institution offering such program of education a pro-rated amount based on the number of months the veteran pursued the program of education in accordance with this paragraph.

Notice.

(B) PAYMENT OTHERWISE DUE UPON COMPLETION OF PROGRAM.—The Secretary shall pay to the educational institution a pro-rated amount under paragraph (1)(B) when the veteran provides notice to the educational institution that the veteran no longer intends to pursue the program of education.

(C) NONRECOVERY FROM VETERAN.—In the case of a veteran referred to in subparagraph (A), the educational

institution may not seek payment from the veteran for any amount that would have been payable under paragraph (1)(B) had the veteran completed the program of education.

(D) PAYMENT DUE UPON EMPLOYMENT.—

Time period.

(i) VETERANS WHO FIND EMPLOYMENT.—In the case of a veteran referred to in subparagraph (A) who finds employment in a field related to the program of education during the 180-day period beginning on the date on which the veteran withdraws from the program of education, the Secretary shall pay to the educational institution a pro-rated amount under paragraph (1)(C) when the veteran finds such employment.

(ii) VETERANS WHO DO NOT FIND EMPLOYMENT.—In the case of a veteran referred to in subparagraph (A) who does not find employment in a field related to the program of education during the 180-day period beginning on the date on which the veteran withdraws from the program of education—

(I) the Secretary shall not make a payment to the educational institution under paragraph (1)(C); and

(II) the educational institution may not seek payment from the veteran for any amount that would have been payable under paragraph (1)(C) had the veteran found employment during such 180-day period.

(3) HOUSING STIPEND.—For each month that an eligible veteran pursues a covered program of education under the retraining assistance program under this section, the Secretary shall pay to the veteran a monthly housing stipend in an amount equal to—

(A) in the case of a covered program of education leading to a degree, or a covered program of education not leading to a degree, at an institution of higher learning (as that term is defined in section 3452(f) of title 38, United States Code) pursued on more than a half-time basis, the amount specified under subsection (c)(1)(B) of section 3313 of title 38, United States Code;

(B) in the case of a covered program of education other than a program of education leading to a degree at an institution other than an institution of higher learning pursued on more than a half-time basis, the amount specified under subsection (g)(3)(A)(ii) of such section; or

(C) in the case of a covered program of education pursued on less than a half-time basis, or a covered program of education pursued solely through distance learning on more than a half-time basis, the amount specified under subsection (c)(1)(B)(iii) of such section.

(4) FAILURE TO FIND EMPLOYMENT.—The Secretary shall not make a payment under paragraph (1)(C) with respect to an eligible veteran who completes or fails to complete a program of education under the retraining assistance program under this section if the veteran fails to find employment in a field related to the program of education within the 180-period beginning on the date on which the veteran withdraws from or completes the program.

Time period.

(e) **NO TRANSFERABILITY.**—Retraining assistance provided under this section may not be transferred to another individual.

(f) **LIMITATION.**—Not more than 17,250 eligible veterans may receive retraining assistance under this section.

(g) **TERMINATION.**—No retraining assistance may be paid under this section after the date that is 21 months after the date of the enactment of this Act.

(h) **FUNDING.**—In addition to amounts otherwise available there is appropriated to the Department of Veterans Affairs for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$386,000,000, to remain available until expended, to carry out this section.

38 USC 1701
note.

SEC. 8007. PROHIBITION ON COPAYMENTS AND COST SHARING FOR VETERANS DURING EMERGENCY RELATING TO COVID-19.

(a) **IN GENERAL.**—The Secretary of Veterans Affairs—

(1) shall provide for any copayment or other cost sharing with respect to health care under the laws administered by the Secretary received by a veteran during the period specified in subsection (b); and

Reimbursement.

(2) shall reimburse any veteran who paid a copayment or other cost sharing for health care under the laws administered by the Secretary received by a veteran during such period the amount paid by the veteran.

(b) **PERIOD SPECIFIED.**—The period specified in this subsection is the period beginning on April 6, 2020, and ending on September 30, 2021.

(c) **FUNDING.**—In addition to amounts otherwise available, there is appropriated to the Secretary of Veterans Affairs for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$1,000,000,000, to remain available until expended, to carry out this section, except for health care furnished pursuant to section 1703(c)(2)–(c)(4) of title 38, United States Code.

38 USC 7401
note.

SEC. 8008. EMERGENCY DEPARTMENT OF VETERANS AFFAIRS EMPLOYEE LEAVE FUND.

(a) **ESTABLISHMENT; APPROPRIATION.**—There is established in the Treasury the Emergency Department of Veterans Affairs Employee Leave Fund (in this section referred to as the “Fund”), to be administered by the Secretary of Veterans Affairs, for the purposes set forth in subsection (b). In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$80,000,000, which shall be deposited into the Fund and remain available through September 20, 2022.

(b) **PURPOSE.**—Amounts in the Fund shall be available for payment to the Department of Veterans Affairs for the use of paid leave by any covered employee who is unable to work because the employee—

(1) is subject to a Federal, State, or local quarantine or isolation order related to COVID-19;

(2) has been advised by a health care provider to self-quarantine due to concerns related to COVID-19;

(3) is caring for an individual who is subject to such an order or has been so advised;

(4) is experiencing symptoms of COVID-19 and seeking a medical diagnosis;

(5) is caring for a son or daughter of such employee if the school or place of care of the son or daughter has been closed, if the school of such son or daughter requires or makes optional a virtual learning instruction model or requires or makes optional a hybrid of in-person and virtual learning instruction models, or the child care provider of such son or daughter is unavailable, due to COVID-19 precautions;

(6) is experiencing any other substantially similar condition;

(7) is caring for a family member with a mental or physical disability or who is 55 years of age or older and incapable of self-care, without regard to whether another individual other than the employee is available to care for such family member, if the place of care for such family member is closed or the direct care provider is unavailable due to COVID-19; or

(8) is obtaining immunization related to COVID-19 or to recover from any injury, disability, illness, or condition related to such immunization.

(c) LIMITATIONS.—

(1) PERIOD OF AVAILABILITY.—Paid leave under this section may only be provided to and used by a covered employee during the period beginning on the date of enactment of this Act and ending on September 30, 2021.

(2) TOTAL HOURS; AMOUNT.—Paid leave under this section—

(A) shall be provided to a covered employee in an amount not to exceed 600 hours of paid leave for each full-time employee, and in the case of a part-time employee, employee on an uncommon tour of duty, or employee with a seasonal work schedule, in an amount not to exceed the proportional equivalent of 600 hours to the extent amounts in the Fund remain available for reimbursement;

(B) shall be paid at the same hourly rate as other leave payments; and

(C) may not be provided to a covered employee if the leave would result in payments greater than \$2,800 in aggregate for any biweekly pay period for a full-time employee, or a proportionally equivalent biweekly limit for a part-time employee.

(3) RELATIONSHIP TO OTHER LEAVE.—Paid leave under this section—

(A) is in addition to any other leave provided to a covered employee; and

(B) may not be used by a covered employee concurrently with any other paid leave.

(4) CALCULATION OF RETIREMENT BENEFIT.—Any paid leave provided to a covered employee under this section shall reduce the total service used to calculate any Federal civilian retirement benefit.

(d) COVERED EMPLOYEE DEFINED.—In this section, the term “covered employee” means an employee of the Department of Veterans Affairs appointed under chapter 74 of title 38, United States Code.

TITLE IX—COMMITTEE ON FINANCE

Subtitle A—Crisis Support for Unemployed Workers

PART 1—EXTENSION OF CARES ACT UNEMPLOYMENT PROVISIONS

SEC. 9011. EXTENSION OF PANDEMIC UNEMPLOYMENT ASSISTANCE.

(a) **IN GENERAL.**—Section 2102(c) of the CARES Act (15 U.S.C. 9021(c)) is amended—

(1) in paragraph (1)—

(A) by striking “paragraphs (2) and (3)” and inserting “paragraph (2)”; and

(B) in subparagraph (A)(ii), by striking “March 14, 2021” and inserting “September 6, 2021”; and

(2) by striking paragraph (3) and redesignating paragraph (4) as paragraph (3).

(b) **INCREASE IN NUMBER OF WEEKS.**—Section 2102(c)(2) of such Act (15 U.S.C. 9021(c)(2)) is amended—

(1) by striking “50 weeks” and inserting “79 weeks”; and

(2) by striking “50-week period” and inserting “79-week period”.

(c) **HOLD HARMLESS FOR PROPER ADMINISTRATION.**—In the case of an individual who is eligible to receive pandemic unemployment assistance under section 2102 of the CARES Act (15 U.S.C. 9021) as of the day before the date of enactment of this Act and on the date of enactment of this Act becomes eligible for pandemic emergency unemployment compensation under section 2107 of the CARES Act (15 U.S.C. 9025) by reason of the amendments made by section 9016(b) of this title, any payment of pandemic unemployment assistance under such section 2102 made after the date of enactment of this Act to such individual during an appropriate period of time, as determined by the Secretary of Labor, that should have been made under such section 2107 shall not be considered to be an overpayment of assistance under such section 2102, except that an individual may not receive payment for assistance under section 2102 and a payment for assistance under section 2107 for the same week of unemployment.

(d) **EFFECTIVE DATE.**—The amendments made by subsections (a) and (b) shall apply as if included in the enactment of the CARES Act (Public Law 116-136), except that no amount shall be payable by virtue of such amendments with respect to any week of unemployment ending on or before March 14, 2021.

SEC. 9012. EXTENSION OF EMERGENCY UNEMPLOYMENT RELIEF FOR GOVERNMENTAL ENTITIES AND NONPROFIT ORGANIZATIONS.

(a) **IN GENERAL.**—Section 903(i)(1)(D) of the Social Security Act (42 U.S.C. 1103(i)(1)(D)) is amended by striking “March 14, 2021” and inserting “September 6, 2021”.

(b) **INCREASE IN REIMBURSEMENT RATE.**—Section 903(i)(1)(B) of such Act (42 U.S.C. 1103(i)(1)(B)) is amended—

15 USC 9021
note.

15 USC 9021
note.

(1) in the first sentence, by inserting “and except as otherwise provided in this subparagraph” after “as determined by the Secretary of Labor”; and

(2) by inserting after the first sentence the following: “With respect to the amounts of such compensation paid for weeks of unemployment beginning after March 31, 2021, and ending on or before September 6, 2021, the preceding sentence shall be applied by substituting ‘75 percent’ for ‘one-half.’”.

Time period.
Applicability.

SEC. 9013. EXTENSION OF FEDERAL PANDEMIC UNEMPLOYMENT COMPENSATION.

(a) **IN GENERAL.**—Section 2104(e)(2) of the CARES Act (15 U.S.C. 9023(e)(2)) is amended by striking “March 14, 2021” and inserting “September 6, 2021”.

(b) **AMOUNT.**—Section 2104(b)(3)(A)(ii) of such Act (15 U.S.C. 9023(b)(3)(A)(ii)) is amended by striking “March 14, 2021” and inserting “September 6, 2021”.

SEC. 9014. EXTENSION OF FULL FEDERAL FUNDING OF THE FIRST WEEK OF COMPENSABLE REGULAR UNEMPLOYMENT FOR STATES WITH NO WAITING WEEK.

(a) **IN GENERAL.**—Section 2105(e)(2) of the CARES Act (15 U.S.C. 9024(e)(2)) is amended by striking “March 14, 2021” and inserting “September 6, 2021”.

(b) **FULL REIMBURSEMENT.**—Paragraph (3) of section 2105(c) of such Act (15 U.S.C. 9024(c)) is repealed and such section shall be applied to weeks of unemployment to which an agreement under section 2105 of such Act applies as if such paragraph had not been enacted. In implementing the preceding sentence, a State may, if necessary, reenter the agreement with the Secretary under section 2105 of such Act, and retroactively pay for the first week of regular compensation without a waiting week consistent with State law (including a waiver of State law) and receive full reimbursement for weeks of unemployment that ended after December 31, 2020.

Repeal.
Applicability.
15 USC 9024
note.

SEC. 9015. EXTENSION OF EMERGENCY STATE STAFFING FLEXIBILITY.

If a State modifies its unemployment compensation law and policies, subject to the succeeding sentence, with respect to personnel standards on a merit basis on an emergency temporary basis as needed to respond to the spread of COVID-19, such modifications shall be disregarded for the purposes of applying section 303 of the Social Security Act and section 3304 of the Internal Revenue Code of 1986 to such State law. Such modifications shall only apply through September 6, 2021, and shall be limited to engaging of temporary staff, rehiring of retirees or former employees on a non-competitive basis, and other temporary actions to quickly process applications and claims.

26 USC 3304
note.

Applicability.

SEC. 9016. EXTENSION OF PANDEMIC EMERGENCY UNEMPLOYMENT COMPENSATION.

(a) **IN GENERAL.**—Section 2107(g) of the CARES Act (15 U.S.C. 9025(g)) is amended to read as follows:

“(g) **APPLICABILITY.**—An agreement entered into under this section shall apply to weeks of unemployment—

“(1) beginning after the date on which such agreement is entered into; and

“(2) ending on or before September 6, 2021.”.

Time period.

(b) INCREASE IN NUMBER OF WEEKS.—Section 2107(b)(2) of such Act (15 U.S.C. 9025(b)(2)) is amended by striking “24” and inserting “53”.

(c) COORDINATION OF PANDEMIC EMERGENCY UNEMPLOYMENT COMPENSATION WITH EXTENDED COMPENSATION.—Section 2107(a)(5)(B) of such Act (15 U.S.C. 9025(a)(5)(B)) is amended by inserting “or for the week that includes the date of enactment of the American Rescue Plan Act of 2021 (without regard to the amendments made by subsections (a) and (b) of section 9016 of such Act)” after “2020”.

(d) SPECIAL RULE FOR EXTENDED COMPENSATION.—Section 2107(a)(8) of such Act (15 U.S.C. 9025(a)(8)) is amended by striking “April 12, 2021” and inserting “September 6, 2021”.

15 USC 9025
note.

(e) EFFECTIVE DATE.—The amendments made by this section shall apply as if included in the enactment of the CARES Act (Public Law 116-136), except that no amount shall be payable by virtue of such amendments with respect to any week of unemployment ending on or before March 14, 2021.

SEC. 9017. EXTENSION OF TEMPORARY FINANCING OF SHORT-TIME COMPENSATION PAYMENTS IN STATES WITH PROGRAMS IN LAW.

Section 2108(b)(2) of the CARES Act (15 U.S.C. 9026(b)(2)) is amended by striking “March 14, 2021” and inserting “September 6, 2021”.

SEC. 9018. EXTENSION OF TEMPORARY FINANCING OF SHORT-TIME COMPENSATION AGREEMENTS FOR STATES WITHOUT PROGRAMS IN LAW.

Section 2109(d)(2) of the CARES Act (15 U.S.C. 9027(d)(2)) is amended by striking “March 14, 2021” and inserting “September 6, 2021”.

PART 2—EXTENSION OF FFCRA UNEMPLOYMENT PROVISIONS

SEC. 9021. EXTENSION OF TEMPORARY ASSISTANCE FOR STATES WITH ADVANCES.

Section 1202(b)(10)(A) of the Social Security Act (42 U.S.C. 1322(b)(10)(A)) is amended by striking “March 14, 2021” and inserting “September 6, 2021”.

SEC. 9022. EXTENSION OF FULL FEDERAL FUNDING OF EXTENDED UNEMPLOYMENT COMPENSATION.

(a) IN GENERAL.—Section 4105 of the Families First Coronavirus Response Act (26 U.S.C. 3304 note) is amended by striking “March 14, 2021” each place it appears and inserting “September 6, 2021”.

26 USC 3304
note.

(b) EFFECTIVE DATE.—The amendment made by subsection (a) shall apply as if included in the enactment of the Families First Coronavirus Response Act (Public Law 116-127).

**PART 3—DEPARTMENT OF LABOR FUNDING
FOR TIMELY, ACCURATE, AND EQUITABLE
PAYMENT**

SEC. 9031. FUNDING FOR ADMINISTRATION.

In addition to amounts otherwise available, there is appropriated to the Employment and Training Administration of the Department of Labor for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$8,000,000, to remain available until expended, for necessary expenses to carry out Federal activities relating to the administration of unemployment compensation programs.

**SEC. 9032. FUNDING FOR FRAUD PREVENTION, EQUITABLE ACCESS,
AND TIMELY PAYMENT TO ELIGIBLE WORKERS.**

Subtitle A of title II of division A of the CARES Act (Public Law 116-136) is amended by adding at the end the following:

**“SEC. 2118. FUNDING FOR FRAUD PREVENTION, EQUITABLE ACCESS,
AND TIMELY PAYMENT TO ELIGIBLE WORKERS.** 15 USC 9034.

“(a) **IN GENERAL.**—In addition to amounts otherwise available, there is appropriated to the Secretary of Labor for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$2,000,000,000, to remain available until expended, to detect and prevent fraud, promote equitable access, and ensure the timely payment of benefits with respect to unemployment compensation programs, including programs extended under subtitle A of title IX of the American Rescue Plan Act of 2021.

“(b) **USE OF FUNDS.**—Amounts made available under subsection (a) may be used—

“(1) for Federal administrative costs related to the purposes described in subsection (a);

“(2) for systemwide infrastructure investment and development related to such purposes; and

“(3) to make grants to States or territories administering unemployment compensation programs described in subsection (a) (including territories administering the Pandemic Unemployment Assistance program under section 2102) for such purposes, including the establishment of procedures or the building of infrastructure to verify or validate identity, implement Federal guidance regarding fraud detection and prevention, and accelerate claims processing or process claims backlogs due to the pandemic.

“(c) **RESTRICTIONS ON GRANTS TO STATES AND TERRITORIES.**—As a condition of receiving a grant under subsection (b)(3), the Secretary may require that a State or territory receiving such a grant shall—

“(1) use such program integrity tools as the Secretary may specify; and

“(2) as directed by the Secretary, conduct user accessibility testing on any new system developed by the Secretary pursuant to subsection (b)(2).”.

PART 4—OTHER PROVISIONS**SEC. 9041. EXTENSION OF LIMITATION ON EXCESS BUSINESS LOSSES OF NONCORPORATE TAXPAYERS.**

26 USC 461 note. (a) **IN GENERAL.**—Section 461(l)(1) of the Internal Revenue Code of 1986 is amended by striking “January 1, 2026” each place it appears and inserting “January 1, 2027”.

26 USC 461 note. (b) **EFFECTIVE DATE.**—The amendments made by this section shall apply to taxable years beginning after December 31, 2025.

SEC. 9042. SUSPENSION OF TAX ON PORTION OF UNEMPLOYMENT COMPENSATION.

26 USC 85. (a) **IN GENERAL.**—Section 85 of the Internal Revenue Code of 1986 is amended by adding at the end the following new subsection:

“(c) **SPECIAL RULE FOR 2020.**—

“(1) **IN GENERAL.**—In the case of any taxable year beginning in 2020, if the adjusted gross income of the taxpayer for such taxable year is less than \$150,000, the gross income of such taxpayer shall not include so much of the unemployment compensation received by such taxpayer (or, in the case of a joint return, received by each spouse) as does not exceed \$10,200.

“(2) **APPLICATION.**—For purposes of paragraph (1), the adjusted gross income of the taxpayer shall be determined—

“(A) after application of sections 86, 135, 137, 219, 221, 222, and 469, and

“(B) without regard to this section.”.

(b) **CONFORMING AMENDMENTS.**—

(1) Section 74(d)(2)(B) of the Internal Revenue Code of 1986 is amended by inserting “85(c),” before “86”.

(2) Section 86(b)(2)(A) of such Code is amended by inserting “85(c),” before “135”.

(3) Section 135(c)(4)(A) of such Code is amended by inserting “85(c),” before “137”.

(4) Section 137(b)(3)(A) of such Code is amended by inserting “85(c)” before “221”.

(5) Section 219(g)(3)(A)(ii) of such Code is amended by inserting “85(c),” before “135”.

(6) Section 221(b)(2)(C)(i) of such Code is amended by inserting “85(c)” before “911”.

(7) Section 222(b)(2)(C)(i) of such Code, as in effect before date of enactment of the Taxpayer Certainty and Disaster Tax Relief Act of 2020, is amended by inserting “85(c)” before “911”.

(8) Section 469(i)(3)(E)(ii) of such Code is amended by striking “135 and 137” and inserting “85(c), 135, and 137”.

26 USC 74 note. (c) **EFFECTIVE DATE.**—The amendments made by this section shall apply to taxable years beginning after December 31, 2019.

Subtitle B—Emergency Assistance to Families Through Home Visiting Programs

SEC. 9101. EMERGENCY ASSISTANCE TO FAMILIES THROUGH HOME VISITING PROGRAMS.

Effective 1 day after the date of enactment of this Act, title V of the Social Security Act (42 U.S.C. 701–713) is amended by inserting after section 511 the following:

Effective date.
42 USC 711a
note.

“SEC. 511A. EMERGENCY ASSISTANCE TO FAMILIES THROUGH HOME VISITING PROGRAMS.

42 USC 711a.

“(a) SUPPLEMENTAL APPROPRIATION.—In addition to amounts otherwise appropriated, out of any money in the Treasury of the United States not otherwise appropriated, there are appropriated to the Secretary \$150,000,000, to remain available through September 30, 2022, to enable eligible entities to conduct programs in accordance with section 511 and subsection (c) of this section.

“(b) ELIGIBILITY FOR FUNDS.—To be eligible to receive funds made available by subsection (a) of this section, an entity shall—

“(1) as of the date of the enactment of this section, be conducting a program under section 511;

“(2) ensure the modification of grants, contracts, and other agreements, as applicable, executed under section 511 under which the program is conducted as are necessary to provide that, during the period that begins with the date of the enactment of this section and ends with the end of the 2nd succeeding fiscal year after the funds are awarded, the entity shall—

Time period.

“(A) not reduce funding for, or staffing levels of, the program on account of reduced enrollment in the program; and

“(B) when using funds to provide emergency supplies to eligible families receiving grant services under section 511, ensure coordination with local diaper banks to the extent practicable; and

“(3) reaffirm that, in conducting the program, the entity will focus on priority populations (as defined in section 511(d)(4)).

“(c) USES OF FUNDS.—An entity to which funds are provided under this section shall use the funds—

“(1) to serve families with home visits or with virtual visits, that may be conducted by the use of electronic information and telecommunications technologies, in a service delivery model described in section 511(d)(3)(A);

“(2) to pay hazard pay or other additional staff costs associated with providing home visits or administration for programs funded under section 511;

Payment.

“(3) to train home visitors employed by the entity in conducting a virtual home visit and in emergency preparedness and response planning for families served, and may include training on how to safely conduct intimate partner violence screenings, and training on safety and planning for families served to support the family outcome improvements listed in section 511(d)(2)(B);

“(4) for the acquisition by families served by programs under section 511 of such technological means as are needed to conduct and support a virtual home visit;

“(5) to provide emergency supplies (such as diapers and diapering supplies including diaper wipes and diaper cream, necessary to ensure that a child using a diaper is properly cleaned and protected from diaper rash, formula, food, water, hand soap and hand sanitizer) to an eligible family (as defined in section 511(k)(2));

Coordination.

“(6) to coordinate with and provide reimbursement for supplies to diaper banks when using such entities to provide emergency supplies specified in paragraph (5); or

“(7) to provide prepaid grocery cards to an eligible family (as defined in section 511(k)(2)) participating in the maternal, infant, and early childhood home visiting program under section 511 for the purpose of enabling the family to meet the emergency needs of the family.”

Subtitle C—Emergency Assistance to Children and Families

SEC. 9201. PANDEMIC EMERGENCY ASSISTANCE.

Section 403 of the Social Security Act (42 U.S.C. 603) is amended by adding at the end the following:

“(c) PANDEMIC EMERGENCY ASSISTANCE.—

“(1) APPROPRIATION.—In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury of the United States not otherwise appropriated, \$1,000,000,000, to remain available until expended, to carry out this subsection.

“(2) RESERVATION OF FUNDS FOR TECHNICAL ASSISTANCE.—Of the amount specified in paragraph (1), the Secretary shall reserve \$2,000,000 for administrative expenses and the provision of technical assistance to States and Indian tribes with respect to the use of funds provided under this subsection.

“(3) ALLOTMENTS.—

“(A) 50 STATES AND THE DISTRICT OF COLUMBIA.—

“(i) TOTAL AMOUNT TO BE ALLOTTED.—The Secretary shall allot a total of 92.5 percent of the amount specified in paragraph (1) that is not reserved under paragraph (2) among the States that are not a territory and that are operating a program funded under this part, in accordance with clause (ii) of this subparagraph.

“(ii) ALLOTMENT FORMULA.—The Secretary shall allot to each such State the sum of the following percentages of the total amount described in clause (i):

Determination.

“(I) 50 percent, multiplied by—

“(aa) the population of children in the State, determined on the basis of the most recent population estimates as determined by the Bureau of the Census; divided by

“(bb) the total population of children in the States that are not territories, as so determined; plus

Reports.

“(II) 50 percent, multiplied by—

“(aa) the total amount expended by the State for basic assistance, non-recurrent short

term benefits, and emergency assistance in fiscal year 2019, as reported by the State under section 411; divided by

“(bb) the total amount expended by the States that are not territories for basic assistance, non-recurrent short term benefits, and emergency assistance in fiscal year 2019, as so reported by the States.

“(B) TERRITORIES AND INDIAN TRIBES.—The Secretary shall allot among the territories and Indian tribes otherwise eligible for a grant under this part such portions of 7.5 percent of the amount specified in paragraph (1) that are not reserved under paragraph (2) as the Secretary deems appropriate based on the needs of the territory or Indian tribe involved.

“(C) EXPENDITURE COMMITMENT REQUIREMENT.—To receive the full amount of funding payable under this subsection, a State or Indian tribe shall inform the Secretary as to whether it intends to use all of its allotment under this paragraph and provide that information—

Notification.
Deadlines.

“(i) in the case of a State that is not a territory, within 45 days after the date of the enactment of this subsection; or

“(ii) in the case of a territory or an Indian tribe, within 90 days after such date of enactment.

“(4) GRANTS.—

“(A) IN GENERAL.—The Secretary shall provide funds to each State and Indian tribe to which an amount is allotted under paragraph (3), from the amount so allotted.

“(B) TREATMENT OF UNUSED FUNDS.—

“(i) REALLOTMENT.—The Secretary shall reallocate in accordance with paragraph (3) all funds provided to any State or Indian tribe under this subsection that are unused, among the other States and Indian tribes eligible for funds under this subsection. For purposes of paragraph (3), the Secretary shall treat the funds as if included in the amount specified in paragraph (1).

“(ii) PROVISION.—The Secretary shall provide funds to each such other State or Indian tribe in an amount equal to the amount so reallocated.

“(5) RECIPIENT OF FUNDS PROVIDED FOR TERRITORIES.—In the case of a territory not operating a program funded under this part, the Secretary shall provide the funds required to be provided to the territory under this subsection, to the agency that administers the bulk of local human services programs in the territory.

“(6) USE OF FUNDS.—

“(A) IN GENERAL.—A State or Indian tribe to which funds are provided under this subsection may use the funds only for non-recurrent short term benefits, whether in the form of cash or in other forms.

“(B) LIMITATION ON USE FOR ADMINISTRATIVE EXPENSES.—A State to which funds are provided under this subsection shall not expend more than 15 percent of the funds for administrative purposes.

“(C) NONSUPPLANTATION.—Funds provided under this subsection shall be used to supplement and not supplant other Federal, State, or tribal funds for services and activities that promote the purposes of this part.

“(D) EXPENDITURE DEADLINE.—

“(i) IN GENERAL.—Except as provided in clause (ii), a State or Indian tribe to which funds are provided under this subsection shall expend the funds not later than the end of fiscal year 2022.

“(ii) EXCEPTION FOR REALLOTTED FUNDS.—A State or Indian tribe to which funds are provided under paragraph (4)(B) shall expend the funds within 12 months after receipt.

“(7) SUSPENSION OF TERRITORY SPENDING CAP.—Section 1108 shall not apply with respect to any funds provided under this subsection.

“(8) DEFINITIONS.—In this subsection:

“(A) APPLICABLE PERIOD.—The term ‘applicable period’ means the period that begins with April 1, 2021, and ends with September 30, 2022.

“(B) NON-RECURRENT SHORT TERM BENEFITS.—The term ‘non-recurrent short term benefits’ has the meaning given the term in OMB approved Form ACF-196R, published on July 31, 2014.

“(C) STATE.—The term ‘State’ means the 50 States of the United States, the District of Columbia, and the territories.

“(D) TERRITORY.—The term ‘territory’ means the Commonwealth of Puerto Rico, the United States Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.”.

Subtitle D—Elder Justice and Support Guarantee

SEC. 9301. ADDITIONAL FUNDING FOR AGING AND DISABILITY SERVICES PROGRAMS.

Subtitle A of title XX of the Social Security Act (42 U.S.C. 1397–1397h) is amended by adding at the end the following:

42 USC 1397i.

“SEC. 2010. ADDITIONAL FUNDING FOR AGING AND DISABILITY SERVICES PROGRAMS.

“(a) APPROPRIATION.—In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$276,000,000, to remain available until expended, to carry out the programs described in subtitle B.

“(b) USE OF FUNDS.—Of the amounts made available by subsection (a)—

“(1) \$88,000,000 shall be made available to carry out the programs described in subtitle B in fiscal year 2021, of which not less than an amount equal to \$100,000,000 minus the amount previously provided in fiscal year 2021 to carry out section 2042(b) shall be made available to carry out such section; and

“(2) \$188,000,000 shall be made available to carry out the programs described in subtitle B in fiscal year 2022, of which not less than \$100,000,000 shall be for activities described in section 2042(b).”.

Subtitle E—Support to Skilled Nursing Facilities in Response to COVID-19

SEC. 9401. PROVIDING FOR INFECTION CONTROL SUPPORT TO SKILLED NURSING FACILITIES THROUGH CONTRACTS WITH QUALITY IMPROVEMENT ORGANIZATIONS.

Section 1862(g) of the Social Security Act (42 U.S.C. 1395y(g)) is amended—

(1) by striking “The Secretary” and inserting “(1) The Secretary”; and

(2) by adding at the end the following new paragraph:

“(2) In addition to any funds otherwise available, there are appropriated to the Secretary, out of any monies in the Treasury not otherwise obligated, \$200,000,000, to remain available until expended, for purposes of requiring multiple organizations described in paragraph (1) to provide to skilled nursing facilities (as defined in section 1819(a)), infection control and vaccination uptake support relating to the prevention or mitigation of COVID-19, as determined appropriate by the Secretary.”.

Determination.

SEC. 9402. FUNDING FOR STRIKE TEAMS FOR RESIDENT AND EMPLOYEE SAFETY IN SKILLED NURSING FACILITIES.

Section 1819 of the Social Security Act (42 U.S.C. 1395i-3) is amended by adding at the end the following new subsection:

“(k) FUNDING FOR STRIKE TEAMS.—In addition to amounts otherwise available, there is appropriated to the Secretary, out of any monies in the Treasury not otherwise appropriated, \$250,000,000, to remain available until expended, for purposes of allocating such amount among the States (including the District of Columbia and each territory of the United States) for such a State to establish and implement a strike team that will be deployed to a skilled nursing facility in the State with diagnosed or suspected cases of COVID-19 among residents or staff for the purposes of assisting with clinical care, infection control, or staffing during the emergency period described in section 1135(g)(1)(B) and the 1-year period immediately following the end of such emergency period.”.

Time period.

Subtitle F—Preserving Health Benefits for Workers

SEC. 9501. PRESERVING HEALTH BENEFITS FOR WORKERS.

(a) PREMIUM ASSISTANCE FOR COBRA CONTINUATION COVERAGE FOR INDIVIDUALS AND THEIR FAMILIES.—

26 USC 4980B note.

(1) PROVISION OF PREMIUM ASSISTANCE.—

(A) REDUCTION OF PREMIUMS PAYABLE.—In the case of any premium for a period of coverage during the period beginning on the first day of the first month beginning after the date of the enactment of this Act, and ending

Time period.

on September 30, 2021, for COBRA continuation coverage with respect to any assistance eligible individual described in paragraph (3), such individual shall be treated for purposes of any COBRA continuation provision as having paid in full the amount of such premium.

(B) PLAN ENROLLMENT OPTION.—

Applicability.
Deadline.

(i) IN GENERAL.—Solely for purposes of this subsection, the COBRA continuation provisions shall be applied such that any assistance eligible individual who is enrolled in a group health plan offered by a plan sponsor may, not later than 90 days after the date of notice of the plan enrollment option described in this subparagraph, elect to enroll in coverage under a plan offered by such plan sponsor that is different than coverage under the plan in which such individual was enrolled at the time, in the case of any assistance eligible individual described in paragraph (3), the qualifying event specified in section 603(2) of the Employee Retirement Income Security Act of 1974, section 4980B(f)(3)(B) of the Internal Revenue Code of 1986, or section 2203(2) of the Public Health Service Act, except for the voluntary termination of such individual's employment by such individual, occurred, and such coverage shall be treated as COBRA continuation coverage for purposes of the applicable COBRA continuation coverage provision.

(ii) REQUIREMENTS.—Any assistance eligible individual may elect to enroll in different coverage as described in clause (i) only if—

Determination.

(I) the employer involved has made a determination that such employer will permit such assistance eligible individual to enroll in different coverage as provided under this subparagraph;

(II) the premium for such different coverage does not exceed the premium for coverage in which such individual was enrolled at the time such qualifying event occurred;

(III) the different coverage in which the individual elects to enroll is coverage that is also offered to similarly situated active employees of the employer at the time at which such election is made; and

(IV) the different coverage in which the individual elects to enroll is not—

(aa) coverage that provides only excepted benefits as defined in section 9832(c) of the Internal Revenue Code of 1986, section 733(c) of the Employee Retirement Income Security Act of 1974, and section 2791(c) of the Public Health Service Act;

(bb) a qualified small employer health reimbursement arrangement (as defined in section 9831(d)(2) of the Internal Revenue Code of 1986); or

(cc) a flexible spending arrangement (as defined in section 106(c)(2) of the Internal Revenue Code of 1986).

(2) LIMITATION OF PERIOD OF PREMIUM ASSISTANCE.—

(A) ELIGIBILITY FOR ADDITIONAL COVERAGE.—Paragraph (1)(A) shall not apply with respect to any assistance eligible individual described in paragraph (3) for months of coverage beginning on or after the earlier of—

(i) the first date that such individual is eligible for coverage under any other group health plan (other than coverage consisting of only excepted benefits (as defined in section 9832(c) of the Internal Revenue Code of 1986, section 733(c) of the Employee Retirement Income Security Act of 1974, and section 2791(c) of the Public Health Service Act), coverage under a flexible spending arrangement (as defined in section 106(c)(2) of the Internal Revenue Code of 1986), coverage under a qualified small employer health reimbursement arrangement (as defined in section 9831(d)(2) of the Internal Revenue Code of 1986)), or eligible for benefits under the Medicare program under title XVIII of the Social Security Act; or

(ii) the earlier of—

(I) the date following the expiration of the maximum period of continuation coverage required under the applicable COBRA continuation coverage provision; or

(II) the date following the expiration of the period of continuation coverage allowed under paragraph (4)(B)(ii).

(B) NOTIFICATION REQUIREMENT.—Any assistance eligible individual shall notify the group health plan with respect to which paragraph (1)(A) applies if such paragraph ceases to apply by reason of clause (i) of subparagraph (A) (as applicable). Such notice shall be provided to the group health plan in such time and manner as may be specified by the Secretary of Labor.

(3) ASSISTANCE ELIGIBLE INDIVIDUAL.—For purposes of this section, the term “assistance eligible individual” means, with respect to a period of coverage during the period beginning on the first day of the first month beginning after the date of the enactment of this Act, and ending on September 30, 2021, any individual that is a qualified beneficiary who—

(A) is eligible for COBRA continuation coverage by reason of a qualifying event specified in section 603(2) of the Employee Retirement Income Security Act of 1974, section 4980B(f)(3)(B) of the Internal Revenue Code of 1986, or section 2203(2) of the Public Health Service Act, except for the voluntary termination of such individual’s employment by such individual; and

(B) elects such coverage.

(4) EXTENSION OF ELECTION PERIOD AND EFFECT ON COVERAGE.—

(A) IN GENERAL.—For purposes of applying section 605(a) of the Employee Retirement Income Security Act of 1974, section 4980B(f)(5)(A) of the Internal Revenue Code of 1986, and section 2205(a) of the Public Health Service Act, in the case of—

(i) an individual who does not have an election of COBRA continuation coverage in effect on the first

Definition.
Time period.

day of the first month beginning after the date of the enactment of this Act but who would be an assistance eligible individual described in paragraph (3) if such election were so in effect; or

(ii) an individual who elected COBRA continuation coverage and discontinued from such coverage before the first day of the first month beginning after the date of the enactment of this Act,

such individual may elect the COBRA continuation coverage under the COBRA continuation coverage provisions containing such provisions during the period beginning on the first day of the first month beginning after the date of the enactment of this Act and ending 60 days after the date on which the notification required under paragraph (5)(C) is provided to such individual.

(B) COMMENCEMENT OF COBRA CONTINUATION COVERAGE.—Any COBRA continuation coverage elected by a qualified beneficiary during an extended election period under subparagraph (A)—

(i) shall commence (including for purposes of applying the treatment of premium payments under paragraph (1)(A) and any cost-sharing requirements for items and services under a group health plan) with the first period of coverage beginning on or after the first day of the first month beginning after the date of the enactment of this Act, and

(ii) shall not extend beyond the period of COBRA continuation coverage that would have been required under the applicable COBRA continuation coverage provision if the coverage had been elected as required under such provision or had not been discontinued.

(5) NOTICES TO INDIVIDUALS.—

(A) GENERAL NOTICE.—

(i) IN GENERAL.—In the case of notices provided under section 606(a)(4) of the Employee Retirement Income Security Act of 1974 (29 U.S.C. 1166(4)), section 4980B(f)(6)(D) of the Internal Revenue Code of 1986, or section 2206(4) of the Public Health Service Act (42 U.S.C. 300bb-6(4)), with respect to individuals who, during the period described in paragraph (3), become entitled to elect COBRA continuation coverage, the requirements of such provisions shall not be treated as met unless such notices include an additional written notification to the recipient in clear and understandable language of—

(I) the availability of premium assistance with respect to such coverage under this subsection; and

(II) the option to enroll in different coverage if the employer permits assistance eligible individuals described in paragraph (3) to elect enrollment in different coverage (as described in paragraph (1)(B)).

(ii) ALTERNATIVE NOTICE.—In the case of COBRA continuation coverage to which the notice provision under such sections does not apply, the Secretary of Labor, in consultation with the Secretary of the

Treasury and the Secretary of Health and Human Services, shall, in consultation with administrators of the group health plans (or other entities) that provide or administer the COBRA continuation coverage involved, provide rules requiring the provision of such notice.

(iii) FORM.—The requirement of the additional notification under this subparagraph may be met by amendment of existing notice forms or by inclusion of a separate document with the notice otherwise required.

(B) SPECIFIC REQUIREMENTS.—Each additional notification under subparagraph (A) shall include—

(i) the forms necessary for establishing eligibility for premium assistance under this subsection;

(ii) the name, address, and telephone number necessary to contact the plan administrator and any other person maintaining relevant information in connection with such premium assistance;

(iii) a description of the extended election period provided for in paragraph (4)(A);

(iv) a description of the obligation of the qualified beneficiary under paragraph (2)(B) and the penalty provided under section 6720C of the Internal Revenue Code of 1986 for failure to carry out the obligation;

(v) a description, displayed in a prominent manner, of the qualified beneficiary's right to a subsidized premium and any conditions on entitlement to the subsidized premium; and

(vi) a description of the option of the qualified beneficiary to enroll in different coverage if the employer permits such beneficiary to elect to enroll in such different coverage under paragraph (1)(B).

(C) NOTICE IN CONNECTION WITH EXTENDED ELECTION PERIODS.—In the case of any assistance eligible individual described in paragraph (3) (or any individual described in paragraph (4)(A)) who became entitled to elect COBRA continuation coverage before the first day of the first month beginning after the date of the enactment of this Act, the administrator of the applicable group health plan (or other entity) shall provide (within 60 days after such first day of such first month) for the additional notification required to be provided under subparagraph (A) and failure to provide such notice shall be treated as a failure to meet the notice requirements under the applicable COBRA continuation provision.

Deadline.

(D) MODEL NOTICES.—Not later than 30 days after the date of enactment of this Act, with respect to any assistance eligible individual described in paragraph (3), the Secretary of Labor, in consultation with the Secretary of the Treasury and the Secretary of Health and Human Services, shall prescribe models for the additional notification required under this paragraph.

Deadline.
Consultation.

(6) NOTICE OF EXPIRATION OF PERIOD OF PREMIUM ASSISTANCE.—

(A) IN GENERAL.—With respect to any assistance eligible individual, subject to subparagraph (B), the requirements of section 606(a)(4) of the Employee Retirement Income Security Act of 1974 (29 U.S.C. 1166(4)), section 4980B(f)(6)(D) of the Internal Revenue Code of 1986, or section 2206(4) of the Public Health Service Act (42 U.S.C. 300bb-6(4)), shall not be treated as met unless the plan administrator of the individual, during the period specified under subparagraph (C), provides to such individual a written notice in clear and understandable language—

(i) that the premium assistance for such individual will expire soon and the prominent identification of the date of such expiration; and

(ii) that such individual may be eligible for coverage without any premium assistance through—

(I) COBRA continuation coverage; or

(II) coverage under a group health plan.

Waiver.

(B) EXCEPTION.—The requirement for the group health plan administrator to provide the written notice under subparagraph (A) shall be waived if the premium assistance for such individual expires pursuant to clause (i) of paragraph (2)(A).

(C) PERIOD SPECIFIED.—For purposes of subparagraph (A), the period specified in this subparagraph is, with respect to the date of expiration of premium assistance for any assistance eligible individual pursuant to a limitation requiring a notice under this paragraph, the period beginning on the day that is 45 days before the date of such expiration and ending on the day that is 15 days before the date of such expiration.

Deadline.
Consultation.

(D) MODEL NOTICES.—Not later than 45 days after the date of enactment of this Act, with respect to any assistance eligible individual, the Secretary of Labor, in consultation with the Secretary of the Treasury and the Secretary of Health and Human Services, shall prescribe models for the notification required under this paragraph.

(7) REGULATIONS.—The Secretary of the Treasury and the Secretary of Labor may jointly prescribe such regulations or other guidance as may be necessary or appropriate to carry out the provisions of this subsection, including the prevention of fraud and abuse under this subsection, except that the Secretary of Labor and the Secretary of Health and Human Services may prescribe such regulations (including interim final regulations) or other guidance as may be necessary or appropriate to carry out the provisions of paragraphs (5), (6), and (8).

(8) OUTREACH.—

Consultation.

(A) IN GENERAL.—The Secretary of Labor, in consultation with the Secretary of the Treasury and the Secretary of Health and Human Services, shall provide outreach consisting of public education and enrollment assistance relating to premium assistance provided under this subsection. Such outreach shall target employers, group health plan administrators, public assistance programs, States, insurers, and other entities as determined appropriate by such Secretaries. Such outreach shall include an initial focus on those individuals electing continuation coverage

who are referred to in paragraph (5)(C). Information on such premium assistance, including enrollment, shall also be made available on websites of the Departments of Labor, Treasury, and Health and Human Services.

Web postings.

(B) ENROLLMENT UNDER MEDICARE.—The Secretary of Health and Human Services shall provide outreach consisting of public education. Such outreach shall target individuals who lose health insurance coverage. Such outreach shall include information regarding enrollment for Medicare benefits for purposes of preventing mistaken delays of such enrollment by such individuals, including lifetime penalties for failure of timely enrollment.

(9) DEFINITIONS.—For purposes of this section:

(A) ADMINISTRATOR.—The term “administrator” has the meaning given such term in section 3(16)(A) of the Employee Retirement Income Security Act of 1974, and includes a COBRA administrator.

(B) COBRA CONTINUATION COVERAGE.—The term “COBRA continuation coverage” means continuation coverage provided pursuant to part 6 of subtitle B of title I of the Employee Retirement Income Security Act of 1974 (other than under section 609), title XXII of the Public Health Service Act, or section 4980B of the Internal Revenue Code of 1986 (other than subsection (f)(1) of such section insofar as it relates to pediatric vaccines), or under a State program that provides comparable continuation coverage. Such term does not include coverage under a health flexible spending arrangement under a cafeteria plan within the meaning of section 125 of the Internal Revenue Code of 1986.

(C) COBRA CONTINUATION PROVISION.—The term “COBRA continuation provision” means the provisions of law described in subparagraph (B).

(D) COVERED EMPLOYEE.—The term “covered employee” has the meaning given such term in section 607(2) of the Employee Retirement Income Security Act of 1974.

(E) QUALIFIED BENEFICIARY.—The term “qualified beneficiary” has the meaning given such term in section 607(3) of the Employee Retirement Income Security Act of 1974.

(F) GROUP HEALTH PLAN.—The term “group health plan” has the meaning given such term in section 607(1) of the Employee Retirement Income Security Act of 1974.

(G) STATE.—The term “State” includes the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.

(H) PERIOD OF COVERAGE.—Any reference in this subsection to a period of coverage shall be treated as a reference to a monthly or shorter period of coverage with respect to which premiums are charged with respect to such coverage.

(I) PLAN SPONSOR.—The term “plan sponsor” has the meaning given such term in section 3(16)(B) of the Employee Retirement Income Security Act of 1974.

(J) PREMIUM.—The term “premium” includes, with respect to COBRA continuation coverage, any administrative fee.

(10) IMPLEMENTATION FUNDING.—In addition to amounts otherwise made available, out of any funds in the Treasury not otherwise appropriated, there are appropriated to the Secretary of Labor for fiscal year 2021, \$10,000,000, to remain available until expended, for the Employee Benefits Security Administration to carry out the provisions of this subtitle.

(b) COBRA PREMIUM ASSISTANCE.—

(1) ALLOWANCE OF CREDIT.—

(A) IN GENERAL.—Subchapter B of chapter 65 of the Internal Revenue Code of 1986 is amended by adding at the end the following new section:

26 USC 6432.

“SEC. 6432. CONTINUATION COVERAGE PREMIUM ASSISTANCE.

“(a) IN GENERAL.—The person to whom premiums are payable for continuation coverage under section 9501(a)(1) of the American Rescue Plan Act of 2021 shall be allowed as a credit against the tax imposed by section 3111(b), or so much of the taxes imposed under section 3221(a) as are attributable to the rate in effect under section 3111(b), for each calendar quarter an amount equal to the premiums not paid by assistance eligible individuals for such coverage by reason of such section 9501(a)(1) with respect to such calendar quarter.

“(b) PERSON TO WHOM PREMIUMS ARE PAYABLE.—For purposes of subsection (a), except as otherwise provided by the Secretary, the person to whom premiums are payable under such continuation coverage shall be treated as being—

“(1) in the case of any group health plan which is a multi-employer plan (as defined in section 3(37) of the Employee Retirement Income Security Act of 1974), the plan,

“(2) in the case of any group health plan not described in paragraph (1)—

“(A) which is subject to the COBRA continuation provisions contained in—

“(i) the Internal Revenue Code of 1986,

“(ii) the Employee Retirement Income Security Act of 1974, or

“(iii) the Public Health Service Act, or

“(B) under which some or all of the coverage is not provided by insurance, the employer maintaining the plan, and

“(3) in the case of any group health plan not described in paragraph (1) or (2), the insurer providing the coverage under the group health plan.

“(c) LIMITATIONS AND REFUNDABILITY.—

“(1) CREDIT LIMITED TO CERTAIN EMPLOYMENT TAXES.—The credit allowed by subsection (a) with respect to any calendar quarter shall not exceed the tax imposed by section 3111(b), or so much of the taxes imposed under section 3221(a) as are attributable to the rate in effect under section 3111(b), for such calendar quarter (reduced by any credits allowed against such taxes under sections 3131, 3132, and 3134) on the wages paid with respect to the employment of all employees of the employer.

“(2) REFUNDABILITY OF EXCESS CREDIT.—

“(A) CREDIT IS REFUNDABLE.—If the amount of the credit under subsection (a) exceeds the limitation of paragraph (1) for any calendar quarter, such excess shall be treated as an overpayment that shall be refunded under sections 6402(a) and 6413(b).

“(B) CREDIT MAY BE ADVANCED.—In anticipation of the credit, including the refundable portion under subparagraph (A), the credit may be advanced, according to forms and instructions provided by the Secretary, up to an amount calculated under subsection (a) through the end of the most recent payroll period in the quarter.

“(C) TREATMENT OF DEPOSITS.—The Secretary shall waive any penalty under section 6656 for any failure to make a deposit of the tax imposed by section 3111(b), or so much of the taxes imposed under section 3221(a) as are attributable to the rate in effect under section 3111(b), if the Secretary determines that such failure was due to the anticipation of the credit allowed under this section.

Waivers.
Determinations.

“(D) TREATMENT OF PAYMENTS.—For purposes of section 1324 of title 31, United States Code, any amounts due to an employer under this paragraph shall be treated in the same manner as a refund due from a credit provision referred to in subsection (b)(2) of such section.

“(3) OVERSTATEMENTS.—Any overstatement of the credit to which a person is entitled under this section (and any amount paid by the Secretary as a result of such overstatement) shall be treated as an underpayment by such person of the taxes described in paragraph (1) and may be assessed and collected by the Secretary in the same manner as such taxes.

“(d) GOVERNMENTAL ENTITIES.—For purposes of this section, the term ‘person’ includes the government of any State or political subdivision thereof, any Indian tribal government (as defined in section 139E(c)(1)), any agency or instrumentality of any of the foregoing, and any agency or instrumentality of the Government of the United States that is described in section 501(c)(1) and exempt from taxation under section 501(a).

Definition.

“(e) DENIAL OF DOUBLE BENEFIT.—For purposes of chapter 1, the gross income of any person allowed a credit under this section shall be increased for the taxable year which includes the last day of any calendar quarter with respect to which such credit is allowed by the amount of such credit. No credit shall be allowed under this section with respect to any amount which is taken into account as qualified wages under section 2301 of the CARES Act or section 3134 of this title or as qualified health plan expenses under section 7001(d) or 7003(d) of the Families First Coronavirus Response Act or section 3131 or 3132 of this title.

“(f) EXTENSION OF LIMITATION ON ASSESSMENT.—Notwithstanding section 6501, the limitation on the time period for the assessment of any amount attributable to a credit claimed under this section shall not expire before the date that is 5 years after the later of—

“(1) the date on which the original return which includes the calendar quarter with respect to which such credit is determined is filed, or

“(2) the date on which such return is treated as filed under section 6501(b)(2).

“(g) REGULATIONS.—The Secretary shall issue such regulations, or other guidance, forms, instructions, and publications, as may be necessary or appropriate to carry out this section, including—

“(1) the requirement to report information or the establishment of other methods for verifying the correct amounts of reimbursements under this section,

“(2) the application of this section to group health plans that are multiemployer plans (as defined in section 3(37) of the Employee Retirement Income Security Act of 1974),

“(3) to allow the advance payment of the credit determined under subsection (a), subject to the limitations provided in this section, based on such information as the Secretary shall require,

“(4) to provide for the reconciliation of such advance payment with the amount of the credit at the time of filing the return of tax for the applicable quarter or taxable year, and

“(5) allowing the credit to third party payors (including professional employer organizations, certified professional employer organizations, or agents under section 3504).”

(B) CLERICAL AMENDMENT.—The table of sections for subchapter B of chapter 65 of the Internal Revenue Code of 1986 is amended by adding at the end the following new item:

26 USC 6411 prec.

“Sec. 6432. Continuation coverage premium assistance.”.

(C) EFFECTIVE DATE.—The amendments made by this paragraph shall apply to premiums to which subsection (a)(1)(A) applies and wages paid on or after April 1, 2021.

Applicability. 26 USC 6432 note.

(D) SPECIAL RULE IN CASE OF EMPLOYEE PAYMENT THAT IS NOT REQUIRED UNDER THIS SECTION.—

26 USC 4980B note.

(i) IN GENERAL.—In the case of an assistance eligible individual who pays, with respect any period of coverage to which subsection (a)(1)(A) applies, any amount of the premium for such coverage that the individual would have (but for this Act) been required to pay, the person to whom such payment is payable shall reimburse such individual for the amount of such premium paid.

Reimbursement.

(ii) CREDIT OF REIMBURSEMENT.—A person to which clause (i) applies shall be allowed a credit in the manner provided under section 6432 of the Internal Revenue Code of 1986 for any payment made to the employee under such clause.

Deadline.

(iii) PAYMENT OF CREDITS.—Any person to which clause (i) applies shall make the payment required under such clause to the individual not later than 60 days after the date on which such individual made the premium payment.

(2) PENALTY FOR FAILURE TO NOTIFY HEALTH PLAN OF CESSATION OF ELIGIBILITY FOR PREMIUM ASSISTANCE.—

(A) IN GENERAL.—Part I of subchapter B of chapter 68 of the Internal Revenue Code of 1986 is amended by adding at the end the following new section:

“SEC. 6720C. PENALTY FOR FAILURE TO NOTIFY HEALTH PLAN OF CESSATION OF ELIGIBILITY FOR CONTINUATION COVERAGE PREMIUM ASSISTANCE. 26 USC 6720C.

“(a) IN GENERAL.—Except in the case of a failure described in subsection (b) or (c), any person required to notify a group health plan under section 9501(a)(2)(B) of the American Rescue Plan Act of 2021 who fails to make such a notification at such time and in such manner as the Secretary of Labor may require shall pay a penalty of \$250 for each such failure.

“(b) INTENTIONAL FAILURE.—In the case of any such failure that is fraudulent, such person shall pay a penalty equal to the greater of—

“(1) \$250, or

“(2) 110 percent of the premium assistance provided under section 9501(a)(1)(A) of the American Rescue Plan Act of 2021 after termination of eligibility under such section.

“(c) REASONABLE CAUSE EXCEPTION.—No penalty shall be imposed under this section with respect to any failure if it is shown that such failure is due to reasonable cause and not to willful neglect.”

(B) CLERICAL AMENDMENT.—The table of sections of part I of subchapter B of chapter 68 of such Code is amended by adding at the end the following new item:

26 USC 6671
prec.

“Sec. 6720C. Penalty for failure to notify health plan of cessation of eligibility for continuation coverage premium assistance.”

(3) COORDINATION WITH HCTC.—

(A) IN GENERAL.—Section 35(g)(9) of the Internal Revenue Code of 1986 is amended to read as follows:

26 USC 35.

“(9) CONTINUATION COVERAGE PREMIUM ASSISTANCE.—In the case of an assistance eligible individual who receives premium assistance for continuation coverage under section 9501(a)(1) of the American Rescue Plan Act of 2021 for any month during the taxable year, such individual shall not be treated as an eligible individual, a certified individual, or a qualifying family member for purposes of this section or section 7527 with respect to such month.”

(B) EFFECTIVE DATE.—The amendment made by subparagraph (A) shall apply to taxable years ending after the date of the enactment of this Act.

26 USC 35 note.

(4) EXCLUSION OF CONTINUATION COVERAGE PREMIUM ASSISTANCE FROM GROSS INCOME.—

(A) IN GENERAL.—Part III of subchapter B of chapter 1 of the Internal Revenue Code of 1986 is amended by inserting after section 139H the following new section:

“SEC. 139I. CONTINUATION COVERAGE PREMIUM ASSISTANCE.

26 USC 139I.

“In the case of an assistance eligible individual (as defined in subsection (a)(3) of section 9501 of the American Rescue Plan Act of 2021), gross income does not include any premium assistance provided under subsection (a)(1) of such section.”

(B) CLERICAL AMENDMENT.—The table of sections for part III of subchapter B of chapter 1 of such Code is amended by inserting after the item relating to section 139H the following new item:

26 USC 101 prec.

“Sec. 139I. Continuation coverage premium assistance.”

26 USC 139I
note.

(C) EFFECTIVE DATE.—The amendments made by this paragraph shall apply to taxable years ending after the date of the enactment of this Act.

Subtitle G—Promoting Economic Security

PART 1—2021 RECOVERY REBATES TO INDIVIDUALS

SEC. 9601. 2021 RECOVERY REBATES TO INDIVIDUALS.

(a) IN GENERAL.—Subchapter B of chapter 65 of the Internal Revenue Code of 1986 is amended by inserting after section 6428A the following new section:

26 USC 6428B.
Effective date.

“SEC. 6428B. 2021 RECOVERY REBATES TO INDIVIDUALS.

“(a) IN GENERAL.—In the case of an eligible individual, there shall be allowed as a credit against the tax imposed by subtitle A for the first taxable year beginning in 2021 an amount equal to the 2021 rebate amount determined for such taxable year.

“(b) 2021 REBATE AMOUNT.—For purposes of this section, the term ‘2021 rebate amount’ means, with respect to any taxpayer for any taxable year, the sum of—

“(1) \$1,400 (\$2,800 in the case of a joint return), plus

“(2) \$1,400 multiplied by the number of dependents of the taxpayer for such taxable year.

Definition.

“(c) ELIGIBLE INDIVIDUAL.—For purposes of this section, the term ‘eligible individual’ means any individual other than—

“(1) any nonresident alien individual,

“(2) any individual who is a dependent of another taxpayer for a taxable year beginning in the calendar year in which the individual’s taxable year begins, and

“(3) an estate or trust.

“(d) LIMITATION BASED ON ADJUSTED GROSS INCOME.—

“(1) IN GENERAL.—The amount of the credit allowed by subsection (a) (determined without regard to this subsection and subsection (f)) shall be reduced (but not below zero) by the amount which bears the same ratio to such credit (as so determined) as—

“(A) the excess of—

“(i) the taxpayer’s adjusted gross income for such taxable year, over

“(ii) \$75,000, bears to

“(B) \$5,000.

Applicability.

“(2) SPECIAL RULES.—

“(A) JOINT RETURN OR SURVIVING SPOUSE.—In the case of a joint return or a surviving spouse (as defined in section 2(a), paragraph (1) shall be applied by substituting ‘\$150,000’ for ‘\$75,000’ and ‘\$10,000’ for ‘\$5,000’.

“(B) HEAD OF HOUSEHOLD.—In the case of a head of household (as defined in section 2(b)), paragraph (1) shall be applied by substituting ‘\$112,500’ for ‘\$75,000’ and ‘\$7,500’ for ‘\$5,000’.

“(e) DEFINITIONS AND SPECIAL RULES.—

“(1) DEPENDENT DEFINED.—For purposes of this section, the term ‘dependent’ has the meaning given such term by section 152.

“(2) IDENTIFICATION NUMBER REQUIREMENT.—

“(A) IN GENERAL.—In the case of a return other than a joint return, the \$1,400 amount in subsection (b)(1) shall be treated as being zero unless the taxpayer includes the valid identification number of the taxpayer on the return of tax for the taxable year.

“(B) JOINT RETURNS.—In the case of a joint return, the \$2,800 amount in subsection (b)(1) shall be treated as being—

“(i) \$1,400 if the valid identification number of only 1 spouse is included on the return of tax for the taxable year, and

“(ii) zero if the valid identification number of neither spouse is so included.

“(C) DEPENDENTS.—A dependent shall not be taken into account under subsection (b)(2) unless the valid identification number of such dependent is included on the return of tax for the taxable year.

“(D) VALID IDENTIFICATION NUMBER.—

“(i) IN GENERAL.—For purposes of this paragraph, the term ‘valid identification number’ means a social security number issued to an individual by the Social Security Administration on or before the due date for filing the return for the taxable year.

“(ii) ADOPTION TAXPAYER IDENTIFICATION NUMBER.—For purposes of subparagraph (C), in the case of a dependent who is adopted or placed for adoption, the term ‘valid identification number’ shall include the adoption taxpayer identification number of such dependent.

“(E) SPECIAL RULE FOR MEMBERS OF THE ARMED FORCES.—Subparagraph (B) shall not apply in the case where at least 1 spouse was a member of the Armed Forces of the United States at any time during the taxable year and the valid identification number of at least 1 spouse is included on the return of tax for the taxable year.

“(F) COORDINATION WITH CERTAIN ADVANCE PAYMENTS.—In the case of any payment determined pursuant to subsection (g)(6), a valid identification number shall be treated for purposes of this paragraph as included on the taxpayer’s return of tax if such valid identification number is available to the Secretary as described in such subsection.

“(G) MATHEMATICAL OR CLERICAL ERROR AUTHORITY.—Any omission of a correct valid identification number required under this paragraph shall be treated as a mathematical or clerical error for purposes of applying section 6213(g)(2) to such omission.

“(3) CREDIT TREATED AS REFUNDABLE.—The credit allowed by subsection (a) shall be treated as allowed by subpart C of part IV of subchapter A of chapter 1.

“(f) COORDINATION WITH ADVANCE REFUNDS OF CREDIT.—

“(1) REDUCTION OF REFUNDABLE CREDIT.—The amount of the credit which would (but for this paragraph) be allowable under subsection (a) shall be reduced (but not below zero) by the aggregate refunds and credits made or allowed to the

taxpayer (or, except as otherwise provided by the Secretary, any dependent of the taxpayer) under subsection (g). Any failure to so reduce the credit shall be treated as arising out of a mathematical or clerical error and assessed according to section 6213(b)(1).

“(2) JOINT RETURNS.—Except as otherwise provided by the Secretary, in the case of a refund or credit made or allowed under subsection (g) with respect to a joint return, half of such refund or credit shall be treated as having been made or allowed to each individual filing such return.

“(g) ADVANCE REFUNDS AND CREDITS.—

“(1) IN GENERAL.—Subject to paragraphs (5) and (6), each individual who was an eligible individual for such individual’s first taxable year beginning in 2019 shall be treated as having made a payment against the tax imposed by chapter 1 for such taxable year in an amount equal to the advance refund amount for such taxable year.

“(2) ADVANCE REFUND AMOUNT.—

“(A) IN GENERAL.—For purposes of paragraph (1), the advance refund amount is the amount that would have been allowed as a credit under this section for such taxable year if this section (other than subsection (f) and this subsection) had applied to such taxable year.

“(B) TREATMENT OF DECEASED INDIVIDUALS.—For purposes of determining the advance refund amount with respect to such taxable year—

“(i) any individual who was deceased before January 1, 2021, shall be treated for purposes of applying subsection (e)(2) in the same manner as if the valid identification number of such person was not included on the return of tax for such taxable year (except that subparagraph (E) thereof shall not apply).

“(ii) notwithstanding clause (i), in the case of a joint return with respect to which only 1 spouse is deceased before January 1, 2021, such deceased spouse was a member of the Armed Forces of the United States at any time during the taxable year, and the valid identification number of such deceased spouse is included on the return of tax for the taxable year, the valid identification number of 1 (and only 1) spouse shall be treated as included on the return of tax for the taxable year for purposes of applying subsection (e)(2)(B) with respect to such joint return, and

“(iii) no amount shall be determined under subsection (e)(2) with respect to any dependent of the taxpayer if the taxpayer (both spouses in the case of a joint return) was deceased before January 1, 2021.

“(3) TIMING AND MANNER OF PAYMENTS.—The Secretary shall, subject to the provisions of this title and consistent with rules similar to the rules of subparagraphs (B) and (C) of section 6428A(f)(3), refund or credit any overpayment attributable to this subsection as rapidly as possible, consistent with a rapid effort to make payments attributable to such overpayments electronically if appropriate. No refund or credit shall be made or allowed under this subsection after December 31, 2021.

Determination.
Termination
date.

Effective date.

“(4) NO INTEREST.—No interest shall be allowed on any overpayment attributable to this subsection.

“(5) APPLICATION TO INDIVIDUALS WHO HAVE FILED A RETURN OF TAX FOR 2020.—

“(A) APPLICATION TO 2020 RETURNS FILED AT TIME OF INITIAL DETERMINATION.—If, at the time of any determination made pursuant to paragraph (3), the individual referred to in paragraph (1) has filed a return of tax for the individual’s first taxable year beginning in 2020, paragraph (1) shall be applied with respect to such individual by substituting ‘2020’ for ‘2019’.

“(B) ADDITIONAL PAYMENT.—

“(i) IN GENERAL.—In the case of any individual who files, before the additional payment determination date, a return of tax for such individual’s first taxable year beginning in 2020, the Secretary shall make a payment (in addition to any payment made under paragraph (1)) to such individual equal to the excess (if any) of—

“(I) the amount which would be determined under paragraph (1) (after the application of subparagraph (A)) by applying paragraph (1) as of the additional payment determination date, over

“(II) the amount of any payment made with respect to such individual under paragraph (1).

“(ii) ADDITIONAL PAYMENT DETERMINATION DATE.—The term ‘additional payment determination date’ means the earlier of—

“(I) the date which is 90 days after the 2020 calendar year filing deadline, or

“(II) September 1, 2021.

“(iii) 2020 CALENDAR YEAR FILING DEADLINE.—The term ‘2020 calendar year filing deadline’ means the date specified in section 6072(a) with respect to returns for calendar year 2020. Such date shall be determined after taking into account any period disregarded under section 7508A if such disregard applies to substantially all returns for calendar year 2020 to which section 6072(a) applies.

“(6) APPLICATION TO CERTAIN INDIVIDUALS WHO HAVE NOT FILED A RETURN OF TAX FOR 2019 OR 2020 AT TIME OF DETERMINATION.—In the case of any individual who, at the time of any determination made pursuant to paragraph (3), has filed a tax return for neither the year described in paragraph (1) nor for the year described in paragraph (5)(A), the Secretary shall, consistent with rules similar to the rules of section 6428A(f)(5)(H)(i), apply paragraph (1) on the basis of information available to the Secretary and shall, on the basis of such information, determine the advance refund amount with respect to such individual without regard to subsection (d) unless the Secretary has reason to know that such amount would otherwise be reduced by reason of such subsection.

“(7) SPECIAL RULE RELATED TO TIME OF FILING RETURN.—Solely for purposes of this subsection, a return of tax shall not be treated as filed until such return has been processed by the Internal Revenue Service.

Definitions.

Determination.

“(8) RESTRICTION ON USE OF CERTAIN PREVIOUSLY ISSUED PREPAID DEBIT CARDS.—Payments made by the Secretary to individuals under this section shall not be in the form of an increase in the balance of any previously issued prepaid debit card if, as of the time of the issuance of such card, such card was issued solely for purposes of making payments under section 6428 or 6428A.

“(h) REGULATIONS.—The Secretary shall prescribe such regulations or other guidance as may be necessary or appropriate to carry out the purposes of this section, including—

Determination.

“(1) regulations or other guidance providing taxpayers the opportunity to provide the Secretary information sufficient to allow the Secretary to make payments to such taxpayers under subsection (g) (including the determination of the amount of such payment) if such information is not otherwise available to the Secretary, and

“(2) regulations or other guidance to ensure to the maximum extent administratively practicable that, in determining the amount of any credit under subsection (a) and any credit or refund under subsection (g), an individual is not taken into account more than once, including by different taxpayers and including by reason of a change in joint return status or dependent status between the taxable year for which an advance refund amount is determined and the taxable year for which a credit under subsection (a) is determined.

“(i) OUTREACH.—The Secretary shall carry out a robust and comprehensive outreach program to ensure that all taxpayers described in subsection (h)(1) learn of their eligibility for the advance refunds and credits under subsection (g); are advised of the opportunity to receive such advance refunds and credits as provided under subsection (h)(1); and are provided assistance in applying for such advance refunds and credits.”.

26 USC 6428B
note.

(b) TREATMENT OF CERTAIN POSSESSIONS.—

Determination.

(1) PAYMENTS TO POSSESSIONS WITH MIRROR CODE TAX SYSTEMS.—The Secretary of the Treasury shall pay to each possession of the United States which has a mirror code tax system amounts equal to the loss (if any) to that possession by reason of the amendments made by this section. Such amounts shall be determined by the Secretary of the Treasury based on information provided by the government of the respective possession.

Estimates.

(2) PAYMENTS TO OTHER POSSESSIONS.—The Secretary of the Treasury shall pay to each possession of the United States which does not have a mirror code tax system amounts estimated by the Secretary of the Treasury as being equal to the aggregate benefits (if any) that would have been provided to residents of such possession by reason of the amendments made by this section if a mirror code tax system had been in effect in such possession. The preceding sentence shall not apply unless the respective possession has a plan, which has been approved by the Secretary of the Treasury, under which such possession will promptly distribute such payments to its residents.

Plan.

(3) INCLUSION OF ADMINISTRATIVE EXPENSES.—The Secretary of the Treasury shall pay to each possession of the United States to which the Secretary makes a payment under paragraph (1) or (2) an amount equal to the lesser of—

(A) the increase (if any) of the administrative expenses of such possession—

(i) in the case of a possession described in paragraph (1), by reason of the amendments made by this section, and

(ii) in the case of a possession described in paragraph (2), by reason of carrying out the plan described in such paragraph, or

(B) \$500,000 (\$10,000,000 in the case of Puerto Rico).

The amount described in subparagraph (A) shall be determined by the Secretary of the Treasury based on information provided by the government of the respective possession.

Puerto Rico.
Determination.

(4) COORDINATION WITH CREDIT ALLOWED AGAINST UNITED STATES INCOME TAXES.—No credit shall be allowed against United States income taxes under section 6428B of the Internal Revenue Code of 1986 (as added by this section), nor shall any credit or refund be made or allowed under subsection (g) of such section, to any person—

(A) to whom a credit is allowed against taxes imposed by the possession by reason of the amendments made by this section, or

(B) who is eligible for a payment under a plan described in paragraph (2).

(5) MIRROR CODE TAX SYSTEM.—For purposes of this subsection, the term “mirror code tax system” means, with respect to any possession of the United States, the income tax system of such possession if the income tax liability of the residents of such possession under such system is determined by reference to the income tax laws of the United States as if such possession were the United States.

Definition.
Determination.

(6) TREATMENT OF PAYMENTS.—For purposes of section 1324 of title 31, United States Code, the payments under this subsection shall be treated in the same manner as a refund due from a credit provision referred to in subsection (b)(2) of such section.

(c) ADMINISTRATIVE PROVISIONS.—

(1) DEFINITION OF DEFICIENCY.—Section 6211(b)(4)(A) of the Internal Revenue Code of 1986 is amended by striking “6428, and 6428A” and inserting “6428, 6428A, and 6428B”.

26 USC 6211.

(2) EXCEPTION FROM REDUCTION OR OFFSET.—Any refund payable by reason of section 6428B(g) of the Internal Revenue Code of 1986 (as added by this section), or any such refund payable by reason of subsection (b) of this section, shall not be—

26 USC 6428B
note.

(A) subject to reduction or offset pursuant to subsection (c), (d), (e), or (f) of section 6402 of the Internal Revenue Code of 1986 or any similar authority permitting offset, or

(B) reduced or offset by other assessed Federal taxes that would otherwise be subject to levy or collection.

(3) CONFORMING AMENDMENTS.—

(A) Paragraph (2) of section 1324(b) of title 31, United States Code, is amended by inserting “6428B,” after “6428A,”.

(B) The table of sections for subchapter B of chapter 65 of the Internal Revenue Code of 1986 is amended by

26 USC 6411
prec.

inserting after the item relating to section 6428A the following new item:

“Sec. 6428B. 2021 recovery rebates to individuals.”

(d) APPROPRIATIONS.—Immediately upon the enactment of this Act, in addition to amounts otherwise available, there are appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated:

(1) \$1,464,500,000 to remain available until September 30, 2023 for necessary expenses for the Internal Revenue Service for the administration of the advance payments, the provision of taxpayer assistance, and the furtherance of integrated, modernized, and secure Internal Revenue Service systems, of which up to \$20,000,000 is available for premium pay for services related to the development of information technology as determined by the Commissioner of the Internal Revenue occurring between January 1, 2020 and December 31, 2022, and all of which shall supplement and not supplant any other appropriations that may be available for this purpose.

(2) \$7,000,000 to remain available until September 30, 2022, for necessary expenses for the Bureau of the Fiscal Service to carry out this section (and the amendments made by this section), which shall supplement and not supplant any other appropriations that may be available for this purpose, and

(3) \$8,000,000 to remain available until September 30, 2023, for the Treasury Inspector General for Tax Administration for the purposes of overseeing activities related to the administration of this section (and the amendments made by this section), which shall supplement and not supplant any other appropriations that may be available for this purpose.

PART 2—CHILD TAX CREDIT

SEC. 9611. CHILD TAX CREDIT IMPROVEMENTS FOR 2021.

26 USC 24. (a) IN GENERAL.—Section 24 of the Internal Revenue Code of 1986 is amended by adding at the end the following new subsection:

Puerto Rico. “(i) SPECIAL RULES FOR 2021.—In the case of any taxable year beginning after December 31, 2020, and before January 1, 2022—

“(1) REFUNDABLE CREDIT.—If the taxpayer (in the case of a joint return, either spouse) has a principal place of abode in the United States (determined as provided in section 32) for more than one-half of the taxable year or is a bona fide resident of Puerto Rico (within the meaning of section 937(a)) for such taxable year—

“(A) subsection (d) shall not apply, and

“(B) so much of the credit determined under subsection (a) (after application of subparagraph (A)) as does not exceed the amount of such credit which would be so determined without regard to subsection (h)(4) shall be allowed under subpart C (and not allowed under this subpart).

“(2) 17-YEAR-OLDS ELIGIBLE FOR TREATMENT AS QUALIFYING CHILDREN.—This section shall be applied—

“(A) by substituting ‘age 18’ for ‘age 17’ in subsection (c)(1), and

“(B) by substituting ‘described in subsection (c) (determined after the application of subsection (i)(2)(A))’ for ‘described in subsection (c)’ in subsection (h)(4)(A).

“(3) CREDIT AMOUNT.—Subsection (h)(2) shall not apply and subsection (a) shall be applied by substituting ‘\$3,000 (\$3,600 in the case of a qualifying child who has not attained age 6 as of the close of the calendar year in which the taxable year of the taxpayer begins)’ for ‘\$1,000’.

“(4) REDUCTION OF INCREASED CREDIT AMOUNT BASED ON MODIFIED ADJUSTED GROSS INCOME.—

“(A) IN GENERAL.—The amount of the credit allowable under subsection (a) (determined without regard to subsection (b)) shall be reduced by \$50 for each \$1,000 (or fraction thereof) by which the taxpayer’s modified adjusted gross income (as defined in subsection (b)) exceeds the applicable threshold amount.

“(B) APPLICABLE THRESHOLD AMOUNT.—For purposes of this paragraph, the term ‘applicable threshold amount’ means—

Definition.

“(i) \$150,000, in the case of a joint return or surviving spouse (as defined in section 2(a)),

“(ii) \$112,500, in the case of a head of household (as defined in section 2(b)), and

“(iii) \$75,000, in any other case.

“(C) LIMITATION ON REDUCTION.—

Definitions.

“(i) IN GENERAL.—The amount of the reduction under subparagraph (A) shall not exceed the lesser of—

Determinations.

“(I) the applicable credit increase amount, or

“(II) 5 percent of the applicable phaseout threshold range.

“(ii) APPLICABLE CREDIT INCREASE AMOUNT.—For purposes of this subparagraph, the term ‘applicable credit increase amount’ means the excess (if any) of—

“(I) the amount of the credit allowable under this section for the taxable year determined without regard to this paragraph and subsection (b), over

“(II) the amount of such credit as so determined and without regard to paragraph (3).

“(iii) APPLICABLE PHASEOUT THRESHOLD RANGE.—For purposes of this subparagraph, the term ‘applicable phaseout threshold range’ means the excess of—

“(I) the threshold amount applicable to the taxpayer under subsection (b) (determined after the application of subsection (h)(3)), over

“(II) the applicable threshold amount applicable to the taxpayer under this paragraph.

“(D) COORDINATION WITH LIMITATION ON OVERALL CREDIT.—Subsection (b) shall be applied by substituting ‘the credit allowable under subsection (a) (determined after the application of subsection (i)(4)(A))’ for ‘the credit allowable under subsection (a)’.”.

Applicability.
Determination.

(b) ADVANCE PAYMENT OF CREDIT.—

(1) IN GENERAL.—Chapter 77 of such Code is amended by inserting after section 7527 the following new section:

26 USC 7527A.

“SEC. 7527A. ADVANCE PAYMENT OF CHILD TAX CREDIT.

Determination.

“(a) **IN GENERAL.**—The Secretary shall establish a program for making periodic payments to taxpayers which, in the aggregate during any calendar year, equal the annual advance amount determined with respect to such taxpayer for such calendar year. Except as provided in subsection (b)(3)(B), the periodic payments made to any taxpayer for any calendar year shall be in equal amounts.

Definition.

Estimate.

Determinations.

“(b) **ANNUAL ADVANCE AMOUNT.**—For purposes of this section—

“(1) **IN GENERAL.**—Except as otherwise provided in this subsection, the term ‘annual advance amount’ means, with respect to any taxpayer for any calendar year, the amount (if any) which is estimated by the Secretary as being equal to 50 percent of the amount which would be treated as allowed under subpart C of part IV of subchapter A of chapter 1 by reason of section 24(i)(1) for the taxpayer’s taxable year beginning in such calendar year if—

“(A) the status of the taxpayer as a taxpayer described in section 24(i)(1) is determined with respect to the reference taxable year,

“(B) the taxpayer’s modified adjusted gross income for such taxable year is equal to the taxpayer’s modified adjusted gross income for the reference taxable year,

“(C) the only children of such taxpayer for such taxable year are qualifying children properly claimed on the taxpayer’s return of tax for the reference taxable year, and

“(D) the ages of such children (and the status of such children as qualifying children) are determined for such taxable year by taking into account the passage of time since the reference taxable year.

Definition.

“(2) **REFERENCE TAXABLE YEAR.**—Except as provided in paragraph (3)(A), the term ‘reference taxable year’ means, with respect to any taxpayer for any calendar year, the taxpayer’s taxable year beginning in the preceding calendar year or, in the case of taxpayer who did not file a return of tax for such taxable year, the taxpayer’s taxable year beginning in the second preceding calendar year.

“(3) **MODIFICATIONS DURING CALENDAR YEAR.**—

“(A) **IN GENERAL.**—The Secretary may modify, during any calendar year, the annual advance amount with respect to any taxpayer for such calendar year to take into account—

“(i) a return of tax filed by such taxpayer during such calendar year (and the taxable year to which such return relates may be taken into account as the reference taxable year), and

“(ii) any other information provided by the taxpayer to the Secretary which allows the Secretary to determine payments under subsection (a) which, in the aggregate during any taxable year of the taxpayer, more closely total the Secretary’s estimate of the amount treated as allowed under subpart C of part IV of subchapter A of chapter 1 by reason of section 24(i)(1) for such taxable year of such taxpayer.

“(B) **ADJUSTMENT TO REFLECT EXCESS OR DEFICIT IN PRIOR PAYMENTS.**—In the case of any modification of the annual advance amount under subparagraph (A), the Secretary may adjust the amount of any periodic payment

made after the date of such modification to properly take into account the amount by which any periodic payment made before such date was greater than or less than the amount that such payment would have been on the basis of the annual advance amount as so modified.

“(4) DETERMINATION OF STATUS.—If information contained in the taxpayer’s return of tax for the reference taxable year does not establish the status of the taxpayer as being described in section 24(i)(1), the Secretary shall, for purposes of paragraph (1)(A), determine such status based on information known to the Secretary.

“(5) TREATMENT OF CERTAIN DEATHS.—A child shall not be taken into account in determining the annual advance amount under paragraph (1) if the death of such child is known to the Secretary as of the beginning of the calendar year for which the estimate under such paragraph is made.

Determination.

“(c) ON-LINE INFORMATION PORTAL.—The Secretary shall establish an on-line portal which allows taxpayers to—

“(1) elect not to receive payments under this section, and

“(2) provide information to the Secretary which would be relevant to a modification under subsection (b)(3)(B) of the annual advance amount, including information regarding—

“(A) a change in the number of the taxpayer’s qualifying children, including by reason of the birth of a child,

“(B) a change in the taxpayer’s marital status,

“(C) a significant change in the taxpayer’s income,

and

“(D) any other factor which the Secretary may provide.

“(d) NOTICE OF PAYMENTS.—Not later than January 31 of the calendar year following any calendar year during which the Secretary makes one or more payments to any taxpayer under this section, the Secretary shall provide such taxpayer with a written notice which includes the taxpayer’s taxpayer identity (as defined in section 6103(b)(6)), the aggregate amount of such payments made to such taxpayer during such calendar year, and such other information as the Secretary determines appropriate.

Deadlines.

“(e) ADMINISTRATIVE PROVISIONS.—

“(1) APPLICATION OF ELECTRONIC FUNDS PAYMENT REQUIREMENT.—The payments made by the Secretary under subsection (a) shall be made by electronic funds transfer to the same extent and in the same manner as if such payments were Federal payments not made under this title.

“(2) APPLICATION OF CERTAIN RULES.—Rules similar to the rules of subparagraphs (B) and (C) of section 6428A(f)(3) shall apply for purposes of this section.

“(3) EXCEPTION FROM REDUCTION OR OFFSET.—Any payment made to any individual under this section shall not be—

“(A) subject to reduction or offset pursuant to subsection (c), (d), (e), or (f) of section 6402 or any similar authority permitting offset, or

“(B) reduced or offset by other assessed Federal taxes that would otherwise be subject to levy or collection.

“(4) APPLICATION OF ADVANCE PAYMENTS IN THE POSSESSIONS OF THE UNITED STATES.—

“(A) IN GENERAL.—The advance payment amount determined under this section shall be determined—

Determination.

Puerto Rico.

“(i) by applying section 24(i)(1) without regard to the phrase ‘or is a bona fide resident of Puerto Rico (within the meaning of section 937(a))’, and

“(ii) without regard to section 24(k)(3)(C)(ii)(I).

“(B) MIRROR CODE POSSESSIONS.—In the case of any possession of the United States with a mirror code tax system (as defined in section 24(k)), this section shall not be treated as part of the income tax laws of the United States for purposes of determining the income tax law of such possession unless such possession elects to have this section be so treated.

“(C) ADMINISTRATIVE EXPENSES OF ADVANCE PAYMENTS.—

Plan.

“(i) MIRROR CODE POSSESSIONS.—In the case of any possession described in subparagraph (B) which makes the election described in such subparagraph, the amount otherwise paid by the Secretary to such possession under section 24(k)(1)(A) with respect to taxable years beginning in 2021 shall be increased by \$300,000 if such possession has a plan, which has been approved by the Secretary, for making advance payments consistent with such election.

“(ii) AMERICAN SAMOA.—The amount otherwise paid by the Secretary to American Samoa under subparagraph (A) of section 24(k)(3) with respect to taxable years beginning in 2021 shall be increased by \$300,000 if the plan described in subparagraph (B) of such section includes a program, which has been approved by the Secretary, for making advance payments under rules similar to the rules of this section.

“(iii) TIMING OF PAYMENT.—The Secretary may pay, upon the request of the possession of the United States to which the payment is to be made, the amount of the increase determined under clause (i) or (ii) immediately upon approval of the plan referred to in such clause, respectively.

Time periods.

“(f) APPLICATION.—No payments shall be made under the program established under subsection (a) with respect to—

“(1) any period before July 1, 2021, or

“(2) any period after December 31, 2021.

Determination.

“(g) REGULATIONS.—The Secretary shall issue such regulations or other guidance as the Secretary determines necessary or appropriate to carry out the purposes of this section and subsections (i)(1) and (j) of section 24, including regulations or other guidance which provides for the application of such provisions where the filing status of the taxpayer for a taxable year is different from the status used for determining the annual advance amount.”.

26 USC 24.

(2) RECONCILIATION OF CREDIT AND ADVANCE CREDIT.—Section 24 of such Code, as amended by the preceding provision of this Act, is amended by adding at the end the following new subsection:

“(j) RECONCILIATION OF CREDIT AND ADVANCE CREDIT.—

“(1) IN GENERAL.—The amount of the credit allowed under this section to any taxpayer for any taxable year shall be reduced (but not below zero) by the aggregate amount of payments made under section 7527A to such taxpayer during such

taxable year. Any failure to so reduce the credit shall be treated as arising out of a mathematical or clerical error and assessed according to section 6213(b)(1).

“(2) EXCESS ADVANCE PAYMENTS.—

“(A) IN GENERAL.—If the aggregate amount of payments under section 7527A to the taxpayer during the taxable year exceeds the amount of the credit allowed under this section to such taxpayer for such taxable year (determined without regard to paragraph (1)), the tax imposed by this chapter for such taxable year shall be increased by the amount of such excess. Any failure to so increase the tax shall be treated as arising out of a mathematical or clerical error and assessed according to section 6213(b)(1).

“(B) SAFE HARBOR BASED ON MODIFIED ADJUSTED GROSS INCOME.— Definitions.

“(i) IN GENERAL.—In the case of a taxpayer whose modified adjusted gross income (as defined in subsection (b)) for the taxable year does not exceed 200 percent of the applicable income threshold, the amount of the increase determined under subparagraph (A) with respect to such taxpayer for such taxable year shall be reduced (but not below zero) by the safe harbor amount.

“(ii) PHASE OUT OF SAFE HARBOR AMOUNT.—In the case of a taxpayer whose modified adjusted gross income (as defined in subsection (b)) for the taxable year exceeds the applicable income threshold, the safe harbor amount otherwise in effect under clause (i) shall be reduced by the amount which bears the same ratio to such amount as such excess bears to the applicable income threshold.

“(iii) APPLICABLE INCOME THRESHOLD.—For purposes of this subparagraph, the term ‘applicable income threshold’ means—

“(I) \$60,000 in the case of a joint return or surviving spouse (as defined in section 2(a)),

“(II) \$50,000 in the case of a head of household, and

“(III) \$40,000 in any other case.

“(iv) SAFE HARBOR AMOUNT.—For purposes of this subparagraph, the term ‘safe harbor amount’ means, with respect to any taxable year, the product of—

“(I) \$2,000, multiplied by

“(II) the excess (if any) of the number of qualified children taken into account in determining the annual advance amount with respect to the taxpayer under section 7527A with respect to months beginning in such taxable year, over the number of qualified children taken into account in determining the credit allowed under this section for such taxable year.”. Determinations.

(3) COORDINATION WITH WAGE WITHHOLDING.—Section 3402(f)(1)(C) of such Code is amended by striking “section 24(a)” and inserting “section 24 (determined after application of subsection (j) thereof)”. 26 USC 3402.

(4) CONFORMING AMENDMENTS.—

26 USC 26.

(A) Section 26(b)(2) of such Code is amended by striking “and” at the end of subparagraph (X), by striking the period at the end of subparagraph (Y) and inserting “, and”, and by adding at the end the following new subparagraph:

“(Z) section 24(j)(2) (relating to excess advance payments).”.

(B) Section 6211(b)(4)(A) of such Code, as amended by the preceding provisions of this subtitle, is amended—

(i) by striking “24(d)” and inserting “24 by reason of subsections (d) and (i)(1) thereof”, and

(ii) by striking “and 6428B” and inserting “6428B, and 7527A”.

(C) Paragraph (2) of section 1324(b) of title 31, United States Code, is amended—

(i) by inserting “24,” before “25A”, and

(ii) by striking “ or 6431” and inserting “6431, or 7527A”.

26 USC 7501
prec.

(D) The table of sections for chapter 77 of the Internal Revenue Code of 1986 is amended by inserting after the item relating to section 7527 the following new item:

“Sec. 7527A. Advance payment of child tax credit.”.

(5) APPROPRIATIONS TO CARRY OUT ADVANCE PAYMENTS.—Immediately upon the enactment of this Act, in addition to amounts otherwise available, there are appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated:

(A) \$397,200,000 to remain available until September 30, 2022, for necessary expenses for the Internal Revenue Service to carry out this section (and the amendments made by this section), which shall supplement and not supplant any other appropriations that may be available for this purpose, and

(B) \$16,200,000 to remain available until September 30, 2022, for necessary expenses for the Bureau of the Fiscal Service to carry out this section (and the amendments made by this section), which shall supplement and not supplant any other appropriations that may be available for this purpose.

(c) EFFECTIVE DATE.—

26 USC 24 note.

(1) IN GENERAL.—The amendments made by this section shall apply to taxable years beginning after December 31, 2020.

26 USC 7527A
note.

(2) ESTABLISHMENT OF ADVANCE PAYMENT PROGRAM.—The Secretary of the Treasury (or the Secretary’s designee) shall establish the program described in section 7527A of the Internal Revenue Code of 1986 as soon as practicable after the date of the enactment of this Act, except that the Secretary shall ensure that the timing of the establishment of such program does not interfere with carrying out section 6428B(g) as rapidly as possible.

SEC. 9612. APPLICATION OF CHILD TAX CREDIT IN POSSESSIONS.

26 USC 24.

(a) IN GENERAL.—Section 24 of the Internal Revenue Code of 1986, as amended by the preceding provisions of this Act, is amended by adding at the end the following new subsection:

“(k) APPLICATION OF CREDIT IN POSSESSIONS.—

“(1) MIRROR CODE POSSESSIONS.—

“(A) IN GENERAL.—The Secretary shall pay to each possession of the United States with a mirror code tax system amounts equal to the loss (if any) to that possession by reason of the application of this section (determined without regard to this subsection) with respect to taxable years beginning after 2020. Such amounts shall be determined by the Secretary based on information provided by the government of the respective possession.

“(B) COORDINATION WITH CREDIT ALLOWED AGAINST UNITED STATES INCOME TAXES.—No credit shall be allowed under this section for any taxable year to any individual to whom a credit is allowable against taxes imposed by a possession of the United States with a mirror code tax system by reason of the application of this section in such possession for such taxable year.

“(C) MIRROR CODE TAX SYSTEM.—For purposes of this paragraph, the term ‘mirror code tax system’ means, with respect to any possession of the United States, the income tax system of such possession if the income tax liability of the residents of such possession under such system is determined by reference to the income tax laws of the United States as if such possession were the United States.

Definition.

“(2) PUERTO RICO.—

“(A) APPLICATION TO TAXABLE YEARS IN 2021.—

“(i) For application of refundable credit to residents of Puerto Rico, see subsection (i)(1).

“(ii) For nonapplication of advance payment to residents of Puerto Rico, see section 7527A(e)(4)(A).

“(B) APPLICATION TO TAXABLE YEARS AFTER 2021.—In the case of any bona fide resident of Puerto Rico (within the meaning of section 937(a)) for any taxable year beginning after December 31, 2021—

“(i) the credit determined under this section shall be allowable to such resident, and

“(ii) subsection (d)(1)(B)(ii) shall be applied without regard to the phrase ‘in the case of a taxpayer with 3 or more qualifying children’.

“(3) AMERICAN SAMOA.—

“(A) IN GENERAL.—The Secretary shall pay to American Samoa amounts estimated by the Secretary as being equal to the aggregate benefits that would have been provided to residents of American Samoa by reason of the application of this section for taxable years beginning after 2020 if the provisions of this section had been in effect in American Samoa (applied as if American Samoa were the United States and without regard to the application of this section to bona fide residents of Puerto Rico under subsection (i)(1)).

Estimates.

“(B) DISTRIBUTION REQUIREMENT.—Subparagraph (A) shall not apply unless American Samoa has a plan, which has been approved by the Secretary, under which American Samoa will promptly distribute such payments to its residents.

Plan.

“(C) COORDINATION WITH CREDIT ALLOWED AGAINST UNITED STATES INCOME TAXES.—

“(i) IN GENERAL.—In the case of a taxable year with respect to which a plan is approved under subparagraph (B), this section (other than this subsection) shall not apply to any individual eligible for a distribution under such plan.

Effective dates.

“(ii) APPLICATION OF SECTION IN EVENT OF ABSENCE OF APPROVED PLAN.—In the case of a taxable year with respect to which a plan is not approved under subparagraph (B)—

“(I) if such taxable year begins in 2021, subsection (i)(1) shall be applied by substituting ‘bona fide resident of Puerto Rico or American Samoa’ for ‘bona fide resident of Puerto Rico’, and

“(II) if such taxable year begins after December 31, 2021, rules similar to the rules of paragraph (2)(B) shall apply with respect to bona fide residents of American Samoa (within the meaning of section 937(a)).

“(4) TREATMENT OF PAYMENTS.—For purposes of section 1324 of title 31, United States Code, the payments under this subsection shall be treated in the same manner as a refund due from a credit provision referred to in subsection (b)(2) of such section.”.

26 USC 24 note.

(b) EFFECTIVE DATE.—The amendments made by this section shall apply to taxable years beginning after December 31, 2020.

PART 3—EARNED INCOME TAX CREDIT

SEC. 9621. STRENGTHENING THE EARNED INCOME TAX CREDIT FOR INDIVIDUALS WITH NO QUALIFYING CHILDREN.

26 USC 32.

(a) SPECIAL RULES FOR 2021.—Section 32 of the Internal Revenue Code of 1986 is amended by adding at the end the following new subsection:

“(n) SPECIAL RULES FOR INDIVIDUALS WITHOUT QUALIFYING CHILDREN.—In the case of any taxable year beginning after December 31, 2020, and before January 1, 2022—

Definitions.

“(1) DECREASE IN MINIMUM AGE FOR CREDIT.—

Applicability.

“(A) IN GENERAL.—Subsection (c)(1)(A)(ii)(II) shall be applied by substituting ‘the applicable minimum age’ for ‘age 25’.

“(B) APPLICABLE MINIMUM AGE.—For purposes of this paragraph, the term ‘applicable minimum age’ means—

“(i) except as otherwise provided in this subparagraph, age 19,

“(ii) in the case of a specified student (other than a qualified former foster youth or a qualified homeless youth), age 24, and

“(iii) in the case of a qualified former foster youth or a qualified homeless youth, age 18.

“(C) SPECIFIED STUDENT.—For purposes of this paragraph, the term ‘specified student’ means, with respect to any taxable year, an individual who is an eligible student (as defined in section 25A(b)(3)) during at least 5 calendar months during the taxable year.

“(D) QUALIFIED FORMER FOSTER YOUTH.—For purposes of this paragraph, the term ‘qualified former foster youth’ means an individual who—

“(i) on or after the date that such individual attained age 14, was in foster care provided under the supervision or administration of an entity administering (or eligible to administer) a plan under part B or part E of title IV of the Social Security Act (without regard to whether Federal assistance was provided with respect to such child under such part E), and

Effective date.

“(ii) provides (in such manner as the Secretary may provide) consent for entities which administer a plan under part B or part E of title IV of the Social Security Act to disclose to the Secretary information related to the status of such individual as a qualified former foster youth.

“(E) QUALIFIED HOMELESS YOUTH.—For purposes of this paragraph, the term ‘qualified homeless youth’ means, with respect to any taxable year, an individual who certifies, in a manner as provided by the Secretary, that such individual is either an unaccompanied youth who is a homeless child or youth, or is unaccompanied, at risk of homelessness, and self-supporting.

Certification.

“(2) ELIMINATION OF MAXIMUM AGE FOR CREDIT.—Subsection (c)(1)(A)(ii)(II) shall be applied without regard to the phrase ‘but not attained age 65’.

“(3) INCREASE IN CREDIT AND PHASEOUT PERCENTAGES.—The table contained in subsection (b)(1) shall be applied by substituting ‘15.3’ for ‘7.65’ each place it appears therein.

“(4) INCREASE IN EARNED INCOME AND PHASEOUT AMOUNTS.—

“(A) IN GENERAL.—The table contained in subsection (b)(2)(A) shall be applied—

“(i) by substituting ‘\$9,820’ for ‘\$4,220’, and

“(ii) by substituting ‘\$11,610’ for ‘\$5,280’.

“(B) COORDINATION WITH INFLATION ADJUSTMENT.—Subsection (j) shall not apply to any dollar amount specified in this paragraph.”.

(b) INFORMATION RETURN MATCHING.—As soon as practicable, the Secretary of the Treasury (or the Secretary’s delegate) shall develop and implement procedures to use information returns under section 6050S (relating to returns relating to higher education tuition and related expenses) to check the status of individuals as specified students for purposes of section 32(n)(1)(B)(ii) of the Internal Revenue Code of 1986 (as added by this section).

Procedures.
26 USC 32 note.

(c) EFFECTIVE DATE.—The amendment made by this section shall apply to taxable years beginning after December 31, 2020.

26 USC 32 note.

SEC. 9622. TAXPAYER ELIGIBLE FOR CHILDLESS EARNED INCOME CREDIT IN CASE OF QUALIFYING CHILDREN WHO FAIL TO MEET CERTAIN IDENTIFICATION REQUIREMENTS.

(a) IN GENERAL.—Section 32(c)(1) of the Internal Revenue Code of 1986 is amended by striking subparagraph (F).

26 USC 32.

(b) EFFECTIVE DATE.—The amendment made by this section shall apply to taxable years beginning after December 31, 2020.

26 USC 32 note.

SEC. 9623. CREDIT ALLOWED IN CASE OF CERTAIN SEPARATED SPOUSES.

(a) IN GENERAL.—Section 32(d) of the Internal Revenue Code of 1986 is amended—

26 USC 32.

(1) by striking “MARRIED INDIVIDUALS.—In the case of” and inserting the following: “MARRIED INDIVIDUALS.—

“(1) IN GENERAL.—In the case of”, and

(2) by adding at the end the following new paragraph:

“(2) DETERMINATION OF MARITAL STATUS.—For purposes of this section—

“(A) IN GENERAL.—Except as provided in subparagraph (B), marital status shall be determined under section 7703(a).

Time periods.

“(B) SPECIAL RULE FOR SEPARATED SPOUSE.—An individual shall not be treated as married if such individual—

“(i) is married (as determined under section 7703(a)) and does not file a joint return for the taxable year,

“(ii) resides with a qualifying child of the individual for more than one-half of such taxable year, and

“(iii)(I) during the last 6 months of such taxable year, does not have the same principal place of abode as the individual’s spouse, or

“(II) has a decree, instrument, or agreement (other than a decree of divorce) described in section 121(d)(3)(C) with respect to the individual’s spouse and is not a member of the same household with the individual’s spouse by the end of the taxable year.”.

(b) CONFORMING AMENDMENTS.—

26 USC 32.

(1) Section 32(c)(1)(A) of such Code is amended by striking the last sentence.

(2) Section 32(c)(1)(E)(ii) of such Code is amended by striking “(within the meaning of section 7703)”.

(3) Section 32(d)(1) of such Code, as amended by subsection (a), is amended by striking “(within the meaning of section 7703)”.

26 USC 32 note.

(c) EFFECTIVE DATE.—The amendments made by this section shall apply to taxable years beginning after December 31, 2020.

SEC. 9624. MODIFICATION OF DISQUALIFIED INVESTMENT INCOME TEST.

26 USC 32.

(a) IN GENERAL.—Section 32(i) of the Internal Revenue Code of 1986 is amended by striking “\$2,200” and inserting “\$10,000”.

(b) INFLATION ADJUSTMENT.—Section 32(j)(1) of such Code is amended—

(1) in the matter preceding subparagraph (A), by inserting “(2021 in the case of the dollar amount in subsection (i)(1))” after “2015”,

(2) in subparagraph (B)(i)—

(A) by striking “subsections (b)(2)(A) and (i)(1)” and inserting “subsection (b)(2)(A)”, and

(B) by striking “and” at the end,

(3) by striking the period at the end of subparagraph (B)(ii) and inserting “, and”, and

(4) by inserting after subparagraph (B)(ii) the following new clause:

“(iii) in the case of the \$10,000 amount in subsection (i)(1), ‘calendar year 2020’ for ‘calendar year 2016’.”.

26 USC 32 note.

(c) EFFECTIVE DATE.—The amendments made by this section shall apply to taxable years beginning after December 31, 2020.

SEC. 9625. APPLICATION OF EARNED INCOME TAX CREDIT IN POSSESSIONS OF THE UNITED STATES.

(a) IN GENERAL.—Chapter 77 of the Internal Revenue Code of 1986 is amended by adding at the end the following new section:

“SEC. 7530. APPLICATION OF EARNED INCOME TAX CREDIT TO POSSESSIONS OF THE UNITED STATES. 26 USC 7530.

“(a) PUERTO RICO.—

“(1) IN GENERAL.—With respect to calendar year 2021 and each calendar year thereafter, the Secretary shall, except as otherwise provided in this subsection, make payments to Puerto Rico equal to—

“(A) the specified matching amount for such calendar year, plus

“(B) in the case of calendar years 2021 through 2025, the lesser of—

“(i) the expenditures made by Puerto Rico during such calendar year for education efforts with respect to individual taxpayers and tax return preparers relating to the earned income tax credit, or

“(ii) \$1,000,000.

“(2) REQUIREMENT TO REFORM EARNED INCOME TAX CREDIT.—The Secretary shall not make any payments under paragraph (1) with respect to any calendar year unless Puerto Rico has in effect an earned income tax credit for taxable years beginning in or with such calendar year which (relative to the earned income tax credit which was in effect for taxable years beginning in or with calendar year 2019) increases the percentage of earned income which is allowed as a credit for each group of individuals with respect to which such percentage is separately stated or determined in a manner designed to substantially increase workforce participation.

“(3) SPECIFIED MATCHING AMOUNT.—For purposes of this subsection—

“(A) IN GENERAL.—The term ‘specified matching amount’ means, with respect to any calendar year, the lesser of—

“(i) the excess (if any) of—

“(I) the cost to Puerto Rico of the earned income tax credit for taxable years beginning in or with such calendar year, over

“(II) the base amount for such calendar year,

or

“(ii) the product of 3, multiplied by the base amount for such calendar year.

“(B) BASE AMOUNT.—

“(i) BASE AMOUNT FOR 2021.—In the case of calendar year 2021, the term ‘base amount’ means the greater of—

“(I) the cost to Puerto Rico of the earned income tax credit for taxable years beginning in or with calendar year 2019 (rounded to the nearest multiple of \$1,000,000), or

“(II) \$200,000,000.

“(ii) INFLATION ADJUSTMENT.—In the case of any calendar year after 2021, the term ‘base amount’ means

Definitions.

Determination.

the dollar amount determined under clause (i) increased by an amount equal to—

“(I) such dollar amount, multiplied by—

“(II) the cost-of-living adjustment determined under section 1(f)(3) for such calendar year, determined by substituting ‘calendar year 2020’ for ‘calendar year 2016’ in subparagraph (A)(ii) thereof.

Any amount determined under this clause shall be rounded to the nearest multiple of \$1,000,000.

“(4) RULES RELATED TO PAYMENTS.—

“(A) TIMING OF PAYMENTS.—The Secretary shall make payments under paragraph (1) for any calendar year—

Determination.

“(i) after receipt of such information as the Secretary may require to determine such payments, and

“(ii) except as provided in clause (i), within a reasonable period of time before the due date for individual income tax returns (as determined under the laws of Puerto Rico) for taxable years which began on the first day of such calendar year.

Requirements.

“(B) INFORMATION.—The Secretary may require the reporting of such information as the Secretary may require to carry out this subsection.

“(C) DETERMINATION OF COST OF EARNED INCOME TAX CREDIT.—For purposes of this subsection, the cost to Puerto Rico of the earned income tax credit shall be determined by the Secretary on the basis of the laws of Puerto Rico and shall include reductions in revenues received by Puerto Rico by reason of such credit and refunds attributable to such credit, but shall not include any administrative costs with respect to such credit.

“(b) POSSESSIONS WITH MIRROR CODE TAX SYSTEMS.—

Time periods.
Territories.

“(1) IN GENERAL.—With respect to calendar year 2021 and each calendar year thereafter, the Secretary shall, except as otherwise provided in this subsection, make payments to the Virgin Islands, Guam, and the Commonwealth of the Northern Mariana Islands equal to—

“(A) the cost to such possession of the earned income tax credit for taxable years beginning in or with such calendar year, plus

“(B) in the case of calendar years 2021 through 2025, the lesser of—

“(i) the expenditures made by such possession during such calendar year for education efforts with respect to individual taxpayers and tax return preparers relating to such earned income tax credit, or

“(ii) \$50,000.

“(2) APPLICATION OF CERTAIN RULES.—Rules similar to the rules of subparagraphs (A), (B), and (C) of subsection (a)(4) shall apply for purposes of this subsection.

“(c) AMERICAN SAMOA.—

“(1) IN GENERAL.—With respect to calendar year 2021 and each calendar year thereafter, the Secretary shall, except as otherwise provided in this subsection, make payments to American Samoa equal to—

“(A) the lesser of—

“(i) the cost to American Samoa of the earned income tax credit for taxable years beginning in or with such calendar year, or

“(ii) \$16,000,000, plus

“(B) in the case of calendar years 2021 through 2025, the lesser of—

“(i) the expenditures made by American Samoa during such calendar year for education efforts with respect to individual taxpayers and tax return preparers relating to such earned income tax credit, or

“(ii) \$50,000.

“(2) REQUIREMENT TO ENACT AND MAINTAIN AN EARNED INCOME TAX CREDIT.—The Secretary shall not make any payments under paragraph (1) with respect to any calendar year unless American Samoa has in effect an earned income tax credit for taxable years beginning in or with such calendar year which allows a refundable tax credit to individuals on the basis of the taxpayer’s earned income which is designed to substantially increase workforce participation.

“(3) INFLATION ADJUSTMENT.—In the case of any calendar year after 2021, the \$16,000,000 amount in paragraph (1)(A)(ii) shall be increased by an amount equal to—

Determinations.

“(A) such dollar amount, multiplied by—

“(B) the cost-of-living adjustment determined under section 1(f)(3) for such calendar year, determined by substituting ‘calendar year 2020’ for ‘calendar year 2016’ in subparagraph (A)(ii) thereof.

Any increase determined under this clause shall be rounded to the nearest multiple of \$100,000.

“(4) APPLICATION OF CERTAIN RULES.—Rules similar to the rules of subparagraphs (A), (B), and (C) of subsection (a)(4) shall apply for purposes of this subsection.

“(d) TREATMENT OF PAYMENTS.—For purposes of section 1324 of title 31, United States Code, the payments under this section shall be treated in the same manner as a refund due from a credit provision referred to in subsection (b)(2) of such section.”.

(b) CLERICAL AMENDMENT.—The table of sections for chapter 77 of the Internal Revenue Code of 1986 is amended by adding at the end the following new item:

26 USC 7501 prec.

“Sec. 7530. Application of earned income tax credit to possessions of the United States.”.

SEC. 9626. TEMPORARY SPECIAL RULE FOR DETERMINING EARNED INCOME FOR PURPOSES OF EARNED INCOME TAX CREDIT.

26 USC 32 note.

(a) IN GENERAL.—If the earned income of the taxpayer for the taxpayer’s first taxable year beginning in 2021 is less than the earned income of the taxpayer for the taxpayer’s first taxable year beginning in 2019, the credit allowed under section 32 of the Internal Revenue Code of 1986 may, at the election of the taxpayer, be determined by substituting—

Determination.

(1) such earned income for the taxpayer’s first taxable year beginning in 2019, for

(2) such earned income for the taxpayer’s first taxable year beginning in 2021.

(b) EARNED INCOME.—

- Definition. (1) **IN GENERAL.**—For purposes of this section, the term “earned income” has the meaning given such term under section 32(c) of the Internal Revenue Code of 1986.
- (2) **APPLICATION TO JOINT RETURNS.**—For purposes of subsection (a), in the case of a joint return, the earned income of the taxpayer for the first taxable year beginning in 2019 shall be the sum of the earned income of each spouse for such taxable year.
- (c) **SPECIAL RULES.**—
- (1) **ERRORS TREATED AS MATHEMATICAL ERRORS.**—For purposes of section 6213 of the Internal Revenue Code of 1986, an incorrect use on a return of earned income pursuant to subsection (a) shall be treated as a mathematical or clerical error.
- Applicability. (2) **NO EFFECT ON DETERMINATION OF GROSS INCOME, ETC.**—Except as otherwise provided in this subsection, the Internal Revenue Code of 1986 shall be applied without regard to any substitution under subsection (a).
- (d) **TREATMENT OF CERTAIN POSSESSIONS.**—
- (1) **PAYMENTS TO POSSESSIONS WITH MIRROR CODE TAX SYSTEMS.**—The Secretary of the Treasury shall pay to each possession of the United States which has a mirror code tax system amounts equal to the loss (if any) to that possession by reason of the application of the provisions of this section (other than this subsection) with respect to section 32 of the Internal Revenue Code of 1986. Such amounts shall be determined by the Secretary of the Treasury based on information provided by the government of the respective possession.
- Determination. (2) **PAYMENTS TO OTHER POSSESSIONS.**—The Secretary of the Treasury shall pay to each possession of the United States which does not have a mirror code tax system amounts estimated by the Secretary of the Treasury as being equal to the aggregate benefits (if any) that would have been provided to residents of such possession by reason of the provisions of this section (other than this subsection) with respect to section 32 of the Internal Revenue Code of 1986 if a mirror code tax system had been in effect in such possession. The preceding sentence shall not apply unless the respective possession has a plan, which has been approved by the Secretary of the Treasury, under which such possession will promptly distribute such payments to its residents.
- Estimates. (3) **MIRROR CODE TAX SYSTEM.**—For purposes of this section, the term “mirror code tax system” means, with respect to any possession of the United States, the income tax system of such possession if the income tax liability of the residents of such possession under such system is determined by reference to the income tax laws of the United States as if such possession were the United States.
- Plan. (4) **TREATMENT OF PAYMENTS.**—For purposes of section 1324 of title 31, United States Code, the payments under this section shall be treated in the same manner as a refund due from a credit provision referred to in subsection (b)(2) of such section.
- Definition. (3) **MIRROR CODE TAX SYSTEM.**—For purposes of this section, the term “mirror code tax system” means, with respect to any possession of the United States, the income tax system of such possession if the income tax liability of the residents of such possession under such system is determined by reference to the income tax laws of the United States as if such possession were the United States.
- Determination. (4) **TREATMENT OF PAYMENTS.**—For purposes of section 1324 of title 31, United States Code, the payments under this section shall be treated in the same manner as a refund due from a credit provision referred to in subsection (b)(2) of such section.

PART 4—DEPENDENT CARE ASSISTANCE**SEC. 9631. REFUNDABILITY AND ENHANCEMENT OF CHILD AND DEPENDENT CARE TAX CREDIT.**

(a) IN GENERAL.—Section 21 of the Internal Revenue Code of 1986 is amended by adding at the end the following new subsection: 26 USC 21.

“(g) SPECIAL RULES FOR 2021.—In the case of any taxable year beginning after December 31, 2020, and before January 1, 2022— Applicability.

“(1) CREDIT MADE REFUNDABLE.—If the taxpayer (in the case of a joint return, either spouse) has a principal place of abode in the United States (determined as provided in section 32) for more than one-half of the taxable year, the credit allowed under subsection (a) shall be treated as a credit allowed under subpart C (and not allowed under this subpart).

“(2) INCREASE IN DOLLAR LIMIT ON AMOUNT CREDITABLE.— Subsection (c) shall be applied—

“(A) by substituting ‘\$8,000’ for ‘\$3,000’ in paragraph (1) thereof, and

“(B) by substituting ‘\$16,000’ for ‘\$6,000’ in paragraph (2) thereof.

“(3) INCREASE IN APPLICABLE PERCENTAGE.—Subsection (a)(2) shall be applied—

“(A) by substituting ‘50 percent’ for ‘35 percent’, and
“(B) by substituting ‘\$125,000’ for ‘\$15,000’.

“(4) APPLICATION OF PHASEOUT TO HIGH INCOME INDIVIDUALS.—

“(A) IN GENERAL.—Subsection (a)(2) shall be applied by substituting ‘the phaseout percentage’ for ‘20 percent’.

“(B) PHASEOUT PERCENTAGE.—The term ‘phaseout percentage’ means 20 percent reduced (but not below zero) by 1 percentage point for each \$2,000 (or fraction thereof) by which the taxpayer’s adjusted gross income for the taxable year exceeds \$400,000.”. Definition.

(b) APPLICATION OF CREDIT IN POSSESSIONS.—Section 21 of such Code, as amended by subsection (a), is amended by adding at the end the following new subsection:

“(h) APPLICATION OF CREDIT IN POSSESSIONS.—

“(1) PAYMENT TO POSSESSIONS WITH MIRROR CODE TAX SYSTEMS.—The Secretary shall pay to each possession of the United States with a mirror code tax system amounts equal to the loss (if any) to that possession by reason of the application of this section (determined without regard to this subsection) with respect to taxable years beginning in or with 2021. Such amounts shall be determined by the Secretary based on information provided by the government of the respective possession.

“(2) PAYMENTS TO OTHER POSSESSIONS.—The Secretary shall pay to each possession of the United States which does not have a mirror code tax system amounts estimated by the Secretary as being equal to the aggregate benefits that would have been provided to residents of such possession by reason of this section with respect to taxable years beginning in or with 2021 if a mirror code tax system had been in effect in such possession. The preceding sentence shall not apply unless the respective possession has a plan, which has been Plan.

approved by the Secretary, under which such possession will promptly distribute such payments to its residents.

“(3) COORDINATION WITH CREDIT ALLOWED AGAINST UNITED STATES INCOME TAXES.—In the case of any taxable year beginning in or with 2021, no credit shall be allowed under this section to any individual—

“(A) to whom a credit is allowable against taxes imposed by a possession with a mirror code tax system by reason of this section, or

“(B) who is eligible for a payment under a plan described in paragraph (2).

Definition.

“(4) MIRROR CODE TAX SYSTEM.—For purposes of this subsection, the term ‘mirror code tax system’ means, with respect to any possession of the United States, the income tax system of such possession if the income tax liability of the residents of such possession under such system is determined by reference to the income tax laws of the United States as if such possession were the United States.

“(5) TREATMENT OF PAYMENTS.—For purposes of section 1324 of title 31, United States Code, the payments under this subsection shall be treated in the same manner as a refund due from a credit provision referred to in subsection (b)(2) of such section.”

(c) CONFORMING AMENDMENTS.—

26 USC 6211.

(1) Section 6211(b)(4)(A) of such Code, as amended by the preceding provisions of this Act, is amended by inserting “21 by reason of subsection (g) thereof,” before “24”.

(2) Section 1324(b)(2) of title 31, United States Code (as amended by the preceding provisions of this title), is amended by inserting “21,” before “24”.

26 USC 21 note.

(d) EFFECTIVE DATE.—The amendments made by this section shall apply to taxable years beginning after December 31, 2020.

SEC. 9632. INCREASE IN EXCLUSION FOR EMPLOYER-PROVIDED DEPENDENT CARE ASSISTANCE.

26 USC 129.

(a) IN GENERAL.—Section 129(a)(2) of the Internal Revenue Code of 1986 is amended by adding at the end the following new subparagraph:

“(D) SPECIAL RULE FOR 2021.—In the case of any taxable year beginning after December 31, 2020, and before January 1, 2022, subparagraph (A) shall be applied by substituting ‘\$10,500 (half such dollar amount’ for ‘\$5,000 (\$2,500’.”

26 USC 129 note.

(b) EFFECTIVE DATE.—The amendment made by this section shall apply to taxable years beginning after December 31, 2020.

26 USC 129 note.

(c) RETROACTIVE PLAN AMENDMENTS.—A plan that otherwise satisfies all applicable requirements of sections 125 and 129 of the Internal Revenue Code of 1986 (including any rules or regulations thereunder) shall not fail to be treated as a cafeteria plan or dependent care assistance program merely because such plan is amended pursuant to a provision under this section and such amendment is retroactive, if—

Deadline.

(1) such amendment is adopted no later than the last day of the plan year in which the amendment is effective, and

Time period.

(2) the plan is operated consistent with the terms of such amendment during the period beginning on the effective date

of the amendment and ending on the date the amendment is adopted.

PART 5—CREDITS FOR PAID SICK AND FAMILY LEAVE

SEC. 9641. PAYROLL CREDITS.

(a) **IN GENERAL.**—Chapter 21 of the Internal Revenue Code of 1986 is amended by adding at the end the following new subchapter:

26 USC 3131
prec.

“Subchapter D—Credits

“Sec. 3131. Credit for paid sick leave.
“Sec. 3132. Payroll credit for paid family leave.
“Sec. 3133. Special rule related to tax on employers.

“SEC. 3131. CREDIT FOR PAID SICK LEAVE.

26 USC 3131.

“(a) **IN GENERAL.**—In the case of an employer, there shall be allowed as a credit against applicable employment taxes for each calendar quarter an amount equal to 100 percent of the qualified sick leave wages paid by such employer with respect to such calendar quarter.

“(b) **LIMITATIONS AND REFUNDABILITY.**—

“(1) **WAGES TAKEN INTO ACCOUNT.**—The amount of qualified sick leave wages taken into account under subsection (a), plus any increases under subsection (e), with respect to any individual shall not exceed \$200 (\$511 in the case of any day any portion of which is paid sick time described in paragraph (1), (2), or (3) of section 5102(a) of the Emergency Paid Sick Leave Act, applied with the modification described in subsection (c)(2)(A)(i)) for any day (or portion thereof) for which the individual is paid qualified sick leave wages.

“(2) **OVERALL LIMITATION ON NUMBER OF DAYS TAKEN INTO ACCOUNT.**—The aggregate number of days taken into account under paragraph (1) for any calendar quarter shall not exceed the excess (if any) of—

“(A) 10, over

“(B) the aggregate number of days so taken into account during preceding calendar quarters in such calendar year (other than the first quarter of calendar year 2021).

“(3) **CREDIT LIMITED TO CERTAIN EMPLOYMENT TAXES.**—The credit allowed by subsection (a) with respect to any calendar quarter shall not exceed the applicable employment taxes for such calendar quarter on the wages paid with respect to the employment of all employees of the employer.

“(4) **REFUNDABILITY OF EXCESS CREDIT.**—

“(A) **CREDIT IS REFUNDABLE.**—If the amount of the credit under subsection (a) exceeds the limitation of paragraph (3) for any calendar quarter, such excess shall be treated as an overpayment that shall be refunded under sections 6402(a) and 6413(b).

“(B) **ADVANCING CREDIT.**—In anticipation of the credit, including the refundable portion under subparagraph (A), the credit shall be advanced, according to forms and instructions provided by the Secretary, up to an amount

calculated under subsection (a), subject to the limits under paragraph (1) and (2), all calculated through the end of the most recent payroll period in the quarter.

“(c) QUALIFIED SICK LEAVE WAGES.—For purposes of this section—

Definition.
Effective date.

“(1) IN GENERAL.—The term ‘qualified sick leave wages’ means wages paid by an employer which would be required to be paid by reason of the Emergency Paid Sick Leave Act as if such Act applied after March 31, 2021.

Determination.

“(2) RULES OF APPLICATION.—For purposes of determining whether wages are qualified sick leave wages under paragraph (1)—

“(A) IN GENERAL.—The Emergency Paid Sick Leave Act shall be applied—

“(i) by inserting ‘, the employee is seeking or awaiting the results of a diagnostic test for, or a medical diagnosis of, COVID-19 and such employee has been exposed to COVID-19 or the employee’s employer has requested such test or diagnosis, or the employee is obtaining immunization related to COVID-19 or recovering from any injury, disability, illness, or condition related to such immunization’ after ‘medical diagnosis’ in section 5102(a)(3) thereof, and

“(ii) by applying section 5102(b)(1) of such Act separately with respect to each calendar year after 2020 (and, in the case of calendar year 2021, without regard to the first quarter thereof).

“(B) LEAVE MUST MEET REQUIREMENTS.—If an employer fails to comply with any requirement of such Act (determined without regard to section 5109 thereof) with respect to paid sick time (as defined in section 5110 of such Act), amounts paid by such employer with respect to such paid sick time shall not be taken into account as qualified sick leave wages. For purposes of the preceding sentence, an employer which takes an action described in section 5104 of such Act shall be treated as failing to meet a requirement of such Act.

“(d) ALLOWANCE OF CREDIT FOR CERTAIN HEALTH PLAN EXPENSES.—

“(1) IN GENERAL.—The amount of the credit allowed under subsection (a) shall be increased by so much of the employer’s qualified health plan expenses as are properly allocable to the qualified sick leave wages for which such credit is so allowed.

Definition.

“(2) QUALIFIED HEALTH PLAN EXPENSES.—For purposes of this subsection, the term ‘qualified health plan expenses’ means amounts paid or incurred by the employer to provide and maintain a group health plan (as defined in section 5000(b)(1)), but only to the extent that such amounts are excluded from the gross income of employees by reason of section 106(a).

“(3) ALLOCATION RULES.—For purposes of this section, qualified health plan expenses shall be allocated to qualified sick leave wages in such manner as the Secretary may prescribe. Except as otherwise provided by the Secretary, such allocation shall be treated as properly made if made on the basis of being pro rata among covered employees and pro rata

on the basis of periods of coverage (relative to the time periods of leave to which such wages relate).

“(e) ALLOWANCE OF CREDIT FOR AMOUNTS PAID UNDER CERTAIN COLLECTIVELY BARGAINED AGREEMENTS.— Definitions.

“(1) IN GENERAL.—The amount of the credit allowed under subsection (a) shall be increased by the sum of—

“(A) so much of the employer’s collectively bargained defined benefit pension plan contributions as are properly allocable to the qualified sick leave wages for which such credit is so allowed, plus

“(B) so much of the employer’s collectively bargained apprenticeship program contributions as are properly allocable to the qualified sick leave wages for which such credit is so allowed.

“(2) COLLECTIVELY BARGAINED DEFINED BENEFIT PENSION PLAN CONTRIBUTIONS.—For purposes of this subsection—

“(A) IN GENERAL.—The term ‘collectively bargained defined benefit pension plan contributions’ means, with respect to any calendar quarter, contributions which—

“(i) are paid or incurred by an employer during the calendar quarter on behalf of its employees to a defined benefit plan (as defined in section 414(j)), which meets the requirements of section 401(a),

“(ii) are made based on a pension contribution rate, and

“(iii) are required to be made pursuant to the terms of a collective bargaining agreement in effect with respect to such calendar quarter.

“(B) PENSION CONTRIBUTION RATE.—The term ‘pension contribution rate’ means the contribution rate that the employer is obligated to pay on behalf of its employees under the terms of a collective bargaining agreement for benefits under a defined benefit plan under such agreement, as such rate is applied to contribution base units (as defined by section 4001(a)(11) of the Employee Retirement Income Security Act of 1974 (29 U.S.C. 1301(a)(11)).

“(C) ALLOCATION RULES.—The amount of collectively bargained defined benefit pension plan contributions allocated to qualified sick leave wages for any calendar quarter shall be the product of—

“(i) the pension contribution rate (expressed as an hourly rate), and

“(ii) the number of hours for which qualified sick leave wages were provided to employees covered under the collective bargaining agreement described in subparagraph (A)(iii) during the calendar quarter.

“(3) COLLECTIVELY BARGAINED APPRENTICESHIP PROGRAM CONTRIBUTIONS.—For purposes of this section—

“(A) IN GENERAL.—The term ‘collectively bargained apprenticeship program contributions’ means, with respect to any calendar quarter, contributions which—

“(i) are paid or incurred by an employer on behalf of its employees with respect to the calendar quarter to a registered apprenticeship program,

“(ii) are made based on an apprenticeship program contribution rate, and

“(iii) are required to be made pursuant to the terms of a collective bargaining agreement that is in effect with respect to such calendar quarter.

“(B) REGISTERED APPRENTICESHIP PROGRAM.—The term ‘registered apprenticeship program’ means an apprenticeship registered under the Act of August 16, 1937 (commonly known as the ‘National Apprenticeship Act’; 50 Stat. 664, chapter 663; 29 U.S.C. 50 et seq.) that meets the standards of subpart A of part 29 and part 30 of title 29, Code of Federal Regulations.

“(C) APPRENTICESHIP PROGRAM CONTRIBUTION RATE.—The term ‘apprenticeship program contribution rate’ means the contribution rate that the employer is obligated to pay on behalf of its employees under the terms of a collective bargaining agreement for benefits under a registered apprenticeship program under such agreement, as such rate is applied to contribution base units (as defined by section 4001(a)(11) of the Employee Retirement Income Security Act of 1974 (29 U.S.C. 1301(a)(11)).

“(D) ALLOCATION RULES.—The amount of collectively bargained apprenticeship program contributions allocated to qualified sick leave wages for any calendar quarter shall be the product of—

“(i) the apprenticeship program contribution rate (expressed as an hourly rate), and

“(ii) the number of hours for which qualified sick leave wages were provided to employees covered under the collective bargaining agreement described in subparagraph (A)(iii) during the calendar quarter.

“(f) DEFINITIONS AND SPECIAL RULES.—

“(1) APPLICABLE EMPLOYMENT TAXES.—For purposes of this section, the term ‘applicable employment taxes’ means the following:

“(A) The taxes imposed under section 3111(b).

“(B) So much of the taxes imposed under section 3221(a) as are attributable to the rate in effect under section 3111(b).

“(2) WAGES.—For purposes of this section, the term ‘wages’ means wages (as defined in section 3121(a), determined without regard to paragraphs (1) through (22) of section 3121(b)) and compensation (as defined in section 3231(e), determined without regard to the sentence in paragraph (1) thereof which begins ‘Such term does not include remuneration’).

“(3) DENIAL OF DOUBLE BENEFIT.—For purposes of chapter 1, the gross income of the employer, for the taxable year which includes the last day of any calendar quarter with respect to which a credit is allowed under this section, shall be increased by the amount of such credit. Any wages taken into account in determining the credit allowed under this section shall not be taken into account for purposes of determining the credit allowed under sections 45A, 45P, 45S, 51, 3132, and 3134. In the case of any credit allowed under section 2301 of the CARES Act or section 41 with respect to wages taken into account under this section, the credit allowed under this section shall be reduced by the portion of the credit allowed under such section 2301 or section 41 which is attributable to such wages.

“(4) ELECTION TO NOT TAKE CERTAIN WAGES INTO ACCOUNT.—This section shall not apply to so much of the qualified sick leave wages paid by an eligible employer as such employer elects (at such time and in such manner as the Secretary may prescribe) to not take into account for purposes of this section.

“(5) CERTAIN GOVERNMENTAL EMPLOYERS.—No credit shall be allowed under this section to the Government of the United States or to any agency or instrumentality thereof. The preceding sentence shall not apply to any organization described in section 501(c)(1) and exempt from tax under section 501(a).

“(6) EXTENSION OF LIMITATION ON ASSESSMENT.—Notwithstanding section 6501, the limitation on the time period for the assessment of any amount attributable to a credit claimed under this section shall not expire before the date that is 5 years after the later of—

“(A) the date on which the original return which includes the calendar quarter with respect to which such credit is determined is filed, or

“(B) the date on which such return is treated as filed under section 6501(b)(2).

“(7) COORDINATION WITH CERTAIN PROGRAMS.—

“(A) IN GENERAL.—This section shall not apply to so much of the qualified sick leave wages paid by an eligible employer as are taken into account as payroll costs in connection with—

“(i) a covered loan under section 7(a)(37) or 7A of the Small Business Act,

“(ii) a grant under section 324 of the Economic Aid to Hard-Hit Small Businesses, Non-Profits, and Venues Act, or

“(iii) a restaurant revitalization grant under section 5003 of the American Rescue Plan Act of 2021.

“(B) APPLICATION WHERE PPP LOANS NOT FORGIVEN.—The Secretary shall issue guidance providing that payroll costs paid during the covered period shall not fail to be treated as qualified sick leave wages under this section by reason of subparagraph (A)(i) to the extent that—

“(i) a covered loan of the taxpayer under section 7(a)(37) of the Small Business Act is not forgiven by reason of a decision under section 7(a)(37)(J) of such Act, or

“(ii) a covered loan of the taxpayer under section 7A of the Small Business Act is not forgiven by reason of a decision under section 7A(g) of such Act.

Terms used in the preceding sentence which are also used in section 7A(g) or 7(a)(37)(J) of the Small Business Act shall, when applied in connection with either such section, have the same meaning as when used in such section, respectively.

“(g) REGULATIONS.—The Secretary shall prescribe such regulations or other guidance as may be necessary to carry out the purposes of this section, including—

“(1) regulations or other guidance to prevent the avoidance of the purposes of the limitations under this section,

“(2) regulations or other guidance to minimize compliance and record-keeping burdens under this section,

“(3) regulations or other guidance providing for waiver of penalties for failure to deposit amounts in anticipation of the allowance of the credit allowed under this section,

“(4) regulations or other guidance for recapturing the benefit of credits determined under this section in cases where there is a subsequent adjustment to the credit determined under subsection (a),

“(5) regulations or other guidance to ensure that the wages taken into account under this section conform with the paid sick time required to be provided under the Emergency Paid Sick Leave Act,

“(6) regulations or other guidance to permit the advancement of the credit determined under subsection (a), and

“(7) regulations or other guidance with respect to the allocation, reporting, and substantiation of collectively bargained defined benefit pension plan contributions and collectively bargained apprenticeship program contributions.

Time period.

“(h) APPLICATION OF SECTION.—This section shall apply only to wages paid with respect to the period beginning on April 1, 2021, and ending on September 30, 2021.

Waiver.
Determination.

“(i) TREATMENT OF DEPOSITS.—The Secretary shall waive any penalty under section 6656 for any failure to make a deposit of applicable employment taxes if the Secretary determines that such failure was due to the anticipation of the credit allowed under this section.

“(j) NON-DISCRIMINATION REQUIREMENT.—No credit shall be allowed under this section to any employer for any calendar quarter if such employer, with respect to the availability of the provision of qualified sick leave wages to which this section otherwise applies for such calendar quarter, discriminates in favor of highly compensated employees (within the meaning of section 414(q)), full-time employees, or employees on the basis of employment tenure with such employer.

26 USC 3132.

“SEC. 3132. PAYROLL CREDIT FOR PAID FAMILY LEAVE.

“(a) IN GENERAL.—In the case of an employer, there shall be allowed as a credit against applicable employment taxes for each calendar quarter an amount equal to 100 percent of the qualified family leave wages paid by such employer with respect to such calendar quarter.

“(b) LIMITATIONS AND REFUNDABILITY.—

“(1) WAGES TAKEN INTO ACCOUNT.—The amount of qualified family leave wages taken into account under subsection (a), plus any increases under subsection (e), with respect to any individual shall not exceed—

“(A) for any day (or portion thereof) for which the individual is paid qualified family leave wages, \$200, and

“(B) in the aggregate with respect to all calendar quarters, \$12,000.

“(2) CREDIT LIMITED TO CERTAIN EMPLOYMENT TAXES.—The credit allowed by subsection (a) with respect to any calendar quarter shall not exceed the applicable employment taxes for such calendar quarter (reduced by any credits allowed under section 3131) on the wages paid with respect to the employment of all employees of the employer.

“(3) REFUNDABILITY OF EXCESS CREDIT.—

“(A) CREDIT IS REFUNDABLE.—If the amount of the credit under subsection (a) exceeds the limitation of paragraph (2) for any calendar quarter, such excess shall be treated as an overpayment that shall be refunded under sections 6402(a) and 6413(b).

“(B) ADVANCING CREDIT.—In anticipation of the credit, including the refundable portion under subparagraph (A), the credit shall be advanced, according to forms and instructions provided by the Secretary, up to an amount calculated under subsection (a), subject to the limits under paragraph (1) and (2), all calculated through the end of the most recent payroll period in the quarter.

“(c) QUALIFIED FAMILY LEAVE WAGES.—

“(1) IN GENERAL.—For purposes of this section, the term ‘qualified family leave wages’ means wages paid by an employer which would be required to be paid by reason of the Emergency Family and Medical Leave Expansion Act (including the amendments made by such Act) as if such Act (and amendments made by such Act) applied after March 31, 2021.

Definition.
Effective date.

“(2) RULES OF APPLICATION.—

“(A) IN GENERAL.—For purposes of determining whether wages are qualified family leave wages under paragraph (1)—

Determinations.

“(i) section 110(a)(2)(A) of the Family and Medical Leave Act of 1993 shall be applied by inserting ‘or any reason for leave described in section 5102(a) of the Families First Coronavirus Response Act, or the employee is seeking or awaiting the results of a diagnostic test for, or a medical diagnosis of, COVID-19 and such employee has been exposed to COVID-19 or the employee’s employer has requested such test or diagnosis, or the employee is obtaining immunization related to COVID-19 or recovering from any injury, disability, illness, or condition related to such immunization’ after ‘public health emergency’, and

“(ii) section 110(b) of such Act shall be applied—

“(I) without regard to paragraph (1) thereof,

“(II) by striking ‘after taking leave after such section for 10 days’ in paragraph (2)(A) thereof, and

“(III) by substituting ‘\$12,000’ for ‘\$10,000’ in paragraph (2)(B)(ii) thereof.

“(B) LEAVE MUST MEET REQUIREMENTS.—For purposes of determining whether wages would be required to be paid under paragraph (1), if an employer fails to comply with any requirement of the Family and Medical Leave Act of 1993 or the Emergency Family and Medical Leave Expansion Act (determined without regard to any time limitation under section 102(a)(1)(F) of the Family and Medical Leave Act of 1994) with respect to any leave provided for a qualifying need related to a public health emergency (as defined in section 110 of such Act, applied as described in subparagraph (A)(i)), amounts paid by such employer with respect to such leave shall not be taken into account as qualified family leave wages. For purposes of the preceding sentence, an employer which takes an action described in section 105 of the Family and Medical

Leave Act of 1993 shall be treated as failing to meet a requirement of such Act.

“(d) ALLOWANCE OF CREDIT FOR CERTAIN HEALTH PLAN EXPENSES.—

“(1) IN GENERAL.—The amount of the credit allowed under subsection (a) shall be increased by so much of the employer’s qualified health plan expenses as are properly allocable to the qualified family leave wages for which such credit is so allowed.

Definition.

“(2) QUALIFIED HEALTH PLAN EXPENSES.—For purposes of this subsection, the term ‘qualified health plan expenses’ means amounts paid or incurred by the employer to provide and maintain a group health plan (as defined in section 5000(b)(1)), but only to the extent that such amounts are excluded from the gross income of employees by reason of section 106(a).

“(3) ALLOCATION RULES.—For purposes of this section, qualified health plan expenses shall be allocated to qualified family leave wages in such manner as the Secretary may prescribe. Except as otherwise provided by the Secretary, such allocation shall be treated as properly made if made on the basis of being pro rata among covered employees and pro rata on the basis of periods of coverage (relative to the time periods of leave to which such wages relate).

“(e) ALLOWANCE OF CREDIT FOR AMOUNTS PAID UNDER CERTAIN COLLECTIVELY BARGAINED AGREEMENTS.—

“(1) IN GENERAL.—The amount of the credit allowed under subsection (a) shall be increased by so much of the sum of—

“(A) so much of the employer’s collectively bargained defined benefit pension plan contributions as are properly allocable to the qualified family leave wages for which such credit is so allowed, plus

“(B) so much of the employer’s collectively bargained apprenticeship program contributions as are properly allocable to the qualified family leave wages for which such credit is so allowed.

“(2) COLLECTIVELY BARGAINED DEFINED BENEFIT PENSION PLAN CONTRIBUTIONS.—For purposes of this subsection—

Definition.

“(A) IN GENERAL.—The term ‘collectively bargained defined benefit pension plan contributions’ has the meaning given such term under section 3131(e)(2).

“(B) ALLOCATION RULES.—The amount of collectively bargained defined benefit pension plan contributions allocated to qualified family leave wages for any calendar quarter shall be the product of—

“(i) the pension contribution rate (as defined in section 3131(e)(2)), expressed as an hourly rate, and

“(ii) the number of hours for which qualified family leave wages were provided to employees covered under the collective bargaining agreement described in section 3131(e)(2)(A)(iii) during the calendar quarter.

“(3) COLLECTIVELY BARGAINED APPRENTICESHIP PROGRAM CONTRIBUTIONS.—For purposes of this section—

Definition.

“(A) IN GENERAL.—The term ‘collectively bargained apprenticeship program contributions’ has the meaning given such term under section 3131(e)(3).

“(B) ALLOCATION RULES.—For purposes of this section, the amount of collectively bargained apprenticeship program contributions allocated to qualified family leave wages for any calendar quarter shall be the product of—

“(i) the apprenticeship contribution rate (as defined in section 3131(e)(3)), expressed as an hourly rate, and

“(ii) the number of hours for which qualified family leave wages were provided to employees covered under the collective bargaining agreement described in section 3131(e)(3)(A)(iii) during the calendar quarter.

“(f) DEFINITIONS AND SPECIAL RULES.—

“(1) APPLICABLE EMPLOYMENT TAXES.—For purposes of this section, the term ‘applicable employment taxes’ means the following:

“(A) The taxes imposed under section 3111(b).

“(B) So much of the taxes imposed under section 3221(a) as are attributable to the rate in effect under section 3111(b).

“(2) WAGES.—For purposes of this section, the term ‘wages’ means wages (as defined in section 3121(a), determined without regard to paragraphs (1) through (22) of section 3121(b)) and compensation (as defined in section 3231(e), determined without regard to the sentence in paragraph (1) thereof which begins ‘Such term does not include remuneration’).

“(3) DENIAL OF DOUBLE BENEFIT.—For purposes of chapter 1, the gross income of the employer, for the taxable year which includes the last day of any calendar quarter with respect to which a credit is allowed under this section, shall be increased by the amount of such credit. Any wages taken into account in determining the credit allowed under this section shall not be taken into account for purposes of determining the credit allowed under sections 45A, 45P, 45S, 51, 3131, and 3134. In the case of any credit allowed under section 2301 of the CARES Act or section 41 with respect to wages taken into account under this section, the credit allowed under this section shall be reduced by the portion of the credit allowed under such section 2301 or section 41 which is attributable to such wages.

Determination.

“(4) ELECTION TO NOT TAKE CERTAIN WAGES INTO ACCOUNT.—This section shall not apply to so much of the qualified family leave wages paid by an eligible employer as such employer elects (at such time and in such manner as the Secretary may prescribe) to not take into account for purposes of this section.

“(5) CERTAIN GOVERNMENTAL EMPLOYERS.—No credit shall be allowed under this section to the Government of the United States or to any agency or instrumentality thereof. The preceding sentence shall not apply to any organization described in section 501(c)(1) and exempt from tax under section 501(a).

“(6) EXTENSION OF LIMITATION ON ASSESSMENT.—Notwithstanding section 6501, the limitation on the time period for the assessment of any amount attributable to a credit claimed under this section shall not expire before the date that is 5 years after the later of—

Time period.

“(A) the date on which the original return which includes the calendar quarter with respect to which such credit is determined is filed, or

“(B) the date on which such return is treated as filed under section 6501(b)(2).

“(7) COORDINATION WITH CERTAIN PROGRAMS.—

“(A) IN GENERAL.—This section shall not apply to so much of the qualified family leave wages paid by an eligible employer as are taken into account as payroll costs in connection with—

“(i) a covered loan under section 7(a)(37) or 7A of the Small Business Act,

“(ii) a grant under section 324 of the Economic Aid to Hard-Hit Small Businesses, Non-Profits, and Venues Act, or

“(iii) a restaurant revitalization grant under section 5003 of the American Rescue Plan Act of 2021.

“(B) APPLICATION WHERE PPP LOANS NOT FORGIVEN.—The Secretary shall issue guidance providing that payroll costs paid during the covered period shall not fail to be treated as qualified family leave wages under this section by reason of subparagraph (A)(i) to the extent that—

“(i) a covered loan of the taxpayer under section 7(a)(37) of the Small Business Act is not forgiven by reason of a decision under section 7(a)(37)(J) of such Act, or

“(ii) a covered loan of the taxpayer under section 7A of the Small Business Act is not forgiven by reason of a decision under section 7A(g) of such Act.

Terms used in the preceding sentence which are also used in section 7A(g) or 7(a)(37)(J) of the Small Business Act shall, when applied in connection with either such section, have the same meaning as when used in such section, respectively.

“(g) REGULATIONS.—The Secretary shall prescribe such regulations or other guidance as may be necessary to carry out the purposes of this section, including—

“(1) regulations or other guidance to prevent the avoidance of the purposes of the limitations under this section,

“(2) regulations or other guidance to minimize compliance and record-keeping burdens under this section,

“(3) regulations or other guidance providing for waiver of penalties for failure to deposit amounts in anticipation of the allowance of the credit allowed under this section,

“(4) regulations or other guidance for recapturing the benefit of credits determined under this section in cases where there is a subsequent adjustment to the credit determined under subsection (a),

“(5) regulations or other guidance to ensure that the wages taken into account under this section conform with the paid leave required to be provided under the Emergency Family and Medical Leave Expansion Act (including the amendments made by such Act),

“(6) regulations or other guidance to permit the advancement of the credit determined under subsection (a), and

“(7) regulations or other guidance with respect to the allocation, reporting, and substantiation of collectively bargained

defined benefit pension plan contributions and collectively bargained apprenticeship program contributions.

“(h) APPLICATION OF SECTION.—This section shall apply only to wages paid with respect to the period beginning on April 1, 2021, and ending on September 30, 2021. Time period.

“(i) TREATMENT OF DEPOSITS.—The Secretary shall waive any penalty under section 6656 for any failure to make a deposit of applicable employment taxes if the Secretary determines that such failure was due to the anticipation of the credit allowed under this section. Waiver. Determination.

“(j) NON-DISCRIMINATION REQUIREMENT.—No credit shall be allowed under this section to any employer for any calendar quarter if such employer, with respect to the availability of the provision of qualified family leave wages to which this section otherwise applies for such calendar quarter, discriminates in favor of highly compensated employees (within the meaning of section 414(q)), full-time employees, or employees on the basis of employment tenure with such employer.

“SEC. 3133. SPECIAL RULE RELATED TO TAX ON EMPLOYERS. 26 USC 3133.

“(a) IN GENERAL.—The credit allowed by section 3131 and the credit allowed by section 3132 shall each be increased by the amount of the taxes imposed by subsections (a) and (b) of section 3111 and section 3221(a) on qualified sick leave wages, or qualified family leave wages, for which credit is allowed under such section 3131 or 3132 (respectively).

“(b) DENIAL OF DOUBLE BENEFIT.—For denial of double benefit with respect to the credit increase under subsection (a), see sections 3131(f)(3) and 3132(f)(3).”.

(b) REFUNDS.—Paragraph (2) of section 1324(b) of title 31, United States Code, is amended by inserting “3131, 3132,” before “6428”.

(c) CLERICAL AMENDMENT.—The table of subchapters for chapter 21 of the Internal Revenue Code of 1986 is amended by adding at the end the following new item: 26 USC 3101 prec.

“SUBCHAPTER D—CREDITS”.

(d) EFFECTIVE DATE.—The amendments made by this section shall apply to amounts paid with respect to calendar quarters beginning after March 31, 2021. 26 USC 3131 note.

SEC. 9642. CREDIT FOR SICK LEAVE FOR CERTAIN SELF-EMPLOYED INDIVIDUALS. 26 USC 1401 note.

(a) IN GENERAL.—In the case of an eligible self-employed individual, there shall be allowed as a credit against the tax imposed by chapter 1 of the Internal Revenue Code of 1986 for any taxable year an amount equal to the qualified sick leave equivalent amount with respect to the individual.

(b) ELIGIBLE SELF-EMPLOYED INDIVIDUAL.—For purposes of this section—

(1) IN GENERAL.—The term “eligible self-employed individual” means an individual who— Definition.

(A) regularly carries on any trade or business within the meaning of section 1402 of the Internal Revenue Code of 1986, and

(B) would be entitled to receive paid leave during the taxable year pursuant to the Emergency Paid Sick Leave Act if—

- (i) the individual were an employee of an employer (other than himself or herself), and
- (ii) such Act applied after March 31, 2021.
- Effective date.
Determination.
- (2) RULES OF APPLICATION.—For purposes of paragraph (1)(B), in determining whether an individual would be entitled to receive paid leave under the Emergency Paid Sick Leave Act, such Act shall be applied—
- (A) by inserting “, the employee is seeking or awaiting the results of a diagnostic test for, or a medical diagnosis of, COVID-19 and such employee has been exposed to COVID-19 or is unable to work pending the results of such test or diagnosis, or the employee is obtaining immunization related to COVID-19 or recovering from any injury, disability, illness, or condition related to such immunization” after “medical diagnosis” in section 5102(a)(3) of such Act, and
- (B) by applying section 5102(b)(1) of such Act separately with respect to each taxable year.
- Definitions.
- (c) QUALIFIED SICK LEAVE EQUIVALENT AMOUNT.—For purposes of this section—
- (1) IN GENERAL.—The term “qualified sick leave equivalent amount” means, with respect to any eligible self-employed individual, an amount equal to—
- (A) the number of days during the taxable year (but not more than 10) that the individual is unable to perform services in any trade or business referred to in section 1402 of the Internal Revenue Code of 1986 for a reason with respect to which such individual would be entitled to receive sick leave as described in subsection (b), multiplied by
- (B) the lesser of—
- (i) \$200 (\$511 in the case of any day of paid sick time described in paragraph (1), (2), or (3) of section 5102(a) of the Emergency Paid Sick Leave Act, applied with the modification described in subsection (b)(2)(A) of this section, or
- (ii) 67 percent (100 percent in the case of any day of paid sick time described in paragraph (1), (2), or (3) of section 5102(a) of the Emergency Paid Sick Leave Act) of the average daily self-employment income of the individual for the taxable year.
- (2) AVERAGE DAILY SELF-EMPLOYMENT INCOME.—For purposes of this subsection, the term “average daily self-employment income” means an amount equal to—
- (A) the net earnings from self-employment of the individual for the taxable year, divided by
- (B) 260.
- Applicability.
- (3) ELECTION TO USE PRIOR YEAR NET EARNINGS FROM SELF-EMPLOYMENT INCOME.—In the case of an individual who elects (at such time and in such manner as the Secretary may provide) the application of this paragraph, paragraph (2)(A) shall be applied by substituting “the prior taxable year” for “the taxable year”.
- (4) ELECTION TO NOT TAKE DAYS INTO ACCOUNT.—Any day shall not be taken into account under paragraph (1)(A) if the eligible self-employed individual elects (at such time and in

such manner as the Secretary may prescribe) to not take such day into account for purposes of such paragraph.

(d) CREDIT REFUNDABLE.—

(1) IN GENERAL.—The credit determined under this section shall be treated as a credit allowed to the taxpayer under subpart C of part IV of subchapter A of chapter 1 of such Code.

(2) TREATMENT OF PAYMENTS.—For purposes of section 1324 of title 31, United States Code, any refund due from the credit determined under this section shall be treated in the same manner as a refund due from a credit provision referred to in subsection (b)(2) of such section.

(e) SPECIAL RULES.—

(1) DOCUMENTATION.—No credit shall be allowed under this section unless the individual maintains such documentation as the Secretary may prescribe to establish such individual as an eligible self-employed individual.

(2) DENIAL OF DOUBLE BENEFIT.—In the case of an individual who receives wages (as defined in section 3121(a) of the Internal Revenue Code of 1986) or compensation (as defined in section 3231(e) of such Code) paid by an employer which are required to be paid by reason of the Emergency Paid Sick Leave Act, the qualified sick leave equivalent amount otherwise determined under subsection (c) of this section shall be reduced (but not below zero) to the extent that the sum of the amount described in such subsection and in section 3131(b)(1) of such Code exceeds \$2,000 (\$5,110 in the case of any day any portion of which is paid sick time described in paragraph (1), (2), or (3) of section 5102(a) of the Emergency Paid Sick Leave Act).

(f) APPLICATION OF SECTION.—Only days occurring during the period beginning on April 1, 2021, and ending on September 30, 2021, may be taken into account under subsection (c)(1)(A).

Time period.

(g) APPLICATION OF CREDIT IN CERTAIN POSSESSIONS.—

(1) PAYMENTS TO POSSESSIONS WITH MIRROR CODE TAX SYSTEMS.—The Secretary shall pay to each possession of the United States which has a mirror code tax system amounts equal to the loss (if any) to that possession by reason of the application of the provisions of this section. Such amounts shall be determined by the Secretary based on information provided by the government of the respective possession.

Determination.

(2) PAYMENTS TO OTHER POSSESSIONS.—The Secretary shall pay to each possession of the United States which does not have a mirror code tax system amounts estimated by the Secretary as being equal to the aggregate benefits (if any) that would have been provided to residents of such possession by reason of the provisions of this section if a mirror code tax system had been in effect in such possession. The preceding sentence shall not apply unless the respective possession has a plan, which has been approved by the Secretary, under which such possession will promptly distribute such payments to its residents.

Estimates.

Plan.

(3) MIRROR CODE TAX SYSTEM.—For purposes of this section, the term “mirror code tax system” means, with respect to any possession of the United States, the income tax system of such possession if the income tax liability of the residents

Definition.
Determination.

of such possession under such system is determined by reference to the income tax laws of the United States as if such possession were the United States.

(4) TREATMENT OF PAYMENTS.—For purposes of section 1324 of title 31, United States Code, the payments under this subsection shall be treated in the same manner as a refund due from a credit provision referred to in subsection (b)(2) of such section.

(h) REGULATIONS.—The Secretary shall prescribe such regulations or other guidance as may be necessary to carry out the purposes of this section, including—

(1) regulations or other guidance to effectuate the purposes of this section, and

(2) regulations or other guidance to minimize compliance and record-keeping burdens under this section.

26 USC 1401
note.

SEC. 9643. CREDIT FOR FAMILY LEAVE FOR CERTAIN SELF-EMPLOYED INDIVIDUALS.

(a) IN GENERAL.—In the case of an eligible self-employed individual, there shall be allowed as a credit against the tax imposed by chapter 1 of the Internal Revenue Code of 1986 for any taxable year an amount equal to 100 percent of the qualified family leave equivalent amount with respect to the individual.

(b) ELIGIBLE SELF-EMPLOYED INDIVIDUAL.—For purposes of this section—

Definitions.

(1) IN GENERAL.—The term “eligible self-employed individual” means an individual who—

(A) regularly carries on any trade or business within the meaning of section 1402 of the Internal Revenue Code of 1986, and

(B) would be entitled to receive paid leave during the taxable year pursuant to the Emergency Family and Medical Leave Expansion Act if—

(i) the individual were an employee of an employer (other than himself or herself),

Effective date.

(ii) section 102(a)(1)(F) of the Family and Medical Leave Act of 1993 applied after March 31, 2021.

(2) RULES OF APPLICATION.—For purposes of paragraph (1)(B), in determining whether an individual would be entitled to receive paid leave under the Emergency Family and Medical Leave Act—

(A) section 110(a)(2)(A) of the Family and Medical Leave Act of 1993 shall be applied by inserting “or any reason for leave described in section 5102(a) of the Families First Coronavirus Response Act, or the employee is seeking or awaiting the results of a diagnostic test for, or a medical diagnosis of, COVID-19 and such employee has been exposed to COVID-19 or is unable to work pending the results of such test or diagnosis, or the employee is obtaining immunization related to COVID-19 or recovering from any injury, disability, illness, or condition related to such immunization” after “public health emergency”, and

(B) section 110(b) of such Act shall be applied—

(i) without regard to paragraph (1) thereof, and

(ii) by striking “after taking leave after such section for 10 days” in paragraph (2)(A) thereof.

(c) **QUALIFIED FAMILY LEAVE EQUIVALENT AMOUNT.**—For purposes of this section— Definitions.

(1) **IN GENERAL.**—The term “qualified family leave equivalent amount” means, with respect to any eligible self-employed individual, an amount equal to the product of—

(A) the number of days (not to exceed 60) during the taxable year that the individual is unable to perform services in any trade or business referred to in section 1402 of the Internal Revenue Code of 1986 for a reason with respect to which such individual would be entitled to receive paid leave as described in subsection (b) of this section, multiplied by Time period.

(B) the lesser of—

(i) 67 percent of the average daily self-employment income of the individual for the taxable year, or

(ii) \$200.

(2) **AVERAGE DAILY SELF-EMPLOYMENT INCOME.**—For purposes of this subsection, the term “average daily self-employment income” means an amount equal to—

(A) the net earnings from self-employment income of the individual for the taxable year, divided by

(B) 260.

(3) **ELECTION TO USE PRIOR YEAR NET EARNINGS FROM SELF-EMPLOYMENT INCOME.**—In the case of an individual who elects (at such time and in such manner as the Secretary may provide) the application of this paragraph, paragraph (2)(A) shall be applied by substituting “the prior taxable year” for “the taxable year”. Applicability.

(4) **COORDINATION WITH CREDIT FOR SICK LEAVE.**—Any day taken into account in determining the qualified sick leave equivalent amount with respect to any eligible-self employed individual under section 9642 shall not be taken into account in determining the qualified family leave equivalent amount with respect to such individual under this section. Determination.

(d) **CREDIT REFUNDABLE.**—

(1) **IN GENERAL.**—The credit determined under this section shall be treated as a credit allowed to the taxpayer under subpart C of part IV of subchapter A of chapter 1 of such Code.

(2) **TREATMENT OF PAYMENTS.**—For purposes of section 1324 of title 31, United States Code, any refund due from the credit determined under this section shall be treated in the same manner as a refund due from a credit provision referred to in subsection (b)(2) of such section.

(e) **SPECIAL RULES.**—

(1) **DOCUMENTATION.**—No credit shall be allowed under this section unless the individual maintains such documentation as the Secretary may prescribe to establish such individual as an eligible self-employed individual.

(2) **DENIAL OF DOUBLE BENEFIT.**—In the case of an individual who receives wages (as defined in section 3121(a) of the Internal Revenue Code of 1986) or compensation (as defined in section 3231(e) of such Code) paid by an employer which are required to be paid by reason of the Emergency Family and Medical Leave Expansion Act, the qualified family leave equivalent amount otherwise described in subsection (c) of this section shall be reduced (but not below zero) to the extent

that the sum of the amount described in such subsection and in section 3132(b)(1) of such Code exceeds \$12,000.

(3) REFERENCES TO EMERGENCY FAMILY AND MEDICAL LEAVE EXPANSION ACT.—Any reference in this section to the Emergency Family and Medical Leave Expansion Act shall be treated as including a reference to the amendments made by such Act.

Time period.

(f) APPLICATION OF SECTION.—Only days occurring during the period beginning on April 1, 2021 and ending on September 30, 2021, may be taken into account under subsection (c)(1)(A).

(g) APPLICATION OF CREDIT IN CERTAIN POSSESSIONS.—

Determination.

(1) PAYMENTS TO POSSESSIONS WITH MIRROR CODE TAX SYSTEMS.—The Secretary shall pay to each possession of the United States which has a mirror code tax system amounts equal to the loss (if any) to that possession by reason of the application of the provisions of this section. Such amounts shall be determined by the Secretary based on information provided by the government of the respective possession.

Estimates.

(2) PAYMENTS TO OTHER POSSESSIONS.—The Secretary shall pay to each possession of the United States which does not have a mirror code tax system amounts estimated by the Secretary as being equal to the aggregate benefits (if any) that would have been provided to residents of such possession by reason of the provisions of this section if a mirror code tax system had been in effect in such possession. The preceding sentence shall not apply unless the respective possession has a plan, which has been approved by the Secretary, under which such possession will promptly distribute such payments to its residents.

Plan.

Definition.
Determination.

(3) MIRROR CODE TAX SYSTEM.—For purposes of this section, the term “mirror code tax system” means, with respect to any possession of the United States, the income tax system of such possession if the income tax liability of the residents of such possession under such system is determined by reference to the income tax laws of the United States as if such possession were the United States.

(4) TREATMENT OF PAYMENTS.—For purposes of section 1324 of title 31, United States Code, the payments under this subsection shall be treated in the same manner as a refund due from a credit provision referred to in subsection (b)(2) of such section.

(h) REGULATIONS.—The Secretary shall prescribe such regulations or other guidance as may be necessary to carry out the purposes of this section, including—

(1) regulations or other guidance to prevent the avoidance of the purposes of this section, and

(2) regulations or other guidance to minimize compliance and record-keeping burdens under this section.

PART 6—EMPLOYEE RETENTION CREDIT

SEC. 9651. EXTENSION OF EMPLOYEE RETENTION CREDIT.

(a) IN GENERAL.—Subchapter D of chapter 21 of subtitle C of the Internal Revenue Code of 1986, as added by section 9641, is amended by adding at the end the following:

“SEC. 3134. EMPLOYEE RETENTION CREDIT FOR EMPLOYERS SUBJECT TO CLOSURE DUE TO COVID-19.Time periods.
26 USC 3134.

“(a) **IN GENERAL.**—In the case of an eligible employer, there shall be allowed as a credit against applicable employment taxes for each calendar quarter an amount equal to 70 percent of the qualified wages with respect to each employee of such employer for such calendar quarter.

“(b) **LIMITATIONS AND REFUNDABILITY.**—

“(1) **IN GENERAL.**—

“(A) **WAGES TAKEN INTO ACCOUNT.**—The amount of qualified wages with respect to any employee which may be taken into account under subsection (a) by the eligible employer for any calendar quarter shall not exceed \$10,000.

“(B) **RECOVERY STARTUP BUSINESSES.**—In the case of an eligible employer which is a recovery startup business (as defined in subsection (c)(5)), the amount of the credit allowed under subsection (a) (after application of subparagraph (A)) for any calendar quarter shall not exceed \$50,000.

“(2) **CREDIT LIMITED TO EMPLOYMENT TAXES.**—The credit allowed by subsection (a) with respect to any calendar quarter shall not exceed the applicable employment taxes (reduced by any credits allowed under sections 3131 and 3132) on the wages paid with respect to the employment of all the employees of the eligible employer for such calendar quarter.

“(3) **REFUNDABILITY OF EXCESS CREDIT.**—If the amount of the credit under subsection (a) exceeds the limitation of paragraph (2) for any calendar quarter, such excess shall be treated as an overpayment that shall be refunded under sections 6402(a) and 6413(b).

“(c) **DEFINITIONS.**—For purposes of this section—

“(1) **APPLICABLE EMPLOYMENT TAXES.**—The term ‘applicable employment taxes’ means the following:

“(A) The taxes imposed under section 3111(b).

“(B) So much of the taxes imposed under section 3221(a) as are attributable to the rate in effect under section 3111(b).

“(2) **ELIGIBLE EMPLOYER.**—

“(A) **IN GENERAL.**—The term ‘eligible employer’ means any employer—

“(i) which was carrying on a trade or business during the calendar quarter for which the credit is determined under subsection (a), and

“(ii) with respect to any calendar quarter, for which—

“(I) the operation of the trade or business described in clause (i) is fully or partially suspended during the calendar quarter due to orders from an appropriate governmental authority limiting commerce, travel, or group meetings (for commercial, social, religious, or other purposes) due to the coronavirus disease 2019 (COVID-19),

“(II) the gross receipts (within the meaning of section 448(c)) of such employer for such calendar quarter are less than 80 percent of the gross receipts of such employer for the same calendar quarter in calendar year 2019, or

“(III) the employer is a recovery startup business (as defined in paragraph (5)).

With respect to any employer for any calendar quarter, if such employer was not in existence as of the beginning of the same calendar quarter in calendar year 2019, clause (ii)(II) shall be applied by substituting ‘2020’ for ‘2019’.

Applicability.

“(B) ELECTION TO USE ALTERNATIVE QUARTER.—At the election of the employer—

“(i) subparagraph (A)(ii)(II) shall be applied—

“(I) by substituting ‘for the immediately preceding calendar quarter’ for ‘for such calendar quarter’, and

“(II) by substituting ‘the corresponding calendar quarter in calendar year 2019’ for ‘the same calendar quarter in calendar year 2019’, and

“(ii) the last sentence of subparagraph (A) shall be applied by substituting ‘the corresponding calendar quarter in calendar year 2019’ for ‘the same calendar quarter in calendar year 2019’.

An election under this subparagraph shall be made at such time and in such manner as the Secretary shall prescribe.

“(C) TAX-EXEMPT ORGANIZATIONS.—In the case of an organization which is described in section 501(c) and exempt from tax under section 501(a)—

Applicability.

“(i) clauses (i) and (ii)(I) of subparagraph (A) shall apply to all operations of such organization, and

“(ii) any reference in this section to gross receipts shall be treated as a reference to gross receipts within the meaning of section 6033.

“(3) QUALIFIED WAGES.—

“(A) IN GENERAL.—The term ‘qualified wages’ means—

“(i) in the case of an eligible employer for which the average number of full-time employees (within the meaning of section 4980H) employed by such eligible employer during 2019 was greater than 500, wages paid by such eligible employer with respect to which an employee is not providing services due to circumstances described in subclause (I) or (II) of paragraph (2)(A)(ii), or

“(ii) in the case of an eligible employer for which the average number of full-time employees (within the meaning of section 4980H) employed by such eligible employer during 2019 was not greater than 500—

“(I) with respect to an eligible employer described in subclause (I) of paragraph (2)(A)(ii), wages paid by such eligible employer with respect to an employee during any period described in such clause, or

“(II) with respect to an eligible employer described in subclause (II) of such paragraph, wages paid by such eligible employer with respect to an employee during such quarter.

Applicability.

“(B) SPECIAL RULE FOR EMPLOYERS NOT IN EXISTENCE IN 2019.—In the case of any employer that was not in

existence in 2019, subparagraph (A) shall be applied by substituting ‘2020’ for ‘2019’ each place it appears.

“(C) SEVERELY FINANCIALLY DISTRESSED EMPLOYERS.—

“(i) IN GENERAL.—Notwithstanding subparagraph (A)(i), in the case of a severely financially distressed employer, the term ‘qualified wages’ means wages paid by such employer with respect to an employee during any calendar quarter.

“(ii) DEFINITION.—The term ‘severely financially distressed employer’ means an eligible employer as defined in paragraph (2), determined by substituting ‘less than 10 percent’ for ‘less than 80 percent’ in subparagraph (A)(ii)(II) thereof.

“(D) EXCEPTION.—The term ‘qualified wages’ shall not include any wages taken into account under sections 41, 45A, 45P, 45S, 51, 1396, 3131, and 3132.

“(4) WAGES.—

“(A) IN GENERAL.—The term ‘wages’ means wages (as defined in section 3121(a)) and compensation (as defined in section 3231(e)). For purposes of the preceding sentence, in the case of any organization or entity described in subsection (f)(2), wages as defined in section 3121(a) shall be determined without regard to paragraphs (5), (6), (7), (10), and (13) of section 3121(b) (except with respect to services performed in a penal institution by an inmate thereof).

Determination.

“(B) ALLOWANCE FOR CERTAIN HEALTH PLAN EXPENSES.—

“(i) IN GENERAL.—Such term shall include amounts paid by the eligible employer to provide and maintain a group health plan (as defined in section 5000(b)(1)), but only to the extent that such amounts are excluded from the gross income of employees by reason of section 106(a).

“(ii) ALLOCATION RULES.—For purposes of this section, amounts treated as wages under clause (i) shall be treated as paid with respect to any employee (and with respect to any period) to the extent that such amounts are properly allocable to such employee (and to such period) in such manner as the Secretary may prescribe. Except as otherwise provided by the Secretary, such allocation shall be treated as properly made if made on the basis of being pro rata among periods of coverage.

“(5) RECOVERY STARTUP BUSINESS.—The term ‘recovery startup business’ means any employer—

“(A) which began carrying on any trade or business after February 15, 2020,

Effective date.

“(B) for which the average annual gross receipts of such employer (as determined under rules similar to the rules under section 448(c)(3)) for the 3-taxable-year period ending with the taxable year which precedes the calendar quarter for which the credit is determined under subsection (a) does not exceed \$1,000,000, and

Determination.
Time period.

“(C) which, with respect to such calendar quarter, is not described in subclause (I) or (II) of paragraph (2)(A)(ii).

“(6) OTHER TERMS.—Any term used in this section which is also used in this chapter or chapter 22 shall have the same meaning as when used in such chapter.

“(d) AGGREGATION RULE.—All persons treated as a single employer under subsection (a) or (b) of section 52, or subsection (m) or (o) of section 414, shall be treated as one employer for purposes of this section.

“(e) CERTAIN RULES TO APPLY.—For purposes of this section, rules similar to the rules of sections 51(i)(1) and 280C(a) shall apply.

“(f) CERTAIN GOVERNMENTAL EMPLOYERS.—

“(1) IN GENERAL.—This credit shall not apply to the Government of the United States, the government of any State or political subdivision thereof, or any agency or instrumentality of any of the foregoing.

“(2) EXCEPTION.—Paragraph (1) shall not apply to—

“(A) any organization described in section 501(c)(1) and exempt from tax under section 501(a), or

“(B) any entity described in paragraph (1) if—

“(i) such entity is a college or university, or

“(ii) the principal purpose or function of such entity is providing medical or hospital care.

In the case of any entity described in subparagraph (B), such entity shall be treated as satisfying the requirements of subsection (c)(2)(A)(i).

“(g) ELECTION TO NOT TAKE CERTAIN WAGES INTO ACCOUNT.—This section shall not apply to so much of the qualified wages paid by an eligible employer as such employer elects (at such time and in such manner as the Secretary may prescribe) to not take into account for purposes of this section.

“(h) COORDINATION WITH CERTAIN PROGRAMS.—

“(1) IN GENERAL.—This section shall not apply to so much of the qualified wages paid by an eligible employer as are taken into account as payroll costs in connection with—

“(A) a covered loan under section 7(a)(37) or 7A of the Small Business Act,

“(B) a grant under section 324 of the Economic Aid to Hard-Hit Small Businesses, Non-Profits, and Venues Act, or

“(C) a restaurant revitalization grant under section 5003 of the American Rescue Plan Act of 2021.

“(2) APPLICATION WHERE PPP LOANS NOT FORGIVEN.—The Secretary shall issue guidance providing that payroll costs paid during the covered period shall not fail to be treated as qualified wages under this section by reason of paragraph (1) to the extent that—

“(A) a covered loan of the taxpayer under section 7(a)(37) of the Small Business Act is not forgiven by reason of a decision under section 7(a)(37)(J) of such Act, or

“(B) a covered loan of the taxpayer under section 7A of the Small Business Act is not forgiven by reason of a decision under section 7A(g) of such Act.

Terms used in the preceding sentence which are also used in section 7A(g) or 7(a)(37)(J) of the Small Business Act shall, when applied in connection with either such section, have the same meaning as when used in such section, respectively.

“(i) THIRD PARTY PAYORS.—Any credit allowed under this section shall be treated as a credit described in section 3511(d)(2).

“(j) ADVANCE PAYMENTS.—

“(1) IN GENERAL.—Except as provided in paragraph (2), no advance payment of the credit under subsection (a) shall be allowed.

“(2) ADVANCE PAYMENTS TO SMALL EMPLOYERS.—

“(A) IN GENERAL.—Under rules provided by the Secretary, an eligible employer for which the average number of full-time employees (within the meaning of section 4980H) employed by such eligible employer during 2019 was not greater than 500 may elect for any calendar quarter to receive an advance payment of the credit under subsection (a) for such quarter in an amount not to exceed 70 percent of the average quarterly wages paid by the employer in calendar year 2019.

“(B) SPECIAL RULE FOR SEASONAL EMPLOYERS.—In the case of any employer who employs seasonal workers (as defined in section 45R(d)(5)(B)), the employer may elect to apply subparagraph (A) by substituting ‘the wages for the calendar quarter in 2019 which corresponds to the calendar quarter to which the election relates’ for ‘the average quarterly wages paid by the employer in calendar year 2019’.

“(C) SPECIAL RULE FOR EMPLOYERS NOT IN EXISTENCE IN 2019.—In the case of any employer that was not in existence in 2019, subparagraphs (A) and (B) shall each be applied by substituting ‘2020’ for ‘2019’ each place it appears.

Applicability.

“(3) RECONCILIATION OF CREDIT WITH ADVANCE PAYMENTS.—

“(A) IN GENERAL.—The amount of credit which would (but for this subsection) be allowed under this section shall be reduced (but not below zero) by the aggregate payment allowed to the taxpayer under paragraph (2). Any failure to so reduce the credit shall be treated as arising out of a mathematical or clerical error and assessed according to section 6213(b)(1).

“(B) EXCESS ADVANCE PAYMENTS.—If the advance payments to a taxpayer under paragraph (2) for a calendar quarter exceed the credit allowed by this section (determined without regard to subparagraph (A)), the tax imposed under section 3111(b) or so much of the tax imposed under section 3221(a) as is attributable to the rate in effect under section 3111(b) (whichever is applicable) for the calendar quarter shall be increased by the amount of such excess.

“(k) TREATMENT OF DEPOSITS.—The Secretary shall waive any penalty under section 6656 for any failure to make a deposit of any applicable employment taxes if the Secretary determines that such failure was due to the reasonable anticipation of the credit allowed under this section.

Waiver.
Determination.

“(l) EXTENSION OF LIMITATION ON ASSESSMENT.—Notwithstanding section 6501, the limitation on the time period for the assessment of any amount attributable to a credit claimed under this section shall not expire before the date that is 5 years after the later of—

Time period.

“(1) the date on which the original return which includes the calendar quarter with respect to which such credit is determined is filed, or

“(2) the date on which such return is treated as filed under section 6501(b)(2).

“(m) REGULATIONS AND GUIDANCE.—The Secretary shall issue such forms, instructions, regulations, and other guidance as are necessary—

“(1) to allow the advance payment of the credit under subsection (a) as provided in subsection (j)(2), subject to the limitations provided in this section, based on such information as the Secretary shall require,

“(2) with respect to the application of the credit under subsection (a) to third party payors (including professional employer organizations, certified professional employer organizations, or agents under section 3504), including regulations or guidance allowing such payors to submit documentation necessary to substantiate the eligible employer status of employers that use such payors, and

“(3) to prevent the avoidance of the purposes of the limitations under this section, including through the leaseback of employees.

Any forms, instructions, regulations, or other guidance described in paragraph (2) shall require the customer to be responsible for the accounting of the credit and for any liability for improperly claimed credits and shall require the certified professional employer organization or other third party payor to accurately report such tax credits based on the information provided by the customer.

Time period.

“(n) APPLICATION.—This section shall only apply to wages paid after June 30, 2021, and before January 1, 2022.”

(b) REFUNDS.—Paragraph (2) of section 1324(b) of title 31, United States Code, is amended by inserting “3134,” before “6428”.

26 USC 3131
prec.

(c) CLERICAL AMENDMENT.—The table of sections for subchapter D of chapter 21 of subtitle C of the Internal Revenue Code of 1986 is amended by adding at the end the following:

“Sec. 3134. Employee retention credit for employers subject to closure due to COVID-19.”

Applicability.
26 USC 3134
note.

(d) EFFECTIVE DATE.—The amendments made by this section shall apply to calendar quarters beginning after June 30, 2021.

PART 7—PREMIUM TAX CREDIT

SEC. 9661. IMPROVING AFFORDABILITY BY EXPANDING PREMIUM ASSISTANCE FOR CONSUMERS.

26 USC 36B.

(a) IN GENERAL.—Section 36B(b)(3)(A) of the Internal Revenue Code of 1986 is amended by adding at the end the following new clause:

“(iii) TEMPORARY PERCENTAGES FOR 2021 AND 2022.—In the case of a taxable year beginning in 2021 or 2022—

“(I) clause (ii) shall not apply for purposes of adjusting premium percentages under this subparagraph, and

Applicability.

“(II) the following table shall be applied in lieu of the table contained in clause (i):

“In the case of household income (expressed as a percent of poverty line) within the following income tier:	The initial premium percentage is—	The final premium percentage is—
Up to 150.0 percent	0.0	0.0
150.0 percent up to 200.0 percent	0.0	2.0
200.0 percent up to 250.0 percent	2.0	4.0
250.0 percent up to 300.0 percent	4.0	6.0
300.0 percent up to 400.0 percent	6.0	8.5
400.0 percent and higher	8.5	8.5”.

(b) CONFORMING AMENDMENT.—Section 36B(c)(1) of the Internal Revenue Code of 1986 is amended by adding at the end the following new subparagraph: 26 USC 36B.

“(E) TEMPORARY RULE FOR 2021 AND 2022.—In the case of a taxable year beginning in 2021 or 2022, subparagraph (A) shall be applied without regard to ‘but does not exceed 400 percent.’.” Applicability.

(c) EFFECTIVE DATE.—The amendments made by this section shall apply to taxable years beginning after December 31, 2020. 26 USC 36B note.

SEC. 9662. TEMPORARY MODIFICATION OF LIMITATIONS ON RECONCILIATION OF TAX CREDITS FOR COVERAGE UNDER A QUALIFIED HEALTH PLAN WITH ADVANCE PAYMENTS OF SUCH CREDIT.

(a) IN GENERAL.—Section 36B(f)(2)(B) of the Internal Revenue Code of 1986 is amended by adding at the end the following new clause:

“(iii) TEMPORARY MODIFICATION OF LIMITATION ON INCREASE.—In the case of any taxable year beginning in 2020, for any taxpayer who files for such taxable year an income tax return reconciling any advance payment of the credit under this section, the Secretary shall treat subparagraph (A) as not applying.”.

(b) EFFECTIVE DATE.—The amendment made by this section shall apply to taxable years beginning after December 31, 2019. 26 USC 36B note.

SEC. 9663. APPLICATION OF PREMIUM TAX CREDIT IN CASE OF INDIVIDUALS RECEIVING UNEMPLOYMENT COMPENSATION DURING 2021.

(a) IN GENERAL.—Section 36B of the Internal Revenue Code of 1986 is amended by redesignating subsection (g) as subsection (h) and by inserting after subsection (f) the following new subsection:

“(g) SPECIAL RULE FOR INDIVIDUALS WHO RECEIVE UNEMPLOYMENT COMPENSATION DURING 2021.—

“(1) IN GENERAL.—For purposes of this section, in the case of a taxpayer who has received, or has been approved to receive, unemployment compensation for any week beginning during 2021, for the taxable year in which such week begins—

“(A) such taxpayer shall be treated as an applicable taxpayer, and

- Definition. “(B) there shall not be taken into account any household income of the taxpayer in excess of 133 percent of the poverty line for a family of the size involved.
- “(2) UNEMPLOYMENT COMPENSATION.—For purposes of this subsection, the term ‘unemployment compensation’ has the meaning given such term in section 85(b).
- “(3) EVIDENCE OF UNEMPLOYMENT COMPENSATION.—For purposes of this subsection, a taxpayer shall not be treated as having received (or been approved to receive) unemployment compensation for any week unless such taxpayer provides self-attestation of, and such documentation as the Secretary shall prescribe which demonstrates, such receipt or approval.
- “(4) CLARIFICATION OF RULES REMAINING APPLICABLE.—
- “(A) JOINT RETURN REQUIREMENT.—Paragraph (1)(A) shall not affect the application of subsection (c)(1)(C).
- “(B) HOUSEHOLD INCOME AND AFFORDABILITY.—Paragraph (1)(B) shall not apply to any determination of household income for purposes of paragraph (2)(C)(i)(II) or (4)(C)(ii) of subsection (c)”.
- 26 USC 36B note. (b) EFFECTIVE DATE.—The amendments made by this section shall apply to taxable years beginning after December 31, 2020.

PART 8—MISCELLANEOUS PROVISIONS

SEC. 9671. REPEAL OF ELECTION TO ALLOCATE INTEREST, ETC. ON WORLDWIDE BASIS.

- 26 USC 864. (a) IN GENERAL.—Section 864 of the Internal Revenue Code of 1986 is amended by striking subsection (f).
- (b) EFFECTIVE DATE.—The amendment made by this section shall apply to taxable years beginning after December 31, 2020.

15 USC 9009b note.

SEC. 9672. TAX TREATMENT OF TARGETED EIDL ADVANCES.

For purposes of the Internal Revenue Code of 1986—

(1) amounts received from the Administrator of the Small Business Administration in the form of a targeted EIDL advance under section 331 of the Economic Aid to Hard-Hit Small Businesses, Nonprofits, and Venues Act (title III of division N of Public Law 116-260) shall not be included in the gross income of the person that receives such amounts,

(2) no deduction shall be denied, no tax attribute shall be reduced, and no basis increase shall be denied, by reason of the exclusion from gross income provided by paragraph (1), and

(3) in the case of a partnership or S corporation that receives such amounts—

(A) any amount excluded from income by reason of paragraph (1) shall be treated as tax exempt income for purposes of sections 705 and 1366 of the Internal Revenue Code of 1986, and

Regulations.
Determinations.

(B) the Secretary of the Treasury (or the Secretary’s delegate) shall prescribe rules for determining a partner’s distributive share of any amount described in subparagraph (A) for purposes of section 705 of the Internal Revenue Code of 1986.

15 USC 9009c note.

SEC. 9673. TAX TREATMENT OF RESTAURANT REVITALIZATION GRANTS.

For purposes of the Internal Revenue Code of 1986—

(1) amounts received from the Administrator of the Small Business Administration in the form of a restaurant revitalization grant under section 5003 shall not be included in the gross income of the person that receives such amounts,

(2) no deduction shall be denied, no tax attribute shall be reduced, and no basis increase shall be denied, by reason of the exclusion from gross income provided by paragraph (1), and

(3) in the case of a partnership or S corporation that receives such amounts—

(A) except as otherwise provided by the Secretary of the Treasury (or the Secretary's delegate), any amount excluded from income by reason of paragraph (1) shall be treated as tax exempt income for purposes of sections 705 and 1366 of the Internal Revenue Code of 1986, and

(B) the Secretary of the Treasury (or the Secretary's delegate) shall prescribe rules for determining a partner's distributive share of any amount described in subparagraph (A) for purposes of section 705 of the Internal Revenue Code of 1986.

Regulations.
Determinations.

SEC. 9674. MODIFICATION OF EXCEPTIONS FOR REPORTING OF THIRD PARTY NETWORK TRANSACTIONS.

(a) IN GENERAL.—Section 6050W(e) of the Internal Revenue Code of 1986 is amended to read as follows:

“(e) DE MINIMIS EXCEPTION FOR THIRD PARTY SETTLEMENT ORGANIZATIONS.—A third party settlement organization shall not be required to report any information under subsection (a) with respect to third party network transactions of any participating payee if the amount which would otherwise be reported under subsection (a)(2) with respect to such transactions does not exceed \$600.”

26 USC 6050W.

(b) CLARIFICATION THAT REPORTING IS NOT REQUIRED ON TRANSACTIONS WHICH ARE NOT FOR GOODS OR SERVICES.—Section 6050W(c)(3) of such Code is amended by inserting “described in subsection (d)(3)(A)(iii)” after “any transaction”.

(c) EFFECTIVE DATE.—

(1) IN GENERAL.—The amendment made by subsection (a) shall apply to returns for calendar years beginning after December 31, 2021.

(2) CLARIFICATION.—The amendment made by subsection (b) shall apply to transactions after the date of the enactment of this Act.

Applicability.
26 USC 6050W
note.

SEC. 9675. MODIFICATION OF TREATMENT OF STUDENT LOAN FORGIVENESS.

(a) IN GENERAL.—Section 108(f) of the Internal Revenue Code of 1986 is amended by striking paragraph (5) and inserting the following:

“(5) SPECIAL RULE FOR DISCHARGES IN 2021 THROUGH 2025.—Gross income does not include any amount which (but for this subsection) would be includible in gross income by reason of the discharge (in whole or in part) after December 31, 2020, and before January 1, 2026, of—

“(A) any loan provided expressly for postsecondary educational expenses, regardless of whether provided through the educational institution or directly to the borrower, if such loan was made, insured, or guaranteed by—

“(i) the United States, or an instrumentality or agency thereof,

“(ii) a State, territory, or possession of the United States, or the District of Columbia, or any political subdivision thereof, or

“(iii) an eligible educational institution (as defined in section 25A),

“(B) any private education loan (as defined in section 140(a)(7) of the Truth in Lending Act),

“(C) any loan made by any educational organization described in section 170(b)(1)(A)(ii) if such loan is made—

“(i) pursuant to an agreement with any entity described in subparagraph (A) or any private education lender (as defined in section 140(a) of the Truth in Lending Act) under which the funds from which the loan was made were provided to such educational organization, or

“(ii) pursuant to a program of such educational organization which is designed to encourage its students to serve in occupations with unmet needs or in areas with unmet needs and under which the services provided by the students (or former students) are for or under the direction of a governmental unit or an organization described in section 501(c)(3) and exempt from tax under section 501(a), or

“(D) any loan made by an educational organization described in section 170(b)(1)(A)(ii) or by an organization exempt from tax under section 501(a) to refinance a loan to an individual to assist the individual in attending any such educational organization but only if the refinancing loan is pursuant to a program of the refinancing organization which is designed as described in subparagraph (C)(ii).

The preceding sentence shall not apply to the discharge of a loan made by an organization described in subparagraph (C) or made by a private education lender (as defined in section 140(a)(7) of the Truth in Lending Act) if the discharge is on account of services performed for either such organization or for such private education lender.”

26 USC 108.

(b) **EFFECTIVE DATE.**—The amendment made by this section shall apply to discharges of loans after December 31, 2020.

Subtitle H—Pensions

26 USC 432 note.

SEC. 9701. TEMPORARY DELAY OF DESIGNATION OF MULTIEMPLOYER PLANS AS IN ENDANGERED, CRITICAL, OR CRITICAL AND DECLINING STATUS.

(a) **IN GENERAL.**—Notwithstanding the actuarial certification under section 305(b)(3) of the Employee Retirement Income Security Act of 1974 and section 432(b)(3) of the Internal Revenue Code of 1986, if a plan sponsor of a multiemployer plan elects the application of this section, then, for purposes of section 305 of such Act and section 432 of such Code—

Time period.

(1) the status of the plan for its first plan year beginning during the period beginning on March 1, 2020, and ending on February 28, 2021, or the next succeeding plan year (as designated by the plan sponsor in such election), shall be the

same as the status of such plan under such sections for the plan year preceding such designated plan year, and

(2) in the case of a plan which was in endangered or critical status for the plan year preceding the designated plan year described in paragraph (1), the plan shall not be required to update its plan or schedules under section 305(c)(6) of such Act and section 432(c)(6) of such Code, or section 305(e)(3)(B) of such Act and section 432(e)(3)(B) of such Code, whichever is applicable, until the plan year following the designated plan year described in paragraph (1).

(b) EXCEPTION FOR PLANS BECOMING CRITICAL DURING ELECTION.—If—

(1) an election was made under subsection (a) with respect to a multiemployer plan, and

(2) such plan has, without regard to such election, been certified by the plan actuary under section 305(b)(3) of the Employee Retirement Income Security Act of 1974 and section 432(b)(3) of the Internal Revenue Code of 1986 to be in critical status for the designated plan year described in subsection (a)(1), then such plan shall be treated as a plan in critical status for such plan year for purposes of applying section 4971(g)(1)(A) of such Code, section 302(b)(3) of such Act (without regard to the second sentence thereof), and section 412(b)(3) of such Code (without regard to the second sentence thereof).

(c) ELECTION AND NOTICE.—

(1) ELECTION.—An election under subsection (a)—

(A) shall be made at such time and in such manner as the Secretary of the Treasury or the Secretary's delegate may prescribe and, once made, may be revoked only with the consent of the Secretary, and

(B) if made—

(i) before the date the annual certification is submitted to the Secretary or the Secretary's delegate under section 305(b)(3) of such Act and section 432(b)(3) of such Code, shall be included with such annual certification, and

(ii) after such date, shall be submitted to the Secretary or the Secretary's delegate not later than 30 days after the date of the election.

(2) NOTICE TO PARTICIPANTS.—

(A) IN GENERAL.—Notwithstanding section 305(b)(3)(D) of the Employee Retirement Income Security Act of 1974 and section 432(b)(3)(D) of the Internal Revenue Code of 1986, if, by reason of an election made under subsection (a), the plan is in neither endangered nor critical status—

(i) the plan sponsor of a multiemployer plan shall not be required to provide notice under such sections, and

(ii) the plan sponsor shall provide to the participants and beneficiaries, the bargaining parties, the Pension Benefit Guaranty Corporation, and the Secretary of Labor a notice of the election under subsection (a) and such other information as the Secretary of the Treasury (in consultation with the Secretary of Labor) may require—

(I) if the election is made before the date the annual certification is submitted to the Secretary

Certification.
Applicability.

Deadline.

Consultation.
Deadlines.

	<p>or the Secretary's delegate under section 305(b)(3) of such Act and section 432(b)(3) of such Code, not later than 30 days after the date of the certification, and</p> <p>(II) if the election is made after such date, not later than 30 days after the date of the election.</p>
Certification.	<p>(B) NOTICE OF ENDANGERED STATUS.—Notwithstanding section 305(b)(3)(D) of such Act and section 432(b)(3)(D) of such Code, if the plan is certified to be in critical status for any plan year but is in endangered status by reason of an election made under subsection (a), the notice provided under such sections shall be the notice which would have been provided if the plan had been certified to be in endangered status.</p>
26 USC 432 note.	<p>SEC. 9702. TEMPORARY EXTENSION OF THE FUNDING IMPROVEMENT AND REHABILITATION PERIODS FOR MULTIEMPLOYER PENSION PLANS IN CRITICAL AND ENDANGERED STATUS FOR 2020 OR 2021.</p> <p>(a) IN GENERAL.—If the plan sponsor of a multiemployer plan which is in endangered or critical status for a plan year beginning in 2020 or 2021 (determined after application of section 9701) elects the application of this section, then, for purposes of section 305 of the Employee Retirement Income Security Act of 1974 and section 432 of the Internal Revenue Code of 1986, the plan's funding improvement period or rehabilitation period, whichever is applicable, shall be extended by 5 years.</p> <p>(b) DEFINITIONS AND SPECIAL RULES.—For purposes of this section—</p> <p>(1) ELECTION.—An election under this section shall be made at such time, and in such manner and form, as (in consultation with the Secretary of Labor) the Secretary of the Treasury or the Secretary's delegate may prescribe.</p> <p>(2) DEFINITIONS.—Any term which is used in this section which is also used in section 305 of the Employee Retirement Income Security Act of 1974 and section 432 of the Internal Revenue Code of 1986 shall have the same meaning as when used in such sections.</p> <p>(c) EFFECTIVE DATE.—This section shall apply to plan years beginning after December 31, 2019.</p> <p>SEC. 9703. ADJUSTMENTS TO FUNDING STANDARD ACCOUNT RULES.</p> <p>(a) ADJUSTMENTS.—</p> <p>(1) AMENDMENT TO EMPLOYEE RETIREMENT INCOME SECURITY ACT OF 1974.—Section 304(b)(8) of the Employee Retirement Income Security Act of 1974 (29 U.S.C. 1084(b)) is amended by adding at the end the following new subparagraph:</p> <p>“(F) RELIEF FOR 2020 AND 2021.—A multiemployer plan with respect to which the solvency test under subparagraph (C) is met as of February 29, 2020, may elect to apply this paragraph (without regard to whether such plan previously elected the application of this paragraph)—</p> <p>“(i) by substituting ‘February 29, 2020’ for ‘August 31, 2008’ each place it appears in subparagraphs (A)(i), (B)(i)(I), and (B)(i)(II),</p> <p>“(ii) by inserting ‘and other losses related to the virus SARS-CoV-2 or coronavirus disease 2019 (COVID-19) (including experience losses related to</p>
Consultation.	
Applicability.	
Effective date. Applicability.	
Determination.	

reductions in contributions, reductions in employment, and deviations from anticipated retirement rates, as determined by the plan sponsor’ after ‘net investment losses’ in subparagraph (A)(i), and

“(iii) by substituting ‘this subparagraph or subparagraph (A)’ for ‘this subparagraph and subparagraph (A) both’ in subparagraph (B)(iii).

The preceding sentence shall not apply to a plan to which special financial assistance is granted under section 4262. For purposes of the application of this subparagraph, the Secretary of the Treasury shall rely on the plan sponsor’s calculations of plan losses unless such calculations are clearly erroneous.”.

(2) AMENDMENT TO INTERNAL REVENUE CODE OF 1986.—Section 431(b)(8) of the Internal Revenue Code of 1986 is amended by adding at the end the following new subparagraph:

26 USC 431.

“(F) RELIEF FOR 2020 AND 2021.—A multiemployer plan with respect to which the solvency test under subparagraph (C) is met as of February 29, 2020, may elect to apply this paragraph (without regard to whether such plan previously elected the application of this paragraph)—

Effective date.
Applicability.

“(i) by substituting ‘February 29, 2020’ for ‘August 31, 2008’ each place it appears in subparagraphs (A)(i), (B)(i)(I), and (B)(i)(II),

“(ii) by inserting ‘and other losses related to the virus SARS-CoV-2 or coronavirus disease 2019 (COVID-19) (including experience losses related to reductions in contributions, reductions in employment, and deviations from anticipated retirement rates, as determined by the plan sponsor)’ after ‘net investment losses’ in subparagraph (A)(i), and

“(iii) by substituting ‘this subparagraph or subparagraph (A)’ for ‘this subparagraph and subparagraph (A) both’ in subparagraph (B)(iii).

The preceding sentence shall not apply to a plan to which special financial assistance is granted under section 4262 of the Employee Retirement Income Security Act of 1974. For purposes of the application of this subparagraph, the Secretary shall rely on the plan sponsor’s calculations of plan losses unless such calculations are clearly erroneous.”.

(b) EFFECTIVE DATES.—

Applicability.
26 USC 431 note.

(1) IN GENERAL.—The amendments made by this section shall take effect as of the first day of the first plan year ending on or after February 29, 2020, except that any election a plan makes pursuant to this section that affects the plan’s funding standard account for the first plan year beginning after February 29, 2020, shall be disregarded for purposes of applying the provisions of section 305 of the Employee Retirement Income Security Act of 1974 and section 432 of the Internal Revenue Code of 1986 to such plan year.

(2) RESTRICTIONS ON BENEFIT INCREASES.—Notwithstanding paragraph (1), the restrictions on plan amendments increasing benefits in sections 304(b)(8)(D) of such Act and 431(b)(8)(D) of such Code, as applied by the amendments made by this section, shall take effect on the date of enactment of this Act.

SEC. 9704. SPECIAL FINANCIAL ASSISTANCE PROGRAM FOR FINANCIALLY TROUBLED MULTIEMPLOYER PLANS.

(a) APPROPRIATION.—Section 4005 of the Employee Retirement Income Security Act of 1974 (29 U.S.C. 1305) is amended by adding at the end the following:

“(i)(1) An eighth fund shall be established for special financial assistance to multiemployer pension plans, as provided under section 4262, and to pay for necessary administrative and operating expenses of the corporation relating to such assistance.

“(2) There is appropriated from the general fund such amounts as are necessary for the costs of providing financial assistance under section 4262 and necessary administrative and operating expenses of the corporation. The eighth fund established under this subsection shall be credited with amounts from time to time as the Secretary of the Treasury, in conjunction with the Director of the Pension Benefit Guaranty Corporation, determines appropriate, from the general fund of the Treasury, but in no case shall such transfers occur after September 30, 2030.”.

(b) FINANCIAL ASSISTANCE AUTHORITY.—The Employee Retirement Income Security Act of 1974 is amended by inserting after section 4261 of such Act (29 U.S.C. 1431) the following:

Determination.
Termination
date.

29 USC 1432.

“SEC. 4262. SPECIAL FINANCIAL ASSISTANCE BY THE CORPORATION.

“(a) SPECIAL FINANCIAL ASSISTANCE.—

“(1) IN GENERAL.—The corporation shall provide special financial assistance to an eligible multiemployer plan under this section, upon the application of a plan sponsor of such a plan for such assistance.

“(2) INAPPLICABILITY OF CERTAIN REPAYMENT OBLIGATION.—A plan receiving special financial assistance pursuant to this section shall not be subject to repayment obligations with respect to such special financial assistance.

“(b) ELIGIBLE MULTIEMPLOYER PLANS.—

Time period.

“(1) IN GENERAL.—For purposes of this section, a multiemployer plan is an eligible multiemployer plan if—

“(A) the plan is in critical and declining status (within the meaning of section 305(b)(6)) in any plan year beginning in 2020 through 2022;

“(B) a suspension of benefits has been approved with respect to the plan under section 305(e)(9) as of the date of the enactment of this section;

Certification.

“(C) in any plan year beginning in 2020 through 2022, the plan is certified by the plan actuary to be in critical status (within the meaning of section 305(b)(2)), has a modified funded percentage of less than 40 percent, and has a ratio of active to inactive participants which is less than 2 to 3; or

“(D) the plan became insolvent for purposes of section 418E of the Internal Revenue Code of 1986 after December 16, 2014, and has remained so insolvent and has not been terminated as of the date of enactment of this section.

Definition.

“(2) MODIFIED FUNDED PERCENTAGE.—For purposes of paragraph (1)(C), the term ‘modified funded percentage’ means the percentage equal to a fraction the numerator of which is current value of plan assets (as defined in section 3(26) of such Act) and the denominator of which is current liabilities (as defined

in section 431(c)(6)(D) of such Code and section 304(c)(6)(D) of such Act).

“(c) APPLICATIONS FOR SPECIAL FINANCIAL ASSISTANCE.—Within 120 days of the date of enactment of this section, the corporation shall issue regulations or guidance setting forth requirements for special financial assistance applications under this section. In such regulations or guidance, the corporation shall—

Deadline.
Regulations.
Requirements.

“(1) limit the materials required for a special financial assistance application to the minimum necessary to make a determination on the application;

“(2) specify effective dates for transfers of special financial assistance following approval of an application, based on the effective date of the supporting actuarial analysis and the date on which the application is submitted; and

“(3) provide for an alternate application for special financial assistance under this section, which may be used by a plan that has been approved for a partition under section 4233 before the date of enactment of this section.

“(d) TEMPORARY PRIORITY CONSIDERATION OF APPLICATIONS.—

“(1) IN GENERAL.—The corporation may specify in regulations or guidance under subsection (c) that, during a period no longer than the first 2 years following the date of enactment of this section, applications may not be filed by an eligible multiemployer plan unless—

Regulations.
Time period.

“(A) the eligible multiemployer plan is insolvent or is likely to become insolvent within 5 years of the date of enactment of this section;

Time period.

“(B) the corporation projects the eligible multiemployer plan to have a present value of financial assistance payments under section 4261 that exceeds \$1,000,000,000 if the special financial assistance is not ordered;

“(C) the eligible multiemployer plan has implemented benefit suspensions under section 305(e)(9) as of the date of the enactment of this section; or

“(D) the corporation determines it appropriate based on other similar circumstances.

Determination.

“(e) ACTUARIAL ASSUMPTIONS.—

“(1) ELIGIBILITY.—For purposes of determining eligibility for special financial assistance, the corporation shall accept assumptions incorporated in a multiemployer plan’s determination that it is in critical status or critical and declining status (within the meaning of section 305(b)) for certifications of plan status completed before January 1, 2021, unless such assumptions are clearly erroneous. For certifications of plan status completed after December 31, 2020, a plan shall determine whether it is in critical or critical and declining status for purposes of eligibility for special financial assistance by using the assumptions that the plan used in its most recently completed certification of plan status before January 1, 2021, unless such assumptions (excluding the plan’s interest rate) are unreasonable.

Determinations.
Termination
date.

Certifications.
Effective date.

“(2) AMOUNT OF FINANCIAL ASSISTANCE.—In determining the amount of special financial assistance in its application, an eligible multiemployer plan shall—

Termination
date.

“(A) use the interest rate used by the plan in its most recently completed certification of plan status before

	<p>January 1, 2021, provided that such interest rate may not exceed the interest rate limit; and</p> <p>“(B) for other assumptions, use the assumptions that the plan used in its most recently completed certification of plan status before January 1, 2021, unless such assumptions are unreasonable.</p>
Time period.	<p>“(3) INTEREST RATE LIMIT.—The interest rate limit for purposes of this subsection is the rate specified in section 303(h)(2)(C)(iii) (disregarding modifications made under clause (iv) of such section) for the month in which the application for special financial assistance is filed by the eligible multiemployer plan or the 3 preceding months, with such specified rate increased by 200 basis points.</p>
Determinations. Disclosure.	<p>“(4) CHANGES IN ASSUMPTIONS.—If a plan determines that use of one or more prior assumptions is unreasonable, the plan may propose in its application to change such assumptions, provided that the plan discloses such changes in its application and describes why such assumptions are no longer reasonable. The corporation shall accept such changed assumptions unless it determines the changes are unreasonable, individually or in the aggregate. The plan may not propose a change to the interest rate otherwise required under this subsection for eligibility or financial assistance amount.</p>
	<p>“(f) APPLICATION DEADLINE.—Any application by a plan for special financial assistance under this section shall be submitted to the corporation (and, in the case of a plan to which section 432(k)(1)(D) of the Internal Revenue Code of 1986 applies, to the Secretary of the Treasury) no later than December 31, 2025, and any revised application for special financial assistance shall be submitted no later than December 31, 2026.</p>
Notifications. Deadlines.	<p>“(g) DETERMINATIONS ON APPLICATIONS.—A plan’s application for special financial assistance under this section that is timely filed in accordance with the regulations or guidance issued under subsection (c) shall be deemed approved unless the corporation notifies the plan within 120 days of the filing of the application that the application is incomplete, any proposed change or assumption is unreasonable, or the plan is not eligible under this section. Such notice shall specify the reasons the plan is ineligible for special financial assistance, any proposed change or assumption is unreasonable, or information is needed to complete the application. If a plan is denied assistance under this subsection, the plan may submit a revised application under this section. Any revised application for special financial assistance submitted by a plan shall be deemed approved unless the corporation notifies the plan within 120 days of the filing of the revised application that the application is incomplete, any proposed change or assumption is unreasonable, or the plan is not eligible under this section.</p>
Revisions.	<p>Special financial assistance issued by the corporation shall be effective on a date determined by the corporation, but no later than 1 year after a plan’s special financial assistance application is approved by the corporation or deemed approved. The corporation shall not pay any special financial assistance after September 30, 2030.</p>
Effective date. Determination. Deadline.	<p>“(h) MANNER OF PAYMENT.—The payment made by the corporation to an eligible multiemployer plan under this section shall be made as a single, lump sum payment.</p>
Termination date.	<p>“(i) AMOUNT AND MANNER OF SPECIAL FINANCIAL ASSISTANCE.—</p>

“(1) IN GENERAL.—Special financial assistance under this section shall be a transfer of funds in the amount necessary as demonstrated by the plan sponsor on the application for such special financial assistance, in accordance with the requirements described in subsection (j). Special financial assistance shall be paid to such plan as soon as practicable upon approval of the application by the corporation.

“(2) NO CAP.—Special financial assistance granted by the corporation under this section shall not be capped by the guarantee under 4022A.

“(j) DETERMINATION OF AMOUNT OF SPECIAL FINANCIAL ASSISTANCE.—

“(1) IN GENERAL.—The amount of financial assistance provided to a multiemployer plan eligible for financial assistance under this section shall be such amount required for the plan to pay all benefits due during the period beginning on the date of payment of the special financial assistance payment under this section and ending on the last day of the plan year ending in 2051, with no reduction in a participant’s or beneficiary’s accrued benefit as of the date of enactment of this section, except to the extent of a reduction in accordance with section 305(e)(8) adopted prior to the plan’s application for special financial assistance under this section, and taking into account the reinstatement of benefits required under subsection (k).

Time period.

“(2) PROJECTIONS.—The funding projections for purposes of this section shall be performed on a deterministic basis.

“(k) REINSTATEMENT OF SUSPENDED BENEFITS.—The Secretary, in coordination with the Secretary of the Treasury, shall ensure that an eligible multiemployer plan that receives special financial assistance under this section—

Coordination.
Effective dates.

“(1) reinstates any benefits that were suspended under section 305(e)(9) or section 4245(a) in accordance with guidance issued by the Secretary of the Treasury pursuant to section 432(k)(1)(B) of the Internal Revenue Code of 1986, effective as of the first month in which the effective date for the special financial assistance occurs, for participants and beneficiaries as of such month; and

“(2) provides payments equal to the amount of benefits previously suspended under section 305(e)(9) or 4245(a) to any participants or beneficiaries in pay status as of the effective date of the special financial assistance, payable, as determined by the eligible multiemployer plan—

Determination.
Deadlines.

“(A) as a lump sum within 3 months of such effective date; or

“(B) in equal monthly installments over a period of 5 years, commencing within 3 months of such effective date, with no adjustment for interest.

Time period.

“(l) RESTRICTIONS ON THE USE OF SPECIAL FINANCIAL ASSISTANCE.—Special financial assistance received under this section and any earnings thereon may be used by an eligible multiemployer plan to make benefit payments and pay plan expenses. Special financial assistance and any earnings on such assistance shall be segregated from other plan assets. Special financial assistance shall be invested by plans in investment-grade bonds or other investments as permitted by the corporation.

“(m) CONDITIONS ON PLANS RECEIVING SPECIAL FINANCIAL ASSISTANCE.—

Consultation.
Regulations.

“(1) IN GENERAL.—The corporation, in consultation with the Secretary of the Treasury, may impose, by regulation or other guidance, reasonable conditions on an eligible multiemployer plan that receives special financial assistance relating to increases in future accrual rates and any retroactive benefit improvements, allocation of plan assets, reductions in employer contribution rates, diversion of contributions to, and allocation of expenses to, other benefit plans, and withdrawal liability.

“(2) LIMITATION.—The corporation shall not impose conditions on an eligible multiemployer plan as a condition of, or following receipt of, special financial assistance under this section relating to—

“(A) any prospective reduction in plan benefits (including benefits that may be adjusted pursuant to section 305(e)(8));

“(B) plan governance, including selection of, removal of, and terms of contracts with, trustees, actuaries, investment managers, and other service providers; or

“(C) any funding rules relating to the plan receiving special financial assistance under this section.

Continuance.

“(3) PAYMENT OF PREMIUMS.—An eligible multiemployer plan receiving special financial assistance under this section shall continue to pay all premiums due under section 4007 for participants and beneficiaries in the plan.

“(4) ASSISTANCE NOT CONSIDERED FOR CERTAIN PURPOSES.—An eligible multiemployer plan that receives special financial assistance shall be deemed to be in critical status within the meaning of section 305(b)(2) until the last plan year ending in 2051.

“(5) INSOLVENT PLANS.—An eligible multiemployer plan receiving special financial assistance under this section that subsequently becomes insolvent will be subject to the current rules and guarantee for insolvent plans.

“(6) INELIGIBILITY FOR OTHER ASSISTANCE.—An eligible multiemployer plan that receives special financial assistance under this section is not eligible to apply for a new suspension of benefits under section 305(e)(9)(G).

Consultations.

“(n) COORDINATION WITH SECRETARY OF THE TREASURY.—In prescribing the application process for eligible multiemployer plans to receive special financial assistance under this section and reviewing applications of such plans, the corporation shall coordinate with the Secretary of the Treasury in the following manner:

Determinations.

“(1) In the case of a plan which has suspended benefits under section 305(e)(9)—

“(A) in determining whether to approve the application, the corporation shall consult with the Secretary of the Treasury regarding the plan’s proposed method of reinstating benefits, as described in the plan’s application and in accordance with guidance issued by the Secretary of the Treasury, and

“(B) the corporation shall consult with the Secretary of the Treasury regarding the amount of special financial assistance needed based on the projected funded status of the plan as of the last day of the plan year ending in 2051, whether the plan proposes to repay benefits over

5 years or as a lump sum, as required by subsection (k)(2), and any other relevant factors, as determined by the corporation in consultation with the Secretary of the Treasury, to ensure the amount of assistance is sufficient to meet such requirement and is sufficient to pay benefits as required in subsection (j)(1).

“(2) In the case of any plan which proposes in its application to change the assumptions used, as provided in subsection (e)(4), the corporation shall consult with the Secretary of the Treasury regarding such proposed change in assumptions.

“(3) If the corporation specifies in regulations or guidance that temporary priority consideration is available for plans which are insolvent within the meaning of section 418E of the Internal Revenue Code of 1986 or likely to become so insolvent or for plans which have suspended benefits under section 305(e)(9), or that availability is otherwise based on the funded status of the plan under section 305, as permitted by subsection (d), the corporation shall consult with the Secretary of the Treasury regarding any granting of priority consideration to such plans.”.

Regulations.

(c) PREMIUM RATE INCREASE.—Section 4006(a)(3) of the Employee Retirement Income Security Act of 1974 (29 U.S.C. 1306(a)(3)) is amended—

(1) in subparagraph (A)—

(A) in clause (vi)—

(i) by inserting “, and before January 1, 2031” after “December 31, 2014,”; and

(ii) by striking “or” at the end;

(B) in clause (vii)—

(i) by moving the margin 2 ems to the left; and

(ii) in subclause (II), by striking the period and inserting “, or”; and

(C) by adding at the end the following:

“(viii) in the case of a multiemployer plan, for plan years beginning after December 31, 2030, \$52 for each individual who is a participant in such plan during the applicable plan year.”; and

Effective date.

(2) by adding at the end the following:

“(N) For each plan year beginning in a calendar year after 2031, there shall be substituted for the dollar amount specified in clause (viii) of subparagraph (A) an amount equal to the greater of—

Effective date.

“(i) the product derived by multiplying such dollar amount by the ratio of—

“(I) the national average wage index (as defined in section 209(k)(1) of the Social Security Act) for the first of the 2 calendar years preceding the calendar year in which such plan year begins, to

“(II) the national average wage index (as so defined) for 2029; and

“(ii) such dollar amount for plan years beginning in the preceding calendar year.

If the amount determined under this subparagraph is not a multiple of \$1, such product shall be rounded to the nearest multiple of \$1.”.

(d) AMENDMENTS TO INTERNAL REVENUE CODE OF 1986.—

26 USC 432.	<p>(1) IN GENERAL.—Section 432(a) of the Internal Revenue Code of 1986 is amended—</p> <p style="padding-left: 2em;">(A) by striking “and” at the end of paragraph (2)(B),</p> <p style="padding-left: 2em;">(B) by striking the period at the end of paragraph (3)(B) and inserting “, and”, and</p> <p style="padding-left: 2em;">(C) by adding at the end the following new paragraph:</p> <p style="padding-left: 2em;">“(4) if the plan is an eligible multiemployer plan which is applying for or receiving special financial assistance under section 4262 of the Employee Retirement Income Security Act of 1974, the requirements of subsection (k) shall apply to the plan.”.</p> <p>(2) PLANS RECEIVING SPECIAL FINANCIAL ASSISTANCE TO BE IN CRITICAL STATUS.—Section 432(b) of the Internal Revenue Code of 1986 is amended by adding at the end the following new paragraph:</p> <p style="padding-left: 2em;">“(7) PLANS RECEIVING SPECIAL FINANCIAL ASSISTANCE.—If an eligible multiemployer plan receiving special financial assistance under section 4262 of the Employee Retirement Income Security Act of 1974 meets the requirements of subsection (k)(2), notwithstanding the preceding paragraphs of this subsection, the plan shall be deemed to be in critical status for plan years beginning with the plan year in which the effective date for such assistance occurs and ending with the last plan year ending in 2051.”.</p> <p>(3) RULES RELATING TO ELIGIBLE MULTIEMPLOYER PLANS.—Section 432 of the Internal Revenue Code of 1986 is amended by adding at the end the following new subsection:</p> <p style="padding-left: 2em;">“(k) RULES RELATING TO ELIGIBLE MULTIEMPLOYER PLANS.—</p> <p style="padding-left: 4em;">“(1) PLANS APPLYING FOR SPECIAL FINANCIAL ASSISTANCE.—In the case of an eligible multiemployer plan which applies for special financial assistance under section 4262 of such Act—</p> <p style="padding-left: 6em;">“(A) IN GENERAL.—Such application shall be submitted in accordance with the requirements of such section, including any guidance issued thereunder by the Pension Benefit Guaranty Corporation.</p> <p style="padding-left: 6em;">“(B) REINSTATEMENT OF SUSPENDED BENEFITS.—In the case of a plan for which a suspension of benefits has been approved under subsection (e)(9), the application shall describe the manner in which suspended benefits will be reinstated in accordance with paragraph (2)(A) and guidance issued by the Secretary if the plan receives special financial assistance.</p> <p style="padding-left: 6em;">“(C) AMOUNT OF FINANCIAL ASSISTANCE.—</p> <p style="padding-left: 8em;">“(i) IN GENERAL.—In determining the amount of special financial assistance to be specified in its application, an eligible multiemployer plan shall—</p> <p style="padding-left: 10em;">“(I) use the interest rate used by the plan in its most recently completed certification of plan status before January 1, 2021, provided that such interest rate does not exceed the interest rate limit, and</p> <p style="padding-left: 10em;">“(II) for other assumptions, use the assumptions that the plan used in its most recently completed certification of plan status before January 1, 2021, unless such assumptions are unreasonable.</p>
Requirements. Applicability.	
Time period.	
Requirements.	
Determination. Termination date.	

“(ii) INTEREST RATE LIMIT.—For purposes of clause (i), the interest rate limit is the rate specified in section 430(h)(2)(C)(iii) (disregarding modifications made under clause (iv) of such section) for the month in which the application for special financial assistance is filed by the eligible multiemployer plan or the 3 preceding months, with such specified rate increased by 200 basis points.

Time period.

“(iii) CHANGES IN ASSUMPTIONS.—If a plan determines that use of one or more prior assumptions is unreasonable, the plan may propose in its application to change such assumptions, provided that the plan discloses such changes in its application and describes why such assumptions are no longer reasonable. The plan may not propose a change to the interest rate otherwise required under this subsection for eligibility or financial assistance amount.

Determination.
Disclosure.

“(D) PLANS APPLYING FOR PRIORITY CONSIDERATION.—

In the case of a plan applying for special financial assistance under rules providing for temporary priority consideration, as provided in paragraph (4)(C), such plan’s application shall be submitted to the Secretary in addition to the Pension Benefit Guaranty Corporation.

“(2) PLANS RECEIVING SPECIAL FINANCIAL ASSISTANCE.—In the case of an eligible multiemployer plan receiving special financial assistance under section 4262 of the Employee Retirement Income Security Act of 1974—

“(A) REINSTATEMENT OF SUSPENDED BENEFITS.—The plan shall—

Effective dates.

“(i) reinstate any benefits that were suspended under subsection (e)(9) or section 4245(a) of the Employee Retirement Income Security Act of 1974, effective as of the first month in which the effective date for the special financial assistance occurs, for participants and beneficiaries as of such month, and

“(ii) provide payments equal to the amount of benefits previously suspended to any participants or beneficiaries in pay status as of the effective date of the special financial assistance, payable, as determined by the plan—

Determination.
Deadlines.

“(I) as a lump sum within 3 months of such effective date; or

“(II) in equal monthly installments over a period of 5 years, commencing within 3 months of such effective date, with no adjustment for interest.

Time period.

“(B) RESTRICTIONS ON THE USE OF SPECIAL FINANCIAL ASSISTANCE.—Special financial assistance received by the plan may be used to make benefit payments and pay plan expenses. Such assistance shall be segregated from other plan assets, and shall be invested by the plan in investment-grade bonds or other investments as permitted by regulations or other guidance issued by the Pension Benefit Guaranty Corporation.

“(C) CONDITIONS ON PLANS RECEIVING SPECIAL FINANCIAL ASSISTANCE.—

Consultation.
Regulations.

“(i) IN GENERAL.—The Pension Benefit Guaranty Corporation, in consultation with the Secretary, may impose, by regulation or other guidance, reasonable conditions on an eligible multiemployer plan receiving special financial assistance relating to increases in future accrual rates and any retroactive benefit improvements, allocation of plan assets, reductions in employer contribution rates, diversion of contributions and allocation of expenses to other benefit plans, and withdrawal liability.

“(ii) LIMITATION.—The Pension Benefit Guaranty Corporation shall not impose conditions on an eligible multiemployer plan as a condition of, or following receipt of, special financial assistance relating to—

“(I) any prospective reduction in plan benefits (including benefits that may be adjusted pursuant to subsection (e)(8)),

“(II) plan governance, including selection of, removal of, and terms of contracts with, trustees, actuaries, investment managers, and other service providers, or

“(III) any funding rules relating to the plan.

“(D) ASSISTANCE DISREGARDED FOR CERTAIN PURPOSES.—

“(i) FUNDING STANDARDS.—Special financial assistance received by the plan shall not be taken into account for determining contributions required under section 431.

Applicability.

“(ii) INSOLVENT PLANS.—If the plan becomes insolvent within the meaning of section 418E after receiving special financial assistance, the plan shall be subject to all rules applicable to insolvent plans.

“(E) INELIGIBILITY FOR SUSPENSION OF BENEFITS.—The plan shall not be eligible to apply for a new suspension of benefits under subsection (e)(9)(G).

“(3) ELIGIBLE MULTIEMPLOYER PLAN.—

Time periods.

“(A) IN GENERAL.—For purposes of this section, a multiemployer plan is an eligible multiemployer plan if—

“(i) the plan is in critical and declining status in any plan year beginning in 2020 through 2022,

“(ii) a suspension of benefits has been approved with respect to the plan under subsection (e)(9) as of the date of the enactment of this subsection;

Certification.

“(iii) in any plan year beginning in 2020 through 2022, the plan is certified by the plan actuary to be in critical status, has a modified funded percentage of less than 40 percent, and has a ratio of active to inactive participants which is less than 2 to 3, or

Effective date.

“(iv) the plan became insolvent within the meaning of section 418E after December 16, 2014, and has remained so insolvent and has not been terminated as of the date of enactment of this subsection.

Definition.

“(B) MODIFIED FUNDED PERCENTAGE.—For purposes of subparagraph (A)(iii), the term ‘modified funded percentage’ means the percentage equal to a fraction the numerator of which is current value of plan assets (as defined in

section 3(26) of the Employee Retirement Income Security Act of 1974) and the denominator of which is current liabilities (as defined in section 431(c)(6)(D)).

“(4) COORDINATION WITH PENSION BENEFIT GUARANTY CORPORATION.—In prescribing the application process for eligible multiemployer plans to receive special financial assistance under section 4262 of the Employee Retirement Income Security Act of 1974 and reviewing applications of such plans, the Pension Benefit Guaranty Corporation shall coordinate with the Secretary in the following manner:

Consultations.

“(A) In the case of a plan which has suspended benefits under subsection (e)(9)—

Determinations.

“(i) in determining whether to approve the application, such corporation shall consult with the Secretary regarding the plan’s proposed method of reinstating benefits, as described in the plan’s application and in accordance with guidance issued by the Secretary, and

“(ii) such corporation shall consult with the Secretary regarding the amount of special financial assistance needed based on the projected funded status of the plan as of the last day of the plan year ending in 2051, whether the plan proposes to repay benefits over 5 years or as a lump sum, as required by paragraph (2)(A)(ii), and any other relevant factors, as determined by such corporation in consultation with the Secretary, to ensure the amount of assistance is sufficient to meet such requirement and is sufficient to pay benefits as required in section 4262(j)(1) of such Act.

Time period.

“(B) In the case of any plan which proposes in its application to change the assumptions used, as provided in paragraph (1)(C)(iii), such corporation shall consult with the Secretary regarding such proposed change in assumptions.

“(C) If such corporation specifies in regulations or guidance that temporary priority consideration is available for plans which are insolvent within the meaning of section 418E or likely to become so insolvent or for plans which have suspended benefits under subsection (e)(9), or that availability is otherwise based on the funded status of the plan under this section, as permitted by section 4262(d) of such Act, such corporation shall consult with the Secretary regarding any granting of priority consideration to such plans.”

Regulations.

SEC. 9705. EXTENDED AMORTIZATION FOR SINGLE EMPLOYER PLANS. Effective dates.

(a) 15-YEAR AMORTIZATION UNDER THE INTERNAL REVENUE CODE OF 1986.—Section 430(c) of the Internal Revenue Code of 1986 is amended by adding at the end the following new paragraph: 26 USC 430.

“(8) 15-YEAR AMORTIZATION.—With respect to plan years beginning after December 31, 2021 (or, at the election of the plan sponsor, plan years beginning after December 31, 2018, December 31, 2019, or December 31, 2020)—

“(A) the shortfall amortization bases for all plan years preceding the first plan year beginning after December 31, 2021 (or after whichever earlier date is elected pursuant

to this paragraph), and all shortfall amortization installments determined with respect to such bases, shall be reduced to zero, and

“(B) subparagraphs (A) and (B) of paragraph (2) shall each be applied by substituting ‘15-plan-year period’ for ‘7-plan-year period’.”.

29 USC 1083. (b) 15-YEAR AMORTIZATION UNDER THE EMPLOYEE RETIREMENT INCOME SECURITY ACT OF 1974.—Section 303(c) of the Employee Retirement Income Security Act of 1974 (29 U.S.C. 1083(c)) is amended by adding at the end the following new paragraph:

“(8) 15-YEAR AMORTIZATION.—With respect to plan years beginning after December 31, 2021 (or, at the election of the plan sponsor, plan years beginning after December 31, 2018, December 31, 2019, or December 31, 2020)—

“(A) the shortfall amortization bases for all plan years preceding the first plan year beginning after December 31, 2021 (or after whichever earlier date is elected pursuant to this paragraph), and all shortfall amortization installments determined with respect to such bases, shall be reduced to zero, and

“(B) subparagraphs (A) and (B) of paragraph (2) shall each be applied by substituting ‘15-plan-year period’ for ‘7-plan-year period’.”.

26 USC 430 note. (c) EFFECTIVE DATE.—The amendments made by this section shall apply to plan years beginning after December 31, 2018.

SEC. 9706. EXTENSION OF PENSION FUNDING STABILIZATION PERCENTAGES FOR SINGLE EMPLOYER PLANS.

(a) AMENDMENT TO INTERNAL REVENUE CODE OF 1986.—

26 USC 430. (1) IN GENERAL.—The table contained in subclause (II) of section 430(h)(2)(C)(iv) of the Internal Revenue Code of 1986 is amended to read as follows:

“If the calendar year is:	The applicable minimum percentage is:	The applicable maximum percentage is:
Any year in the period starting in 2012 and ending in 2019	90%	110%
Any year in the period starting in 2020 and ending in 2025	95%	105%
2026	90%	110%
2027	85%	115%
2028	80%	120%
2029	75%	125%
After 2029	70%	130%.”.

(2) FLOOR ON 25-YEAR AVERAGES.—Subclause (I) of section 430(h)(2)(C)(iv) of such Code is amended by adding at the end the following: “Notwithstanding anything in this subclause, if the average of the first, second, or third segment rate for any 25-year period is less than 5 percent, such average shall be deemed to be 5 percent.”.

(b) AMENDMENTS TO EMPLOYEE RETIREMENT INCOME SECURITY ACT OF 1974.—

(1) IN GENERAL.—The table contained in subclause (II) of section 303(h)(2)(C)(iv) of the Employee Retirement Income Security Act of 1974 (29 U.S.C. 1083(h)(2)(C)(iv)(II)) is amended to read as follows:

“If the calendar year is:	The appli- cable min- imum per- centage is:	The appli- cable max- imum per- centage is:
Any year in the period starting in 2012 and ending in 2019	90%	110%
Any year in the period starting in 2020 and ending in 2025	95%	105%
2026	90%	110%
2027	85%	115%
2028	80%	120%
2029	75%	125%
After 2029	70%	130%.”.

(2) FLOOR ON 25-YEAR AVERAGES.—Subclause (I) of section 303(h)(2)(C)(iv) of such Act (29 U.S.C. 1083(h)(2)(C)(iv)(I)) is amended by adding at the end the following: “Notwithstanding anything in this subclause, if the average of the first, second, or third segment rate for any 25-year period is less than 5 percent, such average shall be deemed to be 5 percent.”.

(3) CONFORMING AMENDMENTS.—

(A) IN GENERAL.—Section 101(f)(2)(D) of such Act (29 U.S.C. 1021(f)(2)(D)) is amended—

(i) in clause (i) by striking “and the Bipartisan Budget Act of 2015” both places it appears and inserting “, the Bipartisan Budget Act of 2015, and the American Rescue Plan Act of 2021”, and

(ii) in clause (ii) by striking “2023” and inserting “2029”.

(B) STATEMENTS.—The Secretary of Labor shall modify the statements required under subclauses (I) and (II) of section 101(f)(2)(D)(i) of such Act to conform to the amendments made by this section.

29 USC 1021
note.

(c) EFFECTIVE DATE.—

(1) IN GENERAL.—The amendments made by this section shall apply with respect to plan years beginning after December 31, 2019.

26 USC 430 note.

(2) ELECTION NOT TO APPLY.—A plan sponsor may elect not to have the amendments made by this section apply to any plan year beginning before January 1, 2022, either (as specified in the election)—

(A) for all purposes for which such amendments apply,
or

(B) solely for purposes of determining the adjusted funding target attainment percentage under sections 436 of the Internal Revenue Code of 1986 and 206(g) of the

Determination.

Employee Retirement Income Security Act of 1974 for such plan year.

A plan shall not be treated as failing to meet the requirements of sections 204(g) of such Act and 411(d)(6) of such Code solely by reason of an election under this paragraph.

Definitions. **SEC. 9707. MODIFICATION OF SPECIAL RULES FOR MINIMUM FUNDING STANDARDS FOR COMMUNITY NEWSPAPER PLANS.**

29 USC 430. (a) AMENDMENT TO INTERNAL REVENUE CODE OF 1986.—Subsection (m) of section 430 of the Internal Revenue Code of 1986 is amended to read as follows:

Effective date. “(m) SPECIAL RULES FOR COMMUNITY NEWSPAPER PLANS.—
“(1) IN GENERAL.—An eligible newspaper plan sponsor of a plan under which no participant has had the participant’s accrued benefit increased (whether because of service or compensation) after April 2, 2019, may elect to have the alternative standards described in paragraph (4) apply to such plan.

Effective date. “(2) ELIGIBLE NEWSPAPER PLAN SPONSOR.—The term ‘eligible newspaper plan sponsor’ means the plan sponsor of—
“(A) any community newspaper plan, or

Effective date. “(B) any other plan sponsored, as of April 2, 2019, by a member of the same controlled group of a plan sponsor of a community newspaper plan if such member is in the trade or business of publishing 1 or more newspapers.

Applicability. “(3) ELECTION.—An election under paragraph (1) shall be made at such time and in such manner as prescribed by the Secretary. Such election, once made with respect to a plan year, shall apply to all subsequent plan years unless revoked with the consent of the Secretary.

“(4) ALTERNATIVE MINIMUM FUNDING STANDARDS.—The alternative standards described in this paragraph are the following:

Determination. “(A) INTEREST RATES.—
“(i) IN GENERAL.—Notwithstanding subsection (h)(2)(C) and except as provided in clause (ii), the first, second, and third segment rates in effect for any month for purposes of this section shall be 8 percent.

“(ii) NEW BENEFIT ACCRUALS.—Notwithstanding subsection (h)(2), for purposes of determining the funding target and normal cost of a plan for any plan year, the present value of any benefits accrued or earned under the plan for a plan year with respect to which an election under paragraph (1) is in effect shall be determined on the basis of the United States Treasury obligation yield curve for the day that is the valuation date of such plan for such plan year.

“(iii) UNITED STATES TREASURY OBLIGATION YIELD CURVE.—For purposes of this subsection, the term ‘United States Treasury obligation yield curve’ means, with respect to any day, a yield curve which shall be prescribed by the Secretary for such day on interest-bearing obligations of the United States.

Applicability. “(B) SHORTFALL AMORTIZATION BASE.—
“(i) PREVIOUS SHORTFALL AMORTIZATION BASES.—The shortfall amortization bases determined under subsection (c)(3) for all plan years preceding the first plan year to which the election under paragraph (1)

applies (and all shortfall amortization installments determined with respect to such bases) shall be reduced to zero under rules similar to the rules of subsection (c)(6).

“(ii) NEW SHORTFALL AMORTIZATION BASE.—Notwithstanding subsection (c)(3), the shortfall amortization base for the first plan year to which the election under paragraph (1) applies shall be the funding shortfall of such plan for such plan year (determined using the interest rates as modified under subparagraph (A)).

“(C) DETERMINATION OF SHORTFALL AMORTIZATION INSTALLMENTS.—

“(i) 30-YEAR PERIOD.—Subparagraphs (A) and (B) of subsection (c)(2) shall be applied by substituting ‘30-plan-year’ for ‘7-plan-year’ each place it appears.

“(ii) NO SPECIAL ELECTION.—The election under subparagraph (D) of subsection (c)(2) shall not apply to any plan year to which the election under paragraph (1) applies.

“(D) EXEMPTION FROM AT-RISK TREATMENT.—Subsection (i) shall not apply.

“(5) COMMUNITY NEWSPAPER PLAN.—For purposes of this subsection—

“(A) IN GENERAL.—The term ‘community newspaper plan’ means any plan to which this section applies maintained as of December 31, 2018, by an employer which—

“(i) maintains the plan on behalf of participants and beneficiaries with respect to employment in the trade or business of publishing 1 or more newspapers which were published by the employer at any time during the 11-year period ending on December 20, 2019,

“(ii)(I) is not a company the stock of which is publicly traded (on a stock exchange or in an over-the-counter market), and is not controlled, directly or indirectly, by such a company, or

“(II) is controlled, directly or indirectly, during the entire 30-year period ending on December 20, 2019, by individuals who are members of the same family, and does not publish or distribute a daily newspaper that is carrier-distributed in printed form in more than 5 States, and

“(iii) is controlled, directly or indirectly—

“(I) by 1 or more persons residing primarily in a State in which the community newspaper has been published on newsprint or carrier-distributed,

“(II) during the entire 30-year period ending on December 20, 2019, by individuals who are members of the same family,

“(III) by 1 or more trusts, the sole trustees of which are persons described in subclause (I) or (II), or

“(IV) by a combination of persons described in subclause (I), (II), or (III).

Effective date.
Time periods.

	<p>“(B) NEWSPAPER.—The term ‘newspaper’ does not include any newspaper (determined without regard to this subparagraph) to which any of the following apply:</p> <p>“(i) Is not in general circulation.</p> <p>“(ii) Is published (on newsprint or electronically) less frequently than 3 times per week.</p> <p>“(iii) Has not ever been regularly published on newsprint.</p> <p>“(iv) Does not have a bona fide list of paid subscribers.</p> <p>“(C) CONTROL.—A person shall be treated as controlled by another person if such other person possesses, directly or indirectly, the power to direct or cause the direction and management of such person (including the power to elect a majority of the members of the board of directors of such person) through the ownership of voting securities.</p>
Time period.	
Effective date.	<p>“(6) CONTROLLED GROUP.—For purposes of this subsection, the term ‘controlled group’ means all persons treated as a single employer under subsection (b), (c), (m), or (o) of section 414 as of December 20, 2019.”</p> <p>(b) AMENDMENT TO EMPLOYEE RETIREMENT INCOME SECURITY ACT OF 1974.—Subsection (m) of section 303 of the Employee Retirement Income Security Act of 1974 (29 U.S.C. 1083(m)) is amended to read as follows:</p> <p>“(m) SPECIAL RULES FOR COMMUNITY NEWSPAPER PLANS.—</p> <p>“(1) IN GENERAL.—An eligible newspaper plan sponsor of a plan under which no participant has had the participant’s accrued benefit increased (whether because of service or compensation) after April 2, 2019, may elect to have the alternative standards described in paragraph (4) apply to such plan.</p> <p>“(2) ELIGIBLE NEWSPAPER PLAN SPONSOR.—The term ‘eligible newspaper plan sponsor’ means the plan sponsor of—</p> <p>“(A) any community newspaper plan, or</p> <p>“(B) any other plan sponsored, as of April 2, 2019, by a member of the same controlled group of a plan sponsor of a community newspaper plan if such member is in the trade or business of publishing 1 or more newspapers.</p> <p>“(3) ELECTION.—An election under paragraph (1) shall be made at such time and in such manner as prescribed by the Secretary of the Treasury. Such election, once made with respect to a plan year, shall apply to all subsequent plan years unless revoked with the consent of the Secretary of the Treasury.</p> <p>“(4) ALTERNATIVE MINIMUM FUNDING STANDARDS.—The alternative standards described in this paragraph are the following:</p> <p>“(A) INTEREST RATES.—</p> <p>“(i) IN GENERAL.—Notwithstanding subsection (h)(2)(C) and except as provided in clause (ii), the first, second, and third segment rates in effect for any month for purposes of this section shall be 8 percent.</p> <p>“(ii) NEW BENEFIT ACCRUALS.—Notwithstanding subsection (h)(2), for purposes of determining the funding target and normal cost of a plan for any plan year, the present value of any benefits accrued or earned under the plan for a plan year with respect to which an election under paragraph (1) is in effect</p>
Effective date. Applicability.	
Effective date.	
Applicability.	
Determination.	

shall be determined on the basis of the United States Treasury obligation yield curve for the day that is the valuation date of such plan for such plan year.

“(iii) UNITED STATES TREASURY OBLIGATION YIELD CURVE.—For purposes of this subsection, the term ‘United States Treasury obligation yield curve’ means, with respect to any day, a yield curve which shall be prescribed by the Secretary of the Treasury for such day on interest-bearing obligations of the United States.

“(B) SHORTFALL AMORTIZATION BASE.—

Applicability.

“(i) PREVIOUS SHORTFALL AMORTIZATION BASES.—The shortfall amortization bases determined under subsection (c)(3) for all plan years preceding the first plan year to which the election under paragraph (1) applies (and all shortfall amortization installments determined with respect to such bases) shall be reduced to zero under rules similar to the rules of subsection (c)(6).

“(ii) NEW SHORTFALL AMORTIZATION BASE.—Notwithstanding subsection (c)(3), the shortfall amortization base for the first plan year to which the election under paragraph (1) applies shall be the funding shortfall of such plan for such plan year (determined using the interest rates as modified under subparagraph (A)).

“(C) DETERMINATION OF SHORTFALL AMORTIZATION INSTALLMENTS.—

“(i) 30-YEAR PERIOD.—Subparagraphs (A) and (B) of subsection (c)(2) shall be applied by substituting ‘30-plan-year’ for ‘7-plan-year’ each place it appears.

Applicability.

“(ii) NO SPECIAL ELECTION.—The election under subparagraph (D) of subsection (c)(2) shall not apply to any plan year to which the election under paragraph (1) applies.

“(D) EXEMPTION FROM AT-RISK TREATMENT.—Subsection (i) shall not apply.

“(5) COMMUNITY NEWSPAPER PLAN.—For purposes of this subsection—

“(A) IN GENERAL.—The term ‘community newspaper plan’ means a plan to which this section applies maintained as of December 31, 2018, by an employer which—

Effective date.
Time periods.

“(i) maintains the plan on behalf of participants and beneficiaries with respect to employment in the trade or business of publishing 1 or more newspapers which were published by the employer at any time during the 11-year period ending on December 20, 2019,

“(ii)(I) is not a company the stock of which is publicly traded (on a stock exchange or in an over-the-counter market), and is not controlled, directly or indirectly, by such a company, or

“(II) is controlled, directly, or indirectly, during the entire 30-year period ending on December 20, 2019, by individuals who are members of the same family, and does not publish or distribute a daily newspaper that is carrier-distributed in printed form in more than 5 States, and

“(iii) is controlled, directly, or indirectly—

“(I) by 1 or more persons residing primarily in a State in which the community newspaper has been published on newsprint or carrier-distributed,

“(II) during the entire 30-year period ending on December 20, 2019, by individuals who are members of the same family,

“(III) by 1 or more trusts, the sole trustees of which are persons described in subclause (I) or (II), or

“(IV) by a combination of persons described in subclause (I), (II), or (III).

“(B) NEWSPAPER.—The term ‘newspaper’ does not include any newspaper (determined without regard to this subparagraph) to which any of the following apply:

“(i) Is not in general circulation.

Time period.

“(ii) Is published (on newsprint or electronically) less frequently than 3 times per week.

“(iii) Has not ever been regularly published on newsprint.

“(iv) Does not have a bona fide list of paid subscribers.

“(C) CONTROL.—A person shall be treated as controlled by another person if such other person possesses, directly or indirectly, the power to direct or cause the direction and management of such person (including the power to elect a majority of the members of the board of directors of such person) through the ownership of voting securities.

Effective date.

“(6) CONTROLLED GROUP.—For purposes of this subsection, the term ‘controlled group’ means all persons treated as a single employer under subsection (b), (c), (m), or (o) of section 414 of the Internal Revenue Code of 1986 as of December 20, 2019.

“(7) EFFECT ON PREMIUM RATE CALCULATION.—In the case of a plan for which an election is made to apply the alternative standards described in paragraph (3), the additional premium under section 4006(a)(3)(E) shall be determined as if such election had not been made.”

26 USC 430 note.

(c) EFFECTIVE DATE.—The amendments made by this section shall apply to plan years ending after December 31, 2017.

SEC. 9708. EXPANSION OF LIMITATION ON EXCESSIVE EMPLOYEE REMUNERATION.

26 USC 162.

Paragraph (3) of section 162(m) of the Internal Revenue Code of 1986 is amended—

(1) by redesignating subparagraph (C) as subparagraph (D),

(2) by striking “or” at the end of subparagraph (B),

(3) by inserting after subparagraph (B) the following new subparagraph:

“(C) in the case of taxable years beginning after December 31, 2026, such employee is among the 5 highest compensated employees for the taxable year other than any individual described in subparagraph (A) or (B), or”, and

(4) by striking “employee” in subparagraph (D), as so redesignated, and inserting “employee described in subparagraph (A) or (B)”.

Subtitle I—Child Care for Workers

SEC. 9801. CHILD CARE ASSISTANCE.

(a) APPROPRIATION.—

(1) IN GENERAL.—Section 418(a)(3) of the Social Security Act (42 U.S.C. 618(a)(3)) is amended to read as follows:

“(3) APPROPRIATION.—For grants under this section, there are appropriated \$3,550,000,000 for each fiscal year, of which—

“(A) \$3,375,000,000 shall be available for grants to States;

“(B) \$100,000,000 shall be available for grants to Indian tribes and tribal organizations; and

“(C) \$75,000,000 shall be available for grants to territories.”.

(2) CONFORMING AMENDMENT.—Section 418(a)(2)(A) of such Act (42 U.S.C. 618(a)(2)(A)) is amended by striking “paragraph (3), and remaining after the reservation described in paragraph (4) and” and inserting “paragraph (3)(A).”.

(b) MODIFICATION OF STATE MATCH REQUIREMENT FOR FUNDING INCREASES IN FISCAL YEARS 2021 AND 2022.—With respect to the amounts made available by section 418(a)(3) of the Social Security Act for each of fiscal years 2021 and 2022, section 418(a)(2)(C) of such Act shall be applied and administered with respect to any State that is entitled to receive the entire amount that would be allotted to the State under section 418(a)(2)(B) of such Act for the fiscal year in the manner authorized for fiscal year 2020, as if the Federal medical assistance percentage for the State for the fiscal year were 100 percent.

(c) FUNDING FOR THE TERRITORIES.—Section 418(a)(4) of such Act (42 U.S.C. 618(a)(4)) is amended to read as follows:

“(4) TERRITORIES.—

“(A) GRANTS.—The Secretary shall use the amounts made available by paragraph (3)(C) to make grants to the territories under this paragraph.

“(B) ALLOTMENTS.—The amount described in subparagraph (A) shall be allotted among the territories in proportion to their respective needs.

“(C) REDISTRIBUTION.—The 1st sentence of clause (i) and clause (ii) of paragraph (2)(D) shall apply with respect to the amounts allotted to the territories under this paragraph, except that the 2nd sentence of paragraph (2)(D) shall not apply and the amounts allotted to the territories that are available for redistribution for a fiscal year shall be redistributed to each territory that applies for the additional amounts, to the extent that the Secretary determines that the territory will be able to use the additional amounts to provide child care assistance, in an amount that bears the same ratio to the amount so available for redistribution as the amount allotted to the territory for the fiscal year bears to the total amount allotted to all the territories receiving redistributed funds under this paragraph for the fiscal year.

Applicability.
26 USC 618 note.

Applicability.
Determination.

Definition. “(D) INAPPLICABILITY OF PAYMENT LIMITATION.— Section 1108(a) shall not apply with respect to any amount paid under this paragraph.
“(E) TERRITORY.—In this paragraph, the term ‘territory’ means the Commonwealth of Puerto Rico, the United States Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.”

Subtitle J—Medicaid

SEC. 9811. MANDATORY COVERAGE OF COVID-19 VACCINES AND ADMINISTRATION AND TREATMENT UNDER MEDICAID.

Time periods.

(a) COVERAGE.—

(1) IN GENERAL.—Section 1905(a)(4) of the Social Security Act (42 U.S.C. 1396d(a)(4)) is amended by striking the semicolon at the end and inserting “; and (E) during the period beginning on the date of the enactment of the American Rescue Plan Act of 2021 and ending on the last day of the first calendar quarter that begins one year after the last day of the emergency period described in section 1135(g)(1)(B), a COVID-19 vaccine and administration of the vaccine; and (F) during the period beginning on the date of the enactment of the American Rescue Plan Act of 2021 and ending on the last day of the first calendar quarter that begins one year after the last day of the emergency period described in section 1135(g)(1)(B), testing and treatments for COVID-19, including specialized equipment and therapies (including preventive therapies), and, without regard to the requirements of section 1902(a)(10)(B) (relating to comparability), in the case of an individual who is diagnosed with or presumed to have COVID-19, during the period such individual has (or is presumed to have) COVID-19, the treatment of a condition that may seriously complicate the treatment of COVID-19, if otherwise covered under the State plan (or waiver of such plan);”.

(2) MAKING COVID-19 VACCINE AVAILABLE TO ADDITIONAL ELIGIBILITY GROUPS AND TREATMENT AVAILABLE TO CERTAIN UNINSURED.—Section 1902(a)(10) of such Act (42 U.S.C. 1396a(a)(10)) is amended in the matter following subparagraph (G)—

(A) by striking “and to other conditions which may complicate pregnancy, (VIII)” and inserting “; medical assistance for services related to other conditions which may complicate pregnancy, and medical assistance for vaccines described in section 1905(a)(4)(E) and the administration of such vaccines during the period described in such section, (VIII)”;

(B) by inserting “and medical assistance for vaccines described in section 1905(a)(4)(E) and the administration of such vaccines during the period described in such section” after “(described in subsection (z)(2))”;

(C) by inserting “and medical assistance for vaccines described in section 1905(a)(4)(E) and the administration of such vaccines during the period described in such section” after “described in subsection (k)(1)”;

(D) by inserting “and medical assistance for vaccines described in section 1905(a)(4)(E) and the administration

of such vaccines during the period described in such section” after “family planning setting”;

(E) by striking “and any visit described in section 1916(a)(2)(G) that is furnished during any such portion” and inserting “, any service described in section 1916(a)(2)(G) that is furnished during any such portion, any vaccine described in section 1905(a)(4)(E) (and the administration of such vaccine) that is furnished during any such portion, and testing and treatments for COVID-19, including specialized equipment and therapies (including preventive therapies), and, in the case of an individual who is diagnosed with or presumed to have COVID-19, during the period such individual has (or is presumed to have) COVID-19, the treatment of a condition that may seriously complicate the treatment of COVID-19, if otherwise covered under the State plan (or waiver of such plan)”;

(F) by striking the semicolon at the end and inserting “, and (XIX) medical assistance shall be made available during the period described in section 1905(a)(4)(E) for vaccines described in such section and the administration of such vaccines, for any individual who is eligible for and receiving medical assistance under the State plan or under a waiver of such plan (other than an individual who is eligible for medical assistance consisting only of payment of premiums pursuant to subparagraph (E) or (F) or section 1933), notwithstanding any provision of this title or waiver under section 1115 impacting such individual’s eligibility for medical assistance under such plan or waiver to coverage for a limited type of benefits and services that would not otherwise include coverage of a COVID-19 vaccine and its administration;”.

(3) PROHIBITION OF COST SHARING.—

(A) IN GENERAL.—Subsections (a)(2) and (b)(2) of section 1916 of the Social Security Act (42 U.S.C. 1396o) are each amended—

(i) in subparagraph (F), by striking “or” at the end;

(ii) in subparagraph (G), by striking “; and”; and

(iii) by adding at the end the following subparagraphs:

“(H) during the period beginning on the date of the enactment of this subparagraph and ending on the last day of the first calendar quarter that begins one year after the last day of the emergency period described in section 1135(g)(1)(B), a COVID-19 vaccine and the administration of such vaccine (for any individual eligible for medical assistance for such vaccine (and administration)); or

“(I) during the period beginning on the date of the enactment of this subparagraph and ending on the last day of the first calendar quarter that begins one year after the last day of the emergency period described in section 1135(g)(1)(B), testing and treatments for COVID-19, including specialized equipment and therapies (including preventive therapies), and, in the case of an individual who is diagnosed with or presumed to have COVID-19, during the period during which such individual

has (or is presumed to have) COVID-19, the treatment of a condition that may seriously complicate the treatment of COVID-19, if otherwise covered under the State plan (or waiver of such plan); and”.

(B) APPLICATION TO ALTERNATIVE COST SHARING.—Section 1916A(b)(3)(B) of the Social Security Act (42 U.S.C. 1396o-1(b)(3)(B)) is amended—

(i) in clause (xi), by striking “any visit” and inserting “any service”; and

(ii) by adding at the end the following clauses:

“(xii) During the period beginning on the date of the enactment of this clause and ending on the last day of the first calendar quarter that begins one year after the last day of the emergency period described in section 1135(g)(1)(B), a COVID-19 vaccine and the administration of such vaccine (for any individual eligible for medical assistance for such vaccine (and administration)).

“(xiii) During the period beginning on the date of the enactment of this clause and ending on the last day of the first calendar quarter that begins one year after the last day of the emergency period described in section 1135(g)(1)(B), testing and treatments for COVID-19, including specialized equipment and therapies (including preventive therapies), and, in the case of an individual who is diagnosed with or presumed to have COVID-19, during the period during which such individual has (or is presumed to have) COVID-19, the treatment of a condition that may seriously complicate the treatment of COVID-19, if otherwise covered under the State plan (or waiver of such plan).”.

(4) INCLUSION IN THE MEDICAID DRUG REBATE PROGRAM OF COVERED OUTPATIENT DRUGS USED FOR COVID-19 TREATMENT.—

(A) IN GENERAL.—The requirements of section 1927 of the Social Security Act (42 U.S.C. 1396r-8) shall apply to any drug or biological product to which subparagraph (F) of section 1905(a)(4) of such Act, as added by paragraph (1), applies or to which the subclause (XVIII) in the matter following subparagraph (G) of section 1902(a)(10) of such Act, as added by paragraph (2), applies that is—

(i) furnished as medical assistance in accordance with section 1902(a)(10)(A) of such Act and such subparagraph (F) or subclause (XVIII) and section 1902(a)(10)(A) of such Act, as applicable, for the treatment, or prevention, of COVID-19, as described in such subparagraph or subclause, respectively; and

(ii) a covered outpatient drug (as defined in section 1927(k) of such Act, except that, in applying paragraph (2)(A) of such section to a drug to which such subparagraph (F) or such subclause (XVIII) applies, such drug shall be deemed a prescribed drug for purposes of section 1905(a)(12) of such Act).

(B) CONFORMING AMENDMENT.—Section 1927(d)(7) of the Social Security Act (42 U.S.C. 1396r-8(d)(7)) is

Applicability.
42 USC 1396r-8
note.

amended by adding at the end the following new subparagraph:

“(E) Drugs and biological products to which section 1905(a)(4)(F) and subclause (XVIII) in the matter following subparagraph (G) of section 1902(a)(10) apply that are furnished as medical assistance in accordance with such section or clause, respectively, for the treatment or prevention, of COVID-19, as described in such subparagraph or subclause, respectively, and section 1902(a)(10)(A).”.

(5) ALTERNATIVE BENEFIT PLANS.—Section 1937(b) of the Social Security Act (42 U.S.C. 1396u-7(b)) is amended by adding at the end the following new paragraph:

“(8) COVID-19 VACCINES, TESTING, AND TREATMENT.—Notwithstanding the previous provisions of this section, a State may not provide for medical assistance through enrollment of an individual with benchmark coverage or benchmark-equivalent coverage under this section unless, during the period beginning on the date of the enactment of the American Rescue Plan Act of 2021 and ending on the last day of the first calendar quarter that begins one year after the last day of the emergency period described in section 1135(g)(1)(B), such coverage includes (and does not impose any deduction, cost sharing, or similar charge for)—

“(A) COVID-19 vaccines and administration of the vaccines; and

“(B) testing and treatments for COVID-19, including specialized equipment and therapies (including preventive therapies), and, in the case of such an individual who is diagnosed with or presumed to have COVID-19, during the period such individual has (or is presumed to have) COVID-19, the treatment of a condition that may seriously complicate the treatment of COVID-19, if otherwise covered under the State plan (or waiver of such plan).”.

(b) TEMPORARY INCREASE IN FEDERAL PAYMENTS FOR COVERAGE AND ADMINISTRATION OF COVID-19 VACCINES.—Section 1905 of the Social Security Act (42 U.S.C. 1396d) is amended—

(1) in subsection (b), by striking “and (ff)” and inserting “(ff), and (hh)”;

(2) in subsection (ff), in the matter preceding paragraph (1), by inserting “, subject to subsection (hh)” after “or (z)(2)” and

(3) by adding at the end the following new subsection:
“(hh) TEMPORARY INCREASED FMAP FOR MEDICAL ASSISTANCE FOR COVERAGE AND ADMINISTRATION OF COVID-19 VACCINES.—

“(1) IN GENERAL.—Notwithstanding any other provision of this title, during the period described in paragraph (2), the Federal medical assistance percentage for a State, with respect to amounts expended by the State for medical assistance for a vaccine described in subsection (a)(4)(E) (and the administration of such a vaccine), shall be equal to 100 percent.

“(2) PERIOD DESCRIBED.—The period described in this paragraph is the period that—

“(A) begins on the first day of the first quarter beginning after the date of the enactment of this subsection; and

“(B) ends on the last day of the first quarter that begins one year after the last day of the emergency period described in section 1135(g)(1)(B).

“(3) EXCLUSION OF EXPENDITURES FROM TERRITORIAL CAPS.—Any payment made to a territory for expenditures for medical assistance under subsection (a)(4)(E) that are subject to the Federal medical assistance percentage specified under paragraph (1) shall not be taken into account for purposes of applying payment limits under subsections (f) and (g) of section 1108.”

SEC. 9812. MODIFICATIONS TO CERTAIN COVERAGE UNDER MEDICAID FOR PREGNANT AND POSTPARTUM WOMEN.

(a) STATE OPTION.—Section 1902(e) of the Social Security Act (42 U.S.C. 1396a(e)) is amended by adding at the end the following new paragraph:

Time periods.

“(16) EXTENDING CERTAIN COVERAGE FOR PREGNANT AND POSTPARTUM WOMEN.—

“(A) IN GENERAL.—At the option of the State, the State plan (or waiver of such State plan) may provide, that an individual who, while pregnant, is eligible for and has received medical assistance under the State plan approved under this title (or a waiver of such plan) (including during a period of retroactive eligibility under subsection (a)(34)) shall, in addition to remaining eligible under paragraph (5) for all pregnancy-related and postpartum medical assistance available under the State plan (or waiver) through the last day of the month in which the 60-day period (beginning on the last day of her pregnancy) ends, remain eligible under the State plan (or waiver) for medical assistance for the period beginning on the first day occurring after the end of such 60-day period and ending on the last day of the month in which the 12-month period (beginning on the last day of her pregnancy) ends.

“(B) FULL BENEFITS DURING PREGNANCY AND THROUGHOUT THE 12-MONTH POSTPARTUM PERIOD.—The medical assistance provided for a pregnant or postpartum individual by a State making an election under this paragraph, without regard to the basis on which the individual is eligible for medical assistance under the State plan (or waiver), shall—

“(i) include all items and services covered under the State plan (or waiver) that are not less in amount, duration, or scope, or are determined by the Secretary to be substantially equivalent, to the medical assistance available for an individual described in subsection (a)(10)(A)(i); and

“(ii) be provided for the individual while pregnant and during the 12-month period that begins on the last day of the individual’s pregnancy and ends on the last day of the month in which such 12-month period ends.

“(C) COVERAGE UNDER CHIP.—A State making an election under this paragraph that covers under title XXI child health assistance for targeted low-income children who are pregnant or targeted low-income pregnant women, as

applicable, shall also make the election under section 2107(e)(1)(J) of such title.”.

(b) **EFFECTIVE DATE.**—The amendment made by subsection (a) shall apply with respect to State elections made under paragraph (16) of section 1902(e) of the Social Security Act (42 U.S.C. 1396a(e)), as added by subsection (a), during the 5-year period beginning on the 1st day of the 1st fiscal year quarter that begins one year after the date of the enactment of this Act.

Applicability.
Time period.
42 USC 1396a
note.

SEC. 9813. STATE OPTION TO PROVIDE QUALIFYING COMMUNITY-BASED MOBILE CRISIS INTERVENTION SERVICES.

Title XIX of the Social Security Act is amended by adding after section 1946 (42 U.S.C. 1396w-5) the following new section:

“SEC. 1947. STATE OPTION TO PROVIDE QUALIFYING COMMUNITY-BASED MOBILE CRISIS INTERVENTION SERVICES.

42 USC 1396w-6.

“(a) **IN GENERAL.**—Notwithstanding section 1902(a)(1) (relating to Statewideness), section 1902(a)(10)(B) (relating to comparability), section 1902(a)(23)(A) (relating to freedom of choice of providers), or section 1902(a)(27) (relating to provider agreements), a State may, during the 5-year period beginning on the first day of the first fiscal year quarter that begins on or after the date that is 1 year after the date of the enactment of this section, provide medical assistance for qualifying community-based mobile crisis intervention services.

Time period.

“(b) **QUALIFYING COMMUNITY-BASED MOBILE CRISIS INTERVENTION SERVICES DEFINED.**—For purposes of this section, the term ‘qualifying community-based mobile crisis intervention services’ means, with respect to a State, items and services for which medical assistance is available under the State plan under this title or a waiver of such plan, that are—

“(1) furnished to an individual otherwise eligible for medical assistance under the State plan (or waiver of such plan) who is—

“(A) outside of a hospital or other facility setting; and

“(B) experiencing a mental health or substance use disorder crisis;

“(2) furnished by a multidisciplinary mobile crisis team—

“(A) that includes at least 1 behavioral health care professional who is capable of conducting an assessment of the individual, in accordance with the professional’s permitted scope of practice under State law, and other professionals or paraprofessionals with appropriate expertise in behavioral health or mental health crisis response, including nurses, social workers, peer support specialists, and others, as designated by the State through a State plan amendment (or waiver of such plan);

“(B) whose members are trained in trauma-informed care, de-escalation strategies, and harm reduction;

“(C) that is able to respond in a timely manner and, where appropriate, provide—

“(i) screening and assessment;

“(ii) stabilization and de-escalation; and

“(iii) coordination with, and referrals to, health, social, and other services and supports as needed, and health services as needed;

“(D) that maintains relationships with relevant community partners, including medical and behavioral

health providers, primary care providers, community health centers, crisis respite centers, and managed care organizations (if applicable); and

“(E) that maintains the privacy and confidentiality of patient information consistent with Federal and State requirements; and

“(3) available 24 hours per day, every day of the year.

“(c) PAYMENTS.—Notwithstanding section 1905(b) or 1905(ff) and subject to subsections (y) and (z) of section 1905, during each of the first 12 fiscal quarters occurring during the period described in subsection (a) that a State meets the requirements described in subsection (d), the Federal medical assistance percentage applicable to amounts expended by the State for medical assistance for qualifying community-based mobile crisis intervention services furnished during such quarter shall be equal to 85 percent. In no case shall the application of the previous sentence result in the Federal medical assistance percentage applicable to amounts expended by a State for medical assistance for such qualifying community-based mobile crisis intervention services furnished during a quarter being less than the Federal medical assistance percentage that would apply to such amounts expended by the State for such services furnished during such quarter without application of the previous sentence.

“(d) REQUIREMENTS.—The requirements described in this subsection are the following:

“(1) The State demonstrates, to the satisfaction of the Secretary that it will be able to support the provision of qualifying community-based mobile crisis intervention services that meet the conditions specified in subsection (b).

“(2) The State provides assurances satisfactory to the Secretary that—

“(A) any additional Federal funds received by the State for qualifying community-based mobile crisis intervention services provided under this section that are attributable to the increased Federal medical assistance percentage under subsection (c) will be used to supplement, and not supplant, the level of State funds expended for such services for the fiscal year preceding the first fiscal quarter occurring during the period described in subsection (a);

“(B) if the State made qualifying community-based mobile crisis intervention services available in a region of the State in such fiscal year, the State will continue to make such services available in such region under this section during each month occurring during the period described in subsection (a) for which the Federal medical assistance percentage under subsection (c) is applicable with respect to the State.

“(e) FUNDING FOR STATE PLANNING GRANTS.—There is appropriated, out of any funds in the Treasury not otherwise appropriated, \$15,000,000 to the Secretary for purposes of implementing, administering, and making planning grants to States as soon as practicable for purposes of developing a State plan amendment or section 1115, 1915(b), or 1915(c) waiver request (or an amendment to such a waiver) to provide qualifying community-based mobile crisis intervention services under this section, to remain available until expended.”

SEC. 9814. TEMPORARY INCREASE IN FMAP FOR MEDICAL ASSISTANCE UNDER STATE MEDICAID PLANS WHICH BEGIN TO EXPEND AMOUNTS FOR CERTAIN MANDATORY INDIVIDUALS.

Section 1905 of the Social Security Act (42 U.S.C. 1396d), as amended by section 9811 of this subtitle, is further amended—

(1) in subsection (b), in the first sentence, by striking “and (hh)” and inserting “(hh), and (ii)”;

(2) in subsection (ff), by striking “subject to subsection (hh)” and inserting “subject to subsections (hh) and (ii)”;

(3) by adding at the end the following new subsection:

“(ii) TEMPORARY INCREASE IN FMAP FOR MEDICAL ASSISTANCE UNDER STATE MEDICAID PLANS WHICH BEGIN TO EXPEND AMOUNTS FOR CERTAIN MANDATORY INDIVIDUALS.—

“(1) IN GENERAL.—For each quarter occurring during the 8-quarter period beginning with the first calendar quarter during which a qualifying State (as defined in paragraph (3)) expends amounts for all individuals described in section 1902(a)(10)(A)(i)(VIII) under the State plan (or waiver of such plan), the Federal medical assistance percentage determined under subsection (b) for such State shall, after application of any increase, if applicable, under section 6008 of the Families First Coronavirus Response Act, be increased by 5 percentage points, except for any quarter (and each subsequent quarter) during such period during which the State ceases to provide medical assistance to any such individual under the State plan (or waiver of such plan).

Time periods.

“(2) SPECIAL APPLICATION RULES.—Any increase described in paragraph (1) (or payment made for expenditures on medical assistance that are subject to such increase)—

“(A) shall not apply with respect to disproportionate share hospital payments described in section 1923;

“(B) shall not be taken into account in calculating the enhanced FMAP of a State under section 2105;

“(C) shall not be taken into account for purposes of part A, D, or E of title IV; and

“(D) shall not be taken into account for purposes of applying payment limits under subsections (f) and (g) of section 1108.

“(3) DEFINITION.—For purposes of this subsection, the term ‘qualifying State’ means a State which has not expended amounts for all individuals described in section 1902(a)(10)(A)(i)(VIII) before the date of the enactment of this subsection.”.

SEC. 9815. EXTENSION OF 100 PERCENT FEDERAL MEDICAL ASSISTANCE PERCENTAGE TO URBAN INDIAN HEALTH ORGANIZATIONS AND NATIVE HAWAIIAN HEALTH CARE SYSTEMS.

Section 1905(b) of the Social Security Act (42 U.S.C. 1396d(b)) is amended by inserting after “(as defined in section 4 of the Indian Health Care Improvement Act)” the following: “; for the 8 fiscal year quarters beginning with the first fiscal year quarter beginning after the date of the enactment of the American Rescue Plan Act of 2021, the Federal medical assistance percentage shall also be 100 per centum with respect to amounts expended as medical assistance for services which are received through an Urban

Time periods.

Indian organization (as defined in paragraph (29) of section 4 of the Indian Health Care Improvement Act) that has a grant or contract with the Indian Health Service under title V of such Act; and, for such 8 fiscal year quarters, the Federal medical assistance percentage shall also be 100 per centum with respect to amounts expended as medical assistance for services which are received through a Native Hawaiian Health Center (as defined in section 12(4) of the Native Hawaiian Health Care Improvement Act) or a qualified entity (as defined in section 6(b) of such Act) that has a grant or contract with the Papa Ola Lokahi under section 8 of such Act”.

SEC. 9816. SUNSET OF LIMIT ON MAXIMUM REBATE AMOUNT FOR SINGLE SOURCE DRUGS AND INNOVATOR MULTIPLE SOURCE DRUGS.

Section 1927(c)(2)(D) of the Social Security Act (42 U.S.C. 1396r-8(c)(2)(D)) is amended by inserting after “December 31, 2009,” the following: “and before January 1, 2024.”.

42 USC 1396d
note.

SEC. 9817. ADDITIONAL SUPPORT FOR MEDICAID HOME AND COMMUNITY-BASED SERVICES DURING THE COVID-19 EMERGENCY.

(a) INCREASED FMAP.—

(1) IN GENERAL.—Notwithstanding section 1905(b) of the Social Security Act (42 U.S.C. 1396d(b)) or section 1905(ff), in the case of a State that meets the HCBS program requirements under subsection (b), the Federal medical assistance percentage determined for the State under section 1905(b) of such Act (or, if applicable, under section 1905(ff) and, if applicable, increased under subsection (y), (z), (aa), or (ii) of section 1905 of such Act (42 U.S.C. 1396d), section 1915(k) of such Act (42 U.S.C. 1396n(k)), or section 6008(a) of the Families First Coronavirus Response Act (Public Law 116-127), shall be increased by 10 percentage points with respect to expenditures of the State under the State Medicaid program for home and community-based services (as defined in paragraph (2)(B)) that are provided during the HCBS program improvement period (as defined in paragraph (2)(A)). In no case may the application of the previous sentence result in the Federal medical assistance percentage determined for a State being more than 95 percent with respect to such expenditures. Any payment made to Puerto Rico, the Virgin Islands, Guam, the Northern Mariana Islands, or American Samoa for expenditures on medical assistance that are subject to the Federal medical assistance percentage increase specified under the first sentence of this paragraph shall not be taken into account for purposes of applying payment limits under subsections (f) and (g) of section 1108 of the Social Security Act (42 U.S.C. 1308).

Territories.

(2) DEFINITIONS.—In this section:

Time period.

(A) HCBS PROGRAM IMPROVEMENT PERIOD.—The term “HCBS program improvement period” means, with respect to a State, the period—

(i) beginning on April 1, 2021; and

(ii) ending on March 31, 2022.

(B) HOME AND COMMUNITY-BASED SERVICES.—The term “home and community-based services” means any of the following:

(i) Home health care services authorized under paragraph (7) of section 1905(a) of the Social Security Act (42 U.S.C. 1396d(a)).

(ii) Personal care services authorized under paragraph (24) of such section.

(iii) PACE services authorized under paragraph (26) of such section.

(iv) Home and community-based services authorized under subsections (b), (c), (i), (j), and (k) of section 1915 of such Act (42 U.S.C. 1396n), such services authorized under a waiver under section 1115 of such Act (42 U.S.C. 1315), and such services through coverage authorized under section 1937 of such Act (42 U.S.C. 1396u-7).

(v) Case management services authorized under section 1905(a)(19) of the Social Security Act (42 U.S.C. 1396d(a)(19)) and section 1915(g) of such Act (42 U.S.C. 1396n(g)).

(vi) Rehabilitative services, including those related to behavioral health, described in section 1905(a)(13) of such Act (42 U.S.C. 1396d(a)(13)).

(vii) Such other services specified by the Secretary of Health and Human Services.

(C) ELIGIBLE INDIVIDUAL.—The term “eligible individual” means an individual who is eligible for and enrolled for medical assistance under a State Medicaid program and includes an individual who becomes eligible for medical assistance under a State Medicaid program when removed from a waiting list.

(D) MEDICAID PROGRAM.—The term “Medicaid program” means, with respect to a State, the State program under title XIX of the Social Security Act (42 U.S.C. 1396 et seq.) (including any waiver or demonstration under such title or under section 1115 of such Act (42 U.S.C. 1315) relating to such title).

(E) STATE.—The term “State” has the meaning given such term for purposes of title XIX of the Social Security Act (42 U.S.C. 1396 et seq.).

(b) STATE REQUIREMENTS FOR FMAP INCREASE.—As conditions for receipt of the increase under subsection (a) to the Federal medical assistance percentage determined for a State, the State shall meet each of the following requirements (referred to in subsection (a) as the HCBS program requirements):

(1) SUPPLEMENT, NOT SUPPLANT.—The State shall use the Federal funds attributable to the increase under subsection (a) to supplement, and not supplant, the level of State funds expended for home and community-based services for eligible individuals through programs in effect as of April 1, 2021.

(2) REQUIRED IMPLEMENTATION OF CERTAIN ACTIVITIES.—The State shall implement, or supplement the implementation of, one or more activities to enhance, expand, or strengthen home and community-based services under the State Medicaid program.

Effective date.

SEC. 9818. FUNDING FOR STATE STRIKE TEAMS FOR RESIDENT AND EMPLOYEE SAFETY IN NURSING FACILITIES.

Section 1919 of the Social Security Act (42 U.S.C. 1396r) is amended by adding at the end the following new subsection:

Time period.

“(k) **FUNDING FOR STATE STRIKE TEAMS.**—In addition to amounts otherwise available, there is appropriated to the Secretary, out of any monies in the Treasury not otherwise appropriated, \$250,000,000, to remain available until expended, for purposes of allocating such amount among the States (including the District of Columbia and each territory of the United States) for such a State to establish and implement a strike team that will be deployed to a nursing facility in the State with diagnosed or suspected cases of COVID-19 among residents or staff for the purposes of assisting with clinical care, infection control, or staffing during the emergency period described in section 1135(g)(1)(B) and the 1-year period immediately following the end of such emergency period.”

SEC. 9819. SPECIAL RULE FOR THE PERIOD OF A DECLARED PUBLIC HEALTH EMERGENCY RELATED TO CORONAVIRUS.

(a) **IN GENERAL.**—Section 1923(f)(3) of the Social Security Act (42 U.S.C. 1396r-4(f)(3)) is amended—

(1) in subparagraph (A), by striking “subparagraph (E)” and inserting “subparagraphs (E) and (F)” ; and

(2) by adding at the end the following new subparagraph:

“(F) **ALLOTMENTS DURING THE CORONAVIRUS TEMPORARY MEDICAID FMAP INCREASE.**—

“(i) **IN GENERAL.**—Notwithstanding any other provision of this subsection, for any fiscal year for which the Federal medical assistance percentage applicable to expenditures under this section is increased pursuant to section 6008 of the Families First Coronavirus Response Act, the Secretary shall recalculate the annual DSH allotment, including the DSH allotment specified under paragraph (6)(A)(vi), to ensure that the total DSH payments (including both Federal and State shares) that a State may make related to a fiscal year is equal to the total DSH payments that the State could have made for such fiscal year without such increase to the Federal medical assistance percentage.

Determination.

“(ii) **NO APPLICATION TO ALLOTMENTS BEGINNING AFTER COVID-19 EMERGENCY PERIOD.**—The DSH allotment for any State for the first fiscal year beginning after the end of the emergency period described in section 1135(g)(1)(B) or any succeeding fiscal year shall be determined under this paragraph without regard to the DSH allotments determined under clause (i).”

42 USC 1396r-4 note.

(b) **EFFECTIVE DATE.**—The amendment made by subsection (a) shall take effect and apply as if included in the enactment of the Families First Coronavirus Response Act (Public Law 116-127).

Subtitle K—Children’s Health Insurance Program

SEC. 9821. MANDATORY COVERAGE OF COVID-19 VACCINES AND ADMINISTRATION AND TREATMENT UNDER CHIP.

(a) COVERAGE.—

(1) IN GENERAL.—Section 2103(c) of the Social Security Act (42 U.S.C. 1397cc(c)) is amended by adding at the end the following paragraph:

“(11) REQUIRED COVERAGE OF COVID-19 VACCINES AND TREATMENT.—Regardless of the type of coverage elected by a State under subsection (a), the child health assistance provided for a targeted low-income child, and, in the case of a State that elects to provide pregnancy-related assistance pursuant to section 2112, the pregnancy-related assistance provided for a targeted low-income pregnant woman (as such terms are defined for purposes of such section), shall include coverage, during the period beginning on the date of the enactment of this paragraph and ending on the last day of the first calendar quarter that begins one year after the last day of the emergency period described in section 1135(g)(1)(B), of—

Time period.

“(A) a COVID-19 vaccine (and the administration of the vaccine); and

“(B) testing and treatments for COVID-19, including specialized equipment and therapies (including preventive therapies), and, in the case of an individual who is diagnosed with or presumed to have COVID-19, during the period during which such individual has (or is presumed to have) COVID-19, the treatment of a condition that may seriously complicate the treatment of COVID-19, if otherwise covered under the State child health plan (or waiver of such plan).”

(2) PROHIBITION OF COST SHARING.—Section 2103(e)(2) of the Social Security Act (42 U.S.C. 1397cc(e)(2)), as amended by section 6004(b)(3) of the Families First Coronavirus Response Act, is amended—

(A) in the paragraph header, by inserting “A COVID-19 VACCINE, COVID-19 TREATMENT,” before “OR PREGNANCY-RELATED ASSISTANCE”; and

(B) by striking “visits described in section 1916(a)(2)(G), or” and inserting “services described in section 1916(a)(2)(G), vaccines described in section 1916(a)(2)(H) administered during the period described in such section (and the administration of such vaccines), testing or treatments described in section 1916(a)(2)(I) furnished during the period described in such section, or”.

(b) TEMPORARY INCREASE IN FEDERAL PAYMENTS FOR COVERAGE AND ADMINISTRATION OF COVID-19 VACCINES.—Section 2105(c) of the Social Security Act (42 U.S.C. 1397ee(c)) is amended by adding at the end the following new paragraph:

“(12) TEMPORARY ENHANCED PAYMENT FOR COVERAGE AND ADMINISTRATION OF COVID-19 VACCINES.—During the period described in section 1905(hh)(2), notwithstanding subsection (b), the enhanced FMAP for a State, with respect to payments under subsection (a) for expenditures under the State child health plan (or a waiver of such plan) for a vaccine described

in section 1905(a)(4)(E) (and the administration of such a vaccine), shall be equal to 100 percent.”

(c) ADJUSTMENT OF CHIP ALLOTMENTS.—Section 2104(m) of the Social Security Act (42 U.S.C. 1397dd(m)) is amended—

(1) in paragraph (2)(B), in the matter preceding clause (i), by striking “paragraphs (5) and (7)” and inserting “paragraphs (5), (7), and (12)”; and

(2) by adding at the end the following new paragraph:

Effective date.

“(12) ADJUSTING ALLOTMENTS TO ACCOUNT FOR INCREASED FEDERAL PAYMENTS FOR COVERAGE AND ADMINISTRATION OF COVID-19 VACCINES.—If a State, commonwealth, or territory receives payment for a fiscal year (beginning with fiscal year 2021) under subsection (a) of section 2105 for expenditures that are subject to the enhanced FMAP specified under subsection (c)(12) of such section, the amount of the allotment determined for the State, commonwealth, or territory under this subsection—

“(A) for such fiscal year shall be increased by the projected expenditures for such year by the State, commonwealth, or territory under the State child health plan (or a waiver of such plan) for vaccines described in section 1905(a)(4)(E) (and the administration of such vaccines); and

“(B) once actual expenditures are available in the subsequent fiscal year, the fiscal year allotment that was adjusted by the amount described in subparagraph (A) shall be adjusted on the basis of the difference between—

“(i) such projected amount of expenditures described in subparagraph (A) for such fiscal year described in such subparagraph by the State, commonwealth, or territory; and

“(ii) the actual amount of expenditures for such fiscal year described in subparagraph (A) by the State, commonwealth, or territory under the State child health plan (or waiver of such plan) for vaccines described in section 1905(a)(4)(E) (and the administration of such vaccines).”

SEC. 9822. MODIFICATIONS TO CERTAIN COVERAGE UNDER CHIP FOR PREGNANT AND POSTPARTUM WOMEN.

(a) MODIFICATIONS TO COVERAGE.—

(1) IN GENERAL.—Section 2107(e)(1) of the Social Security Act (42 U.S.C. 1397gg(e)(1)) is amended—

(A) by redesignating subparagraphs (J) through (S) as subparagraphs (K) through (T), respectively; and

(B) by inserting after subparagraph (I) the following new subparagraph:

Time period.
Requirement.

“(J) Paragraphs (5) and (16) of section 1902(e) (relating to the State option to provide medical assistance consisting of full benefits during pregnancy and throughout the 12-month postpartum period under title XIX), if the State provides child health assistance for targeted low-income children who are pregnant or to targeted low-income pregnant women and the State has elected to apply such paragraph (16) with respect to pregnant women under title XIX, the provision of assistance under the State child health plan or waiver for targeted low-income children

or targeted low-income pregnant women during pregnancy and the 12-month postpartum period shall be required and not at the option of the State and shall include coverage of all items or services provided to a targeted low-income child or targeted low-income pregnant woman (as applicable) under the State child health plan or waiver.”.

(2) **OPTIONAL COVERAGE OF TARGETED LOW-INCOME PREGNANT WOMEN.**—Section 2112(d)(2)(A) of the Social Security Act (42 U.S.C. 1397ll(d)(2)(A)) is amended by inserting after “60-day period” the following: “, or, in the case that subparagraph (A) of section 1902(e)(16) applies to the State child health plan (or waiver of such plan), pursuant to section 2107(e)(1), the 12-month period.”.

(b) **EFFECTIVE DATE.**—The amendments made by subsection (a), shall apply with respect to State elections made under paragraph (16) of section 1902(e) of the Social Security Act (42 U.S.C. 1396a(e)), as added by section 9812(a) of subtitle J of this title, during the 5-year period beginning on the 1st day of the 1st fiscal year quarter that begins one year after the date of the enactment of this Act.

Applicability.
Time period.
42 USC 1397gg
note.

Subtitle L—Medicare

SEC. 9831. FLOOR ON THE MEDICARE AREA WAGE INDEX FOR HOSPITALS IN ALL-URBAN STATES.

(a) **IN GENERAL.**—Section 1886(d)(3)(E) of the Social Security Act (42 U.S.C. 1395ww(d)(3)(E)) is amended—

(1) in clause (i), in the first sentence, by striking “or (iii)” and inserting “, (iii), or (iv)”;

(2) by adding at the end the following new clause:

“(iv) **FLOOR ON AREA WAGE INDEX FOR HOSPITALS IN ALL-URBAN STATES.**—

“(I) **IN GENERAL.**—For discharges occurring on or after October 1, 2021, the area wage index applicable under this subparagraph to any hospital in an all-urban State (as defined in subclause (IV)) may not be less than the minimum area wage index for the fiscal year for hospitals in that State, as established under subclause (II).

“(II) **MINIMUM AREA WAGE INDEX.**—For purposes of subclause (I), the Secretary shall establish a minimum area wage index for a fiscal year for hospitals in each all-urban State using the methodology described in section 412.64(h)(4)(vi) of title 42, Code of Federal Regulations, as in effect for fiscal year 2018.

“(III) **WAIVING BUDGET NEUTRALITY.**—Pursuant to the fifth sentence of clause (i), this clause shall not be applied in a budget neutral manner.

“(IV) **ALL-URBAN STATE DEFINED.**—In this clause, the term ‘all-urban State’ means a State in which there are no rural areas (as defined in paragraph (2)(D)) or a State in which there are no hospitals classified as rural under this section.”.

Effective date.

(b) **WAIVING BUDGET NEUTRALITY.**—Section 1886(d)(3)(E)(i) of the Social Security Act (42 U.S.C. 1395ww(d)(3)(E)(i)) is amended, in the fifth sentence—

(1) by striking “and the amendments” and inserting “, the amendments”; and

(2) by inserting “, and the amendments made by section 9831(a) of the American Rescue Plan Act of 2021” after “Care Act”.

SEC. 9832. SECRETARIAL AUTHORITY TO TEMPORARILY WAIVE OR MODIFY APPLICATION OF CERTAIN MEDICARE REQUIREMENTS WITH RESPECT TO AMBULANCE SERVICES FURNISHED DURING CERTAIN EMERGENCY PERIODS.

(a) **WAIVER AUTHORITY.**—Section 1135(b) of the Social Security Act (42 U.S.C. 1320b-5(b)) is amended—

(1) in the first sentence—

(A) in paragraph (7), by striking “and” at the end;

(B) in paragraph (8), by striking the period at the end and inserting “; and”; and

(C) by inserting after paragraph (8) the following new paragraph:

“(9) any requirement under section 1861(s)(7) or section 1834(l) that an ambulance service include the transport of an individual to the extent necessary to allow payment for ground ambulance services furnished in response to a 911 call (or the equivalent in areas without a 911 call system) in cases in which an individual would have been transported to a destination permitted under Medicare regulations (as described in section 410.40 to title 42, Code of Federal Regulations (or successor regulations)) but such transport did not occur as a result of community-wide emergency medical service (EMS) protocols due to the public health emergency described in subsection (g)(1)(B).”; and

(2) in the flush matter at the end, by adding at the end the following: “Ground ambulance services for which payment is made pursuant to paragraph (9) shall be paid at the base rate that would have been paid under the fee schedule established under 1834(l) (excluding any mileage payment) if the individual had been so transported and, with respect to ambulance services furnished by a critical access hospital or an entity described in paragraph (8) of such section, at the amount that otherwise would be paid under such paragraph.”.

(b) **EMERGENCY PERIOD EXCEPTION.**—Section 1135(g)(1)(B) of the Social Security Act (42 U.S.C. 1320b-5(g)(1)(B)) is amended, in the matter preceding clause (i), by striking “subsection (b)(8)” and inserting “paragraphs (8) and (9) of subsection (b)”.

SEC. 9833. FUNDING FOR OFFICE OF INSPECTOR GENERAL.

In addition to amounts otherwise available, there is appropriated to the inspector general of the Department of Health and Human Services for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$5,000,000, to remain available until expended, for oversight of activities supported with funds appropriated to the Department of Health and Human Services to prevent, prepare for, and respond to coronavirus 2019 or COVID-19, domestically or internationally.

Subtitle M—Coronavirus State and Local Fiscal Recovery Funds

SEC. 9901. CORONAVIRUS STATE AND LOCAL FISCAL RECOVERY FUNDS.

(a) IN GENERAL.—Title VI of the Social Security Act (42 U.S.C. 801 et seq.) is amended by adding at the end the following:

“SEC. 602. CORONAVIRUS STATE FISCAL RECOVERY FUND.

42 USC 802.

“(a) APPROPRIATION.—In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated—

“(1) \$219,800,000,000, to remain available through December 31, 2024, for making payments under this section to States, territories, and Tribal governments to mitigate the fiscal effects stemming from the public health emergency with respect to the Coronavirus Disease (COVID-19); and

“(2) \$50,000,000, to remain available until expended, for the costs of the Secretary for administration of the funds established under this title.

“(b) AUTHORITY TO MAKE PAYMENTS.—

“(1) PAYMENTS TO TERRITORIES.—

“(A) IN GENERAL.—The Secretary shall reserve \$4,500,000,000 of the amount appropriated under subsection (a)(1) to make payments to the territories.

“(B) ALLOCATION.—Of the amount reserved under subparagraph (A)—

“(i) 50 percent of such amount shall be allocated by the Secretary equally to each territory; and

“(ii) 50 percent of such amount shall be allocated by the Secretary as an additional amount to each territory in an amount which bears the same proportion to ½ of the total amount reserved under subparagraph (A) as the population of the territory bears to the total population of all such territories.

“(C) PAYMENT.—The Secretary shall pay each territory the total of the amounts allocated for the territory under subparagraph (B) in accordance with paragraph (6).

“(2) PAYMENTS TO TRIBAL GOVERNMENTS.—

“(A) IN GENERAL.—The Secretary shall reserve \$20,000,000,000 of the amount appropriated under subsection (a)(1) to make payments to Tribal governments.

“(B) ALLOCATION.—Of the amount reserved under subparagraph (A)—

“(i) \$1,000,000,000 shall be allocated by the Secretary equally among each of the Tribal governments; and

“(ii) \$19,000,000,000 shall be allocated by the Secretary to the Tribal governments in a manner determined by the Secretary.

“(C) PAYMENT.—The Secretary shall pay each Tribal government the total of the amounts allocated for the Tribal government under subparagraph (B) in accordance with paragraph (6).

“(3) PAYMENTS TO EACH OF THE 50 STATES AND THE DISTRICT OF COLUMBIA.—

“(A) IN GENERAL.—The Secretary shall reserve \$195,300,000,000 of the amount appropriated under subsection (a)(1) to make payments to each of the 50 States and the District of Columbia.

“(B) ALLOCATIONS.—Of the amount reserved under subparagraph (A)—

“(i) \$25,500,000,000 of such amount shall be allocated by the Secretary equally among each of the 50 States and the District of Columbia;

“(ii) an amount equal to \$1,250,000,000 less the amount allocated for the District of Columbia pursuant to section 601(c)(6) shall be allocated by the Secretary as an additional amount to the District of Columbia; and

“(iii) an amount equal to the remainder of the amount reserved under subparagraph (A) after the application of clauses (i) and (ii) of this subparagraph shall be allocated by the Secretary as an additional amount to each of the 50 States and the District of Columbia in an amount which bears the same proportion to such remainder as the average estimated number of seasonally-adjusted unemployed individuals (as measured by the Bureau of Labor Statistics Local Area Unemployment Statistics program) in the State or District of Columbia over the 3-month period ending with December 2020 bears to the average estimated number of seasonally-adjusted unemployed individuals in all of the 50 States and the District of Columbia over the same period.

“(C) PAYMENT.—

“(i) IN GENERAL.—Subject to clause (ii), the Secretary shall pay each of the 50 States and the District of Columbia, from the amount reserved under subparagraph (A), the total of the amounts allocated for the State and District of Columbia under subparagraph (B) in accordance with paragraph (6).

“(ii) MINIMUM PAYMENT REQUIREMENT.—

“(I) IN GENERAL.—The sum of—

“(aa) the total amounts allocated for 1 of the 50 States or the District of Columbia under subparagraph (B) (as determined without regard to this clause); and

“(bb) the amounts allocated under section 603 to the State (for distribution by the State to nonentitlement units of local government in the State) and to metropolitan cities and counties in the State;

shall not be less than the amount allocated to the State or District of Columbia for fiscal year 2020 under section 601, including any amount paid directly to a unit of local government in the State under such section.

“(II) PRO RATA ADJUSTMENT.—The Secretary shall adjust on a pro rata basis the amount of the allocations for each of the 50 States and the District of Columbia determined under subparagraph (B)(iii) (without regard to this clause) to

Estimates.
Time period.

Determination.
Compliance.

the extent necessary to comply with the requirement of subclause (I).

“(4) PRO RATA ADJUSTMENT AUTHORITY.—The amounts otherwise determined for allocation and payment under paragraphs (1), (2), and (3) may be adjusted by the Secretary on a pro rata basis to the extent necessary to ensure that all available funds are allocated to States, territories, and Tribal governments in accordance with the requirements specified in each such paragraph (as applicable).

“(5) POPULATION DATA.—For purposes of determining allocations for a territory under this section, the population of the territory shall be determined based on the most recent data available from the Bureau of the Census.

Determination.

“(6) TIMING.—

Deadlines.

“(A) STATES AND TERRITORIES.—

“(i) IN GENERAL.—To the extent practicable, subject to clause (ii), with respect to each State and territory allocated a payment under this subsection, the Secretary shall make the payment required for the State or territory not later than 60 days after the date on which the certification required under subsection (d)(1) is provided to the Secretary.

“(ii) AUTHORITY TO SPLIT PAYMENT.—

“(I) IN GENERAL.—The Secretary shall have the authority to withhold payment of up to 50 percent of the amount allocated to each State and territory (other than payment of the amount allocated under paragraph (3)(B)(ii) to the District of Columbia) for a period of up to 12 months from the date on which the State or territory provides the certification required under subsection (d)(1). The Secretary shall exercise such authority with respect to a State or territory based on the unemployment rate in the State or territory as of such date.

Time period.

“(II) PAYMENT OF WITHHELD AMOUNT.—Before paying to a State or territory the remainder of an amount allocated to the State or territory (subject to subclause (III)) that has been withheld by the Secretary under subclause (I), the Secretary shall require the State or territory to submit a second certification under subsection (d)(1), in addition to such other information as the Secretary may require.

Requirement.

“(III) RECOVERY OF AMOUNTS SUBJECT TO RECOUPMENT.—If a State or territory is required under subsection (e) to repay funds for failing to comply with subsection (c), the Secretary may reduce the amount otherwise payable to the State or territory under subclause (II) by the amount that the State or territory would otherwise be required to repay under such subsection (e).

“(B) TRIBAL GOVERNMENTS.—To the extent practicable, with respect to each Tribal government for which an amount is allocated under this subsection, the Secretary shall make the payment required for the Tribal government

not later than 60 days after the date of enactment of this section.

“(C) INITIAL PAYMENT TO DISTRICT OF COLUMBIA.—The Secretary shall pay the amount allocated under paragraph (3)(B)(ii) to the District of Columbia not later than 15 days after the date of enactment of this section.

“(c) REQUIREMENTS.—

Deadline.

“(1) USE OF FUNDS.—Subject to paragraph (2), and except as provided in paragraph (3), a State, territory, or Tribal government shall only use the funds provided under a payment made under this section, or transferred pursuant to section 603(c)(4), to cover costs incurred by the State, territory, or Tribal government, by December 31, 2024—

“(A) to respond to the public health emergency with respect to the Coronavirus Disease 2019 (COVID-19) or its negative economic impacts, including assistance to households, small businesses, and nonprofits, or aid to impacted industries such as tourism, travel, and hospitality;

Grants.

“(B) to respond to workers performing essential work during the COVID-19 public health emergency by providing premium pay to eligible workers of the State, territory, or Tribal government that are performing such essential work, or by providing grants to eligible employers that have eligible workers who perform essential work;

“(C) for the provision of government services to the extent of the reduction in revenue of such State, territory, or Tribal government due to the COVID-19 public health emergency relative to revenues collected in the most recent full fiscal year of the State, territory, or Tribal government prior to the emergency; or

“(D) to make necessary investments in water, sewer, or broadband infrastructure.

“(2) FURTHER RESTRICTION ON USE OF FUNDS.—

“(A) IN GENERAL.—A State or territory shall not use the funds provided under this section or transferred pursuant to section 603(c)(4) to either directly or indirectly offset a reduction in the net tax revenue of such State or territory resulting from a change in law, regulation, or administrative interpretation during the covered period that reduces any tax (by providing for a reduction in a rate, a rebate, a deduction, a credit, or otherwise) or delays the imposition of any tax or tax increase.

“(B) PENSION FUNDS.—No State or territory may use funds made available under this section for deposit into any pension fund.

“(3) TRANSFER AUTHORITY.—A State, territory, or Tribal government receiving a payment from funds made available under this section may transfer funds to a private nonprofit organization (as that term is defined in paragraph (17) of section 401 of the McKinney-Vento Homeless Assistance Act (42 U.S.C. 11360(17)), a Tribal organization (as that term is defined in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 5304)), a public benefit corporation involved in the transportation of passengers or cargo, or a special-purpose unit of State or local government.

“(d) CERTIFICATIONS AND REPORTS.—

“(1) IN GENERAL.—In order for a State or territory to receive a payment under this section, or a transfer of funds under section 603(c)(4), the State or territory shall provide the Secretary with a certification, signed by an authorized officer of such State or territory, that such State or territory requires the payment or transfer to carry out the activities specified in subsection (c) of this section and will use any payment under this section, or transfer of funds under section 603(c)(4), in compliance with subsection (c) of this section.

“(2) REPORTING.—Any State, territory, or Tribal government receiving a payment under this section shall provide to the Secretary periodic reports providing a detailed accounting of—

“(A) the uses of funds by such State, territory, or Tribal government, including, in the case of a State or a territory, all modifications to the State’s or territory’s tax revenue sources during the covered period; and

“(B) such other information as the Secretary may require for the administration of this section.

“(e) RECOUPMENT.—Any State, territory, or Tribal government that has failed to comply with subsection (c) shall be required to repay to the Secretary an amount equal to the amount of funds used in violation of such subsection, provided that, in the case of a violation of subsection (c)(2)(A), the amount the State or territory shall be required to repay shall be lesser of—

Requirement.

“(1) the amount of the applicable reduction to net tax revenue attributable to such violation; and

“(2) the amount of funds received by such State or territory pursuant to a payment made under this section or a transfer made under section 603(c)(4).

“(f) REGULATIONS.—The Secretary shall have the authority to issue such regulations as may be necessary or appropriate to carry out this section.

“(g) DEFINITIONS.—In this section:

“(1) COVERED PERIOD.—The term ‘covered period’ means, with respect to a State, territory, or Tribal government, the period that—

“(A) begins on March 3, 2021; and

“(B) ends on the last day of the fiscal year of such State, territory, or Tribal government in which all funds received by the State, territory, or Tribal government from a payment made under this section or a transfer made under section 603(c)(4) have been expended or returned to, or recovered by, the Secretary.

“(2) ELIGIBLE WORKERS.—The term ‘eligible workers’ means those workers needed to maintain continuity of operations of essential critical infrastructure sectors and additional sectors as each Governor of a State or territory, or each Tribal government, may designate as critical to protect the health and well-being of the residents of their State, territory, or Tribal government.

“(3) PREMIUM PAY.—The term ‘premium pay’ means an amount of up to \$13 per hour that is paid to an eligible worker, in addition to wages or remuneration the eligible worker otherwise receives, for all work performed by the eligible worker during the COVID-19 public health emergency. Such

amount may not exceed \$25,000 with respect to any single eligible worker.

“(4) SECRETARY.—The term ‘Secretary’ means the Secretary of the Treasury.

“(5) STATE.—The term ‘State’ means each of the 50 States and the District of Columbia.

“(6) TERRITORY.—The term ‘territory’ means the Commonwealth of Puerto Rico, the United States Virgin Islands, Guam, the Commonwealth of the Northern Mariana Islands, and American Samoa.

“(7) TRIBAL GOVERNMENT.—The term ‘Tribal Government’ means the recognized governing body of any Indian or Alaska Native tribe, band, nation, pueblo, village, community, component band, or component reservation, individually identified (including parenthetically) in the list published most recently as of the date of enactment of this Act pursuant to section 104 of the Federally Recognized Indian Tribe List Act of 1994 (25 U.S.C. 5131).

42 USC 803.

“SEC. 603. CORONAVIRUS LOCAL FISCAL RECOVERY FUND.

“(a) APPROPRIATION.—In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$130,200,000,000, to remain available through December 31, 2024, for making payments under this section to metropolitan cities, nonentitlement units of local government, and counties to mitigate the fiscal effects stemming from the public health emergency with respect to the Coronavirus Disease (COVID-19).

“(b) AUTHORITY TO MAKE PAYMENTS.—

“(1) METROPOLITAN CITIES.—

“(A) IN GENERAL.—Of the amount appropriated under subsection (a), the Secretary shall reserve \$45,570,000,000 to make payments to metropolitan cities.

“(B) ALLOCATION AND PAYMENT.—From the amount reserved under subparagraph (A), the Secretary shall allocate and, in accordance with paragraph (7), pay to each metropolitan city an amount determined for the metropolitan city consistent with the formula under section 106(b) of the Housing and Community Development Act of 1974 (42 U.S.C. 5306(b)), except that, in applying such formula, the Secretary shall substitute ‘all metropolitan cities’ for ‘all metropolitan areas’ each place it appears.

“(2) NONENTITLEMENT UNITS OF LOCAL GOVERNMENT.—

“(A) IN GENERAL.—Of the amount appropriated under subsection (a), the Secretary shall reserve \$19,530,000,000 to make payments to States for distribution by the State to nonentitlement units of local government in the State.

“(B) ALLOCATION AND PAYMENT.—From the amount reserved under subparagraph (A), the Secretary shall allocate and, in accordance with paragraph (7), pay to each State an amount which bears the same proportion to such reserved amount as the total population of all areas that are non-metropolitan cities in the State bears to the total population of all areas that are non-metropolitan cities in all such States.

Deadlines.

“(C) DISTRIBUTION TO NONENTITLEMENT UNITS OF LOCAL GOVERNMENT.—

“(i) IN GENERAL.—Not later than 30 days after a State receives a payment under subparagraph (B), the State shall distribute to each nonentitlement unit of local government in the State an amount that bears the same proportion to the amount of such payment as the population of the nonentitlement unit of local government bears to the total population of all the nonentitlement units of local government in the State, subject to clause (iii).

“(ii) DISTRIBUTION OF FUNDS.—

“(I) EXTENSION FOR DISTRIBUTION.—If an authorized officer of a State required to make distributions under clause (i) certifies in writing to the Secretary before the end of the 30-day distribution period described in such clause that it would constitute an excessive administrative burden for the State to meet the terms of such clause with respect to 1 or more such distributions, the authorized officer may request, and the Secretary shall grant, an extension of such period of not more than 30 days to allow the State to make such distributions in accordance with clause (i).

Time period.
Certification.

“(II) ADDITIONAL EXTENSIONS.—

“(aa) IN GENERAL.—If a State has been granted an extension to the distribution period under subclause (I) but is unable to make all the distributions required under clause (i) before the end of such period as extended, an authorized officer of the State may request an additional extension of the distribution period of not more than 30 days. The Secretary may grant a request for an additional extension of such period only if—

“(AA) the authorized officer making such request provides a written plan to the Secretary specifying, for each distribution for which an additional extension is requested, when the State expects to make such distribution and the actions the State has taken and will take in order to make all such distributions before the end of the distribution period (as extended under subclause (I) and this subclause); and

Plan.

“(BB) the Secretary determines that such plan is reasonably designed to distribute all such funds to nonentitlement units of local government by the end of the distribution period (as so extended).

Determination.

“(bb) FURTHER ADDITIONAL EXTENSIONS.—

If a State granted an additional extension of the distribution period under item (aa) requires any further additional extensions of such period, the request only may be made and granted subject to the requirements specified in item (aa).

“(iii) CAPPED AMOUNT.—The total amount distributed to a nonentitlement unit of local government

under this paragraph may not exceed the amount equal to 75 percent of the most recent budget for the non-entitlement unit of local government as of January 27, 2020.

“(iv) RETURN OF EXCESS AMOUNTS.—Any amounts not distributed to a nonentitlement unit of local government as a result of the application of clause (iii) shall be returned to the Secretary.

Time period.

“(D) PENALTY FOR NONCOMPLIANCE.—If, by the end of the 120-day period that begins on the date a State receives a payment from the amount allocated under subparagraph (B) or, if later, the last day of the distribution period for the State (as extended with respect to the State under subparagraph (C)(ii)), such State has failed to make all the distributions from such payment in accordance with the terms of subparagraph (C) (including any extensions of the distribution period granted in accordance with such subparagraph), an amount equal to the amount of such payment that remains undistributed as of such date shall be booked as a debt of such State owed to the Federal Government, shall be paid back from the State’s allocation provided under section 602(b)(3)(B)(iii), and shall be deposited into the general fund of the Treasury.

“(3) COUNTIES.—

“(A) AMOUNT.—From the amount appropriated under subsection (a), the Secretary shall reserve and allocate \$65,100,000,000 of such amount to make payments directly to counties in an amount which bears the same proportion to the total amount reserved under this paragraph as the population of each such county bears to the total population of all such entities and shall pay such allocated amounts to such counties in accordance with paragraph (7).

“(B) SPECIAL RULES.—

“(i) URBAN COUNTIES.—No county that is an ‘urban county’ (as defined in section 102 of the Housing and Community Development Act of 1974 (42 U.S.C. 5302)) shall receive less than the amount the county would otherwise receive if the amount paid under this paragraph were allocated to metropolitan cities and urban counties under section 106(b) of the Housing and Community Development Act of 1974 (42 U.S.C. 5306(b)).

Distribution.

“(ii) COUNTIES THAT ARE NOT UNITS OF GENERAL LOCAL GOVERNMENT.—In the case of an amount to be paid to a county that is not a unit of general local government, the amount shall instead be paid to the State in which such county is located, and such State shall distribute such amount to each unit of general local government within such county in an amount that bears the same proportion to the amount to be paid to such county as the population of such units of general local government bears to the total population of such county.

“(iii) DISTRICT OF COLUMBIA.—For purposes of this paragraph, the District of Columbia shall be considered to consist of a single county that is a unit of general local government.

“(4) CONSOLIDATED GOVERNMENTS.—A unit of general local government that has formed a consolidated government, or that is geographically contained (in full or in part) within the boundaries of another unit of general local government may receive a distribution under each of paragraphs (1), (2), and (3), as applicable, based on the respective formulas specified in such paragraphs.

“(5) PRO RATA ADJUSTMENT AUTHORITY.—The amounts otherwise determined for allocation and payment under paragraphs (1), (2), and (3) may be adjusted by the Secretary on a pro rata basis to the extent necessary to ensure that all available funds are distributed to metropolitan cities, counties, and States in accordance with the requirements specified in each paragraph (as applicable) and the certification requirement specified in subsection (d).

“(6) POPULATION.—For purposes of determining allocations under this section, the population of an entity shall be determined based on the most recent data are available from the Bureau of the Census or, if not available, from such other data as a State determines appropriate.

Determination.

“(7) TIMING.—

“(A) FIRST TRANCHE AMOUNT.—To the extent practicable, with respect to each metropolitan city for which an amount is allocated under paragraph (1), each State for which an amount is allocated under paragraph (2) for distribution to nonentitlement units of local government, and each county for which an amount is allocated under paragraph (3), the Secretary shall pay from such allocation the First Tranche Amount for such city, State, or county not later than 60 days after the date of enactment of this section.

Deadline.

“(B) SECOND TRANCHE AMOUNT.—The Secretary shall pay to each metropolitan city for which an amount is allocated under paragraph (1), each State for which an amount is allocated under paragraph (2) for distribution to nonentitlement units of local government, and each county for which an amount is allocated under paragraph (3), the Second Tranche Amount for such city, State, or county not earlier than 12 months after the date on which the First Tranche Amount is paid to the city, State, or county.

Time period.

“(c) REQUIREMENTS.—

“(1) USE OF FUNDS.—Subject to paragraph (2), and except as provided in paragraphs (3) and (4), a metropolitan city, nonentitlement unit of local government, or county shall only use the funds provided under a payment made under this section to cover costs incurred by the metropolitan city, nonentitlement unit of local government, or county, by December 31, 2024—

Deadline.

“(A) to respond to the public health emergency with respect to the Coronavirus Disease 2019 (COVID-19) or its negative economic impacts, including assistance to households, small businesses, and nonprofits, or aid to impacted industries such as tourism, travel, and hospitality;

“(B) to respond to workers performing essential work during the COVID-19 public health emergency by providing premium pay to eligible workers of the metropolitan city, nonentitlement unit of local government, or county that are performing such essential work, or by providing grants to eligible employers that have eligible workers who perform essential work;

“(C) for the provision of government services to the extent of the reduction in revenue of such metropolitan city, nonentitlement unit of local government, or county due to the COVID-19 public health emergency relative to revenues collected in the most recent full fiscal year of the metropolitan city, nonentitlement unit of local government, or county prior to the emergency; or

“(D) to make necessary investments in water, sewer, or broadband infrastructure.

“(2) PENSION FUNDS.—No metropolitan city, nonentitlement unit of local government, or county may use funds made available under this section for deposit into any pension fund.

“(3) TRANSFER AUTHORITY.—A metropolitan city, nonentitlement unit of local government, or county receiving a payment from funds made available under this section may transfer funds to a private nonprofit organization (as that term is defined in paragraph (17) of section 401 of the McKinney-Vento Homeless Assistance Act (42 U.S.C. 11360(17))), a public benefit corporation involved in the transportation of passengers or cargo, or a special-purpose unit of State or local government.

“(4) TRANSFERS TO STATES.—Notwithstanding paragraph (1), a metropolitan city, nonentitlement unit of local government, or county receiving a payment from funds made available under this section may transfer such funds to the State in which such entity is located.

“(d) REPORTING.—Any metropolitan city, nonentitlement unit of local government, or county receiving funds provided under a payment made under this section shall provide to the Secretary periodic reports providing a detailed accounting of the uses of such funds by such metropolitan city, nonentitlement unit of local government, or county and including such other information as the Secretary may require for the administration of this section.

Requirement.

“(e) RECOUPMENT.—Any metropolitan city, nonentitlement unit of local government, or county that has failed to comply with subsection (c) shall be required to repay to the Secretary an amount equal to the amount of funds used in violation of such subsection.

“(f) REGULATIONS.—The Secretary shall have the authority to issue such regulations as may be necessary or appropriate to carry out this section.

“(g) DEFINITIONS.—In this section:

“(1) COUNTY.—The term ‘county’ means a county, parish, or other equivalent county division (as defined by the Bureau of the Census).

“(2) ELIGIBLE WORKERS.—The term ‘eligible workers’ means those workers needed to maintain continuity of operations of essential critical infrastructure sectors and additional sectors as each chief executive officer of a metropolitan city, nonentitlement unit of local government, or county may designate as critical to protect the health and well-being of the residents

of their metropolitan city, nonentitlement unit of local government, or county.

“(3) **FIRST TRANCHE AMOUNT.**—The term ‘First Tranche Amount’ means, with respect to each metropolitan city for which an amount is allocated under subsection (b)(1), each State for which an amount is allocated under subsection (b)(2) for distribution to nonentitlement units of local government, and each county for which an amount is allocated under subsection (b)(3), 50 percent of the amount so allocated to such metropolitan city, State, or county (as applicable).

“(4) **METROPOLITAN CITY.**—The term ‘metropolitan city’ has the meaning given that term in section 102(a)(4) of the Housing and Community Development Act of 1974 (42 U.S.C. 5302(a)(4)) and includes cities that relinquish or defer their status as a metropolitan city for purposes of receiving allocations under section 106 of such Act (42 U.S.C. 5306) for fiscal year 2021.

“(5) **NONENTITLEMENT UNIT OF LOCAL GOVERNMENT.**—The term ‘nonentitlement unit of local government’ means a ‘city’, as that term is defined in section 102(a)(5) of the Housing and Community Development Act of 1974 (42 U.S.C. 5302(a)(5)), that is not a metropolitan city.

“(6) **PREMIUM PAY.**—The term ‘premium pay’ has the meaning given such term in section 602(g).

“(7) **SECOND TRANCHE AMOUNT.**—The term ‘Second Tranche Amount’ means, with respect to each metropolitan city for which an amount is allocated under subsection (b)(1), each State for which an amount is allocated under subsection (b)(2) for distribution to nonentitlement units of local government, and each county for which an amount is allocated under subsection (b)(3), an amount not to exceed 50 percent of the amount so allocated to such metropolitan city, State, or county (as applicable).

“(8) **SECRETARY.**—The term ‘Secretary’ means the Secretary of the Treasury.

“(9) **STATE.**—The term ‘State’ means each of the 50 States, the District of Columbia, the Commonwealth of Puerto Rico, the United States Virgin Islands, Guam, the Commonwealth of the Northern Mariana Islands, and American Samoa.

“(10) **UNIT OF GENERAL LOCAL GOVERNMENT.**—The term ‘unit of general local government’ has the meaning given that term in section 102(a)(1) of the Housing and Community Development Act of 1974 (42 U.S.C. 5302(a)(1)).

“SEC. 604. CORONAVIRUS CAPITAL PROJECTS FUND.

42 USC 804.

“(a) **APPROPRIATION.**—In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$10,000,000,000, to remain available until expended, for making payments to States, territories, and Tribal governments to carry out critical capital projects directly enabling work, education, and health monitoring, including remote options, in response to the public health emergency with respect to the Coronavirus Disease (COVID-19).

“(b) **PAYMENTS.**—

“(1) **MINIMUM AMOUNTS.**—From the amount appropriated under subsection (a)—

“(A) the Secretary shall pay \$100,000,000 to each State;

“(B) the Secretary shall pay \$100,000,000 of such amount in equal shares to the United States Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, the Republic of the Marshall Islands, the Federated States of Micronesia, and the Republic of Palau; and

“(C) the Secretary shall pay \$100,000,000 of such amount in equal shares to Tribal governments and the State of Hawaii (in addition to the amount paid to the State of Hawaii under subparagraph (A)), of which—

“(i) not less than \$50,000 shall be paid to each Tribal government; and

“(ii) not less than \$50,000, and not more than \$200,000, shall be paid to the State of Hawaii for the exclusive use of the Department of Hawaiian Home Lands and the Native Hawaiian Education Programs to assist Native Hawaiians in accordance with this section.

“(2) REMAINING AMOUNTS.—

Allocations.

“(A) IN GENERAL.—From the amount of the appropriation under subsection (a) that remains after the application of paragraph (1), the Secretary shall make payments to States based on population such that—

“(i) 50 percent of such amount shall be allocated among the States based on the proportion that the population of each State bears to the population of all States;

“(ii) 25 percent of such amount shall be allocated among the States based on the proportion that the number of individuals living in rural areas in each State bears to the number of individuals living in rural areas in all States; and

“(iii) 25 percent of such amount shall be allocated among the States based on the proportion that the number of individuals with a household income that is below 150 percent of the poverty line applicable to a family of the size involved in each State bears to the number of such individuals in all States.

Determinations.

“(B) DATA.—In determining the allocations to be made to each State under subparagraph (A), the Secretary of the Treasury shall use the most recent data available from the Bureau of the Census.

Grants.
Deadline.

“(c) TIMING.—The Secretary shall establish a process of applying for grants to access funding made available under section (b) not later than 60 days after enactment of this section.

“(d) DEFINITIONS.—In this section:

“(1) SECRETARY.—The term ‘Secretary’ means the Secretary of the Treasury.

“(2) STATE.—The term ‘State’ means each of the 50 States, the District of Columbia, and Puerto Rico.

“(3) TRIBAL GOVERNMENT.—The term ‘Tribal government’ has the meaning given such term in section 602(g).

42 USC 805.

“**SEC. 605. LOCAL ASSISTANCE AND TRIBAL CONSISTENCY FUND.**

“(a) APPROPRIATION.—In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$2,000,000,000 to

remain available until September 30, 2023, with amounts to be obligated for each of fiscal years 2022 and 2023 in accordance with subsection (b), for making payments under this section to eligible revenue sharing counties and eligible Tribal governments.

“(b) AUTHORITY TO MAKE PAYMENTS.—

“(1) PAYMENTS TO ELIGIBLE REVENUE SHARING COUNTIES.—

For each of fiscal years 2022 and 2023, the Secretary shall reserve \$750,000,000 of the total amount appropriated under subsection (a) to allocate and pay to each eligible revenue sharing county in amounts that are determined by the Secretary taking into account economic conditions of each eligible revenue sharing county, using measurements of poverty rates, household income, land values, and unemployment rates as well as other economic indicators, over the 20-year period ending with September 30, 2021.

“(2) PAYMENTS TO ELIGIBLE TRIBAL GOVERNMENTS.—For each of fiscal years 2022 and 2023, the Secretary shall reserve \$250,000,000 of the total amount appropriated under subsection (a) to allocate and pay to eligible Tribal governments in amounts that are determined by the Secretary taking into account economic conditions of each eligible Tribe.

“(c) USE OF PAYMENTS.—An eligible revenue sharing county or an eligible Tribal government may use funds provided under a payment made under this section for any governmental purpose other than a lobbying activity.

“(d) REPORTING REQUIREMENT.—Any eligible revenue sharing county receiving a payment under this section shall provide to the Secretary periodic reports providing a detailed accounting of the uses of fund by such eligible revenue sharing county and such other information as the Secretary may require for the administration of this section.

“(e) RECOUPMENT.—Any eligible revenue sharing county that has failed to submit a report required under subsection (d) or failed to comply with subsection (c), shall be required to repay to the Secretary an amount equal to—

“(1) in the case of a failure to comply with subsection (c), the amount of funds used in violation of such subsection; and

“(2) in the case of a failure to submit a report required under subsection (d), such amount as the Secretary determines appropriate, but not to exceed 5 percent of the amount paid to the eligible revenue sharing county under this section for all fiscal years.

“(f) DEFINITIONS.—In this section:

“(1) ELIGIBLE REVENUE SHARING COUNTY.—The term ‘eligible revenue sharing county’ means—

“(A) a county, parish, or borough—

“(i) that is independent of any other unit of local government; and

“(ii) that, as determined by the Secretary, is the principal provider of government services for the area within its jurisdiction; and

“(iii) for which, as determined by the Secretary, there is a negative revenue impact due to implementation of a Federal program or changes to such program; and

Allocations.
Determinations.
Time period.

Lobbying

Requirement.

Determination.

Determinations.

“(B) the District of Columbia, the Commonwealth of Puerto Rico, Guam, and the United States Virgin Islands.

“(2) ELIGIBLE TRIBAL GOVERNMENT.—The term ‘eligible Tribal government’ means the recognized governing body of an eligible Tribe.

“(3) ELIGIBLE TRIBE.—The term ‘eligible Tribe’ means any Indian or Alaska Native tribe, band, nation, pueblo, village, community, component band, or component reservation, individually identified (including parenthetically) in the list published most recently as of the date of enactment of this section pursuant to section 104 of the Federally Recognized Indian Tribe List Act of 1994 (25 U.S.C. 5131).

“(4) SECRETARY.—The term ‘Secretary’ means the Secretary of the Treasury.”

(b) CONFORMING AMENDMENT.—The heading for title VI of the Social Security Act (42 U.S.C. 801 et seq.) is amended by striking “FUND” and inserting “, FISCAL RECOVERY, AND CRITICAL CAPITAL PROJECTS FUNDS”.

Subtitle N—Other Provisions

SEC. 9911. FUNDING FOR PROVIDERS RELATING TO COVID-19.

Part A of title XI of the Social Security Act (42 U.S.C. 1301 et seq.) is amended by adding at the end the following:

42 USC
1320b-26.

“SEC. 1150C. FUNDING FOR PROVIDERS RELATING TO COVID-19.

“(a) FUNDING.—In addition to amounts otherwise available, there is appropriated to the Secretary, for fiscal year 2021, out of any monies in the Treasury not otherwise appropriated, \$8,500,000,000 for purposes of making payments to eligible health care providers for health care related expenses and lost revenues that are attributable to COVID-19. Amounts appropriated under the preceding sentence shall remain available until expended.

“(b) APPLICATION REQUIREMENT.—To be eligible for a payment under this section, an eligible health care provider shall submit to the Secretary an application in such form and manner as the Secretary shall prescribe. Such application shall contain the following:

“(1) A statement justifying the need of the provider for the payment, including documentation of the health care related expenses attributable to COVID-19 and lost revenues attributable to COVID-19.

“(2) The tax identification number of the provider.

Reports.

“(3) Such assurances as the Secretary determines appropriate that the eligible health care provider will maintain and make available such documentation and submit such reports (at such time, in such form, and containing such information as the Secretary shall prescribe) as the Secretary determines is necessary to ensure compliance with any conditions imposed by the Secretary under this section.

“(4) Any other information determined appropriate by the Secretary.

“(c) LIMITATION.—Payments made to an eligible health care provider under this section may not be used to reimburse any expense or loss that—

“(1) has been reimbursed from another source; or

“(2) another source is obligated to reimburse.

“(d) APPLICATION OF REQUIREMENTS, RULES, AND PROCEDURES.—The Secretary shall apply any requirements, rules, or procedures as the Secretary deems appropriate for the efficient execution of this section.

“(e) DEFINITIONS.—In this section:

“(1) ELIGIBLE HEALTH CARE PROVIDER.—The term ‘eligible health care provider’ means—

“(A) a provider of services (as defined in section 1861(u)) or a supplier (as defined in section 1861(d)) that—

“(i) is enrolled in the Medicare program under title XVIII under section 1866(j) (including temporarily enrolled during the emergency period described in section 1135(g)(1)(B) for such period);

“(ii) provides diagnoses, testing, or care for individuals with possible or actual cases of COVID-19; and

“(iii) is a rural provider or supplier; or

“(B) a provider or supplier that—

“(i) is enrolled with a State Medicaid plan under title XIX (or a waiver of such plan) in accordance with subsections (a)(77) and (kk) of section 1902 (including enrolled pursuant to section 1902(a)(78) or section 1932(d)(6)) or enrolled with a State child health plan under title XXI (or a waiver of such plan) in accordance with subparagraph (G) of section 2107(e)(1) (including enrolled pursuant to subparagraph (D) or (Q) of such section);

“(ii) provides diagnoses, testing, or care for individuals with possible or actual cases of COVID-19; and

“(iii) is a rural provider or supplier.

“(2) HEALTH CARE RELATED EXPENSES ATTRIBUTABLE TO COVID-19.—The term ‘health care related expenses attributable to COVID-19’ means health care related expenses to prevent, prepare for, and respond to COVID-19, including the building or construction of a temporary structure, the leasing of a property, the purchase of medical supplies and equipment, including personal protective equipment and testing supplies, providing for increased workforce and training (including maintaining staff, obtaining additional staff, or both), the operation of an emergency operation center, retrofitting a facility, providing for surge capacity, and other expenses determined appropriate by the Secretary.

“(3) LOST REVENUE ATTRIBUTABLE TO COVID-19.—The term ‘lost revenue attributable to COVID-19’ has the meaning given that term in the Frequently Asked Questions guidance released by the Department of Health and Human Services in June 2020, including the difference between such provider’s budgeted and actual revenue if such budget had been established and approved prior to March 27, 2020.

“(4) PAYMENT.—The term ‘payment’ includes, as determined appropriate by the Secretary, a pre-payment, a prospective payment, a retrospective payment, or a payment through a grant or other mechanism.

“(5) RURAL PROVIDER OR SUPPLIER.—The term ‘rural provider or supplier’ means—

“(A) a—

“(i) provider or supplier located in a rural area (as defined in section 1886(d)(2)(D)); or

“(ii) provider treated as located in a rural area pursuant to section 1886(d)(8)(E);

“(B) a provider or supplier located in any other area that serves rural patients (as defined by the Secretary), which may include, but is not required to include, a metropolitan statistical area with a population of less than 500,000 (determined based on the most recently available data);

“(C) a rural health clinic (as defined in section 1861(aa)(2));

“(D) a provider or supplier that furnishes home health, hospice, or long-term services and supports in an individual’s home located in a rural area (as defined in section 1886(d)(2)(D)); or

“(E) any other rural provider or supplier (as defined by the Secretary).”.

SEC. 9912. EXTENSION OF CUSTOMS USER FEES.

(a) **IN GENERAL.**—Section 13031(j)(3) of the Consolidated Omnibus Budget Reconciliation Act of 1985 (19 U.S.C. 58c(j)(3)) is amended—

(1) in subparagraph (A), by striking “October 21, 2029” and inserting “September 30, 2030”; and

(2) in subparagraph (B)(i), by striking “October 21, 2029” and inserting “September 30, 2030”.

(b) **RATE FOR MERCHANDISE PROCESSING FEES.**—Section 503 of the United States-Korea Free Trade Agreement Implementation Act (Public Law 112-41; 19 U.S.C. 3805 note) is amended by striking “October 21, 2029” and inserting “September 30, 2030”.

TITLE X—COMMITTEE ON FOREIGN RELATIONS

SEC. 10001. DEPARTMENT OF STATE OPERATIONS.

In addition to amounts otherwise available, there is authorized and appropriated to the Secretary of State for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$204,000,000, to remain available until September 30, 2022, for necessary expenses of the Department of State to carry out the authorities, functions, duties, and responsibilities in the conduct of the foreign affairs of the United States, to prevent, prepare for, and respond to coronavirus domestically or internationally, which shall include maintaining Department of State operations.

SEC. 10002. UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT OPERATIONS.

In addition to amounts otherwise available, there is authorized and appropriated to the Administrator of the United States Agency for International Development for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$41,000,000, to remain available until September 30, 2022, to carry out the provisions of section 667 of the Foreign Assistance Act of 1961 (22 U.S.C. 2427) for necessary expenses of the United States Agency for International Development to prevent, prepare for, and respond to

coronavirus domestically or internationally, and for other operations and maintenance requirements related to coronavirus.

SEC. 10003. GLOBAL RESPONSE.

(a) **IN GENERAL.**—In addition to amounts otherwise available, there is authorized and appropriated to the Secretary of State for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$8,675,000,000, to remain available until September 30, 2022, for necessary expenses to carry out the provisions of section 531 of chapter 4 of part II of the Foreign Assistance Act of 1961 (22 U.S.C. 2346) as health programs to prevent, prepare for, and respond to coronavirus, which shall include recovery from the impacts of such virus and shall be allocated as follows—

(1) \$905,000,000 to be made available to the United States Agency for International Development for global health activities to prevent, prepare for, and respond to coronavirus, which shall include a contribution to a multilateral vaccine development partnership to support epidemic preparedness;

(2) \$3,750,000,000 to be made available to the Department of State to support programs for the prevention, treatment, and control of HIV/AIDS in order to prevent, prepare for, and respond to coronavirus, including to mitigate the impact on such programs from coronavirus and support recovery from the impacts of the coronavirus, of which not less than \$3,500,000,000 shall be for a United States contribution to the Global Fund to Fight AIDS, Tuberculosis and Malaria;

(3) \$3,090,000,000 to be made available to the United States Agency for International Development to prevent, prepare for, and respond to coronavirus, which shall include support for international disaster relief, rehabilitation, and reconstruction, for health activities, and to meet emergency food security needs; and

(4) \$930,000,000 to be made available to prevent, prepare for, and respond to coronavirus, which shall include activities to address economic and stabilization requirements resulting from such virus.

(b) **WAIVER OF LIMITATION.**—Any contribution to the Global Fund to Fight AIDS, Tuberculosis and Malaria made pursuant to subsection (a)(2) shall be made available notwithstanding section 202(d)(4)(A)(i) of the United States Leadership Against HIV/AIDS, Tuberculosis, and Malaria Act of 2003 (22 U.S.C. 7622(d)(4)(A)(i)), and such contribution shall not be considered a contribution for the purpose of applying such section 202(d)(4)(A)(i).

SEC. 10004. HUMANITARIAN RESPONSE.

(a) **IN GENERAL.**—In addition to amounts otherwise available, there is authorized and appropriated to the Secretary of State for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$500,000,000, to remain available until September 30, 2022, to carry out the provisions of section 2(a) and (b) of the Migration and Refugee Assistance Act of 1962 (22 U.S.C. 2601(a) and (b)) to prevent, prepare for, and respond to coronavirus.

(b) **USE OF FUNDS.**—Funds appropriated pursuant to this section shall not be made available for the costs of resettling refugees in the United States.

Refugee
resettlement.

SEC. 10005. MULTILATERAL ASSISTANCE.

In addition to amounts otherwise available, there is authorized and appropriated to the Secretary of State for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$580,000,000, to remain available until September 30, 2022, to carry out the provisions of section 301(a) of the Foreign Assistance Act of 1961 (22 U.S.C. 2221(a)) to prevent, prepare for, and respond to coronavirus, which shall include support for the priorities and objectives of the United Nations Global Humanitarian Response Plan COVID-19 through voluntary contributions to international organizations and programs administered by such organizations.

TITLE XI—COMMITTEE ON INDIAN AFFAIRS

SEC. 11001. INDIAN HEALTH SERVICE.

(a) In addition to amounts otherwise available, there is appropriated to the Secretary of Health and Human Services (in this section referred to as the “Secretary”) for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$6,094,000,000, to remain available until expended, of which—

(1) \$5,484,000,000 shall be for carrying out the Act of August 5, 1954 (42 U.S.C. 2001 et seq.) (commonly referred to as the Transfer Act), the Indian Self-Determination and Education Assistance Act (25 U.S.C. 5301 et seq.), the Indian Health Care Improvement Act (25 U.S.C. 1601 et seq.), and titles II and III of the Public Health Service Act (42 U.S.C. 201 et seq. and 241 et seq.) with respect to the Indian Health Service, of which—

(A) \$2,000,000,000 shall be for lost reimbursements, in accordance with section 207 of the Indian Health Care Improvement Act (25 U.S.C. 1621f);

(B) \$500,000,000 shall be for the provision of additional health care services, services provided through the Purchased/Referred Care program, and other related activities;

(C) \$140,000,000 shall be for information technology, telehealth infrastructure, and the Indian Health Service electronic health records system;

(D) \$84,000,000 shall be for maintaining operations of the Urban Indian health program, which shall be in addition to other amounts made available under this subsection for Urban Indian organizations (as defined in section 4 of the Indian Health Care Improvement Act (25 U.S.C. 1603));

(E) \$600,000,000 shall be for necessary expenses to plan, prepare for, promote, distribute, administer, and track COVID-19 vaccines, for the purposes described in subparagraphs (F) and (G), and for other vaccine-related activities;

(F) \$1,500,000,000 shall be for necessary expenses to detect, diagnose, trace, and monitor COVID-19 infections, activities necessary to mitigate the spread of COVID-19, supplies necessary for such activities, for the purposes described in subparagraphs (E) and (G), and for other related activities;

(G) \$240,000,000 shall be for necessary expenses to establish, expand, and sustain a public health workforce to prevent, prepare for, and respond to COVID-19, other public health workforce-related activities, for the purposes described in subparagraphs (E) and (F), and for other related activities; and

(H) \$420,000,000 shall be for necessary expenses related to mental health and substance use prevention and treatment services, for the purposes described in subparagraph (C) and paragraph (2) as related to mental health and substance use prevention and treatment services, and for other related activities;

(2) \$600,000,000 shall be for the lease, purchase, construction, alteration, renovation, or equipping of health facilities to respond to COVID-19, and for maintenance and improvement projects necessary to respond to COVID-19 under section 7 of the Act of August 5, 1954 (42 U.S.C. 2004a), the Indian Self-Determination and Education Assistance Act (25 U.S.C. 5301 et seq.), the Indian Health Care Improvement Act (25 U.S.C. 1601 et seq.), and titles II and III of the Public Health Service Act (42 U.S.C. 202 et seq.) with respect to the Indian Health Service; and

(3) \$10,000,000 shall be for carrying out section 7 of the Act of August 5, 1954 (42 U.S.C. 2004a) for expenses relating to potable water delivery.

(b) Funds appropriated by subsection (a) shall be made available to restore amounts, either directly or through reimbursement, for obligations for the purposes specified in this section that were incurred to prevent, prepare for, and respond to COVID-19 during the period beginning on the date on which the public health emergency was declared by the Secretary on January 31, 2020, pursuant to section 319 of the Public Health Service Act (42 U.S.C. 247d) with respect to COVID-19 and ending on the date of the enactment of this Act.

Reimbursement.
Time period.

(c) Funds made available under subsection (a) to Tribes and Tribal organizations under the Indian Self-Determination and Education Assistance Act (25 U.S.C. 5301 et seq.) shall be available on a one-time basis. Such non-recurring funds shall not be part of the amount required by section 106 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 5325), and such funds shall only be used for the purposes identified in this section.

SEC. 11002. BUREAU OF INDIAN AFFAIRS.

(a) IN GENERAL.—In addition to amounts otherwise made available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$900,000,000 to remain available until expended, pursuant to the Snyder Act (25 U.S.C. 13), of which—

(1) \$100,000,000 shall be for Tribal housing improvement;

(2) \$772,500,000 shall be for Tribal government services, public safety and justice, social services, child welfare assistance, and for other related expenses;

(3) \$7,500,000 shall be for related Federal administrative costs and oversight; and

(4) \$20,000,000 shall be to provide and deliver potable water.

(b) **EXCLUSIONS FROM CALCULATION.**—Funds appropriated under subsection (a) shall be excluded from the calculation of funds received by those Tribal governments that participate in the “Small and Needy” program.

(c) **ONE-TIME BASIS FUNDS.**—Funds made available under subsection (a) to Tribes and Tribal organizations under the Indian Self-Determination and Education Assistance Act (25 U.S.C. 5301 et seq.) shall be available on a one-time basis. Such non-recurring funds shall not be part of the amount required by section 106 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 5325), and such funds shall only be used for the purposes identified in this section.

SEC. 11003. HOUSING ASSISTANCE AND SUPPORTIVE SERVICES PROGRAMS FOR NATIVE AMERICANS.

(a) **APPROPRIATION.**—In addition to amounts otherwise available, there is appropriated to the Secretary of Housing and Urban Development (in this section referred to as the “Secretary”) for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$750,000,000, to remain available until September 30, 2025, to prevent, prepare for, and respond to coronavirus, for activities and assistance authorized under title I of the Native American Housing Assistance and Self-Determination Act of 1996 (NAHASDA) (25 U.S.C. 4111 et seq.), under title VIII of NAHASDA (25 U.S.C. 4221 et seq.), and under section 106(a)(1) of the Housing and Community Development Act of 1974 with respect to Indian tribes (42 U.S.C. 5306(a)(1)), which shall be made available as follows:

(1) **HOUSING BLOCK GRANTS.**—\$455,000,000 shall be available for the Native American Housing Block Grants and Native Hawaiian Housing Block Grant programs, as authorized under titles I and VIII of NAHASDA, subject to the following terms and conditions:

(A) **FORMULA.**—Of the amounts made available under this paragraph, \$450,000,000 shall be for grants under title I of NAHASDA and shall be distributed according to the same funding formula used in fiscal year 2021.

(B) **NATIVE HAWAIIANS.**—Of the amounts made available under this paragraph, \$5,000,000 shall be for grants under title VIII of NAHASDA.

(C) **USE.**—Amounts made available under this paragraph shall be used by recipients to prevent, prepare for, and respond to coronavirus, including to maintain normal operations and fund eligible affordable housing activities under NAHASDA during the period that the program is impacted by coronavirus. In addition, amounts made available under subparagraph (B) may be used to provide rental assistance to eligible Native Hawaiian families both on and off the Hawaiian Home Lands.

(D) **TIMING OF OBLIGATIONS.**—Amounts made available under this paragraph shall be used, as necessary, to cover or reimburse allowable costs to prevent, prepare for, and respond to coronavirus that are incurred by a recipient, including for costs incurred after January 21, 2020.

(E) **WAIVERS OR ALTERNATIVE REQUIREMENTS.**—The Secretary may waive or specify alternative requirements for any provision of NAHASDA (25 U.S.C. 4101 et seq.)

Reimbursement.

or regulation applicable to the Native American Housing Block Grants or Native Hawaiian Housing Block Grant program other than requirements related to fair housing, nondiscrimination, labor standards, and the environment, upon a finding that the waiver or alternative requirement is necessary to expedite or facilitate the use of amounts made available under this paragraph.

(F) UNOBLIGATED AMOUNTS.—Amounts made available under this paragraph which are not accepted, are voluntarily returned, or otherwise recaptured for any reason shall be used to fund grants under paragraph (2).

(2) INDIAN COMMUNITY DEVELOPMENT BLOCK GRANTS.—\$280,000,000 shall be available for grants under title I of the Housing and Community Development Act of 1974, subject to the following terms and conditions:

(A) USE.—Amounts made available under this paragraph shall be used for emergencies that constitute imminent threats to health and safety and are designed to prevent, prepare for, and respond to coronavirus.

(B) PLANNING.—Not to exceed 20 percent of any grant made with funds made available under this paragraph shall be expended for planning and management development and administration.

(C) TIMING OF OBLIGATIONS.—Amounts made available under this paragraph shall be used, as necessary, to cover or reimburse allowable costs to prevent, prepare for, and respond to coronavirus incurred by a recipient, including for costs incurred after January 21, 2020.

Reimbursement.

(D) INAPPLICABILITY OF PUBLIC SERVICES CAP.—Indian tribes may use up to 100 percent of any grant from amounts made available under this paragraph for public services activities to prevent, prepare for, and respond to coronavirus.

(E) WAIVERS OR ALTERNATIVE REQUIREMENTS.—The Secretary may waive or specify alternative requirements for any provision of title I of the Housing and Community Development Act of 1974 (42 U.S.C. 5301 et seq.) or regulation applicable to the Indian Community Development Block Grant program other than requirements related to fair housing, nondiscrimination, labor standards, and the environment, upon a finding that the waiver or alternative requirement is necessary to expedite or facilitate the use of amounts made available under this paragraph.

(3) TECHNICAL ASSISTANCE.—\$10,000,000 shall be used to make new awards or increase prior awards to existing technical assistance providers to provide an immediate increase in training and technical assistance to Indian tribes, Indian housing authorities, tribally designated housing entities, and recipients under title VIII of NAHASDA for activities under this section.

(4) OTHER COSTS.—\$5,000,000 shall be used for the administrative costs to oversee and administer the implementation of this section, and pay for associated information technology, financial reporting, and other costs.

SEC. 11004. COVID-19 RESPONSE RESOURCES FOR THE PRESERVATION AND MAINTENANCE OF NATIVE AMERICAN LANGUAGES.

(a) Section 816 of the Native American Programs Act of 1974 (42 U.S.C. 2992d) is amended by adding at the end the following:

“(f) In addition to amounts otherwise available, there is appropriated for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$20,000,000 to remain available until expended, to carry out section 803C(g) of this Act.”.

(b) Section 803C of the Native American Programs Act of 1974 (42 U.S.C. 2991b-3) is amended by adding at the end the following:

Deadline.

“(g) EMERGENCY GRANTS FOR NATIVE AMERICAN LANGUAGE PRESERVATION AND MAINTENANCE.—Not later than 180 days after the effective date of this subsection, the Secretary shall award grants to entities eligible to receive assistance under subsection (a)(1) to ensure the survival and continuing vitality of Native American languages during and after the public health emergency declared by the Secretary pursuant to section 319 of the Public Health Service Act (42 U.S.C. 247d) with respect to the COVID-19 pandemic.”.

SEC. 11005. BUREAU OF INDIAN EDUCATION.

Deadline.

In addition to amounts otherwise available, there is appropriated to the Bureau of Indian Education for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$850,000,000, to remain available until expended, to be allocated by the Director of the Bureau of Indian Education not more than 45 calendar days after the date of enactment of this Act, for programs or activities operated or funded by the Bureau of Indian Education, for Bureau-funded schools (as defined in section 1141(3) of the Education Amendments of 1978 (25 U.S.C. 2021(3)), and for Tribal Colleges or Universities (as defined in section 316(b)(3) of the Higher Education Act of 1965 (20 U.S.C. 1059c(b)(3))).

SEC. 11006. AMERICAN INDIAN, NATIVE HAWAIIAN, AND ALASKA NATIVE EDUCATION.Determination.
Deadline.

In addition to amounts otherwise available, there is appropriated to the Department of Education for fiscal year 2021, out of any money in the Treasury not otherwise appropriated, \$190,000,000, to remain available until expended, for awards, which shall be determined by the Secretary of Education not more than 180 calendar days after the date of enactment of this Act, of which—

(1) \$20,000,000 shall be for awards for Tribal education agencies for activities authorized under section 6121(c) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7441(c));

(2) \$85,000,000 shall be for awards to entities eligible to receive grants under section 6205(a)(1) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7515(a)(1)) for activities authorized under section 6205(a)(3) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7515(a)(3)); and

(3) \$85,000,000 shall be for awards to entities eligible to receive grants under section 6304(a)(1) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7544(a)(1)) for activities authorized under section 6304(a)(2-3) of the

Elementary and Secondary Education Act of 1965 (20 U.S.C. 7544(a)(2-3)) and other related activities.

Approved March 11, 2021.

LEGISLATIVE HISTORY—H.R. 1319:

HOUSE REPORTS: No. 117-7 (Comm. on the Budget).

CONGRESSIONAL RECORD, Vol. 167 (2021):

Feb. 26, considered and passed House.

Mar. 4, 5, considered and passed Senate, amended.

Mar. 10, House concurred in Senate amendment.

DAILY COMPILATION OF PRESIDENTIAL DOCUMENTS (2021):

Mar. 11, Presidential remarks.



1 **“SEC. 136. METHANE EMISSIONS AND WASTE REDUCTION**
2 **INCENTIVE PROGRAM FOR PETROLEUM AND**
3 **NATURAL GAS SYSTEMS.**

4 “(a) INCENTIVES FOR METHANE MITIGATION AND
5 MONITORING.—In addition to amounts otherwise avail-
6 able, there is appropriated to the Administrator for fiscal
7 year 2022, out of any money in the Treasury not otherwise
8 appropriated, \$775,000,000, to remain available until
9 September 30, 2028—

10 “(1) for grants, rebates, contracts, loans, and
11 other activities of the Environmental Protection
12 Agency for the purposes of providing financial and
13 technical assistance to owners and operators of ap-
14 plicable facilities to prepare and submit greenhouse
15 gas reports under subpart W of part 98 of title 40,
16 Code of Federal Regulations (or any successor regu-
17 lations);

18 “(2) for grants, rebates, contracts, loans, and
19 other activities of the Environmental Protection
20 Agency authorized under subsections (a) through (c)
21 of section 103 for methane emissions monitoring;

22 “(3) for grants, rebates, contracts, loans, and
23 other activities of the Environmental Protection
24 Agency for the purposes of providing financial and
25 technical assistance to reduce methane and other
26 greenhouse gas emissions from petroleum and nat-

1 ural gas systems, mitigate legacy air pollution from
2 petroleum and natural gas systems, and provide sup-
3 port for communities, including funding for—

4 “(A) improving climate resiliency of com-
5 munities and petroleum and natural gas sys-
6 tems;

7 “(B) improving and deploying industrial
8 equipment and processes that reduce methane
9 and other greenhouse gas emissions and waste;

10 “(C) supporting innovation in reducing
11 methane and other greenhouse gas emissions
12 and waste from petroleum and natural gas sys-
13 tems;

14 “(D) mitigating health effects of methane
15 and other greenhouse gas emissions, and legacy
16 air pollution from petroleum and natural gas
17 systems in low-income and disadvantaged com-
18 munities; and

19 “(E) supporting environmental restoration;
20 and

21 “(4) to cover all direct and indirect costs re-
22 quired to administer this section, including the costs
23 of implementing the waste emissions charge under
24 subsection (b), preparing inventories, gathering em-
25 pirical data, and tracking emissions.

1 “(b) WASTE EMISSIONS CHARGE.—The Adminis-
2 trator shall impose and collect a charge on methane emis-
3 sions that exceed an applicable waste emissions threshold
4 under subsection (e) from an owner or operator of an ap-
5 plicable facility that is required to report methane emis-
6 sions pursuant to subpart W of part 98 of title 40, Code
7 of Federal Regulations (or any successor regulations).

8 “(c) APPLICABLE FACILITY.—For purposes of this
9 section, the term ‘applicable facility’ means a facility with-
10 in the following industry segments, as defined in subpart
11 W of part 98 of title 40, Code of Federal Regulations (or
12 any successor regulations):

13 “(1) Offshore petroleum and natural gas pro-
14 duction.

15 “(2) Onshore petroleum and natural gas pro-
16 duction.

17 “(3) Onshore natural gas processing,

18 “(4) Onshore natural gas transmission com-
19 pression.

20 “(5) Underground natural gas storage.

21 “(6) Liquefied natural gas storage.

22 “(7) Liquefied natural gas import and export
23 equipment.

24 “(8) Onshore petroleum and natural gas gath-
25 ering and boosting.

1 “(9) Onshore natural gas transmission pipeline.

2 “(d) CHARGE AMOUNT.—The amount of a charge
3 under subsection (b) for an applicable facility shall be
4 equal to the product obtained by multiplying—

5 “(1) the number of tons of methane emissions
6 reported pursuant to subpart W of part 98 of title
7 40, Code of Federal Regulations (or any successor
8 regulations) for the applicable facility that exceed
9 the applicable annual waste emissions threshold list-
10 ed in subsection (e) during the previous reporting
11 period; and

12 “(2)(A) \$900 for emissions reported for cal-
13 endar year 2023;

14 “(B) \$1200 for emissions reported for calendar
15 year 2024; or

16 “(C) \$1500 for emissions reported for calendar
17 year 2025 and each year thereafter.

18 “(e) WASTE EMISSIONS THRESHOLD.—

19 “(1) PETROLEUM AND NATURAL GAS PRODUC-
20 TION.—With respect to imposing and collecting the
21 charge under subsection (b) for an applicable facility
22 in an industry segment listed in paragraph (1) or
23 (2) of subsection (c), the Administrator shall impose
24 and collect the charge on the reported tons of meth-
25 ane emissions that exceed—

1 “(A) 0.20 percent of the natural gas sent
2 to sale from such facility; or

3 “(B) 10 metric tons of methane per million
4 barrels of oil sent to sale from such facility, if
5 such facility sent no natural gas to sale.

6 “(2) NONPRODUCTION PETROLEUM AND NAT-
7 URAL GAS SYSTEMS.—With respect to imposing and
8 collecting the charge under subsection (b) for an ap-
9 plicable facility in an industry segment listed in
10 paragraph (3), (6), (7), or (8) of subsection (c), the
11 Administrator shall impose and collect the charge on
12 the reported tons of methane emissions that exceed
13 0.05 percent of the natural gas sent to sale from
14 such facility.

15 “(3) NATURAL GAS TRANSMISSION.—With re-
16 spect to imposing and collecting the charge under
17 subsection (b) for an applicable facility in an indus-
18 try segment listed in paragraph (4), (5), or (9) of
19 subsection (c), the Administrator shall impose and
20 collect the charge on the reported tons of methane
21 emissions that exceed 0.11 percent of the natural
22 gas sent to sale from such facility.

23 “(4) EXEMPTION.—Charges shall not be im-
24 posed pursuant to paragraph (1) on emissions that
25 exceed the waste emissions threshold specified in

1 such paragraph if such emissions are caused by un-
2 reasonable delay in environmental permitting of
3 gathering infrastructure.

4 “(f) PERIOD.—The charge under subsection (b) shall
5 be imposed and collected beginning with respect to emis-
6 sions reported for calendar year 2023 and for each year
7 thereafter.

8 “(g) IMPLEMENTATION.—In addition to other au-
9 thorities in this Act addressing air pollution from the oil
10 and natural gas sectors, the Administrator may issue
11 guidance or regulations as necessary to carry out this sec-
12 tion.

13 “(h) REPORTING.—Not later than 2 years after the
14 date of enactment of this section, and as necessary there-
15 after, the Administrator shall revise the requirements of
16 subpart W of part 98 of title 40, Code of Federal Regula-
17 tions—

18 “(1) to reduce the facility emissions threshold
19 for reporting under such subpart and for paying the
20 charge imposed under this section to 10,000 metric
21 tons of carbon dioxide equivalent of greenhouse
22 gases emitted per year; and

23 “(2) to ensure the reporting under such sub-
24 part, and calculation of charges under subsections
25 (d) and (e) of this section, are based on empirical

1 data and accurately reflect the total methane emis-
2 sions and waste emissions from the applicable facili-
3 ties.

4 “(i) LIABILITY FOR CHARGE PAYMENT.—A facility
5 owner or operator’s liability for payment of the charge
6 under subsection (b) is not affected in any way by emis-
7 sion standards, permit fees, penalties, or other require-
8 ments under this Act or any other legal authorities.”.

9 **SEC. 30115. FUNDING FOR THE OFFICE OF THE INSPECTOR**
10 **GENERAL OF THE ENVIRONMENTAL PROTEC-**
11 **TION AGENCY.**

12 In addition to amounts otherwise made available,
13 there is appropriated to the Office of the Inspector Gen-
14 eral of the Environmental Protection Agency for fiscal
15 year 2022, out of any money in the Treasury not otherwise
16 appropriated, \$50,000,000, to remain available until Sep-
17 tember 30, 2031, for oversight of activities supported with
18 funds appropriated to the Environmental Protection Agen-
19 cy in this Act.

20 **SEC. 30116. CLIMATE POLLUTION REDUCTION GRANTS.**

21 The Clean Air Act is amended by inserting after sec-
22 tion 136 of such Act, as added by section 30114 of this
23 Act, the following:

1 **Subtitle H—Responsibly Funding**
2 **Our Priorities**

3 **SEC. 138001. AMENDMENT OF 1986 CODE.**

4 Except as otherwise expressly provided, whenever in
5 this subtitle an amendment or repeal is expressed in terms
6 of an amendment to, or repeal of, a section or other provi-
7 sion, the reference shall be considered to be made to a
8 section or other provision of the Internal Revenue Code
9 of 1986.

10 **PART 1—CORPORATE AND INTERNATIONAL TAX**
11 **REFORMS**

12 **Subpart A—Corporate Provisions**

13 **SEC. 138101. CORPORATE ALTERNATIVE MINIMUM TAX.**

14 (a) IMPOSITION OF TAX.—

15 (1) IN GENERAL.—Paragraph (2) of section
16 55(b) is amended to read as follows:

17 “(2) CORPORATIONS.—

18 “(A) APPLICABLE CORPORATIONS.—In the
19 case of an applicable corporation, the tentative
20 minimum tax for the taxable year shall be the
21 excess of—

22 “(i) 15 percent of the adjusted finan-
23 cial statement income for the taxable year
24 (as determined under section 56A), over

1 “(ii) the corporate AMT foreign tax
2 credit for the taxable year.

3 “(B) OTHER CORPORATIONS.—In the case
4 of any corporation which is not an applicable
5 corporation, the tentative minimum tax for the
6 taxable year shall be zero.”.

7 (2) APPLICABLE CORPORATION.—Section 59 is
8 amended by adding at the end the following new
9 subsection:

10 “(k) APPLICABLE CORPORATION.—For purposes of
11 this part—

12 “(1) APPLICABLE CORPORATION DEFINED.—

13 “(A) IN GENERAL.—The term ‘applicable
14 corporation’ means, with respect to any taxable
15 year, any corporation (other than an S corpora-
16 tion, a regulated investment company, or a real
17 estate investment trust) which meets the aver-
18 age annual adjusted financial statement income
19 test of subparagraph (B) for one or more tax-
20 able years which—

21 “(i) are prior to such taxable year,

22 and

23 “(ii) end after December 31, 2021.

1 “(B) AVERAGE ANNUAL ADJUSTED FINAN-
2 CIAL STATEMENT INCOME TEST.—For purposes
3 of this subsection—

4 “(i) a corporation meets the average
5 annual adjusted financial statement income
6 test for any taxable year if the average an-
7 nual adjusted financial statement income
8 of such corporation for the 3-taxable-year
9 period ending with such taxable year ex-
10 ceeds \$1,000,000,000, and

11 “(ii) in the case of a corporation de-
12 scribed in paragraph (2), such corporation
13 meets the average annual adjusted finan-
14 cial statement income test if—

15 “(I) the corporation meets the re-
16 quirements of clause (i) (determined
17 after the application of paragraph
18 (2)), and

19 “(II) the average annual adjusted
20 financial statement income of such
21 corporation (determined without re-
22 gard to the application of paragraph
23 (2)) for the 3-taxable-year-period end-
24 ing with such taxable year is
25 \$100,000,000 or more.

1 “(C) EXCEPTION.—Notwithstanding sub-
2 paragraph (A), the term ‘applicable corporation’
3 shall not include any corporation which other-
4 wise meets the requirements of subparagraph
5 (A) if—

6 “(i) such corporation—

7 “(I) has a change in ownership,
8 or

9 “(II) has a specified number (to
10 be determined by the Secretary and
11 which shall, as appropriate, take into
12 account the facts and circumstances
13 of the taxpayer) of consecutive taxable
14 years, including the most recent tax-
15 able year, in which the corporation
16 does not meet the average annual ad-
17 justed financial statement income test
18 of subparagraph (B), and

19 “(ii) the Secretary determines that it
20 would not be appropriate to continue to
21 treat such corporation as an applicable cor-
22 poration.

23 The preceding sentence shall not apply to any
24 corporation if, after the Secretary makes the
25 determination described in clause (ii), such cor-

1 poration meets the average annual adjusted fi-
2 nancial statement income test for any taxable
3 year beginning after the first taxable year for
4 which the determination applies.

5 “(D) SPECIAL RULES FOR DETERMINING
6 AVERAGE ANNUAL ADJUSTED FINANCIAL
7 STATEMENT INCOME.—Solely for purposes of
8 determining whether a corporation is an appli-
9 cable corporation under paragraph (1)—

10 “(i) all persons treated as a single em-
11 ployer under subsection (a) or (b) of sec-
12 tion 52 shall be treated as 1 person, and

13 “(ii) in the case of a foreign corpora-
14 tion, only income described in paragraph
15 (3) or (4) of section 56A(c) shall be taken
16 into account.

17 “(E) OTHER SPECIAL RULES.—

18 “(i) CORPORATIONS IN EXISTENCE
19 FOR LESS THAN 3 YEARS.—If the corpora-
20 tion was in existence for less than 3-tax-
21 able years, subparagraph (B) shall be ap-
22 plied on the basis of the period during
23 which such corporation was in existence.

24 “(ii) SHORT TAXABLE YEARS.—Ad-
25 justed financial statement income for any

1 taxable year of less than 12 months shall
2 be annualized by multiplying the adjusted
3 financial statement income for the short
4 period by 12 and dividing the result by the
5 number of months in the short period.

6 “(iii) TREATMENT OF PREDE-
7 CESSORS.—Any reference in this subpara-
8 graph to a corporation shall include a ref-
9 erence to any predecessor of such corpora-
10 tion.

11 “(2) SPECIAL RULE FOR FOREIGN-PARENTED
12 CORPORATIONS.—

13 “(A) IN GENERAL.—Solely for purposes of
14 determining whether a corporation meets the
15 average annual adjusted financial statement in-
16 come test under paragraph (1)(B)(i), notwith-
17 standing paragraph (1)(D)(ii), any corporation
18 which for any taxable year is a member of an
19 international financial reporting group the com-
20 mon parent of which is a foreign corporation
21 shall include in the adjusted financial statement
22 income of such corporation for such taxable
23 year the adjusted financial statement income of
24 all foreign members of such group.

1 “(B) INTERNATIONAL FINANCIAL REPORT-
2 ING GROUP.—For purposes of subparagraph
3 (A), the term ‘international financial reporting
4 group’ shall have the meaning given such term
5 by section 163(n)(3).

6 “(3) REGULATIONS OR OTHER GUIDANCE.—
7 The Secretary shall provide regulations or other
8 guidance for the purposes of carrying out this sub-
9 section, including regulations or other guidance—

10 “(A) providing a simplified method for de-
11 termining whether a corporation meets the re-
12 quirements of paragraph (1), and

13 “(B) addressing the application of this
14 subsection to a corporation that experiences a
15 change in ownership.”.

16 (3) REDUCTION FOR BASE EROSION AND ANTI-
17 ABUSE TAX.—Section 55(a)(2) is amended by insert-
18 ing “plus, in the case of an applicable corporation
19 (as defined in subsection (b)(2)), the tax imposed by
20 section 59A” before the period at the end.

21 (4) CONFORMING AMENDMENTS.—

22 (A) Section 55(a) is amended by striking
23 “In the case of a taxpayer other than a cor-
24 poration, there” and inserting “There”.

25 (B)(i) Section 55(b)(1) is amended—

1 (I) by striking so much as precedes
2 subparagraph (A) and inserting the fol-
3 lowing:

4 “(1) NONCORPORATE TAXPAYERS.—In the case
5 of a taxpayer other than a corporation—”, and

6 (II) by adding at the end the fol-
7 lowing new subparagraph:

8 “(D) ALTERNATIVE MINIMUM TAXABLE IN-
9 COME.—The term ‘alternative minimum taxable
10 income’ means the taxable income of the tax-
11 payer for the taxable year—

12 “(i) determined with the adjustments
13 provided in section 56 and section 58, and

14 “(ii) increased by the amount of the
15 items of tax preference described in section
16 57.

17 If a taxpayer is subject to the regular tax, such
18 taxpayer shall be subject to the tax imposed by
19 this section (and, if the regular tax is deter-
20 mined by reference to an amount other than
21 taxable income, such amount shall be treated as
22 the taxable income of such taxpayer for pur-
23 poses of the preceding sentence).”.

1 (ii) Section 860E(a)(4) is amended by
2 striking “55(b)(2)” and inserting
3 “55(b)(1)(D)”.

4 (iii) Section 897(a)(2)(A)(i) is amended by
5 striking “55(b)(2)” and inserting
6 “55(b)(1)(D)”.

7 (C) Section 11(d) is amended by striking
8 “the tax imposed by subsection (a)” and insert-
9 ing “the taxes imposed by subsection (a) and
10 section 55”.

11 (D) Section 12 is amended by adding at
12 the end the following new paragraph:

13 “(5) For alternative minimum tax, see section
14 55.”.

15 (E) Section 882(a)(1) is amended by in-
16 serting “, 55,” after “section 11”.

17 (F) Section 6425(c)(1)(A) is amended to
18 read as follows:

19 “(A) the sum of—

20 “(i) the tax imposed by section 11 or
21 subchapter L of chapter 1, whichever is
22 applicable, plus

23 “(ii) the tax imposed by section 55,
24 plus

1 “(iii) the tax imposed by section 59A,
2 over”.

3 (G) Section 6655(e)(2) is amended by in-
4 serting “, adjusted financial statement income
5 (as defined in section 56A),” before “and modi-
6 fied taxable income” each place it appears in
7 subparagraphs (A)(i) and (B)(i).

8 (H) Section 6655(g)(1)(A) is amended by
9 redesignating clauses (ii) and (iii) as clauses
10 (iii) and (iv), respectively, and by inserting
11 after clause (i) the following new clause:

12 “(ii) the tax imposed by section 55,”.

13 (b) ADJUSTED FINANCIAL STATEMENT INCOME.—

14 (1) IN GENERAL.—Part VI of subchapter A of
15 chapter 1 is amended by inserting after section 56
16 the following new section:

17 **“SEC. 56A. ADJUSTED FINANCIAL STATEMENT INCOME.**

18 “(a) IN GENERAL.—For purposes of this part, the
19 term ‘adjusted financial statement income’ means, with re-
20 spect to any corporation for any taxable year, the net in-
21 come or loss of the taxpayer set forth on the taxpayer’s
22 applicable financial statement for such taxable year, ad-
23 justed as provided in this section.

24 “(b) APPLICABLE FINANCIAL STATEMENT.—For
25 purposes of this section, the term ‘applicable financial

1 statement' means, with respect to any taxable year, an ap-
2 plicable financial statement (as defined in section
3 451(b)(3) or as specified by the Secretary in regulations
4 or other guidance) which covers such taxable year.

5 “(c) GENERAL ADJUSTMENTS.—

6 “(1) STATEMENTS COVERING DIFFERENT TAX-
7 ABLE YEARS.—Appropriate adjustments shall be
8 made in adjusted financial statement income in any
9 case in which an applicable financial statement cov-
10 ers a period other than the taxable year.

11 “(2) SPECIAL RULES FOR RELATED ENTI-
12 TIES.—

13 “(A) CONSOLIDATED FINANCIAL STATE-
14 MENTS.—If the financial results of a taxpayer
15 are reported on the applicable financial state-
16 ment for a group of entities, rules similar to the
17 rules of section 451(b)(5) shall apply.

18 “(B) CONSOLIDATED RETURNS.—Except
19 as provided in regulations prescribed by the
20 Secretary, if the taxpayer files a consolidated
21 return for any taxable year, adjusted financial
22 statement income of the taxpayer for such tax-
23 able year shall take into account items on the
24 taxpayer's applicable financial statement which

1 are properly allocable to members of such group
2 included on such return.

3 “(C) TREATMENT OF DIVIDENDS AND
4 OTHER AMOUNTS.—In the case of any corpora-
5 tion which is not included on a consolidated re-
6 turn with the taxpayer, adjusted financial state-
7 ment income of the taxpayer shall take into ac-
8 count the earnings of such other corporation
9 only to the extent of the sum of the dividends
10 received from such other corporation (reduced
11 to the extent provided by the Secretary in regu-
12 lations or other guidance) and other amounts
13 required to be included in gross income under
14 this chapter (other than amounts required to be
15 included under sections 951 and 951A) in re-
16 spect of the earnings of such other corporation.

17 “(D) GROUP INCLUDING ONE OR MORE
18 PARTNERSHIPS.—Under rules prescribed by the
19 Secretary, if the financial results of a taxpayer
20 are reported on the applicable financial state-
21 ment for a group of entities that includes one
22 or more partnerships, adjusted financial state-
23 ment income shall take into account the earn-
24 ings of such partnerships in the same propor-
25 tion as the taxpayer’s distributive share of

1 items from the partnerships required to be in-
2 cluded in gross income under this chapter.

3 “(3) ADJUSTMENTS TO TAKE INTO ACCOUNT
4 CERTAIN ITEMS OF FOREIGN INCOME.—

5 “(A) IN GENERAL.—If, for any taxable
6 year, a taxpayer is a United States shareholder
7 of one or more controlled foreign corporations,
8 the adjusted financial statement income of such
9 taxpayer shall be adjusted to take into account
10 such taxpayer’s pro rata share (determined
11 under rules similar to the rules under section
12 951(a)(2)) of items taken into account in com-
13 puting the net income or loss set forth on the
14 applicable financial statement of each such con-
15 trolled foreign corporation with respect to which
16 such taxpayer is a United States shareholder.

17 “(B) NEGATIVE ADJUSTMENTS.—In any
18 case in which the adjustment determined under
19 subparagraph (A) would result in a negative ad-
20 justment for such taxable year—

21 “(i) no adjustment shall be made
22 under this paragraph for such taxable
23 year, and

24 “(ii) the amount of the adjustment
25 determined under this paragraph for the

1 succeeding taxable year (determined with-
2 out regard to this paragraph) shall be re-
3 duced by an amount equal to the negative
4 adjustment for such taxable year.

5 “(4) EFFECTIVELY CONNECTED INCOME.—In
6 the case of a foreign corporation, to determine ad-
7 justed financial statement income, the principles of
8 section 882 shall apply.

9 “(5) ADJUSTMENTS FOR CERTAIN TAXES.—Ad-
10 justed financial statement income shall be appro-
11 priately adjusted to disregard any Federal income
12 taxes, or income, war profits, or excess profits taxes
13 (within the meaning of section 901) with respect to
14 a foreign country or possession of the United States,
15 which are taken into account on the taxpayer’s ap-
16 plicable financial statement. To the extent provided
17 by the Secretary, the preceding sentence shall not
18 apply to income, war profits, or excess profits taxes
19 (within the meaning of section 901) that are im-
20 posed by a foreign country or possession of the
21 United States and taken into account on the tax-
22 payer’s applicable financial statement if the taxpayer
23 does not choose to take the benefits of section 901.
24 The Secretary shall prescribe such regulations or
25 other guidance as may be necessary and appropriate

1 to provide for the proper treatment of current and
2 deferred taxes for purposes of this paragraph, in-
3 cluding the time at which such taxes are properly
4 taken into account.

5 “(6) ADJUSTMENT WITH RESPECT TO DIS-
6 REGARDED ENTITIES.—Adjusted financial statement
7 income shall be adjusted to take into account any
8 adjusted financial statement income of a disregarded
9 entity owned by the taxpayer.

10 “(7) SPECIAL RULE FOR COOPERATIVES.—In
11 the case of a cooperative to which section 1381 ap-
12 plies, the adjusted financial statement income (deter-
13 mined without regard to this paragraph) shall be re-
14 duced by the amounts referred to in section 1382(b)
15 (relating to patronage dividends and per-unit retain
16 allocations) to the extent such amounts were not
17 otherwise taken into account in determining ad-
18 justed financial statement income.

19 “(8) RULES FOR ALASKA NATIVE CORPORA-
20 TIONS.—Adjusted financial statement income shall
21 be appropriately adjusted to allow—

22 “(A) cost recovery and depletion attrib-
23 utable to property the basis of which is deter-
24 mined under section 21(c) of the Alaska Native

1 Claims Settlement Act (43 U.S.C. 1620(c)),
2 and

3 “(B) deductions for amounts payable made
4 pursuant to section 7(i) or section 7(j) of such
5 Act (43 U.S.C. 1606(i) and 1606(j)) only at
6 such time as the deductions are allowed for tax
7 purposes.

8 “(9) AMOUNTS ATTRIBUTABLE TO ELECTIONS
9 FOR DIRECT PAYMENT OF CERTAIN CREDITS.—Ad-
10 justed financial statement income shall be appro-
11 priately adjusted to disregard any amount received
12 as a refund of taxes which is attributable to an elec-
13 tion under section 6417.

14 “(10) CONSISTENT TREATMENT OF MORTGAGE
15 SERVICING INCOME OF TAXPAYER OTHER THAN A
16 REGULATED INVESTMENT COMPANY.—

17 “(A) IN GENERAL.—Adjusted financial
18 statement income shall be adjusted so as not to
19 include any item of income in connection with
20 a mortgage servicing contract any earlier than
21 when such income is included in gross income
22 under any other provision of this chapter.

23 “(B) RULES FOR AMOUNTS NOT REP-
24 RESENTING REASONABLE COMPENSATION.—
25 The Secretary shall provide regulations to pre-

1 vent the avoidance of taxes imposed by this
2 chapter with respect to amounts not rep-
3 resenting reasonable compensation (as deter-
4 mined by the Secretary) with respect to a mort-
5 gage servicing contract.

6 “(11) SECRETARIAL AUTHORITY TO ADJUST
7 ITEMS.—The Secretary shall issue regulations or
8 other guidance to provide for such adjustments to
9 adjusted financial statement income as the Secretary
10 determines necessary to carry out the purposes of
11 this section, including adjustments—

12 “(A) to prevent the omission or duplication
13 of any item,

14 “(B) to take into account the ownership of
15 a member of a group by a corporation or part-
16 nership which is not a member of such group,
17 and

18 “(C) to carry out the principles of part II
19 of subchapter C of this chapter (relating to cor-
20 porate liquidations), part III of subchapter C of
21 this chapter (relating to corporate organizations
22 and reorganizations), and part II of subchapter
23 K of this chapter (relating to partnership con-
24 tributions and distributions).

1 “(d) DEDUCTION FOR FINANCIAL STATEMENT NET
2 OPERATING LOSS.—

3 “(1) IN GENERAL.—Adjusted financial state-
4 ment income (determined after application of sub-
5 section (e) and without regard to this subsection)
6 shall be reduced by an amount equal to the lesser
7 of—

8 “(A) the aggregate amount of financial
9 statement net operating loss carryovers to the
10 taxable year, or

11 “(B) 80 percent of adjusted financial
12 statement income computed without regard to
13 the deduction allowable under this subsection.

14 “(2) FINANCIAL STATEMENT NET OPERATING
15 LOSS CARRYOVER.—A financial statement net oper-
16 ating loss for any taxable year shall be a financial
17 statement net operating loss carryover to each tax-
18 able year following the taxable year of the loss. The
19 portion of such loss which shall be carried to subse-
20 quent taxable years shall be the amount of such loss
21 remaining (if any) after the application of paragraph
22 (1).

23 “(3) FINANCIAL STATEMENT NET OPERATING
24 LOSS DEFINED.—For purposes of this subsection,
25 the term ‘financial statement net operating loss’

1 means the amount of the net loss (if any) set forth
2 on the corporation's applicable financial statement
3 (determined after application of subsection (c) and
4 without regard to this subsection) for taxable years
5 ending after December 31, 2019.

6 “(e) REGULATIONS AND OTHER GUIDANCE.—The
7 Secretary shall provide for such regulations and other
8 guidance as necessary to carry out the purposes of this
9 section, including regulations and other guidance relating
10 to the effect of the rules of this section on partnerships
11 with income taken into account by an applicable corpora-
12 tion.”.

13 (2) CLERICAL AMENDMENT.—The table of sec-
14 tions for part VI of subchapter A of chapter 1 is
15 amended by inserting after the item relating to sec-
16 tion 56 the following new item:

“Sec. 56A. Adjusted financial statement income.”.

17 (c) CORPORATE AMT FOREIGN TAX CREDIT.—Sec-
18 tion 59, as amended by this section, is amended by adding
19 at the end the following new subsection:

20 “(1) CORPORATE AMT FOREIGN TAX CREDIT.—

21 “(1) IN GENERAL.—For purposes of this part,
22 if an applicable corporation chooses to have the ben-
23 efits of subpart A of part III of subchapter N for
24 any taxable year, the corporate AMT foreign tax

1 credit for the taxable year of the applicable corpora-
2 tion is an amount equal to sum of—

3 “(A) the lesser of—

4 “(i) the aggregate of the applicable
5 corporation’s pro rata share (as deter-
6 mined under section 56A(c)(3)) of the
7 amount of income, war profits, and excess
8 profits taxes (within the meaning of sec-
9 tion 901) imposed by any foreign country
10 or possession of the United States which
11 are—

12 “(I) taken into account on the
13 applicable financial statement of each
14 controlled foreign corporation with re-
15 spect to which the applicable corpora-
16 tion is a United States shareholder,
17 and

18 “(II) paid or accrued (for Fed-
19 eral income tax purposes) by each
20 such controlled foreign corporation, or

21 “(ii) the product of the amount of the
22 adjustment under section 56A(c)(3) and
23 the percentage specified in section
24 55(b)(2)(A)(i), and

1 “(B) the amount of income, war profits,
2 and excess profits taxes (within the meaning of
3 section 901) imposed by any foreign country or
4 possession of the United States to the extent
5 such taxes are—

6 “(i) taken into account on the applica-
7 ble corporation’s applicable financial state-
8 ment, and

9 “(ii) paid or accrued (for Federal in-
10 come tax purposes) by the applicable cor-
11 poration.

12 “(2) CARRYOVER OF EXCESS TAX PAID.—For
13 any taxable year for which an applicable corporation
14 chooses to have the benefits of subpart A of part III
15 of subchapter N, the excess of the amount described
16 in paragraph (1)(A)(i) over the amount described in
17 paragraph (1)(A)(ii) shall increase the amount de-
18 scribed in paragraph (1)(A)(i) in any of the first 5
19 succeeding taxable years to the extent not taken into
20 account in a prior taxable year.

21 “(3) REGULATIONS OR OTHER GUIDANCE.—
22 The Secretary shall provide for such regulations or
23 other guidance as is necessary to carry out the pur-
24 poses of this subsection.”.

1 (d) TREATMENT OF GENERAL BUSINESS CREDIT.—

2 Section 38(c)(6)(E) is amended to read as follows:

3 “(E) CORPORATIONS.—In the case of a
4 corporation—

5 “(i) the first sentence of paragraph
6 (1) shall be applied by substituting ‘25
7 percent of the taxpayer’s net income tax as
8 exceeds \$25,000’ for ‘the greater of’ and
9 all that follows,

10 “(ii) paragraph (2)(A) shall be applied
11 without regard to clause (ii)(I) thereof,
12 and

13 “(iii) paragraph (4)(A) shall be ap-
14 plied without regard to clause (ii)(I) there-
15 of.”.

16 (e) CREDIT FOR PRIOR YEAR MINIMUM TAX LIABIL-
17 ITY.—

18 (1) IN GENERAL.—Section 53(e) is amended to
19 read as follows:

20 “(e) APPLICATION TO APPLICABLE CORPORA-
21 TIONS.—In the case of a corporation—

22 “(1) subsection (b)(1) shall be applied by sub-
23 stituting ‘the net minimum tax for all prior taxable
24 years beginning after 2022’ for ‘the adjusted net

1 minimum tax imposed for all prior taxable years be-
2 ginning after 1986’, and

3 “(2) the amount determined under subsection
4 (c)(1) shall be increased by the amount of tax im-
5 posed under section 59A for the taxable year.”.

6 (2) CONFORMING AMENDMENTS.—Section
7 53(d) is amended—

8 (A) in paragraph (2), by striking “, except
9 that in the case” and all that follows through
10 “treated as zero”, and

11 (B) by striking paragraph (3).

12 (f) EFFECTIVE DATE.—The amendments made by
13 this section shall apply to taxable years beginning after
14 December 31, 2022.

15 **SEC. 138102. EXCISE TAX ON REPURCHASE OF CORPORATE**
16 **STOCK.**

17 (a) IN GENERAL.—Subtitle D is amended by insert-
18 ing after chapter 36 the following new chapter:

19 **“CHAPTER 37—REPURCHASE OF**
20 **CORPORATE STOCK**

“Sec. 4501. Repurchase of corporate stock.

21 **“SEC. 4501. REPURCHASE OF CORPORATE STOCK.**

22 “(a) GENERAL RULE.—There is hereby imposed on
23 each covered corporation a tax equal to 1 percent of the
24 fair market value of any stock of the corporation which

1 gains, and losses are properly taken into account
2 shall be made at the entity level.

3 (5) DEFINITIONS OF CERTAIN TERMS.—Terms
4 used in this subsection which are also used in sec-
5 tion 1(h) of such Code shall have the respective
6 meanings that such terms have in such section.

7 **SEC. 138203. APPLICATION OF NET INVESTMENT INCOME**
8 **TAX TO TRADE OR BUSINESS INCOME OF**
9 **CERTAIN HIGH INCOME INDIVIDUALS.**

10 (a) IN GENERAL.—Section 1411 is amended by add-
11 ing at the end the following new subsection:

12 “(f) APPLICATION TO CERTAIN HIGH INCOME INDI-
13 VIDUALS.—

14 “(1) IN GENERAL.—In the case of any indi-
15 vidual whose modified adjusted gross income for the
16 taxable year exceeds the high income threshold
17 amount, subsection (a)(1) shall be applied by sub-
18 stituting ‘the greater of specified net income or net
19 investment income’ for ‘net investment income’ in
20 subparagraph (A) thereof.

21 “(2) PHASE-IN OF INCREASE.—The increase in
22 the tax imposed under subsection (a)(1) by reason of
23 the application of paragraph (1) of this subsection
24 shall not exceed the amount which bears the same

1 ratio to the amount of such increase (determined
2 without regard to this paragraph) as—

3 “(A) the excess described in paragraph (1),

4 bears to

5 “(B) \$100,000 ($\frac{1}{2}$ such amount in the
6 case of a married taxpayer (as defined in sec-
7 tion 7703) filing a separate return).

8 “(3) HIGH INCOME THRESHOLD AMOUNT.—For
9 purposes of this subsection, the term ‘high income
10 threshold amount’ means—

11 “(A) except as provided in subparagraph
12 (B) or (C), \$400,000,

13 “(B) in the case of a taxpayer making a
14 joint return under section 6013 or a surviving
15 spouse (as defined in section 2(a)), \$500,000,
16 and

17 “(C) in the case of a married taxpayer (as
18 defined in section 7703) filing a separate re-
19 turn, $\frac{1}{2}$ of the dollar amount determined under
20 subparagraph (B).

21 “(4) SPECIFIED NET INCOME.—For purposes of
22 this section, the term ‘specified net income’ means
23 net investment income determined—

24 “(A) without regard to the phrase ‘other
25 than such income which is derived in the ordi-

1 nary course of a trade or business not described
2 in paragraph (2),’ in subsection (c)(1)(A)(i),

3 “(B) without regard to the phrase ‘de-
4 scribed in paragraph (2)’ in subsection
5 (c)(1)(A)(ii),

6 “(C) without regard to the phrase ‘other
7 than property held in a trade or business not
8 described in paragraph (2)’ in subsection
9 (c)(1)(A)(iii),

10 “(D) without regard to paragraphs (2),
11 (3), and (4) of subsection (c), and

12 “(E) by treating paragraphs (5) and (6) of
13 section 469(c) as applying for purposes of sub-
14 section (c) of this section.”.

15 (b) APPLICATION TO TRUSTS AND ESTATES.—Sec-
16 tion 1411(a)(2)(A) is amended by striking “undistributed
17 net investment income” and inserting “the greater of un-
18 distributed specified net income or undistributed net in-
19 vestment income”.

20 (c) CLARIFICATIONS WITH RESPECT TO DETER-
21 MINATION OF NET INVESTMENT INCOME.—

22 (1) WAGES SUBJECT TO FICA NOT TAKEN INTO
23 ACCOUNT.—Section 1411(c)(6) is amended by in-
24 serting “or wages received with respect to employ-

1 ment on which a tax is imposed under section
2 3101(b)” before the period at the end.

3 (2) NET OPERATING LOSSES NOT TAKEN INTO
4 ACCOUNT.—Section 1411(c)(1)(B) is amended by in-
5 serting “(other than section 172)” after “this sub-
6 title”.

7 (3) INCLUSION OF CERTAIN FOREIGN IN-
8 COME.—

9 (A) IN GENERAL.—Section 1411(c)(1)(A)
10 is amended by striking “and” at the end of
11 clause (ii), by striking “over” at the end of
12 clause (iii) and inserting “and”, and by adding
13 at the end the following new clause:

14 “(iv) any amount includible in gross
15 income under section 951, 951A, 1293, or
16 1296, over”.

17 (B) PROPER TREATMENT OF CERTAIN
18 PREVIOUSLY TAXED INCOME.—Section 1411(c)
19 is amended by adding at the end the following
20 new paragraph:

21 “(7) CERTAIN PREVIOUSLY TAXED INCOME.—
22 The Secretary shall issue regulations or other guid-
23 ance providing for the treatment of distributions of
24 amounts previously included in gross income for pur-

1 poses of chapter 1 but not previously subject to tax
2 under this section.”.

3 (d) EFFECTIVE DATE.—The amendments made by
4 this section shall apply to taxable years beginning after
5 December 31, 2021.

6 (e) TRANSITION RULE.—The regulations or other
7 guidance issued by the Secretary under section 1411(e)(7)
8 of the Internal Revenue Code of 1986 (as added by this
9 section) shall include provisions which provide for the
10 proper coordination and application of clauses (i) and (iv)
11 of section 1411(e)(1)(A) with respect to—

12 (1) taxable years beginning on or before De-
13 cember 31, 2021, and

14 (2) taxable years beginning after such date.

15 **SEC. 138204. LIMITATION ON DEDUCTION OF QUALIFIED**
16 **BUSINESS INCOME FOR CERTAIN HIGH IN-**
17 **COME INDIVIDUALS.**

18 (a) IN GENERAL.—Section 199A(a) is amended by
19 striking “or” at the end of paragraph (1), by striking the
20 period at the end of paragraph (2) and inserting “, or”,
21 and by adding at the end the following new paragraph:

22 “(3) the following amount:

23 “(A) \$500,000 in the case of a joint return
24 or surviving spouse (as defined in section 2(a)),

1 **Subtitle N—Fossil Fuel Resources**

2 **SEC. 71401. ONSHORE FOSSIL FUEL ROYALTY RATES.**

3 All new onshore oil and gas leases issued by the Sec-
4 retary of the Interior shall be conditioned upon the pay-
5 ment of a royalty at a rate of 18.75 percent in amount
6 or value of the production from the lease. Before a termi-
7 nated or cancelled oil or gas lease may be reinstated by
8 the Secretary of the Interior, back royalties must be paid,
9 and future royalties shall be at a rate of 25 percent in
10 amount or value of the production from the lease.

11 **SEC. 71402. OFFSHORE OIL AND GAS ROYALTY RATE.**

12 All new offshore oil and gas leases on submerged
13 lands of the outer Continental Shelf granted by the Sec-
14 retary of the Interior shall be conditioned upon the pay-
15 ment of a royalty at a rate of not less than 14 percent
16 in amount or value of the production from the lease.

17 **SEC. 71403. OIL AND GAS MINIMUM BID.**

18 The onshore minimum acceptable bid charged by the
19 Secretary of the Interior shall be \$10 per acre on Federal
20 lands in the contiguous United States authorized to be
21 leased by the Secretary for production of oil and gas. The
22 Secretary of the Interior shall by regulation, at least once
23 every 4 years, adjust the dollar amount to reflect the
24 change in inflation.

BUDGET OF THE U.S. GOVERNMENT

FISCAL YEAR 2022

OFFICE OF MANAGEMENT AND BUDGET



THE WHITE HOUSE
WASHINGTON



BUDGET OF THE U.S. GOVERNMENT

FISCAL YEAR 2022

OFFICE OF MANAGEMENT AND BUDGET



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WASHINGTON

THE BUDGET DOCUMENTS

Budget of the United States Government, Fiscal Year 2022 contains the Budget Message of the President, information on the President's priorities, and summary tables.

Analytical Perspectives, Budget of the United States Government, Fiscal Year 2022 contains analyses that are designed to highlight specified subject areas or provide other significant presentations of budget data that place the budget in perspective. This volume includes economic and accounting analyses, information on Federal receipts and collections, analyses of Federal spending, information on Federal borrowing and debt, baseline or current services estimates, and other technical presentations.

Supplemental tables and other materials that are part of the *Analytical Perspectives* volume are available at <https://whitehouse.gov/omb/analytical-perspectives/>.

Appendix, Budget of the United States Government, Fiscal Year 2022 contains detailed information on the various appropriations and funds that constitute the budget and is designed primarily for the use of the Appropriations Committees. The *Appendix* contains more detailed financial information on individual programs and appropriation accounts than any of the other budget documents. It includes for each agency: the proposed text of

appropriations language; budget schedules for each account; legislative proposals; narrative explanations of each budget account; and proposed general provisions applicable to the appropriations of entire agencies or group of agencies. Information is also provided on certain activities whose transactions are not part of the budget totals.

BUDGET INFORMATION AVAILABLE ONLINE

The President's Budget and supporting materials are available online at <https://whitehouse.gov/omb/budget/>. This link includes electronic versions of all the budget volumes, supplemental materials that are part of the *Analytical Perspectives* volume, spreadsheets of many of the budget tables, and a public use budget database. This link also includes *Historical Tables* that provide data on budget receipts, outlays, surpluses or deficits, Federal debt, and Federal employment over an extended time period, generally from 1940 or earlier to 2022 or 2026. Also available are links to documents and materials from budgets of prior years.

For more information on access to electronic versions of the budget documents, call (202) 512-1530 in the D.C. area or toll-free (888) 293-6498. To purchase the printed documents call (202) 512-1800.

GENERAL NOTES

1. All years referenced for budget data are fiscal years unless otherwise noted. All years referenced for economic data are calendar years unless otherwise noted.
2. Detail in this document may not add to the totals due to rounding.

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THE BUDGET MESSAGE OF THE PRESIDENT

TO THE CONGRESS OF THE UNITED STATES:

Where we choose to invest speaks to what we value as a Nation.

This year's Budget, the first of my Presidency, is a statement of values that define our Nation at its best. It is a Budget for what our economy can be, who our economy can serve, and how we can build it back better by putting the needs, goals, ingenuity, and strength of the American people front and center.

The Budget is built around a fundamental understanding of how our economy works and why, for too long and for too many, it has not. It is a Budget that reflects the fact that trickle-down economics has never worked, and that the best way to grow our economy is not from the top down, but from the bottom up and the middle out. Our prosperity comes from the people who get up every day, work hard, raise their family, pay their taxes, serve their Nation, and volunteer in their communities. If we make that understanding our foundation, everything we build upon it will be strong.

And we have already seen how that economic vision is working. When I took office, America was a Nation in crisis. A once-in-a-century pandemic was raging, claiming thousands of American lives each day. A punishing economic crisis had erased 22 million jobs in just 2 months in the spring of 2020 and upended the lives of millions more. The pain these crises caused was visible not just in the data, but in the lives of millions of Americans: Americans who faced an empty chair at the dinner table where a loved one once sat; who had to shut down the family business; who lined up for miles in their cars waiting for a box of food to be put in the trunk; who went to bed staring at the ceiling wondering how they would get through tomorrow.

Through the American Rescue Plan, we answered the emergency and provided desperately needed relief to hundreds of millions of Americans. Immediately, the law began delivering shots in arms and checks in pockets.

The American Rescue Plan is also helping schools reopen safely, helping child care centers stay in business, and helping families pay for child care. In fact, it is providing the largest investment in American child care since World War II. It is delivering food and nutrition assistance to millions of Americans facing hunger. It is providing rental assistance to keep people from being evicted from their homes. It is helping small businesses and restaurants stay open or re-open. It is making healthcare more affordable. It is supporting the recovery of State and local governments. And it is putting us on track to cut child poverty in half this year.

With the resources provided by the American Rescue Plan, we are turning the corner on the pandemic, and powering an equitable economic recovery. In my first 100 days in office, our economy created more than 1.5 million jobs, the most in the first 100 days of any President on record. But more work remains—not simply to emerge from the immediate crises we inherited, but to build back better.

The Budget lays out the essential investments that my Administration has proposed through the American Jobs Plan and the American Families Plan.

The American Jobs Plan puts millions of Americans to work to build our Nation back not just to the way it was before the pandemic, but back better. Americans will rebuild America's transportation infrastructure, water infrastructure, and broadband connectivity infrastructure. Americans will build a clean energy future while investing in communities at risk of being left behind during our energy transition. American workers and American farmers will make unprecedented progress in our effort to tackle climate change. And, thanks to the biggest increase in non-defense research and development spending on record, Americans will boost America's innovative edge in markets where global leadership is up for grabs—markets like battery technology, biotechnology, computer chips, and clean energy. Finally, the American Jobs Plan will create new and better jobs for caregiving workers who have been underpaid and undervalued for far too long.

The American Families Plan addresses four of the biggest challenges facing American families today, and lays the groundwork for individual, family, community, and national success tomorrow. It guarantees four additional years of education for every American, beginning with 2 years of universal high-quality pre-school for every 3- and 4-year old in America, and adding 2 years of free community college. It would make college more affordable and tackle equity gaps with increased Pell grants and investments in institutions serving low-income, first generation students, and students of color. And it provides access to quality, affordable child care to low- and middle-income families, expanded access to healthy meals because no child in America should be hungry or under-nourished, comprehensive paid family and medical leave, and expanded game-changing tax credits for families and workers.

The Budget complements these historic plans with additional proposals to reinvest in the foundations of our Nation's strength—expanding economic opportunity, improving education, tackling the climate crisis, and ensuring a strong national defense while restoring America's place in the world. In the 1950s, our Department of Defense created a Defense Advanced Research Projects Agency (DARPA) to enhance our national security, and DARPA's work helped lead to the creation of the internet, Global Positioning System, and more. The Budget would create an Advanced Research Projects Agency for Health tasked with developing a new generation of medical breakthroughs—marshalling our Nation's incredible scientific capacity to help prevent, detect, and treat diseases like cancer, diabetes, and Alzheimer's. And it calls on the Congress to make progress on healthcare by cutting prescription drug costs and expanding and improving the Affordable Care Act, Medicaid, and Medicare coverage.

The Budget invests directly in the American people and will strengthen our Nation's economy and improve our long-run fiscal health. It reforms our broken tax code to reward work instead of wealth, while also fully paying for the American Jobs Plan and the American Families Plan over 15 years. It will help us build a recovery that is broad-based, inclusive, sustained, and strong. And it will demonstrate to the American people that we value them and that we recognize that they are the key to our shared prosperity; that their Government sees them, hears them, and is able to deliver for them again.

It will send to the world the message that I shared with a Joint Session of the Congress in April: that America is on the move again, and that our democracy is proving it can deliver for our people and is poised to win the competition for the 21st Century.

There are many challenges ahead. But every time America has faced moments of testing, we have emerged stronger. And I believe this Budget will help us become stronger than ever.

I look forward to working with the Congress to deliver on this agenda this year.

JOSEPH R. BIDEN, JR.

THE WHITE HOUSE.

CONFRONTING THE PANDEMIC AND RESCUING THE ECONOMY

America has always been defined by the grit and determination of its people, and our capacity to come together in common purpose at moments of great challenge. Across the generations, that spirit of resilience has seen us through war and depression, natural disasters and disease, and countless crises that have tested the Nation's strength, persistence, and commitment to core values and to one another. For more than a year, we have confronted a confluence of challenges that have called on that resilience like never before.

Inheriting Historic Challenges

When the President took office, America was in the grips of the worst pandemic in a century and a painful economic downturn that had upended virtually every aspect of American life. By January, more than 24 million Americans across the Nation had contracted COVID-19. Infection rates and hospitalizations were soaring. More than 400,000 Americans had lost their lives and thousands were dying every single day. A more contagious variant of the virus had begun appearing in communities across America.

Meanwhile, the Administration inherited a disorganized and ineffective national vaccination effort that was struggling to get off the ground. When the President took office, only eight percent of America's seniors—and very few working-age adults—had received their first shot. At the same time, more than 10 months into the COVID-19 pandemic, the Nation still lacked adequate testing capacity and faced shortages of supplies like basic protective equipment for those working on the frontlines.

The broad failure to control the spread of COVID-19 in the months before the President took office had devastating and far-reaching consequences. Millions of students and parents were forced to navigate the challenges of remote learning—straining countless families and disproportionately affecting Black, Hispanic, Asian, and Native American students, as well as students with disabilities and English language learners. Disruptive changes in people's daily lives also took a significant toll on both mental and physical health. Medically fragile individuals and those with chronic diseases such as hypertension, obesity, and diabetes had to make the decision to either protect their health and avoid a negative outcome from COVID-19, or risk losing their jobs. More Americans reported experiencing symptoms of anxiety, overdose deaths rose, and domestic violence surged. Moreover, the COVID-19 pandemic exposed and exacerbated deeply rooted health inequities in the Nation and laid bare gaps and weaknesses in America's public health infrastructure.

As the virus tore across America, it left enormous economic damage in its wake. In January, more than 10 million Americans were out of work, with a national unemployment rate of 6.3 percent. After accounting for workers who either dropped out of the labor force or could not find full-time work, the unemployment rate was over 12 percent. More than 52 percent of America's unemployed had been jobless for more than 15 weeks, a level of long-term unemployment unseen since the depths of the Great Recession. In addition, 1 in 11 Black workers and 1 in 12 Latino workers were unemployed.

Thousands of small businesses closed their doors—many permanently—with many others struggling to stay afloat.

The jobs crisis was particularly severe among women. When the President took office, a staggering 2.5 million women had dropped out of the labor force due to the COVID-19 pandemic—many to help care for their children, with potential lifetime consequences in terms of economic security. Between February 2020 and January 2021, the labor force participation rate for women dropped by 3.7 percent overall, 6.4 percent for Black women, and 6.6 percent for Hispanic women, eviscerating more than 35 years of progress in labor force participation in just one year. The economy was hit hardest in female dominated industries like retail and restaurants. On top of the job loss in those sectors, women working on the frontlines of the COVID-19 pandemic in nursing homes and hospitals—many of whom are often low-paid women of color—risked their health and scrambled to take care of their own families so they could care for others. Early childhood and child care providers—a significant share of which are owned by women and people of color—have also been devastated by the COVID-19 pandemic. Estimates suggest that among child care providers open at the beginning of the COVID-19 pandemic, as of December 2020, roughly one in four were closed.

As a result of this enormous economic disruption, countless Americans who were financially stretched even before the COVID-19 pandemic were plunged into an economic emergency. One in three households struggled to afford basic expenses. Millions of households reported not having enough to eat. Millions of Americans fell behind on their rent or mortgage payments, with more than 15 million households reporting overdue payments when the President took office. Roughly two to three million people lost employer sponsored health insurance between March and September. Further, going into the COVID-19 pandemic, about 30 million people lacked coverage, limiting their access to the healthcare system when the COVID-19 pandemic struck.

Delivering Immediate Relief: Passing the American Rescue Plan Act of 2021

In the face of these twin public health and economic crises, the President took immediate, bold action to deliver relief to the American people. The President proposed and signed into law the American Rescue Plan Act of 2021 (the American Rescue Plan)—a historic, comprehensive package designed to help change the course of the COVID-19 pandemic, deliver desperately needed support to millions of workers, families, and small businesses, and build a bridge to a robust, equitable economic recovery.

The American Rescue Plan advanced three critical priorities. First, it included urgently needed resources to help families and businesses weather the worst of the COVID-19 pandemic, including: \$1,400 per-person rescue payments for households across America; extended unemployment insurance; housing and nutrition assistance; increased access to safe and reliable child care and affordable healthcare; historic expansions of middle class tax relief for working families; a solution to the crisis in America's multi-employer pension system; and support for hard-hit small businesses. Second, it provided vital resources to help safely reopen K-8 schools in communities across the Nation and address the needs of students. Third, it provided resources to help mount an unprecedented Government-wide effort to defeat the COVID-19 pandemic, including funding to: set up community vaccination sites nationwide; dramatically scale up testing and tracing; eliminate supply shortage problems; support community health centers; and address health disparities.

The resources included in the American Rescue Plan, coupled with the President's whole-of-Government response, have already begun to change the course of the COVID-19 pandemic and bolster the economy. In a matter of months, the Administration turned the slow-moving and underperforming vaccination effort it inherited into one of the most effective vaccination systems anywhere in the world. The Administration exceeded

the President's initial goal of administering 100 million shots in his first 100 days, ultimately administering 220 million shots in the President's first 100 days in office—an unprecedented national mobilization. As of May 17, nearly 60 percent of American adults had received at least one shot; nearly 85 percent of all seniors had received at least one shot and nearly 73 percent were fully vaccinated; and daily deaths were down more than 80 percent since January 20. All Americans 12 and older are now eligible for a COVID-19 vaccine. In addition, the Administration met the President's goal to reopen a majority of K-8 schools within the first 100 days.

As the Administration has ramped up the national COVID-19 pandemic response, the economy has started to get back on track. The President oversaw the creation of more than 1.5 million new jobs in his first 100 days in office—more than any president on record. Economists have raised their Gross Domestic Product growth forecasts for 2021 to 6.6 percent, which would be the fastest pace of economic growth in America in nearly four decades. Consumer confidence and spending are on the rise. Business activity is rebounding.

Moreover, the Administration is ensuring the American Rescue Plan reaches families, communities, and small businesses. The Department of the Treasury has already delivered more than 165 million relief payments of up to \$1,400 per person. The American Rescue Plan is delivering nutrition assistance to millions of Americans facing hunger, rental assistance and mortgage relief to help families stay in their homes, and loans to small businesses to help keep their doors open. It includes the largest investment in child care since World War II, which will especially benefit women of color. It is reducing healthcare premiums, expanding access to insurance coverage, and addressing persistent health disparities. It ensures that millions of American workers and retirees will receive the pensions they earned. In addition,

it is projected to reduce poverty by 32 percent, lifting a total of nearly 13 million Americans out of poverty—this would mean a 38-percent drop in the Black poverty rate, a 43-percent drop in the Hispanic poverty rate, a 23-percent drop in the Asian American and Pacific Islander poverty rate, and a 50-percent drop in the child poverty rate.

Emerging from Crises and Focusing on the Future

While significant challenges remain, the American Rescue Plan has succeeded by virtually every measure in helping address the immediate economic and public health crises the Administration inherited. However, even as the Administration makes significant strides to get the Nation back on track, the President believes it is not enough to go back to the way things were before the COVID-19 pandemic struck, or to settle for a shrunken view of what America can be. The President believes this is a moment to build back better and to rise to meet the full range of challenges and opportunities before us—from rebuilding America's crumbling physical and care infrastructure and creating millions of good-paying jobs, to combatting climate change and revitalizing American manufacturing, to expanding access to both early childhood and higher education and addressing systemic inequities, and more.

None of this work will be easy. Many of the challenges America faces have been years or decades in the making. These challenges do not lend themselves to quick or easy solutions, nor will they be fully resolved in a single year or with a single budget. But it is precisely at the moments of greatest consequence that Americans have shown their capacity to think big and do the hard work of charting a new and better course for the future. Our charge now is to carry that legacy forward.

BUILDING BACK BETTER

Under the President's leadership, America is getting back on track. We have begun turning the tide on the pandemic. Our economy is growing and creating jobs. Students are getting back into classrooms. And we have shown yet again there is no quit in America. But our work has only begun.

For all of the hard-won progress our Nation has made in recent months, we cannot afford to simply return to the way things were before the pandemic and economic downturn, with the old economy's structural weaknesses and inequities still in place. We must seize this moment to reimagine and rebuild a new American economy—an economy that invests in the promise and potential of every single American; that leaves no one out and no one behind; and that makes it easier for families to break into the middle class and stay in the middle class.

The Budget details the President's proposals to advance that agenda this year. It includes the two historic plans the President has already put forward—the American Jobs Plan and the American Families Plan—and outlines a package of discretionary proposals to help restore core functions of Government and reinvest in the foundations of the Nation's strength. It also calls on the Congress to reduce prescription drug costs and expand and improve health coverage. Enacting the Budget policies into law this year would strengthen our Nation's economy and lay the foundation for shared prosperity, while also putting the Nation on a sound fiscal course. Importantly, even as the Administration pursues this historic agenda, the President also believes that there will be more to accomplish in

the coming years. This year's Budget gives a full accounting of the first, critical steps our Nation must take to begin the work of building back better.

The American Jobs Plan

The Budget begins with the American Jobs Plan—an investment in America that would create millions of good jobs, rebuild the Nation's infrastructure, and position the United States to out-compete China. Public domestic investment as a share of the economy has fallen by more than 40 percent since the 1960s. The American Jobs Plan would invest in America in a way that has not occurred since the interstate highways were built and the Space Race was won.

The United States is the wealthiest Nation in the world, yet ranks 13th when it comes to the overall quality of the Nation's infrastructure. After decades of disinvestment, America's roads, bridges, and water systems are crumbling. The electric grid is vulnerable to catastrophic outages. Too many lack access to affordable, high-speed internet and to quality housing. The past year has led to job losses and threatened economic security, eroding more than 30 years of progress in women's labor force participation. It has unmasked the fragility of America's caregiving infrastructure. In addition, the Nation is falling behind its biggest competitors in research and development (R&D), manufacturing, and training. It has never been more important to invest in strengthening the Nation's infrastructure and competitiveness, and in creating the good-paying, union jobs of the future.

As with great projects of the past, the President's plan would unify and mobilize the Nation to meet the great challenges of our time: the climate crisis and the ambitions of an autocratic China. It would invest in Americans and deliver the jobs and opportunities they deserve. Unlike past major investments, the plan prioritizes addressing long-standing and persistent racial injustice. The plan targets 40 percent of the benefits of climate and clean infrastructure investments to disadvantaged communities. In addition, the plan invests in rural communities and communities impacted by the market-based transition to clean energy. Specifically, the President's plan:

Fixes Highways, Rebuilds Bridges, and Upgrades Ports, Airports, and Transit Systems. The President's plan would: modernize 20,000 miles of highways, roads, and main-streets; fix the 10 most economically significant bridges in the Nation in need of reconstruction; repair the worst 10,000 smaller bridges, providing critical linkages to communities; replace thousands of buses and rail cars; repair hundreds of stations; renew airports; modernize ports of entry; and expand transit and rail into new communities.

Delivers Clean Drinking Water, a Renewed Electric Grid, and High-Speed Broadband to All Americans. The President's plan would eliminate all lead pipes and service lines in drinking water systems, improving the health of the Nation's children and communities of color. It would put hundreds of thousands of people to work laying thousands of miles of transmission lines and capping hundreds of thousands of orphan oil and gas wells and abandoned mines. It would also bring affordable, reliable, high-speed broadband to every household, including the more than 35 percent of rural families who lack access to broadband infrastructure, the millions of families paying too much for broadband, and the millions of low-income and marginalized communities left behind by digital redlining and the digital divide.

Builds, Preserves, and Retrofits More than Two Million Homes and Commercial Buildings, Modernizes the Nation's Schools and Child Care Facilities, and Upgrades Veterans' Hospitals and Federal Buildings. The President's plan would create good jobs by building, rehabilitating, and retrofitting affordable, accessible, energy efficient, and resilient housing, commercial buildings, schools, and child care facilities all over the Nation while also vastly improving the Nation's Federal facilities, especially those that serve veterans.

Solidifies the Infrastructure of America's Care Economy by Creating Jobs and Raising Wages and Benefits for Essential Home Care Workers. These workers—the majority of whom are women of color—have been underpaid and undervalued for too long. The President's plan makes substantial investments in the infrastructure of America's care economy, starting by creating new and better jobs for caregiving workers. It would provide home and community-based care for individuals who otherwise would need to wait as many as five years to get the services they badly need. The President also looks forward to working with the Congress on other policies to improve economic security and access to health-care for seniors and people with disabilities.

Revitalizes Manufacturing, Secures U.S. Supply Chains, Invests in R&D, and Trains Americans for the Jobs of the Future. The President's plan would ensure that the best, diverse minds in America are put to work creating the innovations of the future while creating hundreds of thousands of quality jobs today. American workers would build and make things in every part of the Nation, and they would be trained for well-paying, middle-class jobs using evidence-based approaches such as sector-based training and registered apprenticeships.

Creates Good-Quality Jobs that Pay Prevailing Wages in Safe and Healthy Workplaces while Ensuring Workers Have a Free and Fair Choice to Organize, Join a

Union, and Bargain Collectively with Their Employers. To ensure that American taxpayers' dollars benefit working families and their communities, and not multinational corporations or foreign governments, the plan requires that goods and materials are made in America and shipped on U.S.-flag, U.S.-crewed vessels. The plan also would ensure that Americans, especially those who have endured systemic discrimination and exclusion for generations, finally have a fair shot at obtaining good-paying jobs with: a choice to join a union; higher and equal pay; safe and healthy workplaces; and workplaces free from racial, gender, and other forms of discrimination and harassment.

Restructures the Corporate Tax Code to Ensure that Wealthy Corporations Pay Their Fair Share and Invest Here at Home. Alongside the American Jobs Plan, the President has put forward a Made in America tax plan that would reward investment at home, stop profit shifting, and ensure other nations would not gain a competitive edge by becoming tax havens. The key components of the Made in America tax plan include a 28-percent corporate tax rate and a global minimum tax alongside a strong incentive for other countries to enact reasonable minimum taxes as well. The plan also includes measures to prevent corporate inversions and offshoring, as well as a new minimum tax on corporate book income to ensure that massive, profitable companies can no longer get away with paying no Federal income tax. In addition, the plan also eliminates tax preferences for fossil fuels. This is a generational opportunity to fundamentally shift how countries around the world tax corporations so that big corporations cannot escape or eliminate the taxes they owe by offshoring jobs and profits.

The American Families Plan

To complement the American Jobs Plan and help extend the benefits of economic growth to all Americans, the Budget also includes the American Families Plan—a historic investment to: help families cover the basic expenses that so many struggle with now; lower health insurance

premiums; and continue the historic reductions in child poverty in the American Rescue Plan Act of 2021 (American Rescue Plan). Together, these plans reinvest in the future of the American economy and American workers and would help the Nation out-compete China and other countries around the world. Specifically, the President's American Families Plan:

Adds at Least Four Years of Free Education. Investing in education is a down payment on the future of America. As access to high school became more widely available at the turn of the 20th Century, it made America the best-educated and best-prepared Nation in the world. Yet, everyone knows that 12 years is not enough today. The American Families Plan would make transformational investments from early childhood to postsecondary education so that all children and young people are able to grow, learn, and gain the skills they need to succeed. It would provide universal access to high-quality preschool to all three- and four-year-olds, led by a well-trained and well-compensated workforce. It would provide Americans two years of free community college. It would invest in making college more affordable for low- and middle-income students, including students at Historically Black Colleges and Universities (HBCUs), Tribal Colleges and Universities (TCUs), and Minority-Serving Institutions (MSIs) such as Hispanic-Serving Institutions (HSIs) and Asian American and Native American Pacific Islander-Serving Institutions. It would also invest in America's teachers and students, improving teacher training and support so that schools become engines of growth at every level.

Provides Direct Support to Children and Families. The Nation is strongest when everyone has the opportunity to join the workforce and contribute to the economy. However, many workers struggle to both hold a full-time job and care for themselves and their families. The American Families Plan would provide direct support to families to ensure that low- and middle-income families spend no more than seven percent of their income on child care, and that the child care they access is of high-quality and provided by a

well-trained and well-compensated child care workforce. It would also provide direct support to workers and families by creating a national comprehensive paid family and medical leave program that would bring the American system in line with competitor nations that offer paid leave programs. A comprehensive paid family and medical leave program would allow workers to take the time they need to bond with a new child, to care for their own serious illness, and to care for a seriously ill loved one. The system would also allow people to manage their health and the health of their families. The plan would also make investments to improve maternal health and provide critical nutrition assistance to families who need it most and expand access to healthy meals to the Nation's students—dramatically reducing childhood hunger.

Extends Tax Cuts for Families with Children and American Workers. While the American Rescue Plan provided critical help to hundreds of millions of Americans, too many families and workers feel the squeeze of too-low wages and the high costs of meeting their basic needs and aspirations. At the same time, the wealthiest Americans continue to get further and further ahead. The American Families Plan would extend key tax cuts in the American Rescue Plan that benefit lower- and middle-income workers and families, including the expansions of the Child Tax Credit, the Earned Income Tax Credit, and the Child and Dependent Care Tax Credit. In addition to making it easier for families to make ends meet, tax credits for working families have been shown to boost child academic and economic performance over time. The American Families Plan would also extend the expanded health insurance tax credits in the American Rescue Plan. These credits are providing premium relief that is lowering health insurance costs by an average of \$50 per person per month for more than nine million people, and would enable millions of uninsured people to gain coverage.

Leading economic research has shown that the investments proposed in the American Families Plan would yield significant economic returns—boosting productivity and economic growth,

producing a larger, more productive, and healthier workforce on a sustained basis, and generating savings to States and the Federal Government. A recent review indicates that every dollar invested in early childhood programs resulted in an estimated range of \$2.50 to \$10.80 in benefits as children grew up healthier, were more likely to graduate high school and college, and earned more as adults. A 2020 study by Nobel Laureate James Heckman found that every dollar invested in a high-quality, birth until age five program for the most economically disadvantaged children resulted in \$7.30 in benefits. Paid leave has been shown to keep mothers in the workforce, increasing labor force participation and boosting economic growth. In addition, sustained tax credits for families with children have been found to yield a lifetime of benefits, ranging from higher educational attainment to higher lifetime earnings.

Supports Tax Reform that Rewards Work—Not Wealth. The American Families Plan also includes commonsense reforms to the income tax code that would rebalance the tax system away from special preferences for wealth and toward fair treatment regardless of the type of income. The President's tax agenda would not only reverse some of the biggest 2017 tax law giveaways, but would reform the tax code so that the wealthy have to play by the same rules as everyone else. It would ensure that high-income Americans pay the tax they owe under the law—ending the unfair system of enforcement that collects almost all taxes due on wages, while regularly collecting a smaller share of business and capital income. The plan would also eliminate long-standing loopholes, including lower taxes on capital gains and dividends for the wealthy, which reward wealth over work. Importantly, these reforms would also rein in the ways that the tax code widens racial disparities in income and wealth.

Reinvesting in the Foundations of the Nation's Strength

The American Jobs Plan and the American Families Plan represent once-in-a-generation investments in the Nation's future that would create jobs, grow the middle class, and expand the

benefits of economic growth to all Americans. To truly build back better, the Nation must also begin to reinvest in core functions of Government and the foundations of the Nation's strength—and that is exactly what the Budget does.

Over the past decade, due in large measure to overly restrictive budget caps, the Nation significantly underinvested in crucial public services, benefits, and protections. Since 2010, non-defense discretionary funding has shrunk significantly as a share of the economy.

The consequences of this broad disinvestment are plain to see. Anticipating, preparing for, and fighting a global pandemic requires a robust public health infrastructure. Yet, going into the COVID-19 pandemic, funding for the Centers for Disease Control and Prevention (CDC) was 10 percent lower than a decade ago, adjusted for inflation. Creating an economy that works for everyone—including rural, urban, and tribal communities—requires investments in working families who drive growth and prosperity. However, the Government has chronically underinvested in crucial programs such as Head Start, which serves 95,000 fewer children today than it did a decade ago. Responding to the climate crisis

depends on helping communities transition to a cleaner future. Instead of investing in climate science and technology at the Environmental Protection Agency (EPA), funding has been reduced by 27 percent since 2010, adjusted for inflation.

The President believes now is the time to begin reversing this trend—and the expiration of nearly a decade of budget caps presents a unique opportunity to do so. That is why the Budget includes targeted discretionary investments across a range of key areas—from improving America's public health infrastructure and improving education, to tackling the climate crisis and fostering economic growth and security, to restoring America's global standing and confronting 21st Century security challenges.

Overall, the Budget would restore non-defense discretionary funding to 3.3 percent of Gross Domestic Product, roughly equal to the historical average over the last 30 years, while providing robust funding for national defense as well as for other instruments of national power—including diplomacy, development, and economic statecraft—that enhance the effectiveness of national defense spending and promote national security.

EXPANDING OPPORTUNITY

The American Jobs Plan and the American Families Plan would boost worker productivity, invest in American ingenuity, create good-paying jobs, and provide real opportunity and security for millions of families. Those plans are complemented by the Budget's additional foundational investments. Together, this suite of policies would contribute to a stronger, more inclusive economy over the long term by: advancing economic dignity, equity, and security for all Americans; expanding opportunity; and creating good-paying jobs.

Improving Education

Makes Historic Investments in High-Poverty Schools. Addressing entrenched disparities

in education is both a moral and economic imperative. That is why the Budget proposes a historic \$36.5 billion investment in Title I grants, a \$20 billion increase from the 2021 enacted level. This investment would provide under-resourced schools with the funding needed to deliver a high-quality education to all of their students by ensuring teachers at Title I schools are paid competitively, providing equitable access to a rigorous curriculum, increasing access to preschool, and providing meaningful incentives for States to examine and address inequalities in school funding systems.

Expands Access to Affordable Early Child Care and Learning. To lay the foundation for

the major long-term investments in the American Families Plan, the Budget includes \$7.4 billion for the Child Care and Development Block Grant, an increase of \$1.5 billion from the 2021 enacted level, to expand access to quality, affordable child care for families across the Nation, as well as an \$11.9 billion investment in Head Start, a \$1.2 billion increase, which would ensure more children start kindergarten ready to learn on day one. The Administration would also work with States to ensure that these resources support increased wages for early educators and family child care providers, the majority of whom are women of color.

Boosts Support for Children with Disabilities. To ensure that children with disabilities have the opportunity to thrive, the Budget includes \$16 billion, a \$2.7 billion increase from the 2021 enacted level, for Individuals with Disabilities Education Act (IDEA) grants that would support special education and related services for more than 7.6 million preschool through grade 12 students. This is a significant first step toward fully funding IDEA. The Budget also provides \$732 million for early intervention services for infants and toddlers with disabilities or delays, funding services that have a proven record of improving academic and developmental outcomes. The \$250 million increase for early intervention services would be paired with reforms to expand access to these services for underserved children, including children of color and children from low-income families.

Prioritizes the Physical and Mental Well-Being of Students. Recognizing the profound effect of physical and mental health on academic achievement, the Budget provides \$1 billion in addition to the resources in the American Rescue Plan, to increase the number of counselors, nurses, and mental health professionals in schools. In addition, the Budget provides \$443 million for Full Service Community Schools, which play a critical role in providing comprehensive wrap-around services to students and their families, from afterschool programs, to adult education opportunities, to health and nutrition services.

Increases Pell Grants and Expands Institutional and Student Supports. The Budget provides discretionary funding to increase the maximum Pell Grant by \$400—the largest one-time increase since 2009. This increase, together with the \$1,475 Pell Grant increase in the American Families Plan, represents a significant first step to deliver on the President’s goal to double the grant. The Budget also increases discretionary funding, and provides funding first proposed under the American Families Plan, to expand institutional and student supports at community colleges, HBCUs, TCUs, and MSIs. The Administration also looks forward to working with the Congress on changes to the Higher Education Act of 1965 that ease the burden of student debt, including through improvements to the Income Driven Repayment and Public Service Loan Forgiveness programs.

Advancing Dignity, Equity, and Security

Expands Opportunities for Minority-Owned Businesses. To help address longstanding racial inequity and eliminate barriers for minority-owned firms, the Budget includes \$70 million, an increase of \$22 million, to fund investments in economic development grants and research to ensure policies effectively support the minority business community. In addition, the Budget provides \$330 million, an increase of 22.2 percent above the 2021 enacted level, to support expanding the role of Community Development Financial Institutions (CDFIs), which offer loans to start-ups and small businesses to promote the production of affordable housing and community revitalization projects. This investment builds on an unprecedented level of support for the CDFI industry in 2021, including more than \$3 billion in direct funding, \$9 billion for investments in depository and credit union CDFIs and Minority Depository Institutions, and provisions in the American Rescue Plan encouraging CDFI participation in the \$10 billion State Small Business Credit Initiative.

Increases Rural Outreach and Connectivity. The Budget provides \$32 million for a renewed and expanded initiative, StrikeForce, to

help people in high poverty rural communities tap into Federal resources. The Budget also provides an increase of \$65 million from the 2021 enacted level for the Rural e-Connectivity Program “Reconnect” for rural broadband. The Budget also includes \$318 million for regional commissions, which provide economic development assistance in distressed, rural communities through infrastructure investments, workforce development, and other activities.

Spurs Infrastructure Modernization and Rehabilitation in Marginalized Communities. The Budget provides \$3.8 billion for the Community Development Block Grant program, which includes a targeted increase of \$295 million for the modernization and rehabilitation of public infrastructure and facilities, such as recreational centers and commercial corridor improvements, in historically underfunded and marginalized communities facing persistent poverty.

Supports Transportation Equity. The Budget includes significant funding for major discretionary competitive grant programs, including Rebuilding American Infrastructure with Sustainability and Equity transit Capital Investment Grants, and Port Infrastructure Development grants. In addition, the Budget invests in rail as a down-payment to the President’s commitment to passenger rail. The Budget also proposes \$110 million for a new Thriving Communities initiative, which would foster transportation equity by providing capacity building grants to underserved communities. These programs would ensure that more communities have cleaner, robust, and affordable transportation options, including high-quality transit, equitable transit-oriented development, and other enhancements to improve neighborhood quality of life and address climate change.

Ensures Workers’ Health, Safety, and Rights Are Protected. The Budget provides increased funding to the worker protection agencies in the Department of Labor to ensure workers are treated with dignity and respect in the workplace.

The Administration is also committed to ending the abusive practice of misclassifying employees as independent contractors, which deprives these workers of critical protections and benefits. In addition to including funding in the Budget for stronger enforcement, the Administration intends to work with the Congress to develop comprehensive legislation to strengthen and extend protections against misclassification across appropriate Federal statutes.

Strengthens the Unemployment Insurance System. The COVID-19 pandemic triggered an economic crisis that has left millions of Americans relying on unemployment insurance and exposed major flaws and gaps in how the system is administered. To correct for these weaknesses and address chronic delays, the Budget includes significant support to modernize and improve States’ administration of the program and to help unemployed workers return to work, building on investments included in the American Rescue Plan and setting the stage for broad changes to modernize the program. This includes reforming the unemployment insurance system so it provides adequate benefits in every State, automatically responds to downturns, reflects the modern economy and labor force, uses more equitable and progressive financing mechanisms, and provides expanded reemployment services. Reform must also ensure that unemployment insurance benefits are both more accessible and less vulnerable to fraud, including from sophisticated criminal rings.

Advances Equity in Child Welfare. The Budget proposes \$100 million in new competitive grants to advance racial equity in the child welfare system and reduce unnecessary child removals. The Budget also increases funding for State and local child abuse prevention programs by over 30 percent compared to the 2021 enacted level. The Administration is also interested in working with the Congress to enact further child welfare reforms that advance equity, improve children’s well-being, and ensure all children, birth families, and prospective kinship, foster, and adoptive parents are served equitably and with dignity.

Expanding Housing Opportunity and Reducing the Racial Wealth Gap

Extends Housing Vouchers to 200,000 More Families. At a time when millions of families are struggling to pay their rent or mortgage, the Budget proposes to provide \$30.4 billion for Housing Choice Vouchers, expanding vital housing assistance to 200,000 more families with a focus on those who are homeless or fleeing domestic violence. The President looks forward to working with the Congress to build on this investment and achieve the long-term goal of providing housing vouchers to all eligible households, while increasing the program's impact on equity and poverty alleviation.

Accelerates Efforts to End Homelessness. The Budget builds on important provisions included in the American Rescue Plan by providing a \$500 million increase for Homeless Assistance Grants to support more than 100,000 households—including survivors of domestic violence and homeless youth, helping prevent and reduce homelessness.

Enhances Household Mobility and Neighborhood Choice. In addition to expanding the Housing Choice Voucher program to serve 200,000 more families, the Budget includes funding for mobility-related supportive services to provide low-income families who live in concentrated areas of poverty with greater options to move to higher-opportunity neighborhoods.

Supports Access to Homeownership and Pandemic Relief. The Budget supports access to homeownership for underserved borrowers through the Federal Housing Administration's (FHA) mortgage insurance programs. FHA is a crucial source of mortgage financing for first-time and minority homebuyers, who accounted for 83 percent and 37 percent, respectively, of FHA home purchase loans in 2020. In addition, through its expanded and streamlined loss mitigation program, FHA continues to provide urgent relief to homeowners suffering financially due to the COVID-19 pandemic.

Invests in Affordable Housing in Tribal Communities. Native Americans are seven times more likely to live in overcrowded conditions and five times more likely to have plumbing, kitchen, or heating problems than all U.S. households. The Budget helps address the poor housing conditions in tribal areas by providing \$900 million to fund tribal efforts to expand affordable housing, improve housing conditions and infrastructure, and increase economic opportunities for low-income families.

Creating Jobs and Growth—Now and for the Future

Supports a Future Made in America. The President is committed to ensuring the future is made in America by all of America's workers. The American Jobs Plan proposes transformative new funding for manufacturing programs at the National Institute of Standards and Technology (NIST), and the Budget complements those investments with additional discretionary funding, enabling the establishment of two new Manufacturing Innovation Institutes, in addition to institutes previously launched by the Departments of Defense (DOD) and Energy (DOE). The Budget also nearly doubles funding for the Manufacturing Extension Partnership to boost the competitiveness of small and medium manufacturers.

Renews America's Commitment to R&D. The Budget proposes historic increases in funding for foundational R&D across a range of scientific agencies—including the National Science Foundation (NSF), the National Aeronautics and Space Administration (NASA), DOE, NIST, and others—to help spur innovation across the economy and renew America's global leadership. These investments would: accelerate discoveries that would transform America's understanding of the solar system and universe; launch the next generation of satellites to study and improve life on Earth; and support upgrades to cutting-edge scientific user facilities at DOE national laboratories to build climate and clean energy research programs and train the next generation of scientists at HBCUs and MSIs. This funding, combined

with the investments proposed as part of the American Jobs Plan, would firmly reestablish the United States as a global leader in R&D.

Committing to Criminal Justice Reform and Redressing Longstanding Injustice

Reforms the Federal Criminal Justice System. The Budget supports key investments in First Step Act of 2018 (FSA) implementation, advancing the provision of high-quality substance use disorder treatment, reentry services, and recidivism reduction programming. Building on the bipartisan FSA, the Budget also incorporates savings from prison population reduction measures that prioritize incarceration alternatives for low-risk offenders.

Invests in Community Policing, Police Reform, and Other Efforts to Address Systemic Inequities. The Administration will take bold action to root out systemic inequities in the Nation's justice system. In addition to investing in programs that support community-oriented policing and practices, the Budget also proposes to expand grants that support efforts to reform State and local criminal justice systems, including funding to support juvenile justice programs, drug courts and alternative court programs, public defenders, and Second Chance Act of 2007 programs.

Invests in Civil Rights Offices across Government. The Budget supports significant increases for civil rights offices and activities across Federal agencies to ensure that the Nation's laws are enforced fairly and equitably.

Promotes State and Local Efforts to Prevent and Redress Housing Discrimination. The Budget provides \$85 million in grants to support State and local fair housing enforcement organizations and to further education, outreach, and training on rights and responsibilities under Federal fair housing laws. The Budget also invests in the Department of Housing and Urban Development (HUD) staff and operations capacity to deliver on the President's housing priorities, including commitments outlined in the Presidential Memorandum on Redressing Our Nation's and the Federal Government's History of Discriminatory Housing Practices and Policies.

Makes Major Investments in Environmental Justice. For decades, low-income and marginalized communities have been overburdened with air pollution and other environmental hazards. The Budget includes a 44-percent increase in funding for EPA's Brownfields program, which would enable States to clean up contaminated properties and assist them in turning idle properties into hubs for economic revitalization. The Budget provides \$400 million for HUD's Lead Hazard and Healthy Homes grants, which enable State and local governments and nonprofits to reduce lead-based paint and other health hazards in the homes of low-income families with young children. The Budget provides \$5 million to the Department of Justice (DOJ) to allow the Environment and Natural Resources Division to increase affirmative casework related to environmental justice.

INVESTING IN PUBLIC HEALTH INFRASTRUCTURE

The United States faces no more urgent task than defeating the COVID-19 pandemic. That is why the American Rescue Plan included vital funding to set up community vaccination sites nationwide, scale up testing and tracing, reduce supply shortage problems, support community health centers, address health disparities, and safely

reopen schools. The Budget builds on this foundation by proposing investments to build a healthier, more resilient Nation over the long term, including funding to ensure the Nation is better positioned to prevent and respond to future public health crises, help defeat other diseases and epidemics, and invest in cutting-edge medical research.

Strengthening Public Health Infrastructure and Meeting Crisis-Related Needs

Improves Readiness for Future Public Health Crises. The Budget includes \$8.7 billion in discretionary funding for CDC—the largest budget authority increase in nearly two decades—to restore capacity at the world’s preeminent public health agency. Building on the investments in the American Rescue Plan, CDC would use this additional funding to support core public health capacity improvements in States and Territories, modernize public health data collection nationwide, train new epidemiologists and other public health experts, and rebuild international capacity to detect, prepare for, and respond to emerging global threats.

Expands Access to Mental Healthcare. The COVID-19 pandemic has helped expose the strain on the Nation’s mental healthcare system and the need for additional sustained resources. The Budget builds on mental health resources included in the American Rescue Plan by: calling for historic investments, including \$1.6 billion, more than double the 2021 enacted level, for the Community Mental Health Services Block Grant; additional funding to support the needs of those who are involved in the criminal justice system; resources to partner mental health providers with law enforcement; and funds to expand suicide prevention activities.

Invests in Efforts to End Gender-Based Violence. The COVID-19 pandemic has exacerbated domestic violence and sexual assault and has compounded the barriers to safety and economic security, creating a “shadow pandemic” for many women and girls who are largely confined to their home with their abuser. To help address this growing crisis, the Budget provides \$1 billion for DOJ Violence Against Women Act of 1994 programs, nearly double the 2021 level, including funding for new programs to expand restorative justice efforts, protect transgender survivors, and support women at HBCUs, HSIs, and TCUs to ensure these institutions have the same resources as other schools to address this pervasive issue.

The Budget also provides a significant increase in funding at the Department of Health and Human Services (HHS) for domestic violence shelters and community-based programs, hotlines, cash assistance for survivors, medical support, and integrated healthcare services. The Administration also looks forward to working with the Congress to expand the new cash assistance program for survivors of domestic violence by providing additional resources beyond 2022.

Promotes Health Equity for American Indians and Alaska Natives. To begin redressing long-standing, stark health inequities experienced by American Indians and Alaska Natives, the Budget proposes to dramatically increase funding for the Indian Health Service (IHS) by \$2.2 billion. In addition, to ensure a more predictable funding stream for IHS, the Budget for the first time includes an advance appropriation for IHS in 2023.

Addresses Racial Disparities in Healthcare. Building on efforts in the American Rescue Plan to advance equity and reduce health disparities in all healthcare programs, the Budget includes additional funding to expand access to culturally competent care. The Budget also includes \$153 million for CDC’s Social Determinants of Health program to support States and Territories in improving health equity and data collection for racial and ethnic populations. The Administration also looks forward to working with the Congress to advance the President’s goal of doubling the Federal investment in community health centers, which would help reduce health disparities by expanding access to care.

Reduces Maternal Mortality Rate and Ends Race-Based Disparities in Maternal Mortality. The United States has the highest maternal mortality rate among developed nations, with an unacceptably high mortality rate for Black, American Indian/Alaska Native, and other women of color. To help end this high rate of maternal mortality and race-based disparities in outcomes among birthing people—and in addition to the investment in maternal health included in the American Families Plan—the

Budget includes more than \$200 million to: reduce maternal mortality and morbidity rates nationwide; bolster Maternal Mortality Review Committees; expand the Rural Maternity and Obstetrics Management Strategies program; help cities place early childhood development experts in pediatrician offices with a high percentage of Medicaid and Children's Health Insurance Program patients; implement implicit bias training for healthcare providers; and create State pregnancy medical home programs.

Defeating Other Diseases and Epidemics

Launches Advanced Research Projects Agency for Health (ARPA-H). The Budget includes a major investment of \$6.5 billion to launch ARPA-H, which would provide significant increases in direct Federal R&D spending in health. With an initial focus on cancer and other diseases such as diabetes and Alzheimer's, this major investment in Federal R&D would drive transformational innovation in health research and speed application and implementation of health breakthroughs. This funding is part of a \$51 billion request for the National Institutes of Health (NIH) to continue to support research that enhances health, lengthens life, and reduces illness and disability.

Makes a Major Investment to Help End the Opioid Epidemic. The opioid epidemic has shattered families, claimed lives, and ravaged communities across the Nation—and the COVID-19 pandemic has only deepened this crisis. That is why the Budget includes a historic investment of \$10.7 billion in discretionary funding in HHS, an increase of \$3.9 billion over the 2021 enacted level, to support research, prevention, treatment, and recovery support services, with targeted investments to support populations with unique needs, including Native Americans, older Americans, and rural populations. The Budget also includes \$621 million specific to the Department of Veterans Affairs' (VA's) Opioid

Prevention and Treatment programs, including programs in support of the Jason Simcakoski Memorial and Promise Act.

Combats the Gun Violence Public Health Epidemic. The Budget includes \$2.1 billion, an increase of \$232 million above the 2021 enacted level, for DOJ to address the gun violence public health crisis plaguing communities across the Nation. Investments include \$401 million in State and local grants, an increase of \$162 million or 68 percent. This level supports existing programs to improve background check systems, and invests in new programs to incentivize State adoption of gun licensing laws and establish voluntary gun buyback pilot programs. In addition, a total of \$1.6 billion is provided to the Bureau of Alcohol, Tobacco, Firearms, and Explosives, an increase of \$70 million or five percent over the 2021 enacted level, to oversee the safe sale, storage, and ownership of firearms and to support the Agency's other work to fight violent crime. The Budget request for HHS doubles funding for firearm violence prevention research at CDC and NIH. Combined, the Budget includes \$200 million in discretionary resources for DOJ and HHS to support a new Community Violence Intervention initiative to implement evidence-based community violence interventions locally, which may include hospital-based interventions. In addition to these amounts, the Budget supports the American Jobs Plan proposal for \$5 billion in total mandatory resources from 2023 to 2029 to provide long-term support for the Community Violence Intervention initiative.

Commits to Ending the HIV/AIDS Epidemic. To help accelerate and strengthen efforts to end the HIV/AIDS epidemic in the United States, the Budget includes \$670 million within HHS to help aggressively reduce new HIV cases while increasing access to treatment, expanding the use of pre-exposure prophylaxis, also known as PrEP, and ensuring equitable access to services and supports.

TACKLING THE CLIMATE CRISIS

Climate change is one of the greatest challenges of our time. It is also an opportunity to create new industries and good-paying jobs with a free and fair choice to join a union, revitalize America's energy communities and the economy, and position America as the world's clean energy superpower. In addition to the American Jobs Plan, the Budget includes more than \$36 billion of investments to combat climate change—an increase of more than \$14 billion compared to 2021—by investing in resilience and clean energy, enhancing U.S. competitiveness, and putting America on a path to achieve net-zero emissions no later than 2050—all while supporting communities that have been left behind and ensuring that 40 percent of the benefits from tackling the climate crisis are targeted toward addressing the disproportionately high cumulative impacts on disadvantaged communities.

Building Clean Energy Projects and Investing in Resilience

Improves Energy Efficiency, Safety, and Resilience of Low-Income Homes and Public Buildings. The Budget invests \$1.7 billion in energy saving retrofits to homes, schools, and Federal buildings. This investment includes \$800 million in new investments across HUD programs for rehabilitation and modernization to further climate resilience and energy efficiency, which would lower the costs and improve the quality of public and HUD-assisted housing, and \$400 million at DOE for the weatherization of low-income homes.

Creates Good-Paying Jobs Building Clean Energy Projects. Transforming the U.S. electricity sector—and electrifying an increasing share of the economy—represents one of the biggest job creation and economic opportunity engines of the 21st Century. That is why the Budget provides \$2 billion to put welders, electricians, and other skilled laborers to work building clean energy projects across the Nation. This investment supports a historic energy efficiency and clean electricity standard that would transform

the electric sector to be carbon-pollution free by 2035 while creating good-paying union jobs.

Invests in Climate Resilience and Disaster Planning. The Budget provides \$815 million—a \$540 million increase above the 2021 enacted level—to incorporate climate impacts into pre-disaster planning and projects to ensure that the Nation is rebuilding smarter and safer for the future. The Budget also provides more than \$1.2 billion above the 2021 enacted level to increase the resilience of ecosystems and communities across the Nation to wildfires, flooding, and drought, including an additional \$100 million for CDC's Climate and Health program. Consistent with the President's national conservation goal and the America the Beautiful initiative, the Budget also makes critical investments to help communities conserve important lands and waters, expand access to the outdoors for underserved communities, and deploy natural solutions to climate change.

Helps Tribal Nations Address the Climate Crisis. Tribal communities are particularly vulnerable to the impacts of climate change, which threatens their cultural and economic well-being. The Budget provides an increase of more than \$450 million to facilitate climate mitigation, resilience, adaptation, and environmental justice projects in Indian Country, including investment to begin the process of transitioning tribal colleges to renewable energy.

Increases Demand for American Made, Zero-Emission Vehicles through Federal Procurement. To provide an immediate, clear, and stable source of demand to help accelerate American industrial capacity to produce clean vehicles and components, the Budget includes \$600 million for electric vehicles and charging infrastructure in the individual budgets of 18 Federal agencies, including dedicated funds at the General Services Administration for other agencies and for the United States Postal Service charging infrastructure. This discretionary investment is one component of an overarching effort—combined with funding in the American

Jobs Plan—to leverage Federal procurement to create good-paying union jobs, and enable a clean transportation future.

Helping Communities Left Behind

Makes the Largest Investment in Environmental Justice in History. To support marginalized and overburdened communities across the Nation, the Budget invests more than \$1.4 billion, including \$936 million toward a new Accelerating Environmental and Economic Justice initiative at EPA. The initiative would create good-paying union jobs, clean up pollution, and secure environmental justice for communities that have been left behind. In order to hold polluters accountable, the initiative includes \$100 million to develop a new community air quality monitoring and notification program, which would provide real-time data in the places with the highest levels of exposure to pollution.

Propels an Effort to Create 250,000 Jobs Remediating Abandoned Wells and Mines. The Budget includes over \$580 million to remediate thousands of abandoned oil and gas wells and reclaim abandoned mines. This more than triples the current annual discretionary funding, building on the President’s commitment to create 250,000 good-paying union jobs for skilled technicians and operators in some of the hardest hit communities in the Nation, while cleaning up hazardous sites. In line with the stated goals of this Administration, the Budget more than doubles funding for the Economic Development Administration’s (EDA) Assistance to Coal Communities program. EDA’s efforts are part of the work of the new Interagency Working Group on Coal and Power Plant Communities and Economic Revitalization, and complement other targeted investments across the Federal Government to help spur economic revitalization, create jobs, and support workers in hard-hit coal, oil and gas, and power plant communities.

Creates Jobs Improving Critical Water Infrastructure. Clean, safe drinking water should be a right in all communities—rural and urban, rich and poor. That is why the American

Jobs Plan would replace every lead service line in America. The Budget also includes significant funding—\$3.6 billion—that could be used to advance water infrastructure improvement efforts for community water systems, schools, and households. These water infrastructure improvement efforts include repairing up to 180,000 septic systems, as well as broader efforts to improve drinking water and waste water infrastructure, while creating good-paying construction jobs that pay at least the prevailing wage across the Nation and in tribal communities.

Partners with Rural America to Grow Rural Economies and Tackle Rural Poverty.

The Budget includes a number of proposals to invest in and create opportunities for rural Americans. This includes more than \$300 million in new investments in the next generation of agriculture and conservation, including support for voluntary private lands conservation as part of the America the Beautiful initiative, renewable energy grants and loans, and the creation of a Civilian Climate Corps to create a new pathway to good-paying jobs in rural America. The Budget also supports \$6.5 billion in lending to support additional clean energy, energy storage, and transmission projects in rural communities.

Increasing Competitiveness through Investments in Innovation and Science

Advances Climate Science and Sustainability Research. The Budget proposes over \$4 billion to fund a broad portfolio of research across multiple agencies including the Department of the Interior, NASA, NSF, and others to improve understanding of the changing climate and inform adaptation and resilience measures.

Spurs Innovation in Clean Energy Technologies. The Budget invests more than \$10 billion—a nearly 30-percent increase over 2021—in clean energy innovation across non-defense agencies. These investments would help transform the Nation’s electric, transportation, buildings, and industrial sectors to achieve a net-zero carbon economy by 2050.

Drives Breakthrough Solutions in Climate Innovation. The Budget includes a total of \$1 billion to create a new Advanced Research Projects Agency for Climate and invests in the existing Advanced Research Projects Agency-Energy. Together, these initiatives would support high-risk, high-reward solutions for adaptation, mitigation, and resilience against the climate crisis and enable robust investments in clean energy technology R&D.

Expands Observations, Research, and Climate Services. The Budget includes \$7 billion for the National Oceanic and Atmospheric Administration (NOAA), an increase of \$1.5 billion from the 2021 enacted level. These additional funds would allow NOAA to: expand its climate observation and forecasting work and provide better data and information to decisionmakers; support coastal resilience programs that would help protect communities from the economic and environmental impacts of climate change; and

invest in modern infrastructure to enable these critical efforts.

Leading the World toward Achieving the Objectives of the Paris Agreement on Climate

Supports Global Emissions Reductions. To accelerate progress toward the Paris Agreement targets, the Budget includes a \$1.2 billion contribution to the Green Climate Fund—the first American contribution since 2017—to help developing countries reduce emissions and adapt to climate change. The Budget also proposes \$485 million to support other multilateral climate initiatives, including \$100 million for international climate adaptation programs. The Budget provides approximately \$700 million for the Department of State and U.S. Agency for International Development to assist developing countries in adapting to climate disruptions, expanding clean energy production, and reducing landscape emissions.

CONFRONTING 21ST CENTURY SECURITY CHALLENGES

From the COVID-19 pandemic to climate change, from the growing ambitions of China to the many global threats to democracy, successfully addressing global challenges will require working alongside and in partnership with other nations. After years of neglect, the Budget makes critical investments in diplomacy and development that would restore the health and morale of the Nation’s foreign policy institutions, as well as America’s relationships with key partners and allies. Diplomacy would once again be a centerpiece of American foreign policy, and America would once again be a leader on the world stage.

Renews American Leadership and Mobilizes Global Action. The Budget proposes re-investing in the Nation’s diplomatic corps and providing funding to support U.S. commitments to the World Health Organization, the United Nations (UN) Population Fund, and the UN High Commissioner for Human Rights, while continuing to press for needed reforms. The Budget also

provides \$1 billion in foreign assistance to bring an end to the COVID-19 pandemic and expand global health security activities, including to establish Global Health Security Agenda capacity-building programs in additional nations and increase investments in crosscutting research and viral discovery programs to detect and stamp out future infectious disease outbreaks. These funds would also support a new health security financing mechanism, developed alongside U.S. partners and allies, to ensure global readiness to respond to the next outbreak. In addition, recognizing that no single nation can meet the challenge of climate change alone, the Budget provides \$2.5 billion for international climate programs to help rally the world against this urgent threat, restore U.S. leadership, and catalyze new climate pledges.

Counters 21st Century Challenges and Threats. The Budget prioritizes the need to counter the threat from China while also deterring destabilizing behavior by Russia. Leveraging the

Pacific Deterrence Initiative and working together with allies and partners in the Indo-Pacific region and the North Atlantic Treaty Organization, DOD would ensure that the United States builds the concepts, capabilities, and posture necessary to meet these challenges. To ensure the United States plays a lead role in defending democracy, freedom, and the rule of law, the Budget also includes a significant increase in resources to: strengthen and defend democracies throughout the world; advance human rights; fight corruption; and counter authoritarianism. In addition, to support agencies as they modernize, strengthen, and secure antiquated information systems and bolster Federal cybersecurity, the Budget provides \$500 million for the Technology Modernization Fund, an additional \$110 million for the Cybersecurity and Infrastructure Security Agency, and \$750 million in additional investments tailored to respond to lessons learned from the SolarWinds incident.

Strengthens the Nation’s Immigration and Asylum Systems. The Budget proposes resources to implement a fair, orderly, and humane immigration system. This includes resources necessary to fulfill the President’s commitment to rebuild the Nation’s badly damaged refugee admissions program and support up to 125,000 admissions in 2022. In addition, the Budget provides over \$10 billion in humanitarian assistance to support vulnerable people abroad, including refugees and conflict victims. The Budget also

includes resources to address the naturalization and asylum backlogs, support non-profit legal service providers to help vulnerable populations, and fund non-profit case management programs. The Budget would also revitalize U.S. leadership in Central America as part of a comprehensive strategy to address the root causes of irregular migration from Central America to the United States, providing \$861 million in assistance to the region. These specific investments complement the President’s legislative efforts to provide a path to citizenship for undocumented immigrants and implement an immigration system that welcomes all communities

Upholds the Nation’s Sacred Obligation to America’s Veterans. Building on significant investments included in the American Rescue Plan, the Budget proposes \$97.5 billion to improve access to VA healthcare, an increase of \$3.3 billion above the 2022 enacted advance appropriations level, including increases in funding for women’s health, mental health, suicide prevention, and veterans’ homeless programs. The Budget also proposes \$882 million for medical and prosthetic research—including the largest increase in recent history—to advance VA’s understanding of traumatic brain injury, the effects of toxic exposure on long-term health outcomes, and the needs of disabled veterans. In addition, the Budget includes \$394 million to ensure veterans and their families have access to world-class memorial benefits.

THE PRESIDENT’S HEALTHCARE AGENDA TO LOWER COSTS AND EXPAND AND IMPROVE COVERAGE

The Patient Protection and Affordable Care Act (ACA) made historic progress in expanding and improving health coverage and lowering health costs. The American Rescue Plan built on that progress with the most substantial improvement in healthcare affordability since 2010. For people who obtain coverage through the ACA marketplaces, the American Rescue Plan increased premium tax credits—and extended them to families with incomes above 400 percent of the Federal

poverty level—for two years. These improvements are lowering premiums for more than nine million current enrollees by an average of \$50 per person per month, and would enable millions of uninsured people to gain coverage.

The American Rescue Plan was only a first step to lowering costs and expanding coverage. Building on that progress, the American Jobs Plan invests \$400 billion in strengthening

home- and community-based services for older people and people with disabilities and strengthening the workforce that provides this vital care. The American Families Plan makes permanent the American Rescue Plan's expansion of premium tax credits and makes a historic investment to improve maternal health and mortality.

Beyond these steps, the President also calls on the Congress to take action this year to reduce prescription drug costs and to further expand and improve health coverage. The President's healthcare agenda in these areas includes the following additional policies:

Lowering the Costs of Prescription Drugs.

The President supports reforms that would bring down drug prices by letting Medicare negotiate payment for certain high-cost drugs and requiring manufacturers to pay rebates when drug prices rise faster than inflation. These reforms would lower drug costs and save money for Medicare beneficiaries and people with job-based insurance. The reforms could also yield over half a trillion in Federal savings over 10 years, which could help pay for coverage expansions and improvements.

Improving Medicare, Medicaid, and ACA Coverage.

Medicare, Medicaid, and the ACA marketplaces provide critical coverage to tens of millions of Americans, but should be strengthened through measures like improving access to dental, hearing, and vision coverage in Medicare, making it easier for eligible people to get and stay covered in Medicaid, and reducing deductibles

for marketplace plans. The President also supports eliminating Medicaid funding caps for Puerto Rico and other Territories while aligning their matching rate with States (and moving toward parity for other critical Federal programs including Supplemental Security Income and the Supplemental Nutrition Assistance Program). Further, evidence shows that we can reform Medicare payments to insurers and certain providers to reduce overpayments and strengthen incentives to deliver value-based care, extending the life of the Medicare Trust Fund, lowering premiums for beneficiaries, and reducing Federal costs.

Creating Additional Public Coverage Options.

The President supports providing Americans with additional, lower-cost coverage choices by: creating a public option that would be available through the ACA marketplaces; and giving people age 60 and older the option to enroll in the Medicare program with the same premiums and benefits as current beneficiaries, but with financing separate from the Medicare Trust Fund. In States that have not expanded Medicaid, the President has proposed extending coverage to millions of people by providing premium-free, Medicaid-like coverage through a Federal public option, paired with financial incentives to ensure States maintain their existing expansions.

Healthcare is a right, not a privilege. Families need the financial security and peace of mind that comes with quality, affordable health coverage. In collaboration with the Congress, the President's healthcare agenda would achieve this promise.

THE IMPACT OF THE PRESIDENT'S POLICIES ON THE NATION'S ECONOMIC AND BUDGET OUTLOOK

The Budget makes the investments needed for economic growth and shared prosperity, while also putting the Nation on a sound fiscal course.

Generating Economic Growth and Shared Prosperity

The Budget makes historic investments that would increase economic prosperity over the coming decade and beyond by increasing American productivity and the number of good-paying American jobs. The President's investments are targeted to the everyday Americans who drive the economy forward. The Budget reflects the basic understanding that workers and families all over the Nation are the engines of America's prosperity and including more people in that prosperity is how the Nation thrives.

The Budget's investments in infrastructure, research, and other areas would make American businesses and workers more productive, and more productive businesses would increase hiring and pay higher wages. Rebuilding the Nation's infrastructure would bridge income and racial gaps in transportation and housing opportunities, create good union jobs, and enable businesses to deliver goods and services more affordably and operate anywhere, including in rural areas that currently lack broadband. Investments in R&D would ensure that the technologies of the future would be created in America by American businesses with American workers. Investments in manufacturing supply chains would make it more profitable to produce critical goods here at home and put more Americans to work in good jobs. In addition, investments to reverse climate change and develop climate resilience would drive technology growth, create millions of well-paying jobs with a free and fair choice to join a union, and mitigate the risk of electricity blackouts and other environmental disasters that disrupt work and cause enormous economic damage.

In addition to raising workers' wages, the Budget makes critical investments that would

increase the total number of American jobs and ensure more of them are good-quality union jobs. A generational investment in America's caregiving infrastructure would enable millions of Americans—disproportionately women—to succeed in the workforce and receive the better pay they deserve as they raise children or care for ailing parents. Long overdue paid family and medical leave would ensure that no American worker is one pregnancy or illness away from losing their paycheck and reduce racial disparities in paid leave. Expanding the Earned Income Tax Credit would make it possible for more people to join and remain in the workforce. Health investments—from providing clean water to upgrading the public health system to expanding health insurance tax credits so that millions of people gain coverage and access to care—would lower mortality and disability and enable more Americans to work long healthy fulfilling careers.

The Budget also makes historic investments in children that would improve their health and well-being in the near term while contributing to economic growth and shared prosperity in the long term. Universal preschool, child nutrition expansions, and tax cuts that lift millions of families with children out of poverty would ensure that all children—not only those from privileged backgrounds or advantaged communities—are set up for success in school and beyond. Historic investments in Title I school funding would help millions of children in low-income families to compete through high school and beyond. Free community college and Pell Grants, along with investments in registered apprenticeships, other labor-management training programs, and other workforce training investments in the American Jobs Plan, would give students the support to build skills directly applicable to good-paying jobs. A large and growing body of research shows that these and similar investments not only yield immediate benefits for children and their families but also improve children's health and well-being and increase their earnings when they reach adulthood, strengthening America's future economy.

Overall, the Budget represents a comprehensive strategy to build an economy that works for everyone, not only the wealthy and well-connected. These investments would pay dividends for decades to come and would help build a high-skilled workforce, spur faster growth, and create more jobs, higher wages, more security, less poverty, less racial inequity, and broader prosperity.

Putting the Nation on a Fiscally Responsible Path

The Budget charts a fiscally responsible path for delivering a stronger, more prosperous economy. Under the Budget's proposals, the cost of Federal debt payments would remain well below historical levels throughout the coming decade. In response to the Nation's longer-term fiscal challenges, the Budget's proposals would reduce the deficit in later years.

Over the past several decades, interest rates have fallen, even as debt has risen. This has been a widespread, persistent, and global phenomenon, and it has meant that the burden associated with debt has decreased. Given these structural dynamics, the level of interest payments, rather than the size of the debt, is the most relevant benchmark for whether debt is burdening the economy.

Real interest—the Federal Government's annual interest payments after adjusting for inflation—directly measures the economic cost of the debt: the real resources that are going toward paying off old debt, instead of investing in the future.

Real interest has averaged about one percent of the economy since 1980 and was about two percent in the 1990s. Since then, the effective real interest rate on Federal debt has fallen 10-fold, from over 4 percent to 0.4 percent.

As a result, real interest has fallen. Strikingly, in 2021, real interest costs are expected to be negative, due to negative real interest rates. The Budget's economic forecast

anticipates that real interest rates would likely rise over the coming decade, using projections in line with private forecasters. Nonetheless, under the President's policies, including the American Jobs Plan and the American Families Plan, real interest would remain at or below 0.5 percent of the economy throughout the next 10 years, well below the historical average.

In the current economic environment, the Federal Government has the fiscal space to make critical investments to expand the productive capacity of the economy, while also keeping real interest cost burdens low by historical standards. In fact, failing to make investments now that support growth and shared prosperity would leave future generations worse off.

Over the long term, the United States does face fiscal challenges, driven principally by underlying demographic pressures on health and retirement programs and inadequate revenue levels. There is also uncertainty about the interest rate outlook. The Budget's proposals prudently address these future challenges by making sure that new proposals are not only fully offset, but reduce deficits in the long run and improve the long-term fiscal outlook.

The Budget achieves this through reforms to the tax system. The Budget provides reforms to the corporate tax code to incentivize job creation and investment in the United States, stop unfair and wasteful profit shifting to tax havens, ensure that large corporations are paying their fair share, and stop a race-to-the-bottom in corporate tax rates around the world. The Budget also proposes to revitalize tax enforcement to ensure that high-income Americans pay the tax they owe under the law—ending the unfair system of enforcement that collects almost all taxes due on wages, while regularly collecting a smaller share of business and capital income. The plan would eliminate long-standing loopholes, including lower taxes on capital gains and dividends for the wealthy, which reward wealth over work.

Over time, the savings from these reforms would exceed the cost of the investments, and by large and growing amounts. The American Jobs Plan and American Families Plan together are paid for over 15 years. The full set of proposals in the Budget reduce the annual deficit by the end of the 10-year budget window and every year thereafter. In the second decade, the Budget's proposals reduce deficits by over \$2 trillion.

A Budget that added to long-term deficits would worsen fiscal health, while a Budget that reduced deficits today by underinvesting in the American people would result in slower, more stratified growth that would cause more damage than one that invests appropriately. The Budget responsibly balances these needs and risks by charting an economically and fiscally sound course for the near term and the long term.

DELIVERING RESULTS FOR ALL AMERICANS THROUGH AN EQUITABLE, EFFECTIVE, AND ACCOUNTABLE GOVERNMENT

In order to build back better and meet the full range of challenges and opportunities before us, the Nation needs an equitable, effective, and accountable Government that delivers results for all Americans. The President is committed to ensuring the Government works for all Americans—and the Budget makes crucial progress toward achieving that goal. The Budget ensures Federal agencies are sufficiently resourced and effectively equipped to carry out their missions. The Budget would help bolster the Administration’s efforts to: center equity across the Federal Government; empower, rebuild, and protect the Federal workforce; restore public trust in the Federal Government; deliver services effectively and efficiently; enhance Federal information technology (IT) and cybersecurity; advance America’s clean energy future; and help ensure the future is made in America by all of America’s workers. Taken together, these actions will support the President’s Management Agenda as it takes shape in the coming months.

Centering Equity in Management and Policymaking Processes

The Administration is committed to delivering on the President’s promise to advance equity across the entire Federal Government, including for people of color and other underserved communities that have been historically denied fair, just, and equitable treatment.

On January 26, 2021, the President said, “we need to make the issue of racial equity not just an issue for any one department of [G]overnment; it has to be the business of the whole of [G]overnment. That’s why I issued, among the first days,

my whole-of-[G]overnment [E]xecutive [O]rder that will, for the first time, advance equity for all throughout our [F]ederal policies and institutions.” Through this action, the President has made embedding equity in Government decision-making a mandate for the leadership and staff of every department and agency. At the President’s direction, agencies are working to recognize and redress inequities in their systems, policies, programs, and processes. Agencies are directed to review policies and activities to assess whether underserved communities and their members face systemic barriers in accessing benefits and opportunities available pursuant to those policies and programs. The President also issued an Executive Order creating the Gender Policy Council and laying out a whole-of-Government approach to ensure that all policies and programs promote gender equity and advance rights and opportunity for women and girls. As discussed in the previous chapter, the Budget makes wide-ranging investments in improving the delivery of Government programs for all Americans, including funding for critical work to redress longstanding inequities in health, education, housing, and other areas.

Empowering, Rebuilding, and Protecting the Federal Workforce

The Administration is committed to respecting and partnering with career civil servants who form the backbone of the Federal Government. That is why during his first month in office, the President restored collective bargaining rights and worker protections for Federal employees. The President eliminated Schedule F, which threatened the foundations of the civil service,

and made clear that the Administration will protect scientists and other career civil servants from political interference. The President also signed an Executive Order to ensure that the Federal Government interprets Title VII of the Civil Rights Act of 1964 as prohibiting workplace discrimination on the basis of sexual orientation and gender identity.

The Budget builds on these efforts to empower and protect the Federal workforce by:

Supporting Career Civil Servants as the Backbone of the Federal Workforce. To help departments and agencies recruit and retain a diverse and inclusive Federal workforce, the Budget ensures more Federal employees are eligible for a \$15 per hour wage, and provides funding for a pay increase averaging 2.7 percent across the Federal civilian workforce, in parity with the military pay increase. The President also took steps on his first day in office to protect the health and safety of Federal employees and contractors during the COVID-19 pandemic, including enforcing the Centers for Disease Control and Prevention’s science-based guidelines and directing agencies to finalize and implement workplace health and safety plans. The President also made clear that he encourages union organizing and collective bargaining by revoking Executive Orders 13836, 13837, and 13839 that made it harder for Federal workers to unionize and bargain. The President’s Executive Order on Protecting the Federal Workforce also directs agencies to bargain over additional subjects of bargaining, so that workers have a greater voice in their working conditions.

Achieving Better Hiring Outcomes. The Budget supports agency efforts to expand and enhance recruitment and hiring of top talent, and to deploy more effective qualifying assessments to improve hiring outcomes. Specifically, agencies would be required to revitalize their internship programs to begin to reverse the decline in the percentage of the workforce under 30, create and fund agency talent teams, and contribute funding to a new office that would support centralized Government-wide hiring actions that improve hiring outcomes for critical positions. Further, the President’s Memorandum on

Revitalizing America’s Foreign Policy and National Security Workforce, Institutions, and Partnerships ordered a series of actions agencies must take to ensure that the national security workforce reflects and draws on the richness and diversity of the Nation it represents.

Modernizing the Personnel Vetting System. The Administration is leading efforts to reform how the Executive Branch conducts background checks for its workforce through the Security Clearance, Suitability, and Credentialing Performance Accountability Council (PAC). The PAC is spearheading several transformative reforms through the Trusted Workforce 2.0 initiative that will introduce continuous vetting, reduce the time required to conduct background checks for new hires, and improve the mobility of the workforce, all while ensuring the Nation’s security.

Promoting Public Trust in the Federal Government

As the President has said, “[w]e have to prove to the American people that their [G]overnment can deliver for them...” The Administration is making important progress in promoting trust in Government, and the Budget advances these efforts.

Recommitting to Good Government. As part of the Administration’s commitment to good government, Federal agencies are working with external stakeholders and their own workforces to develop goals and track progress to improve the delivery of Government services in key priority areas. As the President’s Management Agenda takes shape and agency goals are established and pursued, the public will be able to follow progress on Performance.gov, which will be updated quarterly. By being clear about the Administration’s goals, showing the public plans to get there, and being transparent about results, the Administration will continue building trust with the American public.

Ensuring Effective Implementation of COVID-19 Pandemic Relief Funds and Stewardship of Taxpayer Resources. The Administration will administer COVID-19

pandemic relief funding—including funding provided through the American Rescue Plan Act of 2021 (the American Rescue Plan)—with maximum accountability and transparency and a focus on achieving results. This requires designing programs and service delivery models that achieve equitable results while promoting transparency and supporting long-term outcomes that benefit the American people. These goals can be achieved while minimizing burden to agencies and recipients through sound financial management, a focus on program integrity, and accurate and timely reporting on data about the use of taxpayer funds.

Fostering Scientific Integrity and Evidence-Based Decision-Making. The President has made clear that it is the policy of this Administration to make decisions guided by the best available science and data. On January 27, 2021, when signing a Presidential Memorandum charging agencies to advance scientific integrity and evidence-based policymaking, the President committed that his Administration would “protect our world-class scientists from political interference and ensure they can think, research, and speak freely and directly to me, the Vice President, and the American people.” Evidence-based policy-making and program evaluation are critical in addressing systemic inequities and injustices and maintaining the public’s trust. The Administration’s commitment to evidence-based policy-making and program evaluation is reflected in the prioritization and design of the Budget’s historic investments in addressing climate change, environmental justice, health security, and pandemic preparedness and will be equally central to implementing these initiatives. Agencies’ Learning Agendas and Annual Evaluation Plans should reflect their plans to build evidence in these and other priority areas.

Delivering Government Services Effectively and Efficiently

Improving Customer Experience. The Federal Government administers a wide array of programs on behalf of the American people, but implementation efforts often fail to adopt a

human, customer-focused mindset—preventing these programs from reaching all those they are intended to benefit and serve. The Administration is implementing a comprehensive approach to improving the access, equity, and overall delivery of Federal services, which includes improving customer experience management. The Budget supports the Nation’s highest impact service providers across a variety of agencies to deliver on their annual Customer Experience Action Plans. This includes, for example: increasing the use of remote inspection capabilities to enable families to send the Federal Emergency Management Agency digital video and images of disaster property damage for verification and validation; making it possible for individuals to request a call back, rather than waiting on the phone, for more Internal Revenue Service functions; collecting customer feedback on interactions with the Transportation Security Administration from passengers that experience secondary screening; and adapting the design of new “journey to discharge” approaches at the Veterans Health Administration for patient information to reduce preventable adverse events within three weeks of discharge.

Delivering Better Services through Design and Technology. Too often, outdated tools, systems, and practices make interacting with the Federal Government cumbersome and frustrating. The COVID-19 pandemic laid bare and exacerbated the Government’s technology and service delivery challenges in a time of immediate need. Recognizing this, the Administration requested and received \$200 million through the American Rescue Plan for the United States Digital Service (USDS) for a multiyear investment in the USDS mission to use design and technology to deliver better services to the American people. USDS quickly deployed teams of seasoned operational engineers, service designers, product managers, and procurement experts to bring best practices and new approaches to these technology challenges, ensure access and equity are integrated into products and processes, and help agencies modernize their systems for long-term stability. USDS is integrally engaged on American Rescue Plan projects and Administration priorities for

COVID-19 pandemic vaccines and testing, economic rescue and recovery, environmental justice, and immigration reform.

Enhancing Federal IT and Cybersecurity

Modernizing Federal IT Systems. In a world of constantly evolving technology and expanding cybersecurity threats, the Administration recognizes the critical need for additional investment in enhancing Federal IT to improve service delivery to the American public. To support agencies as they modernize, strengthen, and secure outdated information systems, the Budget includes \$500 million for the Technology Modernization Fund (TMF). This builds on the substantial down-payment provided by the Congress in the American Rescue Plan to address urgent IT modernization challenges, bolster cybersecurity defenses, and improve the delivery of COVID-19 pandemic relief. The TMF would continue to serve as the predominant vehicle for delivering improvements to public-facing digital services, enhancements to cross-government collaboration, and modern technology designed with security and privacy in mind.

Bolstering Federal Cybersecurity. Cybersecurity will continue to be a key focus in protecting this Nation's security, and recent, significant cybersecurity incidents highlight the long-standing need to modernize Federal IT systems and augment cybersecurity capabilities. The Budget contains \$9.8 billion in cybersecurity funding to secure Federal civilian networks, protect the Nation's infrastructure, and support efforts to share information, standards, and best practices with critical infrastructure partners and American businesses. This funding includes \$110 million for the Cybersecurity and Infrastructure Security Agency (CISA) and \$750 million to agencies affected by recent, significant cyber incidents to address exigent gaps in security capability. These resources would better enable Federal agencies to protect technology and safeguard citizen's sensitive information from the threats posed by cyber criminals and adversaries. Agencies will continue to improve

cybersecurity practices, implement supply chain risk management programs, develop coordinated vulnerability disclosure programs, and improve cyber threat intelligence analysis. The Budget also provides \$15 million to support the Office of the National Cyber Director established in the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021.

Improving the Federal IT Workforce. To support the Federal IT and cybersecurity portfolio, the Budget proposes to identify and address critical skills gaps across the IT and cybersecurity workforce. The Budget invests in innovative programs that improve the Government's ability to recruit, retain, and train a workforce that can build, maintain, and secure Federal information and information systems. The Administration is focused on continuing the use of reskilling and upskilling training programs to address critical knowledge skills gaps by reinvesting in existing employees. Moreover, the American Rescue Plan includes resources for USDS and CISA to hire information technology and cybersecurity experts.

Ensuring the Future Is Made in All of America by All of America's Workers

Supporting America's Workers and America's Clean Energy Future through Federal Contracting. The Administration will leverage over \$600 billion in annual Federal contracting and other Federal assistance—nearly \$260 billion of which is spent on manufactured goods each year—to provide good-quality jobs to American workers in manufacturing by strengthening domestic sourcing requirements. This includes the establishment of a Made in America Office within the Office of Management and Budget that works with the Office of Federal Procurement Policy to ensure taxpayer dollars support American manufacturing. Agencies will also leverage their vast buying power to advance racial equity using procurement strategies to expand and strengthen the Government's contracting base, especially in underserved communities, and drive forward America's clean energy future. For example, the Budget invests \$600 million to assist agencies in transitioning to clean and zero-emission

vehicles for Government fleets and associated infrastructure, leading the way for a cleaner transportation network across America. The President also issued an Executive Order on April 27, 2021 requiring Federal contractors pay their employees—hundreds of thousands of workers who are working on Federal contracts—a minimum wage of at least \$15 per hour. These workers are critical to the functioning of the Federal Government: from cleaning professionals and maintenance workers who ensure Federal employees have safe and clean places to work; to nursing assistants who care for the Nation’s veterans; to cafeteria and other food service workers who ensure military members have healthy and nutritious food to eat; to laborers who build and repair Federal infrastructure.

Providing for a Modern and Diverse Federal Acquisition System. The Federal Government’s ability to effectively meet its many missions requires support from a diverse and resilient contractor base of small, medium, and large entities that consistently produce

high-quality products and services with strong customer satisfaction. The purchasing power of the Federal Government has the potential to have a transformative impact on women-, veteran-, and minority-owned small businesses and create generational wealth for business owners from traditionally underserved communities. To meet this dual challenge, the Administration will pursue agile, innovative, outcome-based, and equity-focused, acquisition processes. This will include a dedicated effort to eliminate barriers that small businesses in underserved communities face when competing for contracts. In addition, the Administration will provide the acquisition workforce with supplier and market intelligence data at the point of need, so they can work productively with contractors from across the Nation to achieve more for each taxpayer dollar by, among other things, promoting buying as an organized entity and using strategic business practices. Additional emphasis will be placed on partnering with entities that leverage domestic supply chains, and sources that apply climate-friendly and sustainable practices.

Summary Tables

Table S-1. Budget Totals

(In billions of dollars and as a percent of GDP)

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Totals	
													2022- 2026	2022- 2031
Budget totals in billions of dollars:														
Receipts	3,421	3,581	4,174	4,641	4,828	5,038	5,332	5,632	5,888	6,119	6,370	6,643	24,013	54,665
Outlays	6,550	7,249	6,011	6,013	6,187	6,508	6,746	6,935	7,312	7,425	7,847	8,211	31,465	69,196
Deficit ¹	3,129	3,669	1,837	1,372	1,359	1,470	1,414	1,303	1,424	1,307	1,477	1,568	7,452	14,531
Debt held by the public	21,017	24,167	26,265	27,683	29,062	30,539	31,958	33,266	34,691	35,996	37,481	39,059		
Debt held by the public net of financial assets	18,024	21,684	23,520	24,892	26,250	27,720	29,134	30,437	31,860	33,167	34,643	36,216		
Gross domestic product (GDP)	21,000	22,030	23,500	24,563	25,537	26,516	27,533	28,590	29,697	30,867	32,094	33,391		
Budget totals as a percent of GDP:														
Receipts	16.3%	16.3%	17.8%	18.9%	18.9%	19.0%	19.4%	19.7%	19.8%	19.8%	19.8%	19.9%	18.8%	19.3%
Outlays	31.2%	32.9%	25.6%	24.5%	24.2%	24.5%	24.5%	24.3%	24.6%	24.1%	24.4%	24.6%	24.7%	24.5%
Deficit	14.9%	16.7%	7.8%	5.6%	5.3%	5.5%	5.1%	4.6%	4.8%	4.2%	4.6%	4.7%	5.9%	5.2%
Debt held by the public	100.1%	109.7%	111.8%	112.7%	113.8%	115.2%	116.1%	116.4%	116.8%	116.6%	116.8%	117.0%		
Debt held by the public net of financial assets	85.8%	98.4%	100.1%	101.3%	102.8%	104.5%	105.8%	106.5%	107.3%	107.5%	107.9%	108.5%		
Memorandum, real net interest:														
Real net interest in billions of dollars	134	-53	-139	-189	-186	-136	-86	-36	9	50	108	164	-737	-442
Real net interest as a percent of GDP	0.6%	-0.2%	-0.6%	-0.8%	-0.7%	-0.5%	-0.3%	-0.1%	*	0.2%	0.3%	0.5%	-0.6%	-0.2%

*0.05 percent of GDP or less.

¹The estimated deficit for 2021 is based on partial year actual data and generally incorporates actuals through March.

Table S-2. Effect of Budget Proposals on Projected Deficits

(Deficit increases (+) or decreases (-) in billions of dollars)

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Totals	
													2022-2026	2022-2031
Projected deficits in the baseline	3,129	3,670	1,719	1,148	1,068	1,176	1,115	1,134	1,348	1,291	1,517	1,660	6,226	13,176
Percent of GDP	14.9%	16.7%	7.3%	4.7%	4.2%	4.4%	4.0%	4.0%	4.5%	4.2%	4.7%	5.0%		
Proposals in the 2022 Budget:														
Enact the American Jobs Plan			84	92	141	152	177	110	28	-35	-87	-133	645	529
Enact the American Families Plan		-1	16	79	88	78	53	-9	-17	-9	-5	-2	312	270
Restore non-defense discretionary spending and provide robust funding for national defense ¹			19	53	59	56	54	48	40	32	23	10	241	393
Debt service and other interest effects		-*	*	*	3	9	15	22	25	27	30	31	27	163
Total proposals in the 2022 Budget .....	.....	-1	118	224	291	294	299	170	76	15	-40	-93	1,226	1,355
Resulting deficits in the 2022 Budget	3,129	3,669	1,837	1,372	1,359	1,470	1,414	1,303	1,424	1,307	1,477	1,568	7,452	14,531
Percent of GDP	14.9%	16.7%	7.8%	5.6%	5.3%	5.5%	5.1%	4.6%	4.8%	4.2%	4.6%	4.7%		
													Cumulative Totals	
			2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2022-2036	2022-2041
Memorandum:														
Enact the American Jobs Plan and the American Families Plan, second decade effect			-165	-217	-228	-238	-248	-260	-272	-285	-299	-313	-297	-1,726
Total proposals in the 2022 Budget, second decade effect			-126	-183	-198	-213	-229	-246	-264	-282	-302	-323	406	-1,012

*\$500 million or less

¹ Includes mandatory effects of discretionary policy and other conforming technical adjustments

Table S-3. Baseline by Category¹

(In billions of dollars)

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Totals	
													2022-2026	2022-2031
Outlays:														
Discretionary programs:														
Defense	714	735	754	756	778	796	811	828	846	865	884	903	3,895	8,221
Non-defense	913	960	913	874	842	849	851	862	880	896	913	931	4,329	8,810
Subtotal, discretionary programs	1,627	1,696	1,667	1,630	1,621	1,645	1,661	1,689	1,726	1,760	1,797	1,834	8,224	17,031
Mandatory programs:														
Social Security	1,090	1,135	1,196	1,261	1,333	1,410	1,493	1,580	1,673	1,769	1,868	1,969	6,694	15,553
Medicare	769	709	767	842	842	948	1,016	1,087	1,229	1,181	1,328	1,415	4,414	10,654
Medicaid	458	521	518	529	563	592	621	654	698	741	783	828	2,823	6,528
Other mandatory programs	2,260	2,886	1,255	870	795	784	806	813	877	846	900	938	4,510	8,885
Subtotal, mandatory programs	4,578	5,251	3,735	3,503	3,533	3,735	3,935	4,135	4,478	4,537	4,879	5,149	18,441	41,620
Net interest	345	303	305	319	365	436	509	581	649	717	798	883	1,935	5,563
Total outlays	6,550	7,249	5,707	5,453	5,519	5,816	6,106	6,405	6,854	7,015	7,475	7,866	28,600	64,215
Receipts:														
Individual income taxes	1,609	1,704	2,005	2,174	2,210	2,347	2,646	2,852	2,986	3,128	3,275	3,431	11,382	27,053
Corporation income taxes	212	268	266	367	412	432	425	424	433	432	433	438	1,902	4,062
Social insurance and retirement receipts:														
Social Security payroll taxes	965	944	1,032	1,068	1,113	1,153	1,202	1,247	1,305	1,355	1,410	1,467	5,568	12,352
Medicare payroll taxes	292	287	314	326	341	353	368	383	402	418	437	456	1,703	3,799
Unemployment insurance	43	55	59	61	60	57	55	55	57	57	58	56	294	577
Other retirement	10	10	11	12	12	13	13	14	15	16	17	17	62	140
Excise taxes	87	74	82	85	90	90	91	92	92	94	97	97	439	910
Estate and gift taxes	18	18	21	22	24	25	25	38	39	41	43	46	116	323
Customs duties	69	85	57	45	45	47	48	49	51	53	55	57	242	506
Deposits of earnings, Federal Reserve System	82	97	102	103	99	77	68	65	71	75	75	79	448	814
Other miscellaneous receipts	36	37	39	40	44	46	49	52	55	57	59	60	218	501
Total receipts	3,421	3,580	3,988	4,304	4,451	4,640	4,991	5,272	5,506	5,724	5,958	6,205	22,374	51,038
Deficit	3,129	3,670	1,719	1,148	1,068	1,176	1,115	1,134	1,348	1,291	1,517	1,660	6,226	13,176
Net interest	345	303	305	319	365	436	509	581	649	717	798	883	1,935	5,563
Primary deficit	2,784	3,367	1,414	829	703	739	606	553	699	574	718	778	4,291	7,613
On-budget deficit	3,142	3,597	1,670	1,074	969	1,041	955	938	1,122	1,021	1,205	1,307	5,710	11,303
Off-budget deficit/surplus (-)	-13	73	48	74	99	135	160	195	226	270	312	354	516	1,873

¹ Baseline estimates are on the basis of the economic assumptions shown in Table S-9, which incorporate the effects of the Administration's fiscal policies.

Table S-4. Proposed Budget by Category

(In billions of dollars)

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Totals	
													2022-2026	2022-2031
Outlays:														
Discretionary programs:														
Defense	714	735	756	756	775	791	804	816	826	835	843	851	3,881	8,052
Non-defense	913	960	932	930	909	914	917	927	947	964	984	1,002	4,601	9,426
Subtotal, discretionary programs	1,627	1,696	1,688	1,685	1,683	1,704	1,721	1,743	1,773	1,799	1,827	1,854	8,482	17,478
Mandatory programs:														
Social Security	1,090	1,135	1,196	1,261	1,333	1,410	1,492	1,579	1,672	1,767	1,866	1,966	6,691	15,542
Medicare	769	709	766	841	840	947	1,014	1,085	1,227	1,178	1,325	1,412	4,407	10,633
Medicaid	458	521	571	582	616	645	674	698	734	768	801	837	3,088	6,926
Other mandatory programs	2,260	2,886	1,486	1,324	1,347	1,357	1,321	1,227	1,232	1,168	1,200	1,228	6,835	12,891
Subtotal, mandatory programs	4,578	5,251	4,018	4,008	4,136	4,358	4,501	4,589	4,865	4,882	5,191	5,444	21,021	45,992
Net interest	345	303	305	320	368	445	524	603	674	744	829	914	1,962	5,726
Total outlays	6,550	7,249	6,011	6,013	6,187	6,508	6,746	6,935	7,312	7,425	7,847	8,211	31,465	69,196
Receipts:														
Individual income taxes	1,609	1,705	2,039	2,242	2,288	2,436	2,676	2,896	3,044	3,194	3,354	3,526	11,680	27,694
Corporation income taxes	212	268	371	577	649	673	664	666	679	678	681	693	2,933	6,330
Social insurance and retirement receipts:														
Social Security payroll taxes	965	944	1,033	1,072	1,118	1,159	1,207	1,252	1,311	1,361	1,417	1,474	5,587	12,403
Medicare payroll taxes	292	287	359	383	400	418	436	453	476	496	518	540	1,995	4,478
Unemployment insurance	43	55	59	61	60	57	55	55	57	56	58	56	293	576
Other retirement	10	10	11	12	12	13	13	14	15	16	17	17	62	140
Excise taxes	87	74	84	89	93	94	95	96	96	98	101	102	455	948
Estate and gift taxes	18	18	21	18	19	20	21	32	33	34	37	39	99	274
Customs duties	69	85	57	45	45	47	48	49	51	53	55	57	242	506
Deposits of earnings, Federal Reserve System	82	97	102	103	99	77	68	65	71	75	75	79	448	814
Other miscellaneous receipts	36	37	39	40	44	46	49	52	55	57	59	60	218	501
Total receipts	3,421	3,581	4,174	4,641	4,828	5,038	5,332	5,632	5,888	6,119	6,370	6,643	24,013	54,665
Deficit	3,129	3,669	1,837	1,372	1,359	1,470	1,414	1,303	1,424	1,307	1,477	1,568	7,452	14,531
Net interest	345	303	305	320	368	445	524	603	674	744	829	914	1,962	5,726
Primary deficit	2,784	3,366	1,532	1,052	991	1,025	890	701	749	562	649	654	5,490	8,805
On-budget deficit	3,142	3,595	1,789	1,301	1,264	1,341	1,260	1,115	1,205	1,045	1,174	1,223	6,956	12,718
Off-budget deficit/surplus (-)	-13	73	48	71	95	129	154	189	219	262	303	345	496	1,813

Table S-5. Proposed Budget by Category as a Percent of GDP

(As a percent of GDP)

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Averages	
													2022-2026	2022-2031
Outlays:														
Discretionary programs:														
Defense	3.4	3.3	3.2	3.1	3.0	3.0	2.9	2.9	2.8	2.7	2.6	2.5	3.0	2.9
Non-defense	4.3	4.4	4.0	3.8	3.6	3.4	3.3	3.2	3.2	3.1	3.1	3.0	3.6	3.4
Subtotal, discretionary programs	7.7	7.7	7.2	6.9	6.6	6.4	6.3	6.1	6.0	5.8	5.7	5.6	6.7	6.2
Mandatory programs:														
Social Security	5.2	5.2	5.1	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	5.2	5.5
Medicare	3.7	3.2	3.3	3.4	3.3	3.6	3.7	3.8	4.1	3.8	4.1	4.2	3.4	3.7
Medicaid	2.2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.4	2.4
Other mandatory programs	10.8	13.1	6.3	5.4	5.3	5.1	4.8	4.3	4.1	3.8	3.7	3.7	5.4	4.7
Subtotal, mandatory programs	21.8	23.8	17.1	16.3	16.2	16.4	16.3	16.1	16.4	15.8	16.2	16.3	16.5	16.3
Net interest	1.6	1.4	1.3	1.3	1.4	1.7	1.9	2.1	2.3	2.4	2.6	2.7	1.5	2.0
Total outlays	31.2	32.9	25.6	24.5	24.2	24.5	24.5	24.3	24.6	24.1	24.4	24.6	24.7	24.5
Receipts:														
Individual income taxes	7.7	7.7	8.7	9.1	9.0	9.2	9.7	10.1	10.3	10.3	10.4	10.6	9.1	9.7
Corporation income taxes	1.0	1.2	1.6	2.3	2.5	2.5	2.4	2.3	2.3	2.2	2.1	2.1	2.3	2.2
Social insurance and retirement receipts:														
Social Security payroll taxes	4.6	4.3	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
Medicare payroll taxes	1.4	1.3	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Unemployment insurance	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Other retirement	*	*	*	*	*	*	*	*	*	*	0.1	0.1	0.1	*
Excise taxes	0.4	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3
Estate and gift taxes	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Customs duties	0.3	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Deposits of earnings, Federal Reserve System	0.4	0.4	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.3
Other miscellaneous receipts	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total receipts	16.3	16.3	17.8	18.9	18.9	19.0	19.4	19.7	19.8	19.8	19.8	19.9	18.8	19.3
Deficit	14.9	16.7	7.8	5.6	5.3	5.5	5.1	4.6	4.8	4.2	4.6	4.7	5.9	5.2
Net interest	1.6	1.4	1.3	1.3	1.4	1.7	1.9	2.1	2.3	2.4	2.6	2.7	1.5	2.0
Primary deficit	13.3	15.3	6.5	4.3	3.9	3.9	3.2	2.5	2.5	1.8	2.0	2.0	4.4	3.3
On-budget deficit	15.0	16.3	7.6	5.3	5.0	5.1	4.6	3.9	4.1	3.4	3.7	3.7	5.5	4.6
Off-budget deficit/surplus (-)	-0.1	0.3	0.2	0.3	0.4	0.5	0.6	0.7	0.7	0.8	0.9	1.0	0.4	0.6

*0.05 percent of GDP or less.

Table S-6. Mandatory and Receipt Proposals

(Deficit increases (+) or decreases (-) in millions of dollars)

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Totals	
												2022-2026	2022-2031
American Jobs Plan													
Build world-class transportation infrastructure:													
Transform our crumbling transportation infrastructure:													
Repair roads and bridges		5,124	13,385	17,416	19,650	21,626	16,958	7,895	4,523	3,310	2,408	77,201	112,295
Improve road safety for all users		414	1,427	2,279	3,062	3,872	3,404	1,696	1,174	948	746	11,054	19,022
Modernize public transit		1,830	4,225	6,085	7,090	9,395	11,765	13,400	10,855	7,455	4,540	28,625	76,640
Invest in reliable passenger and freight rail		1,600	2,850	4,880	7,497	10,209	11,209	11,725	10,453	7,898	5,279	27,036	73,600
Create good jobs electrifying vehicles:													
Spark widespread adoption of electric vehicles (EVs)		795	2,328	6,436	13,468	25,971	26,612	25,397	20,952	13,685	1,723	48,998	137,367
Invest in electric school buses		2,000	3,200	3,800	4,000	4,000	2,000	800	200	.....	.....	17,000	20,000
Improve ports, waterways, and airports:													
Invest in ports	5	95	310	680	1,090	1,360	1,230	855	375	1,090	6,000
Make our airports the best in the world		1,235	3,460	4,145	4,455	4,630	4,270	1,705	615	335	150	17,925	25,000
Improve coastal ports and inland waterways		3,488	1,411	1,406	1,060	635	.....	.....	.....	.....	.....	8,000	8,000
Invest in the Federally owned Land Ports of Entry portfolio		15	80	250	515	750	765	475	150	.....	.....	1,610	3,000
Redress historic inequities and build the future of transportation infrastructure:													
Restore and reconnect thriving communities		236	964	1,860	2,684	3,575	4,104	3,868	3,219	2,244	1,242	9,319	23,996
Accelerate transformational projects		367	1,014	2,658	4,496	6,185	7,058	7,133	5,878	4,118	2,636	14,720	41,543
Total, transform our crumbling transportation infrastructure		17,104	34,349	51,310	68,287	91,528	89,235	75,454	59,249	40,848	19,099	262,578	546,463
Make our infrastructure more resilient:													
Safeguard critical infrastructure and services:													
Enhance electric grid resilience, including cyber		40	180	420	600	460	190	80	30	.....	.....	1,700	2,000
Urban Heat Stress:													
Map heat stress		30	30	30	30	30	30	30	30	30	30	150	300
Mitigate heat stress		120	192	228	240	240	120	48	12	.....	.....	1,020	1,200
Community health and hospital resilience:													
Increase resilience of hospitals and critical infrastructure		270	580	90	60	.....	.....	.....	.....	.....	.....	1,000	1,000
Fund health emergency preparedness		22	195	20	8	5	.....	.....	.....	.....	.....	250	250
Build resilience against climate effects		68	145	22	15	.....	.....	.....	.....	.....	.....	250	250
Maximize the resilience of land and water resources to protect communities and the environment:													
Ecosystem resilience, green infrastructure, and conservation on Federal, Tribal and partner lands:													
Deploy green and conservation-based infrastructure		240	600	960	1,200	1,200	960	600	240	.....	.....	4,200	6,000
Invest in Tribal fuels management		40	100	140	170	200	160	100	60	30	.....	650	1,000
Invest in natural resource restoration grants and partnerships		160	400	640	800	800	640	400	160	.....	.....	2,800	4,000
Improve coastal resilience		250	250	250	250	250	250	250	250	250	250	1,250	2,500

Table S-6. Mandatory and Receipt Proposals—Continued

(Deficit increases (+) or decreases (-) in millions of dollars)

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Totals	
												2022-2026	2022-2031
Increase the resilience of large landscape ecosystems		400	400	400	400	400	400	400	200	.....	.....	2,000	3,000
Increase western water resilience		300	500	500	500	500	200	.....	.....	.....	.....	2,300	2,500
Community resilience and equity:													
Support disadvantaged community investment in hazard mitigation projects, including incentives for building above existing codes and standards:													
Invest in disadvantaged communities through the Building Resilient Infrastructure in Communities grant program	40	300	380	480	460	200	120	340	1,980
Provide Community Development Block Grants for resilience		5	165	340	435	470	485	330	160	65	30	1,415	2,485
Invest in a National resilient communities challenge	21	91	197	320	433	487	420	284	146	629	2,399
Improve transportation infrastructure resilience (PROTECT grants)		75	262	425	613	825	800	475	438	378	295	2,200	4,586
Flood and drought resilience for vulnerable communities:													
Establish an affordability program for the National Flood Insurance Program		194	235	349	400	471	523	568	591	587	626	1,649	4,544
Invest in watershed protection and flood prevention		5	30	90	96	99	100	100	100	100	100	320	820
Invest in technology to increase drought resilience for agricultural producers		18	32	40	44	48	50	50	50	50	50	182	432
Support agriculture resource management and improve irrigation for Tribes and insular areas		50	80	100	100	100	50	20	.....	.....	.....	430	500
Provide pre-development grants for resilient infrastructure		140	400	400	400	400	260	.....	.....	.....	.....	1,740	2,000
Provide community transition and relocation assistance		80	200	320	400	400	320	200	80	.....	.....	1,400	2,000
Support resilience tools to build back better:													
Hazard mapping:													
Update flood and hazard maps in disadvantaged communities		60	105	105	30	.....	.....	.....	.....	.....	.....	300	300
Expand ocean and coastal mapping		50	50	50	50	50	50	50	50	50	50	250	500
Improve digital high-resolution elevation collection mapping		40	50	40	40	30	.....	.....	.....	.....	.....	200	200
Improve climate forecast capabilities and information products for the public and monitoring the impacts of climate change:													
Provide localized information to help communities respond to climate change		32	80	128	160	160	128	80	32	.....	.....	560	800
Improve local air and water quality monitoring/modeling		20	32	38	40	40	20	8	2	.....	.....	170	200
Develop decision support tools		50	50	50	50	50	50	50	50	50	50	250	500
Invest in resilience financing mechanisms		70	200	200	200	200	130	.....	.....	.....	.....	870	1,000
Total, make our infrastructure more resilient		2,829	5,564	6,466	7,568	8,048	6,729	4,806	3,415	2,074	1,747	30,475	49,246
Total, build world-class transportation infrastructure		19,933	39,913	57,776	75,855	99,576	95,964	80,260	62,664	42,922	20,846	293,053	595,709

Table S-6. Mandatory and Receipt Proposals—Continued

(Deficit increases (+) or decreases (-) in millions of dollars)

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Totals	
												2022-2026	2022-2031
Rebuild clean drinking water infrastructure, a renewed electrical grid, and high-speed broadband to all Americans:													
Ensure clean, safe drinking water is a right in all communities:													
Replace 100 percent of the Nation's lead service lines		4,500	7,200	8,550	9,000	9,000	4,500	1,800	450	.....	.....	38,250	45,000
Invest in Rural Clean Water infrastructure		195	260	650	1,300	1,755	2,340	.....	.....	.....	.....	4,160	6,500
Tackle new contaminants, including polyfluoroalkyl substances (PFAS)		350	560	665	700	700	350	140	35	.....	.....	2,975	3,500
Upgrade and modernize America's drinking water, wastewater, and stormwater systems		5,600	8,960	10,640	11,200	11,200	5,600	2,240	560	.....	.....	47,600	56,000
Total, ensure clean, safe drinking water is a right in all communities		10,645	16,980	20,505	22,200	22,655	12,790	4,180	1,045	.....	.....	92,985	111,000
Digital infrastructure, adoption, and affordability		13,000	48,000	23,000	8,000	8,000	.....	.....	.....	.....	.....	100,000	100,000
Reenergize America's power infrastructure:													
Invest in hydrogen, carbon capture, and sequestration capacity		380	990	1,700	2,400	2,430	800	450	100	50	.....	7,900	9,300
Provide clean energy block grants for early action		1,500	3,500	4,500	5,000	3,500	1,500	500	.....	.....	.....	18,000	20,000
Provide community solar and storage assistance		100	200	400	300	.....	.....	.....	.....	.....	.....	1,000	1,000
Remediate and redevelop brownfield sites		500	800	950	1,000	1,000	500	200	50	.....	.....	4,250	5,000
Mobilize the Civilian Climate Corps		1,000	2,000	2,000	2,000	2,000	1,000	.....	.....	.....	.....	9,000	10,000
Expand the Public Works Program at the Economic Development Administration		227	270	300	358	300	45	.....	.....	.....	.....	1,455	1,500
Expand rural Main Street revitalization grants		38	110	55	25	22	.....	.....	.....	.....	.....	250	250
Provide Main Street grants to small communities	18	58	58	62	55	.....	.....	.....	.....	196	251
Provide support for biofuels		500	250	250	.....	.....	.....	.....	.....	.....	.....	1,000	1,000
Support economic development in Appalachian communities		2	66	136	174	188	194	132	64	26	12	566	994
Expand the Environmental Justice Small Grants program		250	400	475	500	500	250	100	25	.....	.....	2,125	2,500
Invest in lead remediation and healthy homes		12	66	240	438	564	582	534	360	162	36	1,320	2,994
Provide grants to convert and retool manufacturing facilities		200	340	500	670	200	90	.....	.....	.....	.....	1,910	2,000
Provide grants to replace leaking natural gas distribution lines		150	430	580	620	180	40	.....	.....	.....	.....	1,960	2,000
Reclaim abandoned mines and wells		640	1,440	2,400	2,880	3,200	2,560	1,760	800	320	.....	10,560	16,000
Accelerate clean energy support to rural co-ops		2,400	3,200	1,800	1,200	1,400	.....	.....	.....	.....	.....	10,000	10,000
Employ electrical workers upgrading the grid		240	1,080	2,520	3,600	2,760	1,140	480	180	.....	.....	10,200	12,000
Increase adoption of net-zero agriculture technology		172	194	104	105	129	115	85	56	22	10	704	992
Total, reenergize America's power infrastructure		8,311	15,354	18,968	21,328	18,435	8,871	4,241	1,635	580	58	82,396	97,781
Total, rebuild clean drinking water infrastructure, a renewed electrical grid, and high-speed broadband to all Americans		31,956	80,334	62,473	51,528	49,090	21,661	8,421	2,680	580	58	275,381	308,781

Table S-6. Mandatory and Receipt Proposals—Continued

(Deficit increases (+) or decreases (-) in millions of dollars)

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Totals		
												2022-2026	2022-2031	
Build, preserve, and retrofit more than two million homes and commercial buildings; modernize our Nation's schools, community colleges, and early learning facilities; and upgrade veterans' hospitals and Federal buildings:														
Build, preserve, and retrofit more than two million homes and commercial buildings to address the affordable housing crisis:														
Capitalize a clean energy accelerator		27,000											27,000	27,000
Provide efficiency/electrification block grants		1,600	2,800	3,200	2,900	1,600	700	200					12,100	13,000
Expand weatherization		1,750	5,050	6,100	3,400	1,200							17,500	17,500
Retrofit Housing and Urban Development multifamily properties		55	80	90	100	100	45	20	10				425	500
Expand the Capital Magnet Fund		2,400	2,400	2,400	2,400	2,400							12,000	12,000
Increase the Housing Trust Fund			90	1,260	4,140	6,840	8,640	8,820	7,740	4,860	2,160		12,330	44,550
Support housing and community development in Indian Country		2	46	134	240	328	370	342	266	160	72		750	1,960
Provide project-based rental assistance		130	200	200	200	200	200	200	200	200	200		930	1,930
Invest in the public housing stock		1,200	12,000	14,000	7,200	4,400	800	400					38,800	40,000
Construct housing for the elderly		2	46	134	240	328	370	342	266	160	72		750	1,960
Stimulate additional rural housing grants, loans, and loan guarantees		460	485	485	350	220							2,000	2,000
Incentivize zoning reform		30	330	680	860	970	960	670	320	140	30		2,870	4,990
Invest in Home Online Performance-Based Energy-Efficiency (HOPE) for homes		800	1,400	1,800	2,000	2,000	1,200	600	200				8,000	10,000
Provide HOME grants		35	805	2,345	4,200	5,740	6,475	5,985	4,655	2,800	1,260		13,125	34,300
Total, build, preserve, and retrofit more than two million homes and commercial buildings to address the affordable housing crisis		35,464	25,732	32,828	28,230	26,326	19,760	17,579	13,657	8,320	3,794		148,580	211,690
Modernize our Nation's schools and early learning facilities:														
Invest in child care infrastructure		2,500	4,000	4,750	5,000	5,000	2,500	1,000	250				21,250	25,000
Invest in community college infrastructure		240	888	2,064	2,400	2,400	2,160	1,512	336				7,992	12,000
Invest in K-12 school infrastructure		1,000	3,700	8,600	10,000	10,000	9,000	6,300	1,400				33,300	50,000
Total, modernize our Nation's schools and early learning facilities		3,740	8,588	15,414	17,400	17,400	13,660	8,812	1,986				62,542	87,000
Upgrade Federal hospitals and buildings:														
Invest in the General Service Administration Federal Buildings portfolio		100	450	850	1,000	1,000	900	550	150				3,400	5,000
Establish and capitalize the Federal Capital Revolving Fund		966	2,264	1,132	133	-133	117	-150	67	-13	-90		4,362	4,293
Veterans Affairs facility maintenance and modernization to deliver 21 st Century care:														
Recapitalize long-term facilities		622	511	470	4,222	3,894	3,724	1,319	116	64	58		9,719	15,000
Perform short-term upgrades to facilities		6	23	62	149	410	878	752	419	231	70		650	3,000
Total, upgrade Federal hospitals and buildings		1,694	3,248	2,514	5,504	5,171	5,619	2,471	752	282	38		18,131	27,293
Total, build, preserve, and retrofit more than two million homes and commercial buildings; modernize our Nation's schools, community colleges, and early learning facilities; and upgrade veterans' hospitals and Federal buildings		40,898	37,568	50,756	51,134	48,897	39,039	28,862	16,395	8,602	3,832		229,253	325,983

Table S-6. Mandatory and Receipt Proposals—Continued

(Deficit increases (+) or decreases (-) in millions of dollars)

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Totals	
												2022–2026	2022–2031
Solidify the infrastructure of our care economy by creating jobs and raising wages and benefits for essential home care workers:													
Expand Medicaid home and community based services and strengthen the home care workforce		53,000	53,000	53,000	53,000	53,000	44,000	36,000	27,000	18,000	10,000	265,000	400,000
Total, solidify the infrastructure of our care economy by creating jobs and raising wages and benefits for essential home care workers		53,000	53,000	53,000	53,000	53,000	44,000	36,000	27,000	18,000	10,000	265,000	400,000
Invest in research and development (R&D), revitalize manufacturing and small businesses, and train Americans for the jobs of the future:													
Invest in R&D and the technologies of the future:													
Advance U.S. leadership in critical technologies and upgrade America’s research infrastructure:													
Fund research infrastructure, including Historically Black Colleges and Universities (HBCU) set-aside		2,000	5,800	7,200	7,400	7,100	5,540	2,740	1,340	640	240	29,500	40,000
Increase research and development for existing programs		600	2,100	3,600	5,100	6,630	6,090	3,090	1,590	840	360	18,030	30,000
Transform the National Science Foundation by adding a technology directorate		1,200	4,000	6,400	8,600	10,760	9,720	4,920	2,520	1,320	560	30,960	50,000
Establish the United States as a leader in climate science, innovation, and R&D:													
Increase climate-focused research		100	400	800	1,250	1,230	630	330	180	80	.....	3,780	5,000
Increase demonstration funding at energy programs		500	1,250	3,250	4,000	3,750	1,750	500	.....	.....	.....	12,750	15,000
Launch Advanced Research Projects Agency-Climate		600	2,100	2,700	3,000	3,000	2,400	900	300	.....	.....	11,400	15,000
Eliminate racial and gender inequities in research and development and science, technology, engineering, and math:													
Fund research and development grants at HBCUs/ Minority Serving Institutions (MSIs)		200	700	1,200	1,700	2,210	2,030	1,030	530	280	120	6,010	10,000
Create Science, Technology, Engineering, Math (STEM) centers of excellence		200	700	1,200	1,700	2,210	2,030	1,030	530	280	120	6,010	10,000
Fund STEM education and training		160	500	720	880	1,018	886	446	226	116	48	3,278	5,000
Total, invest in R&D and the technologies of the future		5,560	17,550	27,070	33,630	37,908	31,076	14,986	7,216	3,556	1,448	121,718	180,000
Retool and revitalize American manufacturers and small businesses:													
Strengthen manufacturing supply chains for critical goods:													
Create a Critical Supply Chain Resilience Fund ...		5,000	10,000	20,000	10,000	5,000	.....	.....	.....	.....	.....	50,000	50,000
Provide incentives for semiconductor manufacturing and research		750	4,000	7,750	12,000	13,000	8,500	4,000	.....	.....	.....	37,500	50,000
Prepare Americans for future pandemics		1,650	6,485	7,145	7,520	5,815	995	390	.....	.....	.....	28,615	30,000
<i>Prepare Americans for future pandemics—Department of Health and Human Services (HHS) (non-add)</i>		<i>1,620</i>	<i>5,100</i>	<i>5,640</i>	<i>6,000</i>	<i>4,380</i>	<i>900</i>	<i>360</i>	.....	.....	.....	<i>22,740</i>	<i>24,000</i>
<i>Prepare Americans for future pandemics—Department of Defense (non-add)</i>		<i>1,250</i>	<i>1,250</i>	<i>1,250</i>	<i>1,250</i>	.....	.....	.....	.....	.....	<i>5,000</i>	<i>5,000</i>
<i>Prepare Americans for future pandemics—Department of Energy (non-add)</i>		<i>30</i>	<i>135</i>	<i>255</i>	<i>270</i>	<i>185</i>	<i>95</i>	<i>30</i>	.....	.....	.....	<i>875</i>	<i>1,000</i>

Table S-6. Mandatory and Receipt Proposals—Continued

(Deficit increases (+) or decreases (-) in millions of dollars)

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Totals	
												2022-2026	2022-2031
Jumpstart clean energy manufacturing through Federal procurement:													
Procure advanced nuclear power		100	150	250	500	2,500	1,250	250	.....	.....	.....	3,500	5,000
Procure low carbon materials		400	1,800	2,200	2,900	3,000	3,000	2,400	300	.....	.....	10,300	16,000
Electrify the Federal vehicle fleet and support the necessary charging infrastructure		250	250	500	1,000	1,000	1,000	1,000	.....	.....	.....	3,000	5,000
Electrify the Postal Service fleet		800	800	800	.....	.....	.....	.....	.....	.....	.....	2,400	2,400
Procure carbon-free power and sustainable buildings		400	2,000	3,200	4,000	4,000	3,600	2,000	800	.....	.....	13,600	20,000
Make it in all of America:													
Expand Manufacturing USA		300	600	1,200	600	300	.....	.....	.....	.....	.....	3,000	3,000
Invest in research at the National Institute of Standards and Technology (NIST) labs		800	800	800	800	800	.....	.....	.....	.....	.....	4,000	4,000
Expand the Manufacturing Extension Partnership		700	1,400	2,800	1,400	700	.....	.....	.....	.....	.....	7,000	7,000
Establish regional innovation hubs		3,500	1,500	3,500	750	750	.....	.....	.....	.....	.....	10,000	10,000
Invest in a community revitalization fund	20	80	360	660	1,020	1,400	1,920	1,640	1,340	1,120	8,440
Increase access to capital for domestic manufacturers:													
Modernize the auto supply chain		1,100	3,300	4,950	5,500	4,400	2,200	550	.....	.....	.....	19,250	22,000
Establish a manufacturing financing facility ...		3,650	3,050	3,055	50	45	40	35	30	25	20	9,850	10,000
Finance clean energy manufacturing		80	400	640	800	800	720	400	160	.....	.....	2,720	4,000
Increase business and industry guaranteed loans		220	200	55	20	5	.....	.....	.....	.....	.....	500	500
Increase biorefinery, renewable chemical and biobased product manufacturing		4,930	4,060	3,190	1,740	580	.....	.....	.....	.....	.....	14,500	14,500
Support U.S. companies abroad and mobilize private sector investment to counter climate change—U.S. Development Finance Corporation		51	80	100	100	100	100	49	20	.....	.....	431	600
Develop vibrant global markets to support U. S. job creation—USAID Development Assistance Program		12	32	56	72	80	68	48	24	8	.....	252	400
Create a national network of small business incubators and innovation hubs:													
Support small business manufacturing through the Small Business Administration		1,500	1,875	2,250	2,625	3,750	4,875	6,000	7,125	.....	.....	12,000	30,000
Support small business manufacturing through the Minority Business Development Agency		100	100	100	100	100	100	100	100	100	100	500	1,000
Partner with rural and Tribal communities to create jobs and economic growth in rural America:													
Create a new rural partnership fund		650	1,050	1,500	1,650	150	.....	.....	.....	.....	.....	5,000	5,000
Total, retool and revitalize American manufacturers and small businesses		26,943	43,952	66,121	54,487	47,535	27,468	18,622	10,479	1,773	1,460	239,038	298,840
Invest in workforce development:													
Pair job creation efforts with next generation training programs:													
Scale Sectoral Employment through Career Training for Occupational Readiness (SECTOR)	196	1,288	1,944	2,200	2,372	2,400	2,400	2,400	2,400	5,628	17,600

Table S-6. Mandatory and Receipt Proposals—Continued

(Deficit increases (+) or decreases (-) in millions of dollars)

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Totals		
												2022-2026	2022-2031	
Provide Comprehensive Supports for Dislocated Workers (CSDW)		234	1,638	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800		7,272	16,272
Target workforce development opportunities in underserved communities:														
Support subsidized jobs		600	600	400	400	400	400	300	300	300	300		2,400	4,000
Support the phase out of 14(c)		300	400	400	400	300	200	.....	.....	.....	.....		1,800	2,000
Expand reentry training and violence prevention efforts	45	70	85	100	100	100	100	100	100		300	800
Invest in community violence intervention	15	100	260	420	570	685	795	880	720		795	4,445
Community violence intervention—Department of Justice (non-add)	8	50	130	210	285	343	398	440	360		398	2,223
Community violence intervention—HHS (non-add)	8	50	130	210	285	343	398	440	360		398	2,223
Build the capacity of the existing workforce development and worker protection systems:														
Expand adult education		5	70	95	100	100	100	100	100	100	100		370	870
Bolster Department of Labor enforcement	200	375	560	740	905	1,050	1,175	1,235	1,260		1,875	7,500
Bolster Equal Employment Opportunity Commission enforcement	46	67	92	117	133	175	237	296	337		322	1,500
Bolster National Labor Relations Board enforcement	36	43	60	76	93	114	157	193	228		215	1,000
Expand career pathways for middle and high school students		50	700	950	1,000	1,000	1,000	1,000	1,000	1,000	1,000		3,700	8,700
Expand career services		80	752	800	800	800	800	800	800	800	800		3,232	7,232
Fund community college training partnerships	70	280	510	780	850	950	1,010	1,060	1,050		1,640	6,560
Scale Registered Apprenticeship and pre-apprenticeship	112	716	972	1,014	1,086	1,100	1,100	1,086	1,014		2,814	8,200
Total, invest in workforce development		1,269	4,880	7,384	8,983	9,847	10,409	10,574	10,974	11,250	11,109		32,363	86,679
Total, invest in R&D, revitalize manufacturing and small businesses, and train Americans for the jobs of the future		33,772	66,382	100,575	97,100	95,290	68,953	44,182	28,669	16,579	14,017		393,119	565,519
Made in America Tax Plan:														
Prioritize clean energy:														
Eliminate fossil fuel tax preferences:														
Repeal enhanced oil recovery credit		-158	-389	-599	-808	-951	-988	-980	-975	-974	-976		-2,905	-7,798
Repeal deduction for tertiary injectants
Repeal credit for oil and gas produced from marginal wells		-39	-100	-128	-116	-78	-38	-14	-3	.....	.....		-461	-516
Repeal expensing of intangible drilling costs		-2,182	-1,954	-1,569	-1,174	-747	-562	-586	-591	-585	-536		-7,626	-10,486
Repeal exemption to passive loss limitation for working interests in oil and natural gas		-10	-10	-9	-9	-9	-8	-8	-8	-8	-7		-47	-86
Repeal percentage depletion for oil and natural gas wells		-678	-767	-794	-831	-890	-946	-996	-1,045	-1,093	-1,132		-3,960	-9,172
Repeal amortization of air pollution control equipment		-16	-39	-60	-80	-99	-117	-134	-132	-119	-105		-294	-901

Table S-6. Mandatory and Receipt Proposals—Continued

(Deficit increases (+) or decreases (-) in millions of dollars)

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Totals	
												2022-2026	2022-2031
Increase geological and geophysical amortization period for independent producer		-38	-139	-227	-247	-246	-242	-233	-217	-201	-195	-897	-1,985
Repeal expensing of exploration and development costs		-190	-170	-136	-102	-65	-49	-51	-51	-51	-46	-663	-911
Repeal percentage depletion for hard mineral fossil fuels		-97	-110	-114	-119	-127	-136	-142	-149	-156	-161	-567	-1,311
Repeal capital gains treatment for royalties		-46	-47	-48	-49	-51	-52	-50	-44	-37	-31	-241	-455
Treat publicly traded partnerships as C corporations							-83	-169	-216	-259	-300		-1,027
Excise tax exemption for crude oil derived from bitumen and kerogen-rich rock		-31	-39	-39	-39	-39	-40	-41	-41	-42	-44	-187	-395
Total, eliminate fossil fuel tax preferences		-3,485	-3,764	-3,723	-3,574	-3,302	-3,261	-3,404	-3,472	-3,525	-3,533	-17,848	-35,043
Extend and enhance renewable and alternative energy incentives:													
Extend and modify the Energy Investment Credit ¹		1,397	5,767	26,324	30,423	31,149	35,455	26,833	23,061	18,540	11,642	95,060	210,591
Extend and modify the Renewable Energy Production Tax Credit ¹		2,059	2,106	937	1,429	1,903	2,780	4,606	6,267	7,730	8,802	8,434	38,619
Extend and modify the Residential Efficient Property Credit		290	480	1,594	2,256	2,538	2,846	2,425	1,933	1,342	392	7,158	16,096
Total, extend and enhance renewable and alternative energy incentives		3,746	8,353	28,855	34,108	35,590	41,081	33,864	31,261	27,612	20,836	110,652	265,306
Provide tax credit for electricity transmission investments ¹		187	250	1,746	2,280	2,863	3,118	3,239	3,246	3,420	3,447	7,326	23,796
Provide allocated credit for electricity generation from existing nuclear power facilities ¹		750	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	4,750	9,750
Establish new tax credits for qualifying advanced energy manufacturing ¹		425	1,102	1,492	988	824	940	1,396	576	58	131	4,831	7,932
Establish tax credits for heavy- and medium-duty zero emission vehicles ¹		71	295	835	1,471	2,692	4,028	1,178	63	11		5,364	10,644
Provide tax incentives for sustainable aviation fuel		363	503	633	693	1,313	1,696	743	376	199	117	3,505	6,636
Provide a production tax credit for low-carbon hydrogen ¹		14	53	156	358	548	979	1,570	445	5		1,129	4,128
Extend and enhance energy efficiency and electrification incentives:													
Extend and modify the nonbusiness energy property credit		532	1,806	2,460	1,940	1,056	634					7,794	8,428
Extend and increase the tax credit for manufacturing credit for new energy efficient new homes		128	271	298	313	337	220	72	25	8	2	1,347	1,674
Extend and increase the commercial buildings deduction		146	280	328	346	350	350	350	350	351	354	1,450	3,205
Provide tax credits for the installation of mechanical insulation		317	606	736	867	1,007	737	454	344	229	110	3,533	5,407
Total, extend and enhance energy efficiency and electrification incentives		1,123	2,963	3,822	3,466	2,750	1,941	876	719	588	466	14,124	18,714
Provide disaster mitigation tax credit		391	411	415	415	415	415	415	415	415	332	2,047	4,039
Extend and enhance the Carbon Oxide Sequestration Credit ¹		21	10	10	19	27	101	101	53	2,082	3,634	87	6,058

Table S-6. Mandatory and Receipt Proposals—Continued

(Deficit increases (+) or decreases (-) in millions of dollars)

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Totals	
												2022-2026	2022-2031
Extend and enhance the electric vehicle charging station credit ¹		236	432	848	1,457	2,599	771	18	-26	-35	-33	5,572	6,267
Modify Oil Spill Liability Trust Fund financing		-38	-51	-53	-53	-53	-53	-53	-53	-53	-53	-248	-513
Reinstate Superfund excise taxes		-1,715	-2,340	-2,406	-2,455	-2,517	-2,560	-2,610	-2,670	-2,723	-2,787	-11,433	-24,783
Revenue effect of sparking widespread adoption of EVs		10	32	66	113	178	267	409	647	1,022	1,584	399	4,328
Total, prioritize clean energy		2,099	9,249	33,696	40,286	44,927	50,463	38,742	32,580	30,076	25,141	130,257	307,259
Reform corporate taxation:													
Increase the domestic corporate tax rate to 28 percent		-51,127	-86,182	-88,059	-89,385	-91,784	-92,065	-90,730	-89,357	-88,798	-90,330	-406,537	-857,817
Revise the Global Minimum Tax regime, disallow deductions attributable to exempt income, and limit inversions		-29,816	-51,386	-54,192	-57,030	-55,283	-54,699	-56,056	-56,988	-58,223	-59,830	-247,707	-533,503
Reform taxation of foreign fossil fuel income:													
Modify foreign oil and gas extraction income (FOGEL) and foreign oil related income (FORI) rules		-4,178	-7,173	-7,468	-7,834	-8,393	-9,055	-9,633	-10,051	-10,358	-10,638	-35,046	-84,781
Modify tax rule for dual capacity taxpayers		-48	-123	-128	-134	-143	-154	-165	-173	-178	-183	-576	-1,429
Total, reform taxation of foreign fossil fuel income		-4,226	-7,296	-7,596	-7,968	-8,536	-9,209	-9,798	-10,224	-10,536	-10,821	-35,622	-86,210
Provide tax incentives for locating jobs and business activity in the United States and remove tax deductions for shipping jobs overseas:													
Provide tax credit for onshoring jobs to the United States		6	10	10	11	11	12	12	13	13	14	48	112
Remove tax deductions for shipping jobs overseas		-6	-10	-10	-11	-11	-12	-12	-13	-13	-14	-48	-112
Total, provide tax incentives for locating jobs and business activity in the United States and remove tax deductions for shipping jobs overseas													
Repeal deduction for Foreign Derived Intangible Income (FDII) and provide additional support for research and experimentation expenditures													
Replace the Base Erosion Anti-Abuse Tax (BEAT) with the Stopping Harmful Inversions and Ending Low-Tax Developments (SHIELD) Rule ..			-33,244	-53,796	-51,111	-47,655	-44,463	-41,914	-39,425	-38,990	-39,453	-185,806	-390,051
Limit foreign tax credits for sales of hybrid entities		-23	-39	-41	-43	-45	-47	-48	-49	-50	-51	-191	-436
Restrict deductions of excessive interest of members of financial reporting groups for disproportionate borrowing in the United States		-2,100	-2,334	-1,586	-1,638	-1,690	-1,743	-1,795	-1,846	-1,900	-1,956	-9,348	-18,588
Impose 15 percent minimum tax on book earnings of large corporations		-10,736	-15,245	-14,588	-13,812	-14,561	-15,203	-16,049	-16,158	-15,775	-16,217	-68,942	-148,344
Total, reform corporate taxation		-98,028	-195,726	-219,858	-220,987	-219,554	-217,429	-216,390	-214,047	-214,272	-218,658	-954,153	-2,034,949
Support housing and infrastructure:													
Expand Low-income Housing Tax Credit		35	212	707	1,592	2,527	3,427	4,370	5,362	6,339	7,356	5,073	31,927
Provide Neighborhood Homes Investment Tax Credit		10	99	398	944	1,512	1,889	2,063	2,083	2,035	2,001	2,963	13,034

Table S-6. Mandatory and Receipt Proposals—Continued

(Deficit increases (+) or decreases (-) in millions of dollars)

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Totals	
												2022-2026	2022-2031
Expand New Markets Tax Credit (NMTC) and make permanent						97	280	492	736	1,006	1,294	97	3,905
Provide federally subsidized State and local bonds for infrastructure including for schools ¹		291	767	1,292	1,458	1,439	1,403	1,357	1,308	1,257	1,204	5,247	11,776
Total, support housing and infrastructure		336	1,078	2,397	3,994	5,575	6,999	8,282	9,489	10,637	11,855	13,380	60,642
Total, Made in America Tax Plan		-95,593	-185,399	-183,765	-176,707	-169,052	-159,967	-169,366	-171,978	-173,559	-181,662	-810,516	-1,667,048
Total, American Jobs Plan		83,966	91,798	140,815	151,910	176,801	109,650	28,359	-34,570	-86,876	-132,909	645,290	528,944
American Families Plan													
Add at least four years of free public education:													
Universal preschool:													
Provide universal preschool grants to States		302	2,203	6,306	9,637	11,158	13,673	16,417	20,323	25,638	33,501	29,606	139,158
Provide Head Start educator fund		1,004	2,530	2,580	2,633	2,685	2,738	2,794	2,849	2,906	2,965	11,432	25,684
Free community college and other postsecondary education investments:													
Fund free community college		429	9,532	15,399	17,496	12,892	11,053	10,864	10,418	10,092	10,349	55,748	108,524
Account for American Opportunity Tax Credit interaction with free community college ¹		-22	-455	-901	-1,354	-1,847	-2,243	-2,662	-3,094	-3,590	-4,031	-4,579	-20,199
Increase the Pell Grant		3,550	8,336	8,608	8,664	8,648	8,797	8,987	9,193	9,372	9,558	37,806	83,713
Make Deferred Action for Childhood Arrivals (DACA) recipients eligible for Pell Grants		45	146	206	206	187	164	162	136	79	67	790	1,398
Create completion grants for student supports		186	4,092	5,828	6,014	6,200	6,200	6,200	6,200	6,200	6,200	22,320	53,320
Fund Advancing Affordability for students		139	3,050	4,078	4,180	4,347	4,430	4,567	4,710	4,860	5,016	15,794	39,377
Increase funding to HBCUs/Tribal Colleges and Universities (TCUs)/MSIs in Titles III/V programs		15	330	470	485	500	500	500	500	500	500	1,800	4,300
Create or expand health care graduate programs at HBCUs/TCUs/MSIs		6	132	188	194	200	200	200	200	200	200	720	1,720
Total, add at least four years of free public education		5,654	29,896	42,762	48,155	44,970	45,512	48,029	51,435	56,257	64,325	171,437	436,995
Education and preparation for teachers:													
Expand Teacher Quality Partnerships		8	184	263	271	280	280	280	280	280	280	1,006	2,406
Create Hawkins Centers of Excellence		1	26	37	39	40	40	40	40	40	40	143	343
Increase Individuals with Disabilities Education Act (IDEA) personnel preparation funding		4	80	88	90	90	90	90	90	90	90	352	802
Reform and expand Teacher Education Assistance for College and Higher Education (TEACH) grants		24	120	123	125	127	128	130	133	134	136	519	1,180
Invest in teacher credentials		32	560	560	400	48						1,600	1,600
Invest in teacher leadership and development		4	74	144	194	200	200	200	200	200	200	616	1,616
Total, education and preparation for teachers		73	1,044	1,215	1,119	785	738	740	743	744	746	4,236	7,947
Provide direct support to children and families:													
Establish a new child care program for American families		6,720	8,860	11,820	13,760	17,230	20,910	24,480	31,820	40,090	49,270	58,390	224,960
Provide universal paid family and medical leave		750	9,355	12,406	13,909	15,362	20,739	25,626	36,438	41,546	48,918	51,782	225,049

Table S-6. Mandatory and Receipt Proposals—Continued

(Deficit increases (+) or decreases (-) in millions of dollars)

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Totals	
												2022-2026	2022-2031
Nutrition:													
Expand Summer Electronic Benefit Transfer (Summer EBT) to all eligible children nationwide			1,446	1,980	2,538	3,123	3,197	3,271	3,348	3,430	3,511	9,087	25,844
Expand school meal programs		210	1,662	1,746	1,798	1,847	1,895	1,951	2,007	2,051	2,104	7,263	17,271
Launch a healthy food incentives demonstration		1,000										1,000	1,000
Facilitate re-entry for formerly incarcerated individuals through Supplemental Nutrition Assistance Program (SNAP) eligibility		106	87	86	84	82	82	85	88	90	92	445	882
Place family coordinators at Veterans Affairs medical centers		30	30	25	25	25	25	25	25	25	25	135	260
Invest in maternal health		24	180	504	582	600	576	420	96	18		1,890	3,000
Total, provide direct support to children and families		8,840	21,620	28,567	32,696	38,269	47,424	55,858	73,822	87,250	103,920	129,992	498,266
Support workers and families and strengthen economic security:													
Extend the American Rescue Plan changes to the Child Credit through 2025 and make permanent full refundability ¹		47,125	110,999	108,559	107,190	62,060	2,860	2,725	2,611	2,512	2,420	435,933	449,061
Make permanent the American Rescue Plan expansion to Earned Income Tax Credit for workers without qualifying children ¹		27	5,589	11,782	11,970	12,145	12,445	12,576	12,745	12,908	13,032	41,513	105,219
Make permanent the American Rescue Plan changes to the Child and Dependent Care Tax Credit (CDCTC) ¹		3,134	10,588	10,588	10,633	12,303	11,032	11,195	11,391	11,573	11,761	47,246	104,198
Account for CDCTC interaction with new child care program for American families ^{1,2}		-982	-1,205	-1,437	-1,680	-1,934	-2,199	-2,474	-2,992	-3,531	-4,093	-7,238	-22,527
Make permanent the American Rescue Plan expansion of premium tax credits ¹		0	11,490	15,679	16,513	17,215	18,076	18,888	20,149	21,704	23,334	60,897	163,048
Increase the employer-provided childcare tax credit for businesses		28	28	29	29	29	31	31	32	32	33	143	302
Total, support workers, families, and economic security		49,332	137,489	145,200	144,655	101,818	42,245	42,941	43,936	45,198	46,487	578,494	799,301
Strengthen taxation of high-income taxpayers and close loopholes:													
Increase top marginal tax rate for high earners		-19,991	-30,594	-33,278	-36,525	-11,532						-131,920	-131,920
Reform taxation of capital income	-1,241	-7,656	-25,451	-32,906	-36,303	-33,947	-32,252	-34,276	-36,064	-37,937	-45,693	-136,263	-322,485
Rationalize Net Investment Income and Self-Employment Contributions Act (SECA) taxes		-11,383	-19,535	-20,779	-23,038	-24,205	-25,464	-26,719	-27,559	-28,416	-29,402	-98,940	-236,500
Tax carried (profits) interest as ordinary income		-100	-135	-138	-141	-143	-149	-155	-162	-169	-176	-657	-1,468
Repeal deferral of gain from like-kind exchanges		-676	-1,857	-1,914	-1,971	-2,030	-2,091	-2,154	-2,218	-2,285	-2,354	-8,448	-19,550
Make permanent excess business loss limitation of noncorporate taxpayers							-9,996	-11,782	-7,627	-6,836	-6,619		-42,860
Total, strengthen taxation of high-income taxpayers and close loopholes	-1,241	-39,806	-77,572	-89,015	-97,978	-71,857	-69,952	-75,086	-73,630	-75,643	-84,244	-376,228	-754,783

Table S-6. Mandatory and Receipt Proposals—Continued

(Deficit increases (+) or decreases (-) in millions of dollars)

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Totals		
												2022-2026	2022-2031	
Improve tax compliance and administration:														
Implement a program integrity allocation adjustment and provide additional resources for tax administration:														
Increase revenues through program integrity allocation adjustment for tax administration		-334	-1,858	-3,165	-4,055	-4,894	-5,889	-6,595	-7,243	-7,796	-8,451	-14,306	-50,280	
Increase revenues by providing mandatory Internal Revenue Service (IRS) funding for compliance		0	-631	-3,312	-7,562	-13,837	-22,342	-34,081	-46,941	-62,253	-74,937	-25,342	-265,896	
Provide mandatory IRS funding for compliance		953	1,959	2,938	4,069	5,441	7,047	9,035	11,222	13,894	14,499	15,360	71,057	
<i>Implement a program integrity allocation adjustment for tax administration, discretionary outlays (non-add)</i>		<i>375</i>	<i>620</i>	<i>641</i>	<i>657</i>	<i>676</i>	<i>692</i>	<i>710</i>	<i>729</i>	<i>749</i>	<i>767</i>	<i>2,969</i>	<i>6,616</i>	
Total, implement a program integrity allocation adjustment and provide additional resources for tax administration		619	-530	-3,539	-7,548	-13,290	-21,184	-31,641	-42,962	-56,155	-68,889	-24,288	-245,119	
Introduce comprehensive financial account information reporting		-8,378	-32,413	-36,551	-42,517	-46,980	-53,032	-57,123	-61,024	-61,886	-62,742	-166,839	-462,646	
Increase oversight of paid tax return preparers:														
Allow IRS to regulate paid Federal tax return preparers ¹		-35	-52	-57	-59	-58	-55	-57	-61	-68	-73	-261	-575	
Increase penalties on ghost preparers ¹		-13	-19	-21	-24	-25	-26	-27	-28	-29	-30	-102	-242	
Total, increase oversight of paid tax return preparers		-48	-71	-78	-83	-83	-81	-84	-89	-97	-103	-363	-817	
Enhance accuracy of tax information:														
E-file of forms and returns														
Taxpayer Identification Numbers certification for reportable payments		-36	-83	-141	-193	-202	-211	-221	-231	-241	-252	-655	-1,811	
Total, enhance accuracy of tax information		-36	-83	-141	-193	-202	-211	-221	-231	-241	-252	-655	-1,811	
Expand broker information reporting with respect to cryptocurrency assets														
Address taxpayer noncompliance:														
Extend statute of limitation		-23	-52	-66	-79	-77	-76	-74	-73	-71	-70	-297	-661	
Impose liability on shareholders to collect unpaid income taxes of applicable corporations		-395	-412	-428	-444	-462	-479	-498	-518	-539	-560	-2,141	-4,735	
Total, address taxpayer noncompliance		-418	-464	-494	-523	-539	-555	-572	-591	-610	-630	-2,438	-5,396	
Modify tax administration rules:														
Amend centralized partnership audit regime (BBA) to provide for the carryover of non-refundable reporting year amounts that exceed the income tax liability of a partner		5	5	5	5	6	6	7	7	7	7	26	60	
Modify requisite supervisory approval of penalty included in notice		-29	-254	-245	-248	-222	-197	-174	-173	-179	-186	-998	-1,907	
Total, modify tax administration rules		-24	-249	-240	-243	-216	-191	-167	-166	-172	-179	-972	-1,847	

Table S-6. Mandatory and Receipt Proposals—Continued

(Deficit increases (+) or decreases (-) in millions of dollars)

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Totals		
												2022-2026	2022-2031	
Authorize limited sharing of business tax return information to measure the economy more accurately														
Increase Low Income Taxpayer Clinic (LITC) grant cap and index it for inflation														
Total, improve tax compliance and administration ...		-8,285	-33,810	-41,043	-51,107	-61,310	-75,254	-89,808	-105,063	-119,161	-132,795	-195,555	-717,636	
Total, American Families Plan	-1,241	15,808	78,667	87,686	77,540	52,675	-9,287	-17,326	-8,757	-5,355	-1,561	312,376	270,090	
Mandatory effects of discretionary proposals														
Increase the Pell Grant discretionary award by \$400			72	153	135	134	134	138	142	142	147	494	1,197	
Reclassifications:														
Reclassify contract support costs Indian Health Service (IHS)			1,142	1,165	1,188	1,212	1,236	1,261	1,286	1,312	1,338	4,707	11,140	
Reclassify contract support costs Bureau of Indian Affairs (BIA)			205	344	354	365	376	387	394	403	411	1,268	3,239	
Reclassify Tribal lease payments (IHS)			150	153	156	159	162	166	169	172	176	618	1,463	
Reclassify Tribal lease payments (BIA)			38	39	40	40	41	42	43	44	45	157	372	
Reclassify Tribal Water Settlements			115	197	245	250	255	260	265	272	277	807	2,136	
Program integrity proposals:														
Capturing savings to Medicare and Medicaid from Health Care Fraud and Abuse Control (HCFAC) allocation adjustment		-1,086	-1,144	-1,204	-1,268	-1,304	-1,339	-1,378	-1,415	-1,455	-1,495	-6,006	-13,088	
Implement HCFAC allocation adjustment, discretionary outlays (non-add)		556	571	587	604	621	638	656	674	693	712	2,939	6,312	
Net effect of HCFAC allocation adjustment (non-add) ...		-530	-573	-617	-664	-683	-701	-722	-741	-762	-783	-3,067	-6,776	
Capturing savings to Unemployment Insurance from Reemployment Services and Eligibility Assessment (RESEA) allocation adjustment ³		-290	-512	-716	-545	-935	-866	-763	-657	-319	-572	-2,998	-6,175	
Implement RESEA allocation adjustment, discretionary outlays (non-add)		130	252	424	528	605	631	646	658	671	685	1,939	5,230	
Net effect of RESEA allocation adjustment (non-add)		-160	-260	-292	-17	-330	-235	-117	1	352	113	-1,059	-945	
Capturing savings from Social Security Administration (SSA) allocation adjustment ⁴		-245	-2,529	-3,428	-4,497	-5,291	-6,058	-7,186	-7,282	-8,356	-9,084	-15,990	-53,956	
Implement SSA allocation adjustment, discretionary outlays (non-add)		1,599	1,653	1,726	1,583	1,593	1,654	1,659	1,692	1,724	1,760	8,154	16,643	
Net effect of SSA allocation adjustment (non-add) ...		1,354	-876	-1,702	-2,914	-3,698	-4,404	-5,527	-5,590	-6,632	-7,324	-7,836	-37,313	
Total, mandatory effects of discretionary proposals	-1,241	98,153	168,002	225,204	225,258	224,106	94,304	3,960	-50,382	-100,016	-143,227	940,723	745,362	
Total, mandatory and receipt proposals	-1,241	98,153	168,002	225,204	225,258	224,106	94,304	3,960	-50,382	-100,016	-143,227	940,723	745,362	

¹The estimates for this proposal include effects on outlays. The outlay effects included in the totals above are as follows:

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Totals	
												2022-2026	2022-2031
Extend and Modify the Renewable Energy Production Tax Credit		3,416	4,582	4,703	5,895	6,530	7,167	8,574	9,749	10,557	10,895	25,126	72,068

Table S-6. Mandatory and Receipt Proposals—Continued

(Deficit increases (+) or decreases (-) in millions of dollars)

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Totals	
												2022-2026	2022-2031
Provide tax credit for electricity transmission investments		203	270	1,789	2,295	2,801	2,970	3,071	3,105	3,308	3,375	7,358	23,187
Provide allocated credit for electricity generation from existing nuclear power facilities		675	900	900	900	900	900	900	900	900	900	4,275	8,775
Establish new tax credits for qualifying advanced energy manufacturing		385	1,000	1,350	889	735	847	1,261	518	39	117	4,359	7,141
Establish tax credits for heavy- and medium-duty zero emission vehicles		66	272	768	1,346	2,462	3,673	992	.....	.....	.....	4,914	9,579
Provide a production tax credit for low-carbon hydrogen		11	42	128	313	469	839	1,495	419	.....	.....	963	3,716
Extend and enhance the Carbon Oxide Sequestration Credit		547	655	752	939	1,206	2,063	2,767	2,950	5,018	6,520	4,099	23,417
Extend and enhance the electric vehicle charging station credit		158	259	334	412	540	144	.....	.....	.....	.....	1,703	1,847
Provide federally subsidized State and local bonds for infrastructure including for schools		345	964	1,637	1,880	1,819	1,753	1,686	1,620	1,554	1,488	6,645	14,746
Account for American Opportunity Tax Credit interaction with Free Community College	-205	-380	-579	-790	-786	-940	-1,095	-1,271	-1,459	-1,954	-7,505
Extend the American Rescue Plan changes to the Child Credit and make permanent full refundability		80,956	137,868	135,741	134,880	54,147	2,851	2,716	2,602	2,503	2,411	543,592	556,675
Make permanent the American Rescue Plan expansion to Earned Income Tax Credit for workers without children	5,231	10,670	10,839	10,984	11,122	11,018	11,163	11,304	11,409	37,724	93,740
Make permanent the American Rescue Plan changes to the Child and Dependent Care Tax Credit (CDCTC)	6,442	6,455	6,486	6,554	4,694	4,758	4,835	4,908	4,977	25,937	50,109
Account for CDCTC interaction with new child care program for American families	-733	-876	-1,025	-1,030	-936	-1,052	-1,270	-1,497	-1,732	-3,664	-10,151
Make permanent the American Rescue Plan expansion of premium tax credits	8,620	11,666	12,244	12,327	12,768	13,247	14,073	15,052	16,094	44,857	116,091
Allow IRS to regulate paid Federal tax return preparers		-19	-34	-35	-34	-30	-24	-23	-24	-27	-29	-152	-279
Increase penalties on ghost preparers	-2	-2	-3	-3	-3	-3	-3	-3	-3	-10	-25
Total, outlay effects of receipt proposals		90,679	175,151	204,834	211,478	133,642	88,052	79,506	74,073	71,775	67,530	815,784	1,196,720

² Individuals will not be able to claim both the Child and Dependent Care Tax Credit and participate in the new Child Care for American Families program for the same care. This interaction removes costs already included in the Child Care for American Families score.

³ The estimates for this proposal include effects on receipts. The receipt effects included in the totals above are as follows:

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Totals	
												2022-2026	2022-2031
RESEA allocation adjustment effects	0	0	15	109	399	59	83	117	151	423	109	582	1465

⁴ Represents the savings associated with continuing to provide dedicated funding, through a discretionary allocation adjustment, for program integrity activities to confirm program participants remain eligible to receive benefits.

Table S-7. Funding Levels for Appropriated (“Discretionary”) Programs by Category

(Budget authority in billions of dollars)

												Totals	
	Enacted ¹ Request		Outyears									2022-	2022-
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2026	2031
Base Discretionary Funding Allocation	1,401.3	1,522.5	1,555.2	1,589.5	1,624.7	1,660.8	1,687.5	1,714.7	1,742.4	1,770.5	1,799.3	7,952.6	16,666.9
<i>Defense Allocation</i> ²	740.7	752.9	769.5	786.6	804.0	821.9	830.1	838.4	846.8	855.3	863.8	3,934.9	8,169.3
<i>Non-Defense Allocation</i>	660.7	769.6	785.7	802.9	820.6	838.9	857.4	876.2	895.6	915.3	935.5	4,017.7	8,497.6
Proposed Growth in Base Discretionary Programs:													
Total		+8.6%	+2.1%	+2.2%	+2.2%	+2.2%	+1.6%	+1.6%	+1.6%	+1.6%	+1.6%		
<i>Defense Allocation</i>		+1.6%	+2.2%	+2.2%	+2.2%	+2.2%	+1.0%	+1.0%	+1.0%	+1.0%	+1.0%		
<i>Non-Defense Allocation</i>		+16.5%	+2.1%	+2.2%	+2.2%	+2.2%	+2.2%	+2.2%	+2.2%	+2.2%	+2.2%		
Non-Defense Reclassifications ³			-1.9	-2.0	-2.0	-2.0	-2.1	-2.1	-2.2	-2.2	-2.3	-7.9	-18.8
<i>Indian Water Rights Settlement Funding</i>			-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-1.0	-2.3
<i>Section 105(l) Leases</i>			-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.8	-1.8
<i>Contract Support Costs</i>			-1.5	-1.5	-1.6	-1.6	-1.6	-1.7	-1.7	-1.7	-1.8	-6.2	-14.6
Non-Base Discretionary Funding (not included above):⁴													
Change in Mandatory Program Offsets	-26.0	-26.0										-26.0	-26.0
Emergency and COVID-19 Supplemental Funding ...	194.9												
Program Integrity	1.9	2.5	3.1	3.4	3.4	3.5	3.6	3.7	3.8	3.8	3.9	15.9	34.8
Disaster Relief	17.3	18.9	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	59.5	110.3
Wildfire Suppression	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	12.3	24.5
21st Century Cures Appropriations	0.5	0.5	1.1	0.5	0.2	0.2						2.5	2.5
Total, Non-Base Funding	191.0	-1.5	16.9	16.4	16.1	16.3	16.2	16.3	16.4	16.4	16.5	64.3	146.1
Grand Total, Discretionary Budget Authority	1,592.3	1,521.0	1,570.2	1,604.0	1,638.8	1,675.0	1,701.7	1,728.8	1,756.6	1,784.8	1,813.5	8,009.0	16,794.3

¹ The 2021 enacted level includes changes that occur after appropriations are enacted that are part of budget execution such as transfers, reestimates, and the rebasing as mandatory any changes in mandatory programs (CHIMPs) enacted in appropriations bills. The 2021 levels are adjusted to include OMB’s scoring of CHIMPs enacted in 2021 appropriations Acts for a better illustrative comparison with the 2022 request.

² The 2023 Budget will be accompanied by a Future Years Defense Program that reflects this Administration’s policy judgments and National Security and National Defense strategies. Because these strategy documents are currently under development, out-year defense funding levels in the 2022 budget are mechanical extrapolations. After 2022, defense programs are provided with current services growth through 2026 followed by one-percent increases through 2031, a proxy for long-run efficiencies the Administration believes may be achieved in the defense budget.

³ The 2022 Budget proposes two reclassifications of programs that historically have been funded as discretionary. This first proposal reclassifies the appropriations for the Contract Support Costs and Section 105(l) lease accounts in the Department of Health and Human Services’ Indian Health Service and the Department of the Interior’s (DOI) Bureau of Indian Affairs. The second proposal reclassifies DOI’s Indian water rights settlements funding. The Budget proposes to offset the increase in mandatory funding resulting from both reclassifications by reducing base discretionary funding by amounts equal to current services inflation of the programs. See the Budget Concepts chapter of the *Analytical Perspectives* volume of the Budget for more information on these proposals.

⁴ With the expiration of the discretionary caps in 2022, the Administration’s 2022 Budget presents funding differently than under the recent discretionary cap framework. The Administration shifts funds that had been designated as Overseas Contingency Operations (OCO) to the base. Funds for anomalous or above-base activities such as emergency requirements, program integrity, disaster relief, wildfire suppression, and 21st Century Cures appropriations continue to be presented outside of base allocations. In addition, major offsets resulting from proposed changes in mandatory programs are also presented outside of the base.

Table S-8. 2022 Discretionary Request by Major Agency

(Budget authority in billions of dollars)

	2021 Enacted ¹	2022 Request	2022 Request Less 2021 Enacted	
			Dollar	Percent
Base Discretionary Funding:				
Cabinet Departments:				
Agriculture ²	23.9	27.9	+4.0	+16.7%
Commerce	8.9	11.5	+2.6	+29.4%
Defense	703.7	715.0	+11.3	+1.6%
Education	73.0	102.8	+29.8	+40.8%
Energy (DOE) ³	41.8	46.2	+4.3	+10.4%
Health and Human Services (HHS) ⁴	108.4	133.7	+25.3	+23.4%
Homeland Security (DHS):				
<i>DHS program level</i>	54.9	54.9	+	+0.1%
<i>Transportation Security Administration Fees</i>	-0.5	-2.7	-2.3	N/A
Housing and Urban Development (HUD):				
<i>HUD program level</i>	59.6	68.7	+9.0	+15.2%
<i>HUD receipts</i>	-15.1	-10.5	+4.6	N/A
Interior	15.0	17.4	+2.5	+16.7%
Justice	33.5	35.3	+1.8	+5.3%
Labor	12.5	14.2	+1.7	+14.0%
State and International Programs ^{2,5}	57.3	63.6	+6.3	+11.0%
Transportation (DOT):				
<i>DOT Discretionary Programs</i>	22.4	25.7	+3.3	+14.8%
<i>DOT General Fund Transfer to Mandatory Programs⁶</i>	2.9	.....	-2.9	N/A
Treasury ⁵	13.5	15.0	+1.5	+11.3%
Veterans Affairs	104.6	113.1	+8.5	+8.2%
Major Agencies:				
Corps of Engineers (Corps) ⁷	7.8	6.8	-1.0	-12.9%
Environmental Protection Agency	9.2	11.2	+2.0	+21.6%
General Services Administration	-1.0	1.5	+2.5	N/A
National Aeronautics and Space Administration	23.3	24.8	+1.5	+6.6%
National Science Foundation	8.5	10.2	+1.7	+19.8%
Small Business Administration	0.8	0.9	+0.1	+9.5%
Social Security Administration ⁴	9.0	9.8	+0.8	+9.3%
Other Agencies	23.4	25.5	+2.1	+8.8%
Subtotal, Base Discretionary Budget Authority	1,401.3	1,522.5	+121.1	+8.6%

Table S-8. 2022 Discretionary Request by Major Agency—Continued

(Budget authority in billions of dollars)

	2021 Enacted ¹	2022 Request	2022 Request Less 2021 Enacted	
			Dollar	Percent
Non-Base Discretionary Funding:				
Changes in mandatory program offsets ⁸	-26.0	-26.0	.....	.....
Emergency Requirements and COVID-19 Supplemental Funding: ⁹				
Agriculture	1.0	.....	-1.0	N/A
Commerce	0.3	.....	-0.3	N/A
Education	81.6	.....	-81.6	N/A
Energy	-2.3	.....	+2.3	N/A
Health and Human Services	73.8	.....	-73.8	N/A
Homeland Security	2.8	.....	-2.8	N/A
Housing and Urban Development	0.7	.....	-0.7	N/A
Interior	0.4	.....	-0.4	N/A
Justice	0.6	.....	-0.6	N/A
Labor	0.7	.....	-0.7	N/A
State and International Programs	5.3	.....	-5.3	N/A
Transportation	27.0	.....	-27.0	N/A
Treasury	0.5	.....	-0.5	N/A
Small Business Administration	2.0	.....	-2.0	N/A
Other Agencies	0.4	.....	-0.4	N/A
Subtotal, Emergency Requirements	194.9	.....	-194.9	N/A
Program Integrity:				
Health and Human Services	0.5	0.6	+0.1	+12.1%
Labor	0.1	0.1	+0.1	+60.2%
Treasury .....	.....	0.4	+0.4	N/A
Social Security Administration	1.3	1.4	+0.1	+10.2%
Subtotal, Program Integrity	1.9	2.5	+0.7	+35.1%
Disaster Relief:				
Homeland Security	17.1	18.8	+1.7	+9.7%
Small Business Administration	0.1	0.1	.....	.....
Subtotal, Disaster Relief	17.3	18.9	+1.7	+9.6%
Wildfire Suppression:				
Agriculture	2.0	2.1	+0.1	+3.9%
Interior	0.3	0.3	+	+6.5%
Subtotal, Wildfire Suppression	2.4	2.5	+0.1	+4.3%

Table S-8. 2022 Discretionary Request by Major Agency—Continued

(Budget authority in billions of dollars)

	2021 Enacted ¹	2022 Request	2022 Request Less 2021 Enacted	
			Dollar	Percent
21st Century Cures appropriations:				
Health and Human Services	0.5	0.5	+0.1	+15.2%
Subtotal, Non-Base Discretionary Funding	191.0	-1.5	-192.5	-100.8%
Total, Discretionary Budget Authority	1,592.3	1,521.0	-71.3	-4.5%

* \$50 million or less.

¹ The 2021 enacted level includes changes that occur after appropriations are enacted that are part of budget execution such as transfers, reestimates, and the rebasing as mandatory any changes in mandatory programs (CHIMPs) enacted in appropriations bills. The 2021 levels are adjusted to include OMB's scoring of CHIMPs enacted in 2021 appropriations Acts for a better illustrative comparison with the 2022 request.

² Funding for Food for Peace Title II Grants is included in the State and International Programs total. Although the funds are appropriated to the Department of Agriculture, the funds are administered by the U.S. Agency for International Development (USAID).

³ The Department of Energy base total in 2021 includes an appropriation of \$2.3 billion that had been designated as emergency in Public Law 116-260 since the activities were for regular operations and not emergency purposes.

⁴ Funding from the Hospital Insurance and Supplementary Medical Insurance trust funds for administrative expenses incurred by the Social Security Administration that support the Medicare program are included in the Health and Human Services total and not in the Social Security Administration total.

⁵ The State and International Programs total includes funding for the Department of State, USAID, Treasury International, and 11 international agencies while the Treasury total excludes Treasury's International Programs.

⁶ The DOT General Fund Transfer to Mandatory Programs line reflects General Fund appropriations to programs that traditionally receive mandatory funding out of the Highway and Airport and Airway Trust Funds.

⁷ The 2022 Budget shifts the Formerly Utilized Sites Remedial Action Program (FUSRAP) from the Corps to DOE; setting aside the FUSRAP shift, the change from 2021 is a 10-percent decrease to the Corps non-defense budget.

⁸ The limitation enacted and proposed in the Justice Department's Crime Victims Fund program and cancellations in the Children's Health Insurance Program in HHS make up the bulk of these offsets.

⁹ Funding enacted in division N of the Consolidated Appropriations Act, 2021 (Public Law 116-260) for otherwise discretionary programs has been rebased from mandatory and is included here along with other emergency requirements provided in 2021. The division N amounts were not designated as emergency but are considered non-base funding.

Table S-9. Economic Assumptions¹

(Calendar years)

	Actual 2019	Projections											
		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross Domestic Product (GDP):													
Nominal level, billions of dollars	21,433	20,933	22,411	23,799	24,808	25,778	26,767	27,794	28,860	29,986	31,166	32,414	33,723
Percent change, nominal GDP, year/year	4.0	-2.3	7.1	6.2	4.2	3.9	3.8	3.8	3.8	3.9	3.9	4.0	4.0
Real GDP, percent change, year/year	2.2	-3.5	5.2	4.3	2.2	1.9	1.8	1.8	1.8	1.9	1.9	2.0	2.0
Real GDP, percent change, Q4/Q4	2.3	-2.5	5.2	3.2	2.0	1.8	1.8	1.8	1.8	1.9	1.9	2.0	2.0
GDP chained price index, percent change, year/year	1.8	1.2	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Consumer Price Index,² percent change, year/year	1.8	1.2	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Interest rates, percent:³													
91-day Treasury bills ⁴	2.1	0.4	0.1	0.2	0.4	0.8	1.2	1.5	1.6	1.7	1.8	2.1	2.2
10-year Treasury notes	2.1	0.9	1.2	1.4	1.7	2.1	2.4	2.6	2.7	2.8	2.8	2.8	2.8
Unemployment rate, civilian, percent³	3.7	8.1	5.5	4.1	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8

Note: A more detailed table of economic assumptions appears in Chapter 2, "Economic Assumptions and Overview," in the *Analytical Perspectives* volume of the Budget.

¹ Based on information available as of mid-February 2021.

² Seasonally adjusted CPI for all urban consumers.

³ Annual average.

⁴ Average rate, secondary market (bank discount basis).

Table S-10. Federal Government Financing and Debt

(Dollar amounts in billions)

	Actual 2020	Estimate										
		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Financing:												
Unified budget deficit:												
Primary deficit	2,784	3,366	1,532	1,052	991	1,025	890	701	749	562	649	654
Net interest	345	303	305	320	368	445	524	603	674	744	829	914
Unified budget deficit	3,129	3,669	1,837	1,372	1,359	1,470	1,414	1,303	1,424	1,307	1,477	1,568
As a percent of GDP	14.9%	16.7%	7.8%	5.6%	5.3%	5.5%	5.1%	4.6%	4.8%	4.2%	4.6%	4.7%
Other transactions affecting borrowing from the public:												
Changes in financial assets and liabilities: ¹												
Change in Treasury operating cash balance	1,399	-1,032										
Net disbursements of credit financing accounts:												
Direct loan and Troubled Asset Relief Program (TARP) equity purchase accounts	198	159	110	44	17	4	3	1	-2	-4	5	8
Guaranteed loan accounts	-499	354	154	5	6	5	5	6	5	5	5	5
Net purchases of non-Federal securities by the National Railroad Retirement Investment Trust (NRRIT)	-*	*	-2	-2	-2	-2	-2	-2	-2	-2	-1	-1
Net change in other financial assets and liabilities ²	-11											
Subtotal, changes in financial assets and liabilities	1,087	-518	262	47	21	7	6	5	2	-1	8	11
Seigniorage on coins	-*	-1	-*	-1	-1	-1	-1	-1	-1	-1	-1	-1
Total, other transactions affecting borrowing from the public ...	1,087	-519	261	46	20	7	5	5	1	-1	7	11
Total, requirement to borrow from the public (equals change in debt held by the public)	4,216	3,150	2,098	1,418	1,379	1,476	1,419	1,308	1,425	1,305	1,485	1,578
Changes in Debt Subject to Statutory Limitation:												
Change in debt held by the public	4,216	3,150	2,098	1,418	1,379	1,476	1,419	1,308	1,425	1,305	1,485	1,578
Change in debt held by Government accounts	17	173	121	163	202	106	65	-93	-209	-120	-234	-273
Change in other factors	1	1	1	1	1	-*	*	1	*	*	-1	-1
Total, change in debt subject to statutory limitation	4,234	3,325	2,220	1,582	1,582	1,582	1,485	1,216	1,216	1,185	1,250	1,304
Debt Subject to Statutory Limitation, End of Year:												
Debt issued by Treasury	26,881	30,204	32,423	34,005	35,586	37,167	38,652	39,867	41,083	42,267	43,517	44,821
Adjustment for discount, premium, and coverage ³	39	41	42	43	44	44	44	45	46	47	47	47
Total, debt subject to statutory limitation ⁴	26,920	30,245	32,465	34,048	35,630	37,211	38,696	39,912	41,129	42,314	43,564	44,868
Debt Outstanding, End of Year:												
Gross Federal debt: ⁵												
Debt issued by Treasury	26,881	30,204	32,423	34,005	35,586	37,167	38,652	39,867	41,083	42,267	43,517	44,821
Debt issued by other agencies	21	21	22	22	22	22	22	22	22	23	24	25
Total, gross Federal debt	26,902	30,226	32,445	34,026	35,607	37,189	38,673	39,889	41,105	42,290	43,541	44,846
As a percent of GDP	128.1%	137.2%	138.1%	138.5%	139.4%	140.3%	140.5%	139.5%	138.4%	137.0%	135.7%	134.3%

Table S-10. Federal Government Financing and Debt—Continued

(Dollar amounts in billions)

	Actual	Estimate										
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Held by:												
Debt held by Government accounts	5,886	6,059	6,180	6,343	6,545	6,651	6,716	6,622	6,414	6,294	6,060	5,786
Debt held by the public ⁶	21,017	24,167	26,265	27,683	29,062	30,539	31,958	33,266	34,691	35,996	37,481	39,059
As a percent of GDP	100.1%	109.7%	111.8%	112.7%	113.8%	115.2%	116.1%	116.4%	116.8%	116.6%	116.8%	117.0%
Debt Held by the Public Net of Financial Assets:												
Debt held by the public	21,017	24,167	26,265	27,683	29,062	30,539	31,958	33,266	34,691	35,996	37,481	39,059
Less financial assets net of liabilities:												
Treasury operating cash balance	1,782	750	750	750	750	750	750	750	750	750	750	750
Credit financing account balances:												
Direct loan and TARP equity purchase accounts	1,613	1,773	1,883	1,926	1,943	1,947	1,949	1,951	1,949	1,945	1,950	1,957
Guaranteed loan accounts	-467	-112	41	46	52	57	62	68	72	77	82	86
Government-sponsored enterprise stock ⁷	109	109	109	109	109	109	109	109	109	109	109	109
Air carrier worker support warrants and notes ⁸	5	13	13	13	13	13	13	12	12	12	12	7
Non-Federal securities held by NRRIT	24	24	22	20	18	17	15	13	11	10	9	8
Other assets net of liabilities	-73	-73	-73	-73	-73	-73	-73	-73	-73	-73	-73	-73
Total, financial assets net of liabilities	2,993	2,483	2,744	2,791	2,812	2,819	2,824	2,829	2,830	2,830	2,837	2,843
Debt held by the public net of financial assets	18,024	21,684	23,520	24,892	26,250	27,720	29,134	30,437	31,860	33,167	34,643	36,216
As a percent of GDP	85.8%	98.4%	100.1%	101.3%	102.8%	104.5%	105.8%	106.5%	107.3%	107.5%	107.9%	108.5%

* \$500 million or less.

¹ A decrease in the Treasury operating cash balance (which is an asset) is a means of financing a deficit and therefore has a negative sign. An increase in checks outstanding (which is a liability) is also a means of financing a deficit and therefore also has a negative sign. More information on the levels and changes to the operating cash balance is available in Chapter 4, "Federal Borrowing and Debt" in the *Analytical Perspectives* volume of the Budget.

² Includes checks outstanding, accrued interest payable on Treasury debt, uninvested deposit fund balances, allocations of special drawing rights, and other liability accounts; and, as an offset, cash and monetary assets (other than the Treasury operating cash balance), other asset accounts, and profit on sale of gold.

³ Consists mainly of debt issued by the Federal Financing Bank (which is not subject to limit), the unamortized discount (less premium) on public issues of Treasury notes and bonds (other than zero-coupon bonds), and the unrealized discount on Government account series securities.

⁴ Legislation enacted August 2, 2019 (P.L. 116-37), temporarily suspends the debt limit through July 31, 2021.

⁵ Treasury securities held by the public and zero-coupon bonds held by Government accounts are almost all measured at sales price plus amortized discount or less amortized premium. Agency debt securities are almost all measured at face value. Treasury securities in the Government account series are otherwise measured at face value less unrealized discount (if any).

⁶ At the end of 2020, the Federal Reserve Banks held \$4,445.5 billion of Federal securities and the rest of the public held \$16,571.2 billion. Debt held by the Federal Reserve Banks is not estimated for future years.

⁷ Treasury's warrants to purchase 79.9 percent of the common stock of the enterprises expire after September 7, 2028. The warrants were valued at \$13 billion at the end of 2020.

⁸ Of the notes and warrants issued under Air carrier worker support (Payroll support program), \$0.5 billion are scheduled to expire by the end of 2026, \$0.6 billion are scheduled to expire by the end of 2027, and \$5.3 billion are scheduled to expire by the end of 2031.

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 Emma K. Tessier
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 Barbara E. Thomas
 Judith F. Thomas
 Payton A. Thomas
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 Brett Waite
 Nicole Waldeck
 Joseph Waldow
 Traci Walker
 Heather V. Walsh
 Tim Wang
 Ben Ward
 Peter H. Waterman
 Gary Waxman
 Bess M. Weaver
 Jacqueline K. Webb
 Daniel Week
 William J. Weinig
 David Weisshaar
 Lillian Welch
 Philip R. Wenger
 Max West
 Arnette C. White
 Ashley M. White
 Curtis C. White
 Kim S. White
 Sherron R. White

Brian Widuch
 Jeremy D. Williams
 Alex O. Wilson
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 Sophia M. Wright
 Bert Wyman

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EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET

WASHINGTON, D.C. 20503



THE WHITE HOUSE
WASHINGTON

1 (2) ADJUSTMENT FOR INFLATION.—

2 (A) Section 4611(c)(2)(A) is amended by
3 striking “9.7 cents” and inserting “16.4 cents”.

4 (B) Section 4611(c) is amended by adding
5 at the end the following:

6 “(3) ADJUSTMENT FOR INFLATION.—

7 “(A) IN GENERAL.—In the case of a year
8 beginning after 2022, the amount in paragraph
9 (2)(A) shall be increased by an amount equal
10 to—

11 “(i) such amount, multiplied by

12 “(ii) the cost-of-living adjustment de-
13 termined under section 1(f)(3) for the cal-
14 endar year, determined by substituting
15 ‘calendar year 2021’ for ‘calendar year
16 2016’ in subparagraph (A)(ii) thereof.

17 “(B) ROUNDING.—If any amount as ad-
18 justed under subparagraph (A) is not a multiple
19 of \$0.01, such amount shall be rounded to the
20 next lowest multiple of \$0.01.”.

21 (b) AUTHORITY FOR ADVANCES.—Section
22 9507(d)(3)(B) is amended by striking “December 31,
23 1995” and inserting “December 31, 2031”.

24 (c) EFFECTIVE DATE.—The amendments made by
25 this section shall take effect on January 1, 2022.

Table S-6. Mandatory and Receipt Proposals—Continued

(Deficit increases (+) or decreases (-) in millions of dollars)

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Totals	
												2022-2026	2022-2031
Extend and enhance the electric vehicle charging station credit ¹		236	432	848	1,457	2,599	771	18	-26	-35	-33	5,572	6,267
Modify Oil Spill Liability Trust Fund financing		-38	-51	-53	-53	-53	-53	-53	-53	-53	-53	-248	-513
Reinstate Superfund excise taxes		-1,715	-2,340	-2,406	-2,455	-2,517	-2,560	-2,610	-2,670	-2,723	-2,787	-11,433	-24,783
Revenue effect of sparking widespread adoption of EVs		10	32	66	113	178	267	409	647	1,022	1,584	399	4,328
Total, prioritize clean energy		2,099	9,249	33,696	40,286	44,927	50,463	38,742	32,580	30,076	25,141	130,257	307,259
Reform corporate taxation:													
Increase the domestic corporate tax rate to 28 percent		-51,127	-86,182	-88,059	-89,385	-91,784	-92,065	-90,730	-89,357	-88,798	-90,330	-406,537	-857,817
Revise the Global Minimum Tax regime, disallow deductions attributable to exempt income, and limit inversions		-29,816	-51,386	-54,192	-57,030	-55,283	-54,699	-56,056	-56,988	-58,223	-59,830	-247,707	-533,503
Reform taxation of foreign fossil fuel income:													
Modify foreign oil and gas extraction income (FOGEI) and foreign oil related income (FORI) rules		-4,178	-7,173	-7,468	-7,834	-8,393	-9,055	-9,633	-10,051	-10,358	-10,638	-35,046	-84,781
Modify tax rule for dual capacity taxpayers		-48	-123	-128	-134	-143	-154	-165	-173	-178	-183	-576	-1,429
Total, reform taxation of foreign fossil fuel income		-4,226	-7,296	-7,596	-7,968	-8,536	-9,209	-9,798	-10,224	-10,536	-10,821	-35,622	-86,210
Provide tax incentives for locating jobs and business activity in the United States and remove tax deductions for shipping jobs overseas:													
Provide tax credit for onshoring jobs to the United States		6	10	10	11	11	12	12	13	13	14	48	112
Remove tax deductions for shipping jobs overseas		-6	-10	-10	-11	-11	-12	-12	-13	-13	-14	-48	-112
Total, provide tax incentives for locating jobs and business activity in the United States and remove tax deductions for shipping jobs overseas													
Repeal deduction for Foreign Derived Intangible Income (FDII) and provide additional support for research and experimentation expenditures													
Replace the Base Erosion Anti-Abuse Tax (BEAT) with the Stopping Harmful Inversions and Ending Low-Tax Developments (SHIELD) Rule ..			-33,244	-53,796	-51,111	-47,655	-44,463	-41,914	-39,425	-38,990	-39,453	-185,806	-390,051
Limit foreign tax credits for sales of hybrid entities		-23	-39	-41	-43	-45	-47	-48	-49	-50	-51	-191	-436
Restrict deductions of excessive interest of members of financial reporting groups for disproportionate borrowing in the United States		-2,100	-2,334	-1,586	-1,638	-1,690	-1,743	-1,795	-1,846	-1,900	-1,956	-9,348	-18,588
Impose 15 percent minimum tax on book earnings of large corporations		-10,736	-15,245	-14,588	-13,812	-14,561	-15,203	-16,049	-16,158	-15,775	-16,217	-68,942	-148,344
Total, reform corporate taxation		-98,028	-195,726	-219,858	-220,987	-219,554	-217,429	-216,390	-214,047	-214,272	-218,658	-954,153	-2,034,949
Support housing and infrastructure:													
Expand Low-income Housing Tax Credit		35	212	707	1,592	2,527	3,427	4,370	5,362	6,339	7,356	5,073	31,927
Provide Neighborhood Homes Investment Tax Credit		10	99	398	944	1,512	1,889	2,063	2,083	2,035	2,001	2,963	13,034



U.S. DEPARTMENT OF THE INTERIOR
**BUREAU OF LAND
MANAGEMENT**

BUREAU OF LAND MANAGEMENT ANNOUNCES NEXT STEPS, NEW ANALYSES FOR UPCOMING OIL AND GAS LEASE SALES

Assessments will analyze greenhouse gas emissions, social cost of greenhouse gases

The Bureau Land Management today announced that state offices will issue draft environmental assessments over the coming days to solicit feedback from the public, Tribes, and state agencies regarding proposed oil and gas lease sales to be held in early 2022.

For the first time, the environmental assessments will [analyze greenhouse gas emissions](#) on a national scale and consider the social cost of greenhouse gases. The environmental assessments will also analyze impacts of potential energy development on air and water quality, wildlife habitat, the quality of life for nearby communities, and other factors.

“The BLM is committed to responsible development on public lands, including ensuring that our environmental reviews consider the climate impacts of energy development on lands and communities. We will continue to exercise the authority and discretion provided under law to conduct leasing in a manner that fulfills the Interior Department’s legal responsibilities,” said BLM Director Tracy Stone-Manning.

Environmental assessments for Colorado, Eastern States, Montana and the Dakotas, Nevada, New Mexico, Utah and Wyoming will be made available for public comment for 30 days. Each state office will distribute a [news release](#) and post to the [state’s lease sale pages](#) with instructions to access the assessments and to provide comment.

The BLM is also releasing a comprehensive analysis of cumulative greenhouse gas emissions from coal, oil, and gas activities on public lands, titled, “[2020 BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends from Coal, Oil, and Gas Exploration and Development on the Federal Mineral Estate](#),” which helped to inform the greenhouse gas analysis for the proposed lease sales. The Specialist Report uses long-term projections from the Energy Information Administration to analyze expected lifetime emissions from existing and potential new fossil fuel leases on BLM-managed lands.

The scoping period for the proposed sales ended on October 1. A number of nominated parcels were deferred from further consideration for reasons ranging from the need to prioritize leasing outside of priority habitat for Greater Sage-Grouse, to determining that there was insufficient environmental analysis in pre-existing supporting documents. Additional parcels may be deferred based on public comment on the draft environmental assessments.

The recently completed public scoping and preparations for planned lease sales in 2022 are consistent with the district court’s preliminary injunction, [issued over the summer and pending appeal](#), which enjoins the Department’s implementation of Section 208 of Executive Order 14008. Parcels for scoping included those that were deferred in the first and second quarters of 2021.

The BLM manages more than 245 million acres of public land located primarily in 12 western states, including Alaska, on behalf of the American people. The BLM also administers 700 million acres of sub-surface mineral estate throughout the nation. Our mission is to sustain the health, diversity, and productivity of America’s public lands for the use and enjoyment of present and future generations.

MORE PRESS RELEASES

RELEASE DATE

Friday, October 29, 2021

ORGANIZATION

Bureau of Land Management

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Estimated Budgetary Effects of Title III, Committee on Energy and Commerce, H.R. 5376, the Build Back Better Act, as Posted on the Website of the House Committee on Rules on November 3, 2021 (Rules Committee Print 117-18), as Amended by Yarmuth Amendment 112

		By Fiscal Year, Millions of Dollars											
		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2022-2026	2022-2031
		Increases or Decreases (-) in Direct Spending											
Subtitle A	Air Pollution												
	Budget Authority	44,432	0	0	0	0	0	0	0	0	0	44,432	44,432
	Estimated Outlays	291	1,617	4,287	7,437	8,740	7,496	3,846	1,548	922	278	22,372	36,462
Subtitle B	Hazardous Materials												
	Budget Authority	3,200	0	0	0	0	0	0	0	0	0	3,200	3,200
	Estimated Outlays	54	237	507	759	767	540	291	45	0	0	2,324	3,200
Subtitle C	Drinking Water												
	Budget Authority	9,225	0	0	0	0	0	0	0	0	0	9,225	9,225
	Estimated Outlays	40	221	550	1,135	1,729	2,125	1,800	1,125	375	125	3,675	9,225
Subtitle D	Energy												
	Budget Authority	39,335	0	0	0	0	0	0	0	0	0	39,335	39,335
	Estimated Outlays	88	2,511	4,926	6,488	6,094	5,432	3,203	1,983	1,142	553	20,107	32,420
Subtitle E	Affordable Health Care Coverage												
	Budget Authority	150	228	2,787	3,237	-1,982	-4,334	-4,353	-4,467	-1,979	-1,119	4,420	-11,832
	Estimated Outlays	7	-9,743	2,255	3,266	8,043	-3,748	-4,352	-4,467	-1,979	-1,119	3,828	-11,837
Subtitle F	Medicaid												
	Budget Authority	-14,139	1,044	5,490	22,979	24,727	25,203	26,438	26,983	24,343	24,826	40,101	167,894
	Estimated Outlays	-15,069	1,302	5,360	22,678	24,485	25,120	26,357	26,865	24,262	24,827	38,756	166,187
Subtitle G	CHIP												
	Budget Authority	5	0	-211	-272	-274	-284	66	63	60	57	-752	-790
	Estimated Outlays	1	1	-209	-272	-274	-284	-55	-37	-23	-16	-753	-1,168
Subtitle H	Medicare Coverage of Hearing Services												
	Budget Authority	370	1,203	3,109	4,080	4,224	4,396	4,732	4,593	4,921	5,092	12,986	36,720
	Estimated Outlays	222	1,351	3,109	4,080	4,224	4,396	4,732	4,593	4,921	5,092	12,986	36,720
Subtitle I	Public Health												
	Budget Authority	26,289	*	*	*	*	*	*	*	*	*	26,289	26,290
	Estimated Outlays	3,045	5,482	4,954	4,935	2,902	2,210	1,366	766	283	143	21,318	26,087
Subtitle J	Next Generation 9-1-1												
	Budget Authority	500	0	0	0	0	0	0	0	0	0	500	500
	Estimated Outlays	4	38	88	111	112	82	46	18	1	0	353	500
Subtitle K	Other Matters Related to Connectivity												
	Budget Authority	907	0	0	0	0	0	0	0	0	0	907	907
	Estimated Outlays	10	600	128	75	64	29	1	0	0	0	877	907
Subtitle L	Distance Learning												
	Budget Authority	300	0	0	0	0	0	0	0	0	0	300	300
	Estimated Outlays	100	200	0	0	0	0	0	0	0	0	300	300
Subtitle M	Manufacturing Supply Chain and Tourism												
	Budget Authority	5,050	0	0	0	0	0	0	0	0	0	5,050	5,050

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		By Fiscal Year, Millions of Dollars											
		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2022-2026	2022-2031
	Estimated Outlays	17	392	701	950	1,095	810	525	275	110	25	3,155	4,900
Subtitle N	Federal Trade Commission												
	Privacy Enforcement												
	Budget Authority	500	0	0	0	0	0	0	0	0	0	500	500
	Estimated Outlays	44	57	59	61	63	65	66	68	17	0	284	500
Subtitle O	Department of Commerce												
	Inspector General												
	Budget Authority	5	0	0	0	0	0	0	0	0	0	5	5
	Estimated Outlays	1	1	1	1	1	0	0	0	0	0	5	5
Total Changes in Direct Spending													
	Budget Authority	116,129	2,475	11,175	30,024	26,695	24,981	26,883	27,172	27,345	28,856	186,498	321,736
	Estimated Outlays	-11,145	4,267	26,716	51,704	58,045	44,273	37,826	32,782	30,031	29,908	129,587	304,408
		Increases or Decreases (-) in Revenues											
Subtitle A	Air Pollution	0	0	0	1,200	1,300	1,400	1,200	1,050	950	850	2,500	7,950
Subtitle E	Affordable Health Care Coverage	0	450	3,564	3,412	3,083	1	-1	*	0	0	10,509	10,509
	<i>On-Budget Revenues</i>	0	238	3,329	3,196	3,022	1	-1	*	0	0	9,785	9,785
	<i>Off-Budget Revenues</i>	0	212	235	216	61	*	*	*	0	0	724	724
Subtitle F	Medicaid	-305	-359	166	173	172	183	192	202	215	227	-153	866
	<i>On-Budget Revenues</i>	-177	-210	96	100	101	108	113	120	126	134	-90	511
	<i>Off-Budget Revenues</i>	-128	-149	70	73	71	75	79	82	89	93	-63	355
Subtitle N	Federal Trade Commission												
	Privacy Enforcement	91	188	290	399	411	423	436	449	462	476	1,379	3,625
Total Changes in Revenues		-214	279	4,020	5,184	4,966	2,007	1,827	1,701	1,627	1,553	14,235	22,950
	<i>On-Budget Revenues</i>	-86	216	3,715	4,895	4,834	1,932	1,748	1,619	1,538	1,460	13,574	21,871
	<i>Off-Budget Revenues</i>	-128	63	305	289	132	75	79	82	89	93	661	1,079
		Net Increases or Decreases (-) in the Deficit From Changes in Direct Spending and Revenues											
Estimated Effect on the Deficit		-10,931	3,988	22,696	46,520	53,079	42,266	35,999	31,081	28,404	28,355	115,352	281,458
	<i>On-Budget Deficit</i>	-11,059	4,051	23,001	46,809	53,211	42,341	36,078	31,163	28,493	28,448	116,013	282,537
	<i>Off-Budget Deficit</i>	128	-63	-305	-289	-132	-75	-79	-82	-89	-93	-661	-1,079

[See the Notes tab for additional details.](#)

Estimated Budgetary Effects of Title III, Committee on Energy and Commerce, H.R. 5376, the Build Back Better Act, as Posted on the Website of the House Committee on Rules on November 3, 2021 (Rules Committee Print 117-18), as Amended by Yarmuth Amendment 112**Notes**

Sources: Congressional Budget Office; staff of the Joint Committee on Taxation.

AWARE = Advancing Wellness and Resiliency in Education; CHIP = Children's Health Insurance Program; DOE = Department of Energy; FMAP = federal medical assistance percentage; HCBS = home and community-based services; * = between -\$500,000 and \$500,000.

- a. This section would affect both direct spending and revenues, which are shown separately.
- b. Sections 30441 and 30444 would allow borrowers to pay the subsidy cost for credit assistance authorized in those sections, subject to certain conditions. The estimated budget authority and outlays shown reflect CBO's expectation that it would be difficult to set the fee paid by the borrower to entirely cover the estimated cost to the government of certain infrastructure projects. Therefore, CBO estimates the subsidy costs would exceed the budget authority allocated for such loans or loan guarantees.
- c. The estimated budget authority and outlays shown for sections 30441 and 30451 reflect CBO's expectation that subsidy costs would exceed the budget authority allocated for loans or loan guarantees for projects where the federal government is a counterparty to the project.
- d. Estimate accounts for the effects of title XIII, section 137301.
- e. Estimate includes interactions with Medicare Advantage payments and Medicare Part B premiums.

Components may not sum to totals because of rounding.

Estimates for title III reflect the enactment of H.R. 3684, the Infrastructure Investment and Jobs Act.

Budget authority reflects appropriations specifically provided in title III or amounts estimated by CBO.

The revenues and outlays of the Social Security trust funds and the net cash flow of the Postal Service are classified as off-budget.

Outlay and revenue amounts may be the net effect of multiple provisions that cause annual amounts within the budget window to be uneven. That is particularly the case for sections 30602, 30741, and 30801.

CBO estimates that spending for many provisions in title III would be less than the budget authority provided. For example, the estimated spending for the Greenhouse Gas Reduction Fund is \$7 billion lower than the \$29 billion that would be provided by section 30103. Those differences are primarily attributable to CBO's assessment that it would be difficult for federal agencies to obligate the full amount of funding during the period of availability; for section 30103, that period runs through fiscal year 2024.

The costs of title III fall within budget functions 270 (energy), 300 (natural resources and environment), 370 (commerce and housing credit), 500 (education, training, employment, and social services), 550 (health), 570 (Medicare), and 800 (general government).

The Budget Control Act of 2011 (BCA) requires the annual sequestration of nonexempt mandatory spending programs. The Office of Management and Budget determines which accounts are subject to reductions under the BCA. Some of the accounts affected by title III are subject to sequestration; this estimate reflects the effects of sequestration on those accounts.

Title III would increase on-budget deficits after 2031.

Title III would impose a private-sector and intergovernmental mandate as defined in the Unfunded Mandates Reform Act (UMRA) by levying new charges on private and publicly owned facilities in all oil and natural gas industry sectors required to report on their methane emissions levels to the Environmental Protection Agency. The title also would impose private-sector mandates by capping the amount that certain group and individual health insurance plans may require enrollees to pay out of pocket for insulin products and by requiring pharmacy benefit managers to provide reports about drug costs, fees, beneficiaries, and rebates.

Estimated Budgetary Effects of Subtitle A, Title III, Committee on Energy and Commerce, H.R. 5376, the Build Back Better Act, as Posted on the Website of the House Committee on Rules on November 3, 2021 (Rules Committee Print 117-18), as Amended by Yarmuth Amendment 112

		By Fiscal Year, Millions of Dollars											
		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2022-2026	2022-2031
		Increases in Direct Spending											
Sec. 30101.	Clean Heavy-Duty Vehicles												
	Budget Authority	5,000	0	0	0	0	0	0	0	0	0	5,000	5,000
	Estimated Outlays	10	67	241	441	716	1,010	960	785	572	198	1,475	5,000
Sec. 30102.	Grants to Reduce Air Pollution at Ports												
	Budget Authority	3,500	0	0	0	0	0	0	0	0	0	3,500	3,500
	Estimated Outlays	5	53	212	437	619	726	683	455	230	80	1,326	3,500
Sec. 30103.	Greenhouse Gas Reduction Fund												
	Budget Authority	29,000	0	0	0	0	0	0	0	0	0	29,000	29,000
	Estimated Outlays	116	918	3,042	5,492	6,228	4,703	1,478	3	0	0	15,796	21,980
Sec. 30104.	Collaborative Community Wildfire Air Grants												
	Budget Authority	150	0	0	0	0	0	0	0	0	0	150	150
	Estimated Outlays	15	45	45	30	15	0	0	0	0	0	150	150
Sec. 30105.	Diesel Emissions Reductions												
	Budget Authority	60	0	0	0	0	0	0	0	0	0	60	60
	Estimated Outlays	18	42	0	0	0	0	0	0	0	0	60	60
Sec. 30106.	Funding to Address Air Pollution												
	Budget Authority	281	0	0	0	0	0	0	0	0	0	281	281
	Estimated Outlays	28	127	70	42	14	0	0	0	0	0	281	281
Sec. 30107.	Funding to Address Air Pollution at Schools												
	Budget Authority	50	0	0	0	0	0	0	0	0	0	50	50
	Estimated Outlays	5	20	20	5	0	0	0	0	0	0	50	50
Sec. 30108.	Low Emissions Electricity Program												
	Budget Authority	87	0	0	0	0	0	0	0	0	0	87	87
	Estimated Outlays	13	35	26	9	4	0	0	0	0	0	87	87
Sec. 30109.	Funding for Section 211(O) of the Clean Air Act												
	Budget Authority	15	0	0	0	0	0	0	0	0	0	15	15
	Estimated Outlays	5	8	2	0	0	0	0	0	0	0	15	15
Sec. 30110.	Funding for Implementation of the American Innovation and Manufacturing Act												
	Budget Authority	39	0	0	0	0	0	0	0	0	0	39	39
	Estimated Outlays	6	11	10	8	4	0	0	0	0	0	39	39
Sec. 30111.	Funding for Enforcement Technology and Public Information												
	Budget Authority	50	0	0	0	0	0	0	0	0	0	50	50
	Estimated Outlays	10	20	17	3	0	0	0	0	0	0	50	50
Sec. 30112.	Greenhouse Gas Corporate Reporting												
	Budget Authority	5	0	0	0	0	0	0	0	0	0	5	5
	Estimated Outlays	2	3	0	0	0	0	0	0	0	0	5	5
Sec. 30113.	Environmental Product Declaration Assistance												
	Budget Authority	250	0	0	0	0	0	0	0	0	0	250	250
	Estimated Outlays	13	62	75	62	25	13	0	0	0	0	237	250
Sec. 30114.	Methane Emissions Reduction Program ^a												
	Budget Authority	775	0	0	0	0	0	0	0	0	0	775	775
	Estimated Outlays	16	62	151	242	195	99	5	5	0	0	666	775
Sec. 30115.	Funding for the Office of the Inspector General of the Environmental Protection Agency												
	Budget Authority	50	0	0	0	0	0	0	0	0	0	50	50
	Estimated Outlays	5	10	10	10	10	5	0	0	0	0	45	50
Sec. 30116.	Climate Pollution Reduction Grants												
	Budget Authority	5,000	0	0	0	0	0	0	0	0	0	5,000	5,000
	Estimated Outlays	17	108	320	625	900	940	720	300	120	0	1,970	4,050
Sec. 30117.	Environmental Protection Agency Efficient, Accurate, and Timely Reviews												
	Budget Authority	20	0	0	0	0	0	0	0	0	0	20	20
	Estimated Outlays	2	6	6	6	0	0	0	0	0	0	20	20
Sec. 30118.	Low-Embodied Carbon Labeling for Construction Materials for Transportation Projects												
	Budget Authority	100	0	0	0	0	0	0	0	0	0	100	100



Estimated Budgetary Effects of Subtitle A, Title III, Committee on Energy and Commerce, H.R. 5376, the Build Back Better Act, as Posted on the Website of the House Committee on Rules on November 3, 2021 (Rules Committee Print 117-18), as Amended by Yarmuth Amendment 112

	By Fiscal Year, Millions of Dollars											
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2022-2026	2022-2031
Estimated Outlays	5	20	40	25	10	0	0	0	0	0	100	100
Total Changes in Direct Spending												
Budget Authority	44,432	0	0	0	0	0	0	0	0	0	44,432	44,432
Estimated Outlays	291	1,617	4,287	7,437	8,740	7,496	3,846	1,548	922	278	22,372	36,462
	Increases in Revenues											
Sec. 30114. Methane Emissions Reduction Program ^a	0	0	0	1,200	1,300	1,400	1,200	1,050	950	850	2,500	7,950
	Net Increases or Decreases (-) in the Deficit From Changes in Direct Spending and Revenues											
Estimated Effect on the Deficit	291	1,617	4,287	6,237	7,440	6,096	2,646	498	-28	-572	19,872	28,512

[See the Notes tab for additional details.](#)



Estimated Budgetary Effects of Subtitle B, Title III, Committee on Energy and Commerce, H.R. 5376, the Build Back Better Act, as Posted on the Website of the House Committee on Rules on November 3, 2021 (Rules Committee Print 117-18), as Amended by Yarmuth Amendment 112

		By Fiscal Year, Millions of Dollars											
		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2022-2026	2022-2031
		Increases in Direct Spending											
Sec. 30201.	Grants to Reduce Waste in Communities												
	Budget Authority	190	0	0	0	0	0	0	0	0	0	190	190
	Estimated Outlays	2	25	56	64	37	5	1	0	0	0	184	190
Sec. 30202.	Environmental and Climate Justice Block Grants												
	Budget Authority	3,000	0	0	0	0	0	0	0	0	0	3,000	3,000
	Estimated Outlays	50	205	450	695	730	535	290	45	0	0	2,130	3,000
Sec. 30203.	Funding for Data Collection on National Recycling Efforts												
	Budget Authority	10	0	0	0	0	0	0	0	0	0	10	10
	Estimated Outlays	2	7	1	0	0	0	0	0	0	0	10	10
Total Changes in Direct Spending													
	Budget Authority	3,200	0	0	0	0	0	0	0	0	0	3,200	3,200
	Estimated Outlays	54	237	507	759	767	540	291	45	0	0	2,324	3,200

[See the Notes tab for additional details.](#)



Estimated Budgetary Effects of Subtitle C, Title III, Committee on Energy and Commerce, H.R. 5376, the Build Back Better Act, as Posted on the Website of the House Committee on Rules on November 3, 2021 (Rules Committee Print 117-18), as Amended by Yarmuth Amendment 112

	By Fiscal Year, Millions of Dollars										2022-2026	2022-2031	
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031			
Increases in Direct Spending													
Sec. 30301. Lead Remediation Projects													
Budget Authority	9,000	0	0	0	0	0	0	0	0	0		9,000	9,000
Estimated Outlays	25	150	475	1,075	1,725	2,125	1,800	1,125	375	125		3,450	9,000
Sec. 30302. Funding for Water Assistance Program													
Budget Authority	225	0	0	0	0	0	0	0	0	0		225	225
Estimated Outlays	15	71	75	60	4	0	0	0	0	0		225	225
Total Changes in Direct Spending													
Budget Authority	9,225	0	0	0	0	0	0	0	0	0		9,225	9,225
Estimated Outlays	40	221	550	1,135	1,729	2,125	1,800	1,125	375	125		3,675	9,225

[See the Notes tab for additional details.](#)



Estimated Budgetary Effects of Subtitle D, Title III, Committee on Energy and Commerce, H.R. 5376, the Build Back Better Act, as Posted on the Website of the House Committee on Rules on November 3, 2021 (Rules Committee Print 117-18), as Amended by Yarmuth Amendment 112
By Fiscal Year, Millions of Dollars

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2022-2026	2022-2031
Estimated Outlays	5	10	15	15	15	10	5	0	0	0	60	75
Part 7. Industrial												
Sec. 30471. Advanced Industrial Facilities Deployment Program												
Budget Authority	4,000	0	0	0	0	0	0	0	0	0	4,000	4,000
Estimated Outlays	10	60	250	540	810	900	660	370	160	50	1,670	3,810
Part 8. Other Energy Matters												
Sec. 30481. Oversight												
Budget Authority	5	0	0	0	0	0	0	0	0	0	5	5
Estimated Outlays	*	1	1	1	1	1	0	0	0	0	4	5
Sec. 30482. Energy Information Administration												
Budget Authority	40	0	0	0	0	0	0	0	0	0	40	40
Estimated Outlays	2	5	10	10	10	3	0	0	0	0	37	40
Total Changes in Direct Spending												
Budget Authority	39,335	0	0	0	0	0	0	0	0	0	39,335	39,335
Estimated Outlays	88	2,511	4,926	6,488	6,094	5,432	3,203	1,983	1,142	553	20,107	32,420

[See the Notes tab for additional details.](#)



Estimated Budgetary Effects of Subtitle E, Title III, Committee on Energy and Commerce, H.R. 5376, the Build Back Better Act, as Posted on the Website of the House Committee on Rules on November 3, 2021 (Rules Committee Print 117-18), as Amended by Yarmuth Amendment 112

		By Fiscal Year, Millions of Dollars											
		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2022-2026	2022-2031
		Increases or Decreases (-) in Direct Spending											
Sec. 30601.	Ensuring Affordability of Coverage for Certain Low-Income Populations	Estimate included in title XIII, sec. 137304											
Sec. 30602.	Establishing a Health Insurance Affordability Fund ^{a,d}												
	Budget Authority	0	2,399	4,235	4,044	1,455	0	0	0	0	0	12,133	12,133
	Estimated Outlays	0	-7,601	3,665	4,044	11,455	570	0	0	0	0	11,563	12,133
Sec. 30603.	Funding for the Provision of Health Insurance Consumer Information												
	Budget Authority	100	0	0	0	0	0	0	0	0	0	100	100
	Estimated Outlays	2	14	23	24	20	11	1	0	0	0	83	95
Sec. 30604.	Requirements With Respect to Cost-Sharing for Insulin Products	Estimate included in title XIII, sec. 137308											
Sec. 30605.	Cost-Sharing Reductions for Individuals Receiving Unemployment Compensation	Estimate included in title XIII, sec. 137305											
Sec. 30606.	Oversight of Pharmacy Benefit Manager Services	Estimate included in title XIII, sec. 137309											
Sec. 30607.	Funding to Support State Applications for Section 1332 Waivers and Administration												
	Budget Authority	50	0	0	0	0	0	0	0	0	0	50	50
	Estimated Outlays	5	15	15	5	5	5	0	0	0	0	45	50
Sec. 30608.	Adjustments to Uncompensated Care Pools and Disproportionate Share Hospital Payments												
	Budget Authority	0	-4,687	-4,863	-4,375	-4,340	-4,334	-4,353	-4,467	-1,979	-1,119	-18,265	-34,517
	Estimated Outlays	0	-4,687	-4,863	-4,375	-4,340	-4,334	-4,353	-4,467	-1,979	-1,119	-18,265	-34,517
Sec. 30609.	Further Increase in FMAP for Medical Assistance for Newly Eligible Mandatory Individuals												
	Budget Authority	0	2,516	3,415	3,568	903	0	0	0	0	0	10,402	10,402
	Estimated Outlays	0	2,516	3,415	3,568	903	0	0	0	0	0	10,402	10,402
Total Changes in Direct Spending													
	Budget Authority	150	228	2,787	3,237	-1,982	-4,334	-4,353	-4,467	-1,979	-1,119	4,420	-11,832
	Estimated Outlays	7	-9,743	2,255	3,266	8,043	-3,748	-4,352	-4,467	-1,979	-1,119	3,828	-11,837
		Increases or Decreases (-) in Revenues											
Sec. 30602.	Establishing a Health Insurance Affordability Fund ^{a,d}												
	<i>On-Budget Revenues</i>	0	450	3,564	3,412	3,083	1	-1	*	0	0	10,509	10,509
	<i>Off-Budget Revenues</i>	0	238	3,329	3,196	3,022	1	-1	*	0	0	9,785	9,785
	<i>Off-Budget Revenues</i>	0	212	235	216	61	*	*	*	0	0	724	724
		Net Increases or Decreases (-) in the Deficit From Changes in Direct Spending and Revenues											
Estimated Effect on the Deficit		7	-10,193	-1,309	-146	4,960	-3,749	-4,351	-4,467	-1,979	-1,119	-6,681	-22,346
	<i>On-Budget Deficit</i>	7	-9,981	-1,074	70	5,021	-3,749	-4,351	-4,467	-1,979	-1,119	-5,957	-21,622
	<i>Off-Budget Deficit</i>	0	-212	-235	-216	-61	*	*	*	0	0	-724	-724

[See the Notes tab for additional details.](#)

Estimated Budgetary Effects of Subtitle F, Title III, Committee on Energy and Commerce, H.R. 5376, the Build Back Better Act, as Posted on the Website of the House Committee on Rules on November 3, 2021 (Rules Committee Print 117-18), as Amended by Yarmuth Amendment 112

		By Fiscal Year, Millions of Dollars											
		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2022-2026	2022-2031
Increases or Decreases (-) in Direct Spending													
Part 1. Investments in Home and Community-Based Services and Long-Term Care Quality and Workforce													
Sec. 30711.	HCBS Improvement Planning Grants												
	Budget Authority	135	0	0	0	0	0	0	0	0	0	135	135
	Estimated Outlays	27	42	53	13	0	0	0	0	0	0	135	135
Sec. 30712.	HCBS Improvement Program												
	Budget Authority	0	0	275	18,097	21,254	21,758	22,286	22,701	19,909	20,213	39,626	146,493
	Estimated Outlays	0	0	275	18,097	21,254	21,758	22,286	22,701	19,909	20,213	39,626	146,493
Sec. 30713.	Funding for Federal Activities Related to Medicaid HCBS												
	Budget Authority	40	0	0	0	0	0	0	0	0	0	40	40
	Estimated Outlays	12	20	8	0	0	0	0	0	0	0	40	40
Sec. 30714.	Funding for HCBS Quality Measurement and Improvement												
	Budget Authority	22	0	0	6	4	0	0	0	0	0	32	32
	Estimated Outlays	6	12	4	6	4	0	0	0	0	0	32	32
Sec. 30715.	Permanent Extension of Medicaid Protections Against Spousal Impoverishment for HCBS Recipients												
	Budget Authority	0	0	32	59	87	91	95	98	102	106	178	670
	Estimated Outlays	0	0	32	59	87	91	95	98	102	106	178	670
Sec. 30716.	Permanent Extension of Money Follows the Person Rebalancing Demonstration												
	Budget Authority	5	0	450	455	450	450	455	450	450	455	1,360	3,620
	Estimated Outlays	1	1	55	74	187	347	374	332	369	456	318	2,196
Sec. 30717.	Funding to Improve the Accuracy and Reliability of Certain Skilled Nursing Facility Data												
	Budget Authority	50	0	0	0	0	0	0	0	0	0	50	50
	Estimated Outlays	8	19	14	5	2	2	0	0	0	0	48	50
Sec. 30718.	Ensuring Accurate Information on Cost Reports												
	Budget Authority	250	0	0	0	0	0	0	0	0	0	250	250
	Estimated Outlays	46	93	70	25	8	8	0	0	0	0	242	250
Sec. 30719.	Survey Improvements												
	Budget Authority	325	0	0	0	0	0	0	0	0	0	325	325
	Estimated Outlays	60	121	91	33	10	10	0	0	0	0	315	325
Sec. 30720.	Nurse Staffing Requirements												
	Budget Authority	50	0	0	0	0	0	0	0	0	0	50	50
	Estimated Outlays	28	19	3	0	0	0	0	0	0	0	50	50
Part 2. Expanding Access to Maternal Health													
Sec. 30721.	Extending Continuous Medicaid Coverage for Pregnant and Postpartum Individuals ^{a,d}												
	Budget Authority	0	268	282	258	246	218	226	230	235	243	1,054	2,206
	Estimated Outlays	0	271	282	258	246	218	226	230	235	243	1,057	2,209
Sec. 30722.	State Option to Provide Coordinated Care Through a Maternal Health Home for Pregnant and Postpartum Individuals												
	Budget Authority	5	0	81	117	129	139	151	129	110	93	332	954
	Estimated Outlays	0	4	82	117	129	139	151	129	110	93	332	954
Part 3. Territories													
Sec. 30731.	Increasing Medicaid Cap Amounts and FMAP for the Territories												
	Budget Authority	561	794	837	882	929	979	1,032	1,088	1,146	1,207	4,003	9,455
	Estimated Outlays	561	794	837	882	929	979	1,032	1,088	1,146	1,207	4,003	9,455
Part 4. Other Medicaid													
Sec. 30741.	Investments to Ensure Continued Access to Care for Children and Other Individuals ^{a,d}												
	Budget Authority	-16,831	-1,693	1,804	1,267	1,137	1,568	2,193	2,287	2,391	2,509	-14,316	-3,368
	Estimated Outlays	-17,067	-1,769	1,825	1,271	1,138	1,568	2,193	2,287	2,391	2,509	-14,602	-3,654
Part 5. Maintenance of Effort													
Sec. 30751.	Encouraging Continued Access After the End of the Public Health Emergency												
	Budget Authority	1,249	1,675	1,729	1,838	491	0	0	0	0	0	6,982	6,982
	Estimated Outlays	1,249	1,675	1,729	1,838	491	0	0	0	0	0	6,982	6,982



Estimated Budgetary Effects of Subtitle F, Title III, Committee on Energy and Commerce, H.R. 5376, the Build Back Better Act, as Posted on the Website of the House Committee on Rules on November 3, 2021 (Rules Committee Print 117-18), as Amended by Yarmuth Amendment 112

	By Fiscal Year, Millions of Dollars											
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2022-2026	2022-2031
Total Changes in Direct Spending												
Budget Authority	-14,139	1,044	5,490	22,979	24,727	25,203	26,438	26,983	24,343	24,826	40,101	167,894
Estimated Outlays	-15,069	1,302	5,360	22,678	24,485	25,120	26,357	26,865	24,262	24,827	38,756	166,187
	Increases or Decreases (-) in Revenues											
Sec. 30721. Extending Continuous Medicaid Coverage for Pregnant and Postpartum Individuals ^{a,d}	0	38	90	104	116	123	130	138	147	155	348	1,041
<i>On-Budget Revenues</i>	0	22	53	61	68	72	76	81	86	91	204	610
<i>Off-Budget Revenues</i>	0	16	37	43	48	51	54	57	61	64	144	431
Sec. 30741. Investments to Ensure Continued Access to Care for Children and Other Individuals ^{a,d}	-305	-397	76	69	56	60	62	64	68	72	-501	-175
<i>On-Budget Revenues</i>	-177	-232	43	39	33	36	37	39	40	43	-294	-99
<i>Off-Budget Revenues</i>	-128	-165	33	30	23	24	25	25	28	29	-207	-76
Total Changes in Revenues	-305	-359	166	173	172	183	192	202	215	227	-153	866
<i>On-Budget Revenues</i>	-177	-210	96	100	101	108	113	120	126	134	-90	511
<i>Off-Budget Revenues</i>	-128	-149	70	73	71	75	79	82	89	93	-63	355
	Net Increases or Decreases (-) in the Deficit From Changes in Direct Spending and Revenues											
Estimated Effect on the Deficit	-14,764	1,661	5,194	22,505	24,313	24,937	26,165	26,663	24,047	24,600	38,909	165,321
<i>On-Budget Deficit</i>	-14,892	1,512	5,264	22,578	24,384	25,012	26,244	26,745	24,136	24,693	38,846	165,676
<i>Off-Budget Deficit</i>	128	149	-70	-73	-71	-75	-79	-82	-89	-93	63	-355

[See the Notes tab for additional details.](#)



Estimated Budgetary Effects of Subtitle G, Title III, Committee on Energy and Commerce, H.R. 5376, the Build Back Better Act, as Posted on the Website of the House Committee on Rules on November 3, 2021 (Rules Committee Print 117-18), as Amended by Yarmuth Amendment 112

	By Fiscal Year, Millions of Dollars											
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2022-2026	2022-2031
	Increases or Decreases (-) in Direct Spending											
Sec. 30801. Investments to Strengthen CHIP												
Budget Authority	5	0	-211	-272	-274	-284	66	63	60	57	-752	-790
Estimated Outlays	1	1	-209	-272	-274	-284	-55	-37	-23	-16	-753	-1,168

[See the Notes tab for additional details.](#)



Estimated Budgetary Effects of Subtitle H, Title III, Committee on Energy and Commerce, H.R. 5376, the Build Back Better Act, as Posted on the Website of the House Committee on Rules on November 3, 2021 (Rules Committee Print 117-18), as Amended by Yarmuth Amendment 112

	By Fiscal Year, Millions of Dollars											
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2022-2026	2022-2031
Increases in Direct Spending												
Sec. 30901. Providing Coverage for Hearing Care Under the Medicare Program ^o												
Budget Authority	370	1,203	3,109	4,080	4,224	4,396	4,732	4,593	4,921	5,092	12,986	36,720
Estimated Outlays	222	1,351	3,109	4,080	4,224	4,396	4,732	4,593	4,921	5,092	12,986	36,720

[See the Notes tab for additional details.](#)



Estimated Budgetary Effects of Subtitle I, Title III, Committee on Energy and Commerce, H.R. 5376, the Build Back Better Act, as Posted on the Website of the House Committee on Rules on November 3, 2021 (Rules Committee Print 117-18), as Amended by Yarmuth Amendment 112

		By Fiscal Year, Millions of Dollars											
		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2022-2026	2022-2031
Increases in Direct Spending													
Part 1. Health Care Infrastructure and Workforce													
Sec. 31001.	Funding to Support Core Public Health Infrastructure for State, Territorial, Local, and Tribal Health Departments at the Centers for Disease Control and Prevention												
	Budget Authority	7,000	0	0	0	0	0	0	0	0	0	7,000	7,000
	Estimated Outlays	60	210	600	1,148	1,630	1,582	1,080	480	140	0	3,648	6,930
Sec. 31002.	Funding for Health Center Capital Grants												
	Budget Authority	2,000	0	0	0	0	0	0	0	0	0	2,000	2,000
	Estimated Outlays	20	300	400	500	480	300	0	0	0	0	1,700	2,000
Sec. 31003.	Funding for Teaching Health Center Graduate Medical Education												
	Budget Authority	3,370	0	0	0	0	0	0	0	0	0	3,370	3,370
	Estimated Outlays	506	843	1,011	977	0	0	0	0	0	0	3,337	3,337
Sec. 31004.	Funding for Children's Hospitals That Operate Graduate Medical Education Programs												
	Budget Authority	200	0	0	0	0	0	0	0	0	0	200	200
	Estimated Outlays	30	50	60	58	0	0	0	0	0	0	198	198
Sec. 31005.	Funding for National Health Service Corps												
	Budget Authority	2,000	0	0	0	0	0	0	0	0	0	2,000	2,000
	Estimated Outlays	300	500	600	580	0	0	0	0	0	0	1,980	1,980
Sec. 31006.	Funding for the Nurse Corps												
	Budget Authority	500	0	0	0	0	0	0	0	0	0	500	500
	Estimated Outlays	75	125	150	145	0	0	0	0	0	0	495	495
Sec. 31007.	Funding for Schools of Medicine in Underserved Areas												
	Budget Authority	500	0	0	0	0	0	0	0	0	0	500	500
	Estimated Outlays	75	125	150	145	0	0	0	0	0	0	495	495
Sec. 31008.	Funding for Schools of Nursing in Underserved Areas												
	Budget Authority	500	0	0	0	0	0	0	0	0	0	500	500
	Estimated Outlays	75	125	150	145	0	0	0	0	0	0	495	495
Sec. 31009.	Funding for Palliative Care and Hospice Education and Training												
	Budget Authority	25	0	0	0	0	0	0	0	0	0	25	25
	Estimated Outlays	1	4	9	8	2	0	0	0	0	0	24	24
Sec. 31010.	Funding for Palliative Medicine Physician Training												
	Budget Authority	20	0	0	0	0	0	0	0	0	0	20	20
	Estimated Outlays	1	3	7	6	2	0	0	0	0	0	19	19
Sec. 31011.	Funding for Palliative Care and Hospice Academic Career Awards												
	Budget Authority	20	0	0	0	0	0	0	0	0	0	20	20
	Estimated Outlays	1	3	7	6	2	0	0	0	0	0	19	19
Sec. 31012.	Funding for Hospice and Palliative Nursing												
	Budget Authority	20	0	0	0	0	0	0	0	0	0	20	20
	Estimated Outlays	1	3	7	6	2	0	0	0	0	0	19	19
Sec. 31013.	Funding for Dissemination of Palliative Care Information												
	Budget Authority	5	0	0	0	0	0	0	0	0	0	5	5
	Estimated Outlays	0	1	2	1	1	0	0	0	0	0	5	5
Part 2. Pandemic Preparedness													
Sec. 31021.	Funding for Laboratory Activities at the Centers for Disease Control and Prevention												
	Budget Authority	1,400	0	0	0	0	0	0	0	0	0	1,400	1,400
	Estimated Outlays	210	420	420	238	98	0	0	0	0	0	1,386	1,386
Sec. 31022.	Funding for Public Health and Preparedness Research, Development, and Countermeasure Capacity												
	Budget Authority	1,300	0	0	0	0	0	0	0	0	0	1,300	1,300
	Estimated Outlays	125	798	286	39	33	19	0	0	0	0	1,281	1,300



Estimated Budgetary Effects of Subtitle I, Title III, Committee on Energy and Commerce, H.R. 5376, the Build Back Better Act, as Posted on the Website of the House Committee on Rules on November 3, 2021 (Rules Committee Print 117-18), as Amended by Yarmuth Amendment 112

		By Fiscal Year, Millions of Dollars											
		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2022-2026	2022-2031
	Budget Authority	50	0	0	0	0	0	0	0	0	0	50	50
	Estimated Outlays	1	8	10	11	12	8	0	0	0	0	42	50
Sec. 31072.	Native Hawaiian Health Improvement Grants												
	Budget Authority	224	0	0	0	0	0	0	0	0	0	224	224
	Estimated Outlays	7	38	78	67	34	0	0	0	0	0	224	224
Sec. 31073.	Native Hawaiian Health Care System Liability Coverage												
	Budget Authority	*	*	*	*	*	*	*	*	*	*	*	1
	Estimated Outlays	*	*	*	*	*	*	*	*	*	*	*	1
Total Changes in Direct Spending													
	Budget Authority	26,289	*	*	*	*	*	*	*	*	*	26,289	26,290
	Estimated Outlays	3,045	5,482	4,954	4,935	2,902	2,210	1,366	766	283	143	21,318	26,087

[See the Notes tab for additional details.](#)



Estimated Budgetary Effects of Subtitle J, Title III, Committee on Energy and Commerce, H.R. 5376, the Build Back Better Act, as Posted on the Website of the House Committee on Rules on November 3, 2021 (Rules Committee Print 117-18), as Amended by Yarmuth Amendment 112

		By Fiscal Year, Millions of Dollars											
		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2022-2026	2022-2031
		Increases in Direct Spending											
Sec. 31101.	Deployment of Next Generation 9-1-1												
	Budget Authority	490	0	0	0	0	0	0	0	0	0	490	490
	Estimated Outlays	2	37	87	110	111	81	45	17	0	0	347	490
Sec. 31102.	Establishment of Next Generation 9-1-1 Cybersecurity Center												
	Budget Authority	9	0	0	0	0	0	0	0	0	0	9	9
	Estimated Outlays	1	1	1	1	1	1	1	1	1	0	5	9
Sec. 31103.	Public Safety Next Generation 9-1-1 Advisory Board												
	Budget Authority	1	0	0	0	0	0	0	0	0	0	1	1
	Estimated Outlays	1	0	0	0	0	0	0	0	0	0	1	1
Total Changes in Direct Spending													
	Budget Authority	500	0	0	0	0	0	0	0	0	0	500	500
	Estimated Outlays	4	38	88	111	112	82	46	18	1	0	353	500

[See the Notes tab for additional details.](#)



Estimated Budgetary Effects of Subtitle K, Title III, Committee on Energy and Commerce, H.R. 5376, the Build Back Better Act, as Posted on the Website of the House Committee on Rules on November 3, 2021 (Rules Committee Print 117-18), as Amended by Yarmuth Amendment 112

	By Fiscal Year, Millions of Dollars										2022-2026	2022-2031	
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031			
Increases in Direct Spending													
Sec. 31201. Outreach													
Budget Authority	100	0	0	0	0	0	0	0	0	0	100	100	
Estimated Outlays	3	90	7	0	0	0	0	0	0	0	100	100	
Sec. 31202. Future of Telecommunications Council													
Budget Authority	7	0	0	0	0	0	0	0	0	0	7	7	
Estimated Outlays	1	1	1	1	1	1	1	0	0	0	5	7	
Sec. 31203. Affordability													
Budget Authority	300	0	0	0	0	0	0	0	0	0	300	300	
Estimated Outlays	3	59	73	74	63	28	0	0	0	0	272	300	
Sec. 31204. Access to Devices													
Budget Authority	500	0	0	0	0	0	0	0	0	0	500	500	
Estimated Outlays	3	450	47	0	0	0	0	0	0	0	500	500	
Total Changes in Direct Spending													
Budget Authority	907	0	0	0	0	0	0	0	0	0	907	907	
Estimated Outlays	10	600	128	75	64	29	1	0	0	0	877	907	

[See the Notes tab for additional details.](#)



Estimated Budgetary Effects of Subtitle L, Title III, Committee on Energy and Commerce, H.R. 5376, the Build Back Better Act, as Posted on the Website of the House Committee on Rules on November 3, 2021 (Rules Committee Print 117-18), as Amended by Yarmuth Amendment 112

	By Fiscal Year, Millions of Dollars											
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2022-2026	2022-2031
Increases in Direct Spending												
Sec. 31301. Additional Support for Distance Learning												
Budget Authority	300	0	0	0	0	0	0	0	0	0	300	300
Estimated Outlays	100	200	0	0	0	0	0	0	0	0	300	300

[See the Notes tab for additional details.](#)



Estimated Budgetary Effects of Subtitle M, Title III, Committee on Energy and Commerce, H.R. 5376, the Build Back Better Act, as Posted on the Website of the House Committee on Rules on November 3, 2021 (Rules Committee Print 117-18), as Amended by Yarmuth Amendment 112

		By Fiscal Year, Millions of Dollars											
		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2022-2026	2022-2031
		Increases in Direct Spending											
Sec. 31401.	Manufacturing Supply Chain Resilience												
	Budget Authority	5,000	0	0	0	0	0	0	0	0	0	5,000	5,000
	Estimated Outlays	15	375	685	935	1,095	810	525	275	110	25	3,105	4,850
Sec. 31402.	Destination Marketing Organization Grant Program to Promote Safe Domestic Travel												
	Budget Authority	50	0	0	0	0	0	0	0	0	0	50	50
	Estimated Outlays	2	17	16	15	0	0	0	0	0	0	50	50
Total Changes in Direct Spending													
	Budget Authority	5,050	0	0	0	0	0	0	0	0	0	5,050	5,050
	Estimated Outlays	17	392	701	950	1,095	810	525	275	110	25	3,155	4,900

[See the Notes tab for additional details.](#)



Estimated Budgetary Effects of Subtitle N, Title III, Committee on Energy and Commerce, H.R. 5376, the Build Back Better Act, as Posted on the Website of the House Committee on Rules on November 3, 2021 (Rules Committee Print 117-18), as Amended by Yarmuth Amendment 112

		By Fiscal Year, Millions of Dollars												
		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2022-2026	2022-2031	
		Increases in Direct Spending												
Sec. 31501.	Federal Trade Commission Funding for a Privacy Bureau and Related Expenses													
	Budget Authority	500	0	0	0	0	0	0	0	0	0	500	500	
	Estimated Outlays	44	57	59	61	63	65	66	68	17	0	284	500	
		Increases in Revenues												
Sec. 31502.	Federal Trade Commission	91	188	290	399	411	423	436	449	462	476	1,379	3,625	
		Net Decreases (-) in the Deficit From Changes in Direct Spending and Revenues												
Estimated Effect on the Deficit		-47	-131	-231	-338	-348	-358	-370	-381	-445	-476	-1,095	-3,125	

[See the Notes tab for additional details.](#)



Estimated Budgetary Effects of Subtitle O, Title III, Committee on Energy and Commerce, H.R. 5376, the Build Back Better Act, as Posted on the Website of the House Committee on Rules on November 3, 2021 (Rules Committee Print 117-18), as Amended by Yarmuth Amendment 112

	By Fiscal Year, Millions of Dollars											
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2022-2026	2022-2031
Increases in Direct Spending												
Sec. 31601. Funding for the Office of Inspector General of the Department of Commerce												
Budget Authority	5	0	0	0	0	0	0	0	0	0	5	5
Estimated Outlays	1	1	1	1	1	0	0	0	0	0	5	5

[See the Notes tab for additional details.](#)



Clean Energy Corps

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DOE's Clean Energy Corps is comprised of the staff from more than a dozen offices across DOE – current staff and new hires – all working together to research, develop, demonstrate, and deploy solutions to the world's greatest challenge. The Clean Energy Corps is a diverse group of talented individuals committed to public service and with a mission of supercharging the clean energy revolution. This is YOUR opportunity to join us in making that future a reality. Regardless of whether you are new to clean energy, or have been doing this work for years – we want YOU as part of our Clean Energy Corps.

Apply Now to the Clean Energy
Corps!

DOE offers YOU the chance to be a part of the clean energy revolution and make a difference in the fight against the climate crisis. Join us!

DOE is collecting resumes for candidates interested in becoming part of the Clean Energy Corps via our [Applicant Portal](#). The Applicant Portal is a streamlined application process which will allow applicants to align their talents with their passion by indicating specific areas of interest and allow hiring managers throughout the agency to review candidate resumes simultaneously to find the best fit for YOU in DOE.

As the largest funder of clean energy technology in the country, DOE has led the way on the innovations that have brought us the wind, solar, and energy efficient technology we know today. Now, with the investments from the Bipartisan Infrastructure Law, DOE's Clean Energy Corps will be able to do even more. With a focus on deploying next generation clean energy technology, the Clean Energy Corps will help America meet its goals of a carbon-free power sector in 2035 and a decarbonized economy in 2050. But we can't do it without YOU.

The Clean Energy Corps is hiring NOW. We need talented, diverse, kind, and hardworking people like you to join this team.

With the passage of the Bipartisan Infrastructure Law, the Clean Energy Corps is charged with investing more than \$62 billion **to deliver a more equitable clean energy future** for the American people by:

- Investing in American manufacturing
- Creating good paying jobs

- Expanding access to energy efficiency and clean energy for families, communities, and businesses
- Delivering reliable, clean, and affordable power to more Americans
- And building the technologies of tomorrow through clean energy research, development, and demonstrations

We are looking for new team members from every community in America who are passionate about solving the climate crisis, are team players, and are willing to give their all to this fight. We know the only way we'll be able to bring the innovative solutions we need to the massive challenges we face is with a diverse team ready to serve. That starts with YOU.

Staff positions are available across the country and many opportunities offer the ability to work remotely. And, as a Federal employer, we welcome candidates that have served our country in other capacities such as the military and the Peace Corps. Learn more about the [Benefits of Working at Energy](#).

As the nation's Solutions Department, there is no better institution than the Department of Energy to take on this challenge and help our nation transform our energy system for the 21st century.

We're Hiring - Join the Clean Energy Corps





Join DOE on Monday, January 24, 1pm ET for a live conversation with Secretary of Energy Jennifer Granholm, Chief of Staff Tarak Shah, and Chief Human Capital Officer Erin Moore to learn more about the Clean Energy Corps. Watch live here, or on energy.gov/live.

US Department of Energy

Who We're Looking For

Addressing the climate crisis will require a large, ambitious, and talented team of America's best and brightest. The Clean Energy Corps is dedicated to fighting climate change through public service and supporting American competitiveness on a global scale. **To meet this challenge, DOE is hiring a team of industry veterans, experienced technical experts, and the next generation of climate leaders.** We're looking for individuals who are ready to act at this critical moment, we need YOU.

While not an exhaustive list, DOE is looking for candidates in the following career fields to support the implementation of the Bipartisan Infrastructure Law:

- Business Administration
- Communications
- Engineering
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- Grants/Contract Management
- Human Resources
- Information Technology/Cybersecurity
- Legal
- Legislative Affairs
- Physical Science
- Program and Portfolio Management
- Project Management
- Public Policy
- Safety and Occupational Health

Whether you've been working on Clean Energy issues for decades or are just starting out - we want you as part of the Clean Energy Corps. [Apply Now!](#)

NOTE: The Department of Energy (DOE) will utilize the Applicant Portal to staff the Clean Energy Corps in support of the Bipartisan Infrastructure Law (BIL). As vacancies become available, lists of qualified respondents who have submitted resumes through the Applicant Portal, will be provided to multiple Selecting Officials throughout the Department in various organizations for consideration under direct hire authority. DOE will fill vacancies in the following family or singular job series: 0800, 0201, 0301, 0340, 0343, 0510, 0560, 1101, 1102, 1109, 1301 & 2210 in grades GS-09 to GS-15 via single graded or career ladder positions, if applicable.

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U.S. DEPARTMENT OF AGRICULTURE

ACTION PLAN FOR CLIMATE ADAPTATION AND RESILIENCE



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August 2021

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A Message from Secretary Vilsack

Dear Reader,

As evidenced by the historic drought in the western United States, vast wildfires, and soaring temperatures across the country, climate change is already on our doorstep, and America's producers are on the front lines. We are operating in new territory, and the changing climate creates immense uncertainty and threatens the resilience of the American agriculture and forestry sectors. Not only does climate change have a direct impact on a producer's ability to plan and manage risk, it has wider impacts on the natural systems we rely on to support production of food and fiber, keep our waters clean, and maintain cultural resources.

As the "People's Department," USDA is preparing to help communities across the United States, both rural and urban, plan for and build resilience to the impacts of climate change. Answering President Biden's call for a whole-of-government approach to climate, USDA is taking a whole-of-Department approach to address the challenges and opportunities posed by climate change. In USDA's recent Climate-Smart Agriculture and Forestry Strategy: 90-Day Progress Report, we laid out our mitigation strategy to ensure that farmers, ranchers, and landowners can seize on these opportunities and contribute to greenhouse gas emissions reductions and sequestration. Alongside those actions, we must make sure that we provide producers, landowners, and communities with the tools to manage risk and adapt to this changing reality.

This Action Plan for Climate Adaptation and Resilience outlines how USDA will provide relevant information, tools, and resources to its stakeholders and target programs and activities to increase resilience to climate impacts. USDA will prioritize equity, promote environmental justice through a focus on healthy communities,

and target adaptation actions with co-benefits for climate mitigation, conservation, and sustainability.

In addressing the climate crisis, the USDA research enterprise will develop innovative tools and practices for farmers and land managers of the future. USDA will tailor its climate outreach and assistance to be regionally specific through its vast field operations and innovative partnerships and enhance department-wide coordination through its ten regional Climate Hubs. Building climate literacy across all levels will enable USDA staff to best serve its stakeholders in the decades ahead.

Our plan will serve as the foundation for iterative climate adaptation across the Department. Taking these steps to prepare American farmers, ranchers, forest landowners, resource managers, and communities for the effects of climate change will help ensure that our agriculture and forestry sectors continue to provide healthy food and fiber for America and the world, and that we conserve our soil, air, and water for generations to come.

Sincerely,



Secretary Tom Vilsack



I. INTRODUCTION

On January 27, 2021, in Executive Order (E.O.) 14008 Tackling the Climate Crisis at Home and Abroad, President Biden laid out a vision for a United States government-wide approach and a set of coordinated domestic actions to address the risks and opportunities posed by climate change. One of these actions directs the U.S. Department of Agriculture (USDA) to submit an action plan of steps to bolster adaptation and increase resilience to the impacts of climate change across our mission and operations.

Climate change poses a significant risk to agriculture, forests, and grasslands across the United States and the communities that support and depend upon them. This risk is disproportionately high for disadvantaged communities, including Tribal nations, low-income, and minority communities. USDA is unique among federal departments in the breadth of its Mission Areas and its reach across the United States to urban, rural, and Tribal communities. Steps to reduce the vulnerability and increase the adaptive capacity of American farmers, ranchers, forest owners, and other stakeholders to climate change are needed to maintain competitiveness and sustainability in the coming decades. Through climate change adaptation planning, USDA will increase the resilience of these sectors and communities to climate change.

Agricultural producers and forest landowners have extensive experience dealing with uncertain conditions, yet climate change is producing new challenges. Adaptation actions by USDA and our stakeholders can reduce the impacts of climate change while creating opportunities or co-benefits for mitigation, sustainable production, and conservation. The co-benefits of adaptation actions may also stretch as far as the social welfare of rural and urban communities by improving economic opportunities, infrastructure, and equity. The research and development necessary to support agricultural and forestry climate adaptation have the potential to spur new tools, practices, and technologies that may underpin the future of these sectors.

USDA last undertook extensive climate adaptation planning in 2014 in response to E.O. 13653 Preparing the United States for the Impacts of Climate Change. In that plan, USDA laid out a vision for how to integrate consideration of climate change into agency operations and overall mission objectives in the context of USDA's strategic goals. USDA provided progress and strategic updates to its climate adaptation planning via USDA's annual Strategic Sustainability Performance Plan, most recently in 2017.

FY 2021 is a transition year for USDA as its leadership develops a 2022-2026 USDA Strategic Plan, to align with the Biden-Harris Administration's priorities, which include addressing climate change. At the same time, USDA is tracking key performance indicators (KPIs) for the 2018-2022 Strategic Plan. A draft of the new goals was provided to the Office of Management and Budget (OMB) in June 2021. From June to September 2021, a cross-departmental working group will establish KPIs to gauge progress towards specific performance goals that are in alignment with the new strategic plan. A full draft strategic plan will be provided to OMB in September 2021. USDA's 2021 Annual Performance Report and 2023 Annual Performance Plan, due to OMB in November

2021, will close the 2018-2022 performance cycle's KPIs and, where possible, reflect the new draft KPIs. Finally, for FY 2021, USDA's Risk Profile will be updated to incorporate risks and risk mitigation strategies that reflect the Biden-Harris Administration's priorities, like climate change, where possible.

The complete package of this USDA Action Plan for Climate Adaptation and Resilience includes:

- This Action Plan for Climate Adaptation and Resilience that builds on prior adaptation plans,
- An update to USDA Departmental Regulation 1070-001 USDA Policy Statement on Climate Change Adaptation, and
- Identification of the Director of the Office of Energy and Environmental Policy (OEEP) in the Office of the Chief Economist (OCE) as the senior agency official responsible for carrying out the climate adaptation activities described in this Plan.

This Plan, which aligns with guidance from the White House Council on Environmental Quality (CEQ), includes:

- Five vulnerabilities due to climate change that USDA has identified and must address;
- Five actions USDA will implement in its mission, programs, operations, and management in anticipation of and in response to a changing climate;
- A description of efforts to enhance the climate literacy of USDA's workforce; and
- Descriptions of how climate adaptation and preparedness is built into management and decision-points for USDA climate-ready sites, facilities, products, and services.

II. CLIMATE VULNERABILITIES

Climate change presents many challenges to USDA and its stakeholders. The five

vulnerabilities below build on prior vulnerability assessments of the Department and draw from our best understanding of the threats posed by climate change and its impacts in the Fourth National Climate Assessment. The potential climate impacts to agricultural productivity, water quantity and quality, vulnerable communities, public lands and infrastructure, and as a result of extreme events will have broad Department-wide effects. For each vulnerability, we describe the threat and propose adaptation actions to address it. Some of these actions overlap with the cross-cutting actions outlined in section III, while others specifically target the vulnerabilities described below.

1. Decreased agricultural productivity

Climate change threatens growth in agricultural productivity through direct effects such as changes in temperature and precipitation patterns, and secondary effects, such as increased pest and disease pressures, decline in pollinator health, reduced crop and forage quantity and quality, and infrastructure damage. Agricultural productivity is additionally threatened by impacts to water supply and increased frequency and intensity of extreme weather events, which are described in more detail in Vulnerabilities #2 and #4. Agricultural productivity is vulnerable to the impacts of climate change via:

- **Crop and livestock production.** With variation at local, regional, and continental scales, climate change is projected overall to impact crop production by reducing both quantity and quality of yields, altering optimal growing season periods, and increasing likelihood of crop failure and damage. Similarly, livestock production will be impacted by reducing the quantity and quality of pasture and forage, lowering the yield of feed grain, affecting livestock health, and fostering the spread and resilience of pathogens and parasites that affect livestock development.



- **Reduced soil quality.** Agricultural, forest, and grassland soils are sensitive to long term changes in temperature and precipitation, management practices, and multiple uses like recreation. The interactive effects of these stressors can increase erosion rates, reduce soil quality, and alter soil composition that supports plant growth. Additionally, increases in temperature, changes in moisture levels, and disturbances like wildfire, pests, and disease can release carbon stored in soil organic matter.
- **Pest and disease pressure.** Climate change may expand or shift the range of a pest, pathogen, or vector organism, increasing its ability to establish in areas not previously considered at risk, elevating the risks to agriculture and forestry. Climate change may also lead to changes in wildlife migratory patterns, diseases, disease life cycles, predator-livestock interactions, and mass mortality events. These increased pressures may impact the Animal and Plant Health Inspection Service’s (APHIS) ability to monitor for animal and plant pests and diseases in traded and domestically produced goods.
- **Pollinator health.** Pollinator health, which is essential to successful crop production and highly correlated with floral landscapes, is threatened by climate-driven temperature

and rainfall extremes. Areas vulnerable to climate change include the commercial beekeeping industry, non-managed pollinator populations, and the subsequent threats to specialty crop industries.

- **Crop insurance.** Agricultural producers purchase crop insurance for protection against numerous production and price risks, which can include climate and weather-related losses from hurricanes, flood, drought, hail, and wildfires. Forecasts of more rapid changes in climatic conditions have raised concerns that these risks will increase relative to historical conditions. In addition to implications for landowner decisions regarding land use, crop mix, and production practices, changing agricultural risks could affect the performance of the Federal Crop Insurance Program (FCIP), managed by the Risk Management Agency (RMA). Economic Research Service (ERS) analysis suggests that even with some adaptation actions taken by producers, climate change could lower domestic production of major commodities, leading to higher prices, higher premiums and, consequently, higher FCIP subsidies. Without adaptation actions on the part of farmers, these potential cost increases are likely to be even greater.

In response to the threats and impacts to agricultural productivity described above, USDA has identified several key adaptation actions:

- **Increase implementation of on-farm adaptation strategies and practices.** The Farm Service Agency (FSA) and the Natural Resources Conservation Service (NRCS) can leverage existing programs to support farmers, ranchers, and landowners in understanding the vulnerabilities of their operations to a changing climate and implementing adaptive practices and management strategies. NRCS programs, such as the Conservation Stewardship Program (CSP) and Environmental Quality Incentives Program (EQIP), and initiatives, such as the Soil Health Initiative, can

provide financial and technical assistance and resources for implementing practices, like cover crops, reduced and no tillage, and improved irrigation systems, that contribute to more resilient landscapes. FSA loan programs, including Operating Loans, the Farm Ownership Loan Program, and the Conservation Loan Program, can also provide funds for a wide range of purposes, including short-term equipment or operating needs or long-term infrastructure enhancements to support increased resilience. USDA agencies will continue to evaluate and modify existing programs, like the Conservation Reserve Program (CRP), the Emergency Conservation Program (ECP), and the Emergency Forest Restoration Program (EFRP), for climate risks and adaptation opportunities. In administering disaster-related programs, USDA will aim to build resilience and adaptive capacity to future shocks whenever possible. Barriers to scaling up the adoption of adaptation practices include high costs of implementation, insufficient incentives, and need for additional technical assistance to aid decision-making and implementation.

- **Support active landscape-scale management and disturbance responses.** Supporting healthy landscapes starts with ensuring that whole ecosystems are managed at the landscape scale, considering multiple components, interactions, and timescales. For example, the Forest Service's (FS) Burned Area Emergency Response (BAER) teams assess post-wildfire disturbances and implement short-term treatments to stabilize soils to minimize threats to built and natural infrastructure, helping to ensure long-term ecosystem integrity. On private working lands, NRCS's area-wide and watershed planning processes bring together state agencies, soil and water conservation districts, regional planning commissions, counties, and other governmental entities to coordinate long-term resource management

at the landscape level. Current barriers include capacity to translate science into practice and ensuring sufficient workforce and public education around these topics.

- **Improve access to climate data and tools.** Improved access to climate and climate-related data can help producers better understand changing conditions and adjust their management decisions accordingly. The USDA Climate Hubs play a pivotal role in developing and curating data and tools for producers and the public. USDA's Office of the Chief Economist (OCE) will continue to partner with the National Drought Mitigation Center (NDMC) to improve their capacity to provide actionable information to the public and record observed drought impacts.
- **Enhance systems for monitoring and mitigating vector and disease spread.** APHIS and FS will improve current monitoring systems and responses to vector and disease spread, incorporate state-of-the-art modeling to inform surveillance, develop early warning systems, and identify better options for vector control and animal protection. APHIS will also evaluate its regulatory framework for biotechnology and genome editing as use of these technologies increases to support the development of climate-adapted crops and livestock.
- **Continue research into climate impacts on agricultural productivity and adaptation strategies and practices.** Further research is needed to understand the full range of potential impacts, inform implementation of adaptation strategies, and identify barriers to access. The Agricultural Research Service (ARS) and the National Institute of Food and Agriculture (NIFA) support research on adaptation strategies, including adapted cultivars and crops, enhanced water and input-use efficiency, optimal production efficiency, and improved resistance to diseases and pests. ARS's Long-Term

Agroecosystem Research (LTAR) sites will continue landscape and regional-scale approaches to investigate sustainable intensification of U.S. agriculture. The Office of the Chief Scientist (OCS) will continue to coordinate research into pollinator health, including changes in plant pollen ranges, co-benefits of resilient plant species to pollinators and carbon sequestration, co-location of pollinator habitat with renewable energy sites, and practices to address increased stress on pollinator health.

- **Provide climate-smart risk management products.** New and continuing actions that RMA will take to help producers manage climate-related production risks include:
 - Evaluation and monitoring of climate risks to the FCIP and update of program parameters, like earliest and final planting dates and sales closing dates, based on these analyses;
 - Implementation of state-funded incentives to encourage cover crop planting;
 - Use of the Whole Farm Revenue Protection product to support farmers who use crop diversification to reduce risk;
 - Continued insurance coverage for crops that accommodate new agronomic practices that minimize water use;
 - Implementation of procedures that facilitate access to insurance coverage to accommodate climate-driven shifts in production areas;
 - Application of recently revised premium rating methodology so that rates more quickly reflect changes in risk; and
 - Monitoring of premium rating methodology, loss adjustment standards, underwriting standards, and other insurance program materials to ensure they are appropriate for new production regions or practice changes within regions.In parallel with these efforts, the Climate

Hubs will continue to provide information and tools to support producers' capacity to manage for impacts to crop insurance, such as the AgRisk Viewer, a decision-support tool that provides historic crop insurance data to assess climate risk.

Many of the actions described above are in-progress or positioned to begin soon through coordinated Department-level efforts and creative applications of existing USDA resources and programs. Additional investments directed towards these efforts will enable USDA to more effectively address actions that rely on new data or expertise or require significant program enhancements. In the near-term, progress can be measured using existing systems that correlate well with target outcomes, like data from the North American Long-Term Soil Productivity study, led by Forest Service Research & Development (FS R&D). Agency record-keeping can also support progress measurement, including loan funds use, technical and financial assistance disbursed, and programmatic changes or additional investments made considering assessed climate risks.

2. Threat to water quantity and quality

Climate change impacts on the water cycle are resulting in earlier snowmelt, reduced water supply, more intense and frequent drought, degraded water quality, excess soil moisture, and greater flooding, all of which will alter crop and animal production and quality and management of forest and rangeland systems. In 2021, producers in areas like the Klamath River Basin and the Colorado River Basin are again experiencing severe drought conditions resulting in historically low water allocations. Key threats and impacts related to water supply include:

- **Water quantity and drought.** With climate change, producers are confronting greater intra- and interannual variability in the distribution, quantity, and timing of precipitation. Drought has become more

persistent and widespread with impacts on soil moisture and health, groundwater recharge, runoff, and ultimately agricultural productivity. Changes in snowpack also impact water supply and seasonal runoff timing. These changes in the water supply have the potential to drastically shift the geographic distribution of agriculture and exert greater pressure on finite groundwater resources.

- **Water quality.** Precipitation extremes can cause excessive runoff and soil erosion, which lead to field production issues and downstream impacts on quality of water resources, including eutrophication and hypoxia.
- **Riparian and aquatic ecosystems.** Changes in climate and the water cycle are affecting aquatic and riparian ecosystem structure and function, potentially resulting in loss of at-risk species, new species being put at risk, the introduction of additional or expansion of existing invasive species, and the establishment of new diseases and pathogens.
- **Forest resilience.** Declines in forest health because of drought, excess soil moisture and flooding will lead to increased vulnerability to disasters (see Vulnerability #4) such as wildfires, severe storms, and forest insect and pathogen outbreaks. These disasters will impact communities through decreases in ecosystem health and delivery of ecosystem services.

Priority actions that can be taken to respond to these risks to water quantity and quality include:

- **Target existing programs to support water issues.** Projected changes in water availability will require programmatic shifts that specifically integrate climate adaptation and resilience-building. FSA currently delivers several assistance programs for producers who have experienced hardships due to water-related impacts including the Noninsured Crop Disaster Assistance Program (NAP), the Emergency



Conservation Program (ECP), the Tree Assistance Program (TAP), the Livestock Forage Program (LFP), and ad hoc programs like the Quality Loss Adjustment program (QLA). USDA will evaluate the existing programs within legislative authority to ensure that coverage or grazing periods accurately represent when threats to water quantity and quality could occur. For example, FSA programs could adapt to support water quantity and quality issues by broadening support to annual cropping systems that increase water use efficiency. NRCS's Regional Conservation Partnership Program (RCPP) and EQIP can provide financial and technical assistance to the irrigated agricultural sector in support of additional water storage infrastructure and soil enhancing practices.

- **Build resilience by enhancing soil health.** Through a variety of conservation practices, soils can be enhanced to promote water infiltration and be less prone to surface runoff and downstream flooding. Building soil health is a slow process that can take a number of years and requires changes in cropping systems and management practices. Programs like EQIP, RCPP, and the Soil Health Initiative help promote practices such as cover crops, reduced tillage, and prescribed grazing that can improve soil health and

build more resilient landscapes. Adaptation Action #1, below, further highlights the impact that improvements to soil health can make on long-term sustainability.

- **Use a landscape approach in addressing water issues.** Successful adaptation will require an integrated, landscape scale approach, including managing water resources across private and public lands, restoring terrestrial and aquatic ecosystems to enhance their resilience to climate stressors, and addressing the effects of pathogens and invasive species. Heterogeneous land cover makes developing resilience strategies for water resources on this scale complicated and requires participation, cooperation, and coordination of diverse stakeholders.
- **Explore innovative technology and approaches.** Drought-adapted varieties, dynamic and data-driven irrigation technology, and increasingly efficient delivery, storage, and recycling of water will be important adaptation tools. Improved and integrated climate, groundwater, and surface water measurements and modeling will help predict vulnerability in water availability and identify priority areas for reduced water use. Innovative translation of water management research and technology to on-field realities through extension and education will be essential to support user adoption and alleviate producer and land manager concerns.
- **Invest in water management infrastructure and adaptive irrigation systems.** Investing in additional water storage infrastructure, such as new reservoirs and managed aquifer recharge, and increasing the ability of water-related infrastructure to survive extreme events, can help irrigated agriculture adapt to a variable future and expand availability of seasonal runoff. In traditional rainfed agricultural regions, producers may adapt to more variable growing season precipitation by beginning to irrigate or practicing

supplemental irrigation. Barriers to these actions include the need to address the ecosystem impacts of dams, the relative lack of institutions to guide the development of managed aquifer recharge, and the high cost to build on-farm irrigation infrastructure.

- **Leverage existing federal coordination mechanisms.** USDA will continue to play a leading role in existing interagency drought coordination networks including the National Oceanic and Atmospheric Administration's (NOAA) National Integrated Drought Information System (NIDIS) and National Drought Resilience Partnership (NDRP). OCE and NDMC will continue to leverage their partnership to support Climate Hub projects that provide useful and usable drought products to end users. Moreover, the Climate Hubs will continue supporting NIDIS in their regional Drought Early Warning Systems (DEWS). A Drought Learning Network (DLN) was jointly developed by the Climate Hubs, NDMC, and NIDIS, and allows stakeholders to share experiences in preparing for, responding to, and recovering from drought.

Many current USDA programs are well-suited to address these water-related threats and can provide a strong foundation for completing the necessary actions. It will also take new and reinforced partnerships within federal government and with Tribes, states, non-governmental organizations (NGOs), and businesses to tackle the significant challenge of addressing the long-term sustainability of the Nation's water supply. Much of this work will take years to complete and therefore requires five- or ten-year timelines to measure progress. USDA's National Agricultural Statistics Service (NASS) data on the market value attributable to irrigated farms and irrigated land, which is collected in the Census of Agriculture, will be used to assess the efficacy of future adaptation efforts in the irrigated agricultural sector. U.S. Geological Survey's (USGS) water use reports, which are released at 5-year intervals, will serve as another useful

tool to measure changes in water use over time. Improvements in monitoring, infrastructure, and research could be realized with additional investments to further minimize the climate risks to water for soil and forest ecosystems.

3. Disproportionate impacts on vulnerable communities

Socially disadvantaged, low-income, minority, and rural populations as well as American Indians, Alaska Natives, and sovereign Tribal governments are more likely to be vulnerable to the impacts of climate change. These communities' ability to adapt to a changing climate is often limited by financial, social, and other constraints. Climate change is likely to disproportionately impact these communities via several pathways:

- **Health.** Many communities who are exposed to the impacts of climate change are already burdened by air and water pollution and other environmental health hazards. Health risks of climate change may compound existing health issues in Tribal and Alaska Native communities, including risks from the loss of traditional food and practices, community displacement, new infectious diseases, and other effects of climate change.
- **Food.** Climate change poses risks for the U.S. food system, including production risks (as described in Vulnerability #1), transport and trade vulnerabilities, the potential for increased food loss and waste, and diminished food safety. These vulnerabilities challenge USDA's mission to provide leadership on food, nutrition, and related issues.
- **Ecosystem services and livelihoods.** Climate change threatens ecosystem services that many communities depend on including clean air and water, subsistence foods, medicine, fiber, fuel, and cultural services, such as cultural heritage and identity, spiritual, aesthetic, and educational values,

and recreation and tourism opportunities. Rural communities, many of whose livelihoods are tightly tied to the agriculture and forestry sectors, and migrant workers, who provide a large share of agricultural labor in some regions, are particularly vulnerable to climate change impacts.

- **Extreme weather event impacts.** As described further in Vulnerability #4, the impacts of extreme weather events influenced by climate change are expected to have a disproportionate impact on populations lacking resources to cope with economic and environmental shocks and uncertainty. Communities in risk-prone areas can face cumulative exposure to multiple pollutants and climate event impacts. Without action, the adverse effects of extreme weather events, severe wildfire, flooding, drought, and invasive species on these populations and Tribal communities will only intensify.

USDA actions to help the most vulnerable communities adapt to climate change will include:

- **Increase equity and environmental justice awareness, skills, and abilities of USDA staff.** USDA will take additional steps to educate its staff on environmental justice, including disproportionate impacts from climate change, and how it relates to USDA agencies, programs, and activities. This will



enable the Department to assess its current and future activities, identify areas and strategies for improvement, and develop metrics to ensure progress in supporting communities most vulnerable to the impacts of climate change.

- **Engage meaningfully with impacted and vulnerable communities.** The Department will leverage existing relationships and build off past and on-going Tribal consultation and stakeholder engagement processes, including those recently initiated to seek input on the Department's climate-smart agriculture and forestry strategy. As the Department and individual agencies continue to develop adaptation and environmental justice strategies, they should engage directly with environmental justice leaders and communities impacted by climate change to understand vulnerabilities and risks, identify barriers to and resources for adaptation, and collaboratively develop solutions and responses, including through participatory adaptation planning.
- **Evaluate programs and activities for risks to communities.** In carrying out actions to address climate risks, USDA should develop robust processes to ensure disproportionately high impacts and maladaptation are avoided or mitigated. FS has developed guidance for incorporating analysis and consideration of impacted communities during Land Management Planning and National Environmental Policy Act (NEPA) processes and has established a robust Urban Forestry program to address environmental justice issues in urban areas. Evaluating risks to vulnerable communities may involve leveraging new and updated vulnerability assessments and existing and emerging tools, such as the proposed Climate and Economic Justice Screening Tool, to identify communities at risk.
- **Provide assistance and resources.** USDA will continue work to ensure its programs

and resources are distributed equitably and are accessible to those most at risk of climate change impacts and in need of adaptation support. Several USDA programs have special provisions or dedicated funding for historically underserved producers—which may include socially disadvantaged, beginning, limited resource, and veteran farmers and ranchers—who are among the most vulnerable to impacts. Activities to integrate environmental justice and equity into existing programs will require removing barriers to participation, establishing trust, transparency, and accountability, identifying opportunities for broader inclusivity, and targeting education and outreach. Additional areas for advancing equity and environmental justice are described within USDA's Climate-Smart Agriculture and Forestry Strategy: 90-Day Progress Report.

Ensuring environmental justice and equity is an ongoing activity for USDA. The actions presented here can build on recent outreach efforts that have resulted in increases in program participation by historically underserved producers. Agencies will need to prioritize environmental justice in their planning and budget processes and when implementing new programs and policies. Indicators of success will be identified in coordination with the White House Environmental Justice Interagency Council's forthcoming performance metrics.

4. Shocks due to extreme climate events

Climate change is causing more frequent and intense disruptive events including hurricanes, floods, drought (see Vulnerability #2), and fires, which can have significant impacts on agriculture and forestry. Rural and vulnerable communities will be disproportionately impacted by these events while lacking the resources to adequately prepare for and respond to them. Key areas of impact associated with extreme climate events include:



- Hurricanes, floods, and other extreme weather events.** Extreme weather events are not new, but recent increases in frequency and severity of these events, like hurricanes, floods, tornadoes, hail, and other severe storms, have negatively affected working lands. Hurricanes and floods are expected to increasingly affect U.S. agriculture and forests leading to crop loss and production delays, degradation of soil and water resources, damage to infrastructure, alteration of forest health and productivity, and impacts to community health and safety. As hurricanes become more frequent and severe, wind, rain, and debris damage to buildings, power grids, and telecommunications will be increasingly common. Landslides, stream washouts, and downed trees can threaten water quality and community and animal safety, and frequently require targeted restoration and salvage efforts.
- Wildfire.** Climate change is expected to continue to alter fire regimes, increasing the frequency and extent of wildfire. As the wildland-urban interface expands, wildfire presents increased risks to human health and infrastructure. Severe wildfire can leave forests in need of reforestation and restoration and heighten the risk of secondary disturbances such as erosion, landslides, and invasive species.
- Vulnerability of rural communities.** As mentioned in Vulnerability #3, rural communities are particularly vulnerable to extreme weather events due to a greater direct dependence on agriculture, forestry, and outdoor recreation for income and

employment, existing challenges with infrastructure and connectivity, and limited capacity to prepare and respond to these events. Severe weather events threaten ongoing rural development efforts, negatively impacting projects, destroying properties, delaying construction, and disrupting revenue for existing loans. Increasing climate variability will result in increasing uncertainty in agricultural and forest industries in rural communities, likely leading to long-lasting shifts in community structure and composition. Current declining trends in population and employment tend to also reduce resources available to local government and community associations to deal with climate change variability.

In addition to the resilience-building actions described in Vulnerabilities #1 and #2, further actions can be taken to adapt to the risks from extreme climate events:

- Update vulnerability assessments.** With the support of the USDA Research, Education, and Economics (REE) agencies and FS R&D, in 2015 the Climate Hubs conducted vulnerability assessments for each of their ten regions based on the Fourth National Climate Assessment. Likewise, FS engaged in science management partnerships to develop vulnerability assessments in over 100 national forests and grasslands, including other public and private lands, with applications in land management and project plans. The Hubs will update their vulnerability assessments for the forthcoming Fifth National Climate Assessment and continue to support the development of

more place-based assessments that identify climate-smart practices to build resilience.

- **Use monitoring tools to build resilience.** NASS has developed a series of geospatial agricultural monitoring portals that can be used to identify and quantify impacts from extreme climatic events. These portals can provide near real-time updates on major storm disaster events, crop condition and soil moisture, decision-support system capabilities, and annual planted crop area to inform agricultural adaptation strategies. Examples of these NASS portals and other USDA-supported decision-support tools include:
 - NASS Disaster Analysis Program, which captures impacts from major storm events,
 - The joint vegetative condition and soil moisture monitoring portal,
 - AgroClimate, a weather and climate-based decision support system for agriculture, and
 - After Fire: Toolkit for the Southwest, a resource to assess post-fire risks.
- **Build forest and grassland resilience through management, planning, and responses.** Active management to build resilience to wildfire, insects, and disease is a high priority for the FS. USDA's Climate-Smart Agriculture and Forestry Strategy: 90-Day Progress Report and Adaptation Action #1, below, discuss these efforts further. Specific actions related to extreme events include development of information on disaster preparedness and response, support for forest products and markets for salvage and small-diameter timber, and support for post-disturbance emergency stabilization and rehabilitation. Wildfire and hurricanes can provide opportunities to increase climate resilience through species selection and soils restoration in disturbed areas. Barriers to implementation include underdeveloped markets and feedstock sources that slow use

of hurricane salvage and small-diameter timber.

- **Strengthen disaster assistance and relief programs.** In addition to assistance programs mentioned in Vulnerability #2 (NAP, ECP, TAP, LFP, and QLA), FSA offers the Livestock Indemnity Program (LIP), Emergency Assistance for Livestock, Honeybees and Farm-raised Fish (ELAP), and Wildfire and Hurricane Indemnity Program and Program Plus (WHIP and WHIP+) to help producers cope with impacts of extreme events and natural disasters. FSA also provides Emergency Loans for producers who might otherwise be forced to terminate operations, and Disaster Set-Aside options, which allow direct loan borrowers to forego an installment until the end of the loan term to reduce short-term financial strain due to a disaster.
- **Enhance the adaptive capacity of rural communities.** Resilience to extreme events and other climate impacts will require increasing local capacity to make adaptive improvements to community resources and expanding options for economic opportunities. USDA's Climate-Smart Agriculture and Forestry Strategy: 90-Day Progress Report highlights ways in which USDA can support new and better for markets for agriculture and forestry products while simultaneously building the resilience of rural communities. Examples of actions include supporting participation in voluntary carbon markets, renewable energy development and energy efficiency activities, and loans and grants to expand broadband access.

Many measures to build resilience to extreme events are long term investments whereas some programs will have distinct timelines triggered by the occurrence of such events. For example, while loan assistance is on-going, Emergency Loan and Disaster Set-Aside assistance is only available after a declared disaster. The level of support proposed in the FY 2022 budget and other

mechanisms will be used to address the backlog of National Forest System (NFS) restoration projects and enhance current work on risk identification, vulnerability assessment, adaptation planning, and disaster preparedness and recovery. Program records, including FSA's loan disbursement records and NRCS's reporting on conservation and investments, can be used to track activities. Progress on NFS lands will be monitored through the FS Climate Scorecard and the number of acres restored.

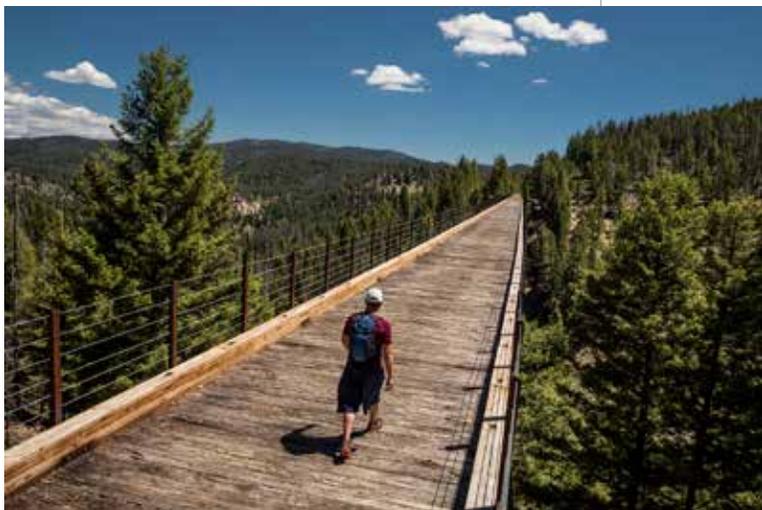
5. Stress on infrastructure & public lands

The increasing frequency, severity, and extent of disturbances with climate change can have far-reaching consequences on natural and built infrastructure on public lands. Changes in flood frequency, wildfire intensity, sea level, and extreme precipitation events can cause damage to low-elevation infrastructure, threaten utilities and air quality, endanger coastal communities, and increase erosion and landslides. For the NFS, in the absence of any climate adaptation action, reforestation and restoration needs will continue to increase, ecosystem services will be lost or diminished, aging infrastructure will deteriorate, and social and economic benefits will be disrupted. Roads and bridges damaged or lost because of increased flooding can limit access to Federal lands, create safety hazards, and reduce the availability of water resources. Actions USDA can take regarding built infrastructure and forest resilience include:

- **Increase resilience of built infrastructure.** Infrastructure must be upgraded, or newly designed, to withstand increasing extreme events and disturbances. The FS is using decision support tools and climate change vulnerability assessments to identify when and where to relocate or decommission vulnerable infrastructure and improve transportation infrastructure to reduce erosion and sedimentation. Other adaptation

actions include improving streamflow forecasting and expanding streamflow and snowpack monitoring networks to help managers respond to extreme events and ensure water allocation downstream. Barriers to implementation include funding to upgrade existing infrastructure and uncertainty in future flood projections.

- **Address forest restoration needs.** FS will need to increase the pace of restoration to address 1 to 4 million acres of restoration needs on national forests as described in the FS reforestation strategy. This action will require the use of planning tools and decision-making frameworks to enable collaborative planning and implementation of large restoration treatments across management boundaries.
- **Build resilience to severe wildfires and their effects.** Building resilience to wildfire necessitates the accelerated use of prescribed fire and the strategic implementation of hazardous fuel treatments to reduce wildfire impacts. Following severe wildfires, FS will prioritize public safety, forest rehabilitation, and slope stabilization. Rural Development (RD) and FS will work together to identify opportunities to link post wildfire restoration efforts with bioenergy generation. Barriers to implementing this action include limited





capacity and competing priorities during periods of widespread wildfire activity, State and local air quality compliance for prescribed fires, and public resistance to wildfire and fuels management.

Addressing the growing reforestation and restoration backlog over the next 10 years will require a four-fold increase in planting and a 30 percent increase in certification of natural regeneration, resulting in 3.6 million acres reforested. Given the importance of forest health and resilience to the long-term sustainability of forest landowners and surrounding communities, these efforts are described in further in Adaptation Action #1 below. For infrastructure like roads, bridges, and facilities, their long service life means that adaptation will be a long-term effort. Long-term monitoring will help detect potential climate change effects and evaluate the effectiveness of adaptation options. Existing FS monitoring efforts include the Climate Scorecard (biennially through 2025), the Key Performance Indicator for Terrestrial Condition Assessment (annually for all NFS lands), the Watershed Condition Framework, Biennial Monitoring Reports, and Forest Inventory and Analysis.

Already, the Great American Outdoors Act (GAOA) is being leveraged to develop more resilient infrastructure. In March 2021, USDA announced investment via GAOA's National Parks and Public Land Legacy Restoration Fund,

which will enable implementation of more than 500 infrastructure improvements across national forests and grasslands. The Forest Service also continues to use Land and Water Conservation Fund (LWCF) programs to strategically conserve forests on private and public lands. Future investments to address the reforestation backlog and wildfire risk could be targeted towards nurseries and natural infrastructure, accelerated project planning, building expertise, and improving management strategies to build resilience to wildfire. Continued and expanded cross-boundary collaboration with other federal agencies, Tribes, states, and partners will help achieve the requisite scale of response.

III. USDA'S ADAPTATION ACTIONS

Building on the vulnerabilities identified above, USDA will take cross-cutting adaptation actions to prepare the American agriculture and forestry sectors and rural and urban communities to be resilient in a changing climate. These actions aim to bridge the gap between innovative science and technology for climate adaptation and preparedness and in-field and on-site practices to build soil and forest health. These actions will reduce producers' vulnerability to climate change through increased access to relevant climate data and expanded education and outreach efforts.

The Fourth National Climate Assessment outlines the key challenges associated with adaptation planning for USDA consideration. The first challenge is that adaptation planning must be a sustained, iterative process. Mainstreaming the climate preparedness thought process rather than making it an additive step in decision-making will lead to greater success. Secondly, it is essential that USDA considers both current and projected climate change and variability in its planning and decision-making. Supporting climate literacy within the USDA workforce, as discussed later in this Plan, can support this new mode of thinking.

A third challenge is ensuring that climate adaptation actions are not limited to the stages of awareness, assessment, and planning but are implemented, monitored, and re-evaluated, which will require sustained attention and measures of success. Finally, the impacts of climate change on USDA and its stakeholders will vary regionally and locally, requiring climate adaptation actions at relevant scales.

USDA proposes adaptation actions to:

1. Build resilience across landscapes with investments in soil and forest health;
2. Increase outreach and education to promote adoption and application of climate-smart adaptation strategies;
3. Broaden access to and availability of climate data at regional and local scales for USDA Mission Areas, producers, land managers, and other stakeholders;
4. Increase support for research and development of climate-smart practices and technologies to inform USDA and help producers and land managers adapt to a changing climate; and
5. Leverage the USDA Climate Hubs as a framework to support USDA Mission Areas in delivering adaptation science, technology, and tools.

1. Build resilience to climate change across landscapes with investments in soil and forest health

Economic vitality and quality of life throughout America depends on healthy, climate-adapted agricultural and forest systems. Proactive investments in soil and forest health will build resilience to climate change into these systems. This action includes efforts to build resilience via conservation practices, improved

water management and efficiency, climate-informed reforestation and forest management, and ecosystem restoration and management. Enhancing soil and forest health will protect ecosystem functions that support the long-term resilience of working lands and forests and enable producers to successfully and sustainably enhance productivity to meet growing global demand in a changing climate.

Climate change threatens to increase the degradation of soil and water resources, including via increases in extreme precipitation events that lead to soil erosion, degraded water quality in lakes and streams, damage to infrastructure, and diminished crop production. On forest land, a combination of acute disturbances and shifts due to gradual climate change are expected to alter forest structure, function, productivity, and health, which will decrease the ability of forests to provide important ecosystem services. The rate at which restoration services are needed across the landscape is currently outpacing the capacity of land management agencies and their partners.

A variety of conservation management practices to restore soil structure and hydrologic function of agricultural landscapes can be adopted to improve resilience, including no till and reduced till, cover crops and crop rotations, improved nutrient management, agroforestry practices such as windbreaks and buffers, and prescribed grazing. These practices help to reduce erosion and



increase organic matter in the soil, which improve water holding capacity and water infiltration, thereby increasing resilience to drought, heavy precipitation, and extreme temperatures. Current adoption of these practices varies by practice, region, and crop. For example, U.S. farmers have rapidly expanded their use of cover crops, a 50 percent increase from 2012 to 2017, yet their use spans only 5 percent of total harvested cropland. Active forest management, including thinning forests and treating fire-deficient landscapes by prescribed burning, and climate-smart reforestation can increase resilience and reduce risks of wildfire, insect, and disease related mortality.

Many of these practices provide co-benefits for climate change mitigation via enhanced soil carbon sequestration and reduced emissions and for water quality and quantity through reduced erosion and runoff. Improvements in forest health can mitigate emissions from increased wildfire, increase soil carbon sequestration, mitigate risks to communities in the wildland-urban interface, and maintain other valuable forest ecosystem services.

Recent and ongoing USDA activities to promote resilience via enhanced soil and forest health include:

- Creation of The Adaptation Workbook, which producers can use to assess threats and document management choices to minimize climate change impacts to their operations. The workbook uses menus of adaptation strategies and approaches for forests, urban ecosystems, forested watershed and water resources management, agriculture and working lands, and recently published menus focusing on Tribal perspectives, forest carbon, and recreation. The workbook has been used to generate hundreds of adaptation demonstration projects using real-world examples of forest and farm management.
- Curation and continued growth of an online compendium of nearly 500 adaptation approaches with numerous associated examples on the FS Climate Change Resource Center (CCRC).

- Awards through NIFA's Agriculture and Food Research Initiative (AFRI) to fund 14 Soil Health grants and 7 Signals in Soil grants, an interagency program with the National Science Foundation (NSF).
- Investment in NRCS's Conservation Innovation Grants (CIG) to support the development of innovative tools, approaches, practices, and technologies to further natural resource conservation on private lands. The Soil Health Demonstration Trial, part of the CIG On-Farm Conservation Innovation Trials, will focus extensively on implementation of conservation practices and systems that improve soil health.
- Commitment of NRCS resources to fund 85 locally driven, public-private partnerships via the Regional Conservation Partnership Program (RCPP) to address climate change, improve water quality, combat drought, enhance soil health, support wildlife habitat, and protect agricultural viability.
- Encouraging enrollment in the Conservation Reserve Program (CRP) with new incentives and other adjustments to payments and a focus on the program's role in climate change mitigation. CRP provides annual payments to producers in exchange for removing environmentally sensitive lands from production and implementing practices to improve soil health and provide other benefits. In addition to general and continuous CRP sign-up, FSA offers CRP Grasslands and pilot programs focused on soil health and clean water, such as Clean Lakes, Estuaries and Rivers 30-year contracts (CLEAR30). FSA administers CRP on behalf of the Commodity Credit Corporation.
- Investments in the FS and NRCS's Joint Chiefs' Landscape Restoration Partnership, which includes projects to mitigate wildfire risk, improve water quality, and restore healthy forest ecosystems on public and private lands.

- Release of a new fire mapping tool, Southeast FireMap, to enable resource managers to improve their approaches to managing wildfire risk and fire management needs through targeted prescribed burns and training.

Building on the efforts described above and in conjunction with the objectives of the Climate-Smart Agriculture and Forestry Strategy: 90-Day Progress Report, USDA will use strategic investments to carry out climate-informed forest management and restoration activities, provide wildfire mitigation response, incentivize and scale up voluntary adoption of soil and forest health enhancing practices, and support markets that value the enhanced resilience of producers and ecosystems. Climate-adaptation practices will need to fit the geographic context and align with the interests of farmers and land managers. This is especially important because implementation costs are usually incurred on shorter timescales than the soil and forest health benefits are realized. A combined effort from NRCS, FSA, FS, USDA research agencies, the Climate Hubs and other USDA agencies will be essential to implement these actions effectively and address these challenges.

NRCS will play a key role by providing technical and financial assistance to farmers to implement and incentivize conservation practices through several existing programs and initiatives, including EQIP, CSP, RCPP, CIG, and the Soil Health Initiative. The backbone of NRCS data for designing assistance is the National Cooperative Soil Survey Program, which provides information on soil and ecological site resources of farms and ranches across the United States. FSA aims to increase enrollment in CRP by 4 million acres or more over the coming year, with the long-term goal to establish valuable land cover to improve water quality, soil health and carbon sequestration, and prevent soil erosion and loss of wildlife habitat. REE agencies and other programs, like the National Agroforestry Center, will provide the science and innovations that will underpin the management choices taken by the program



agencies, as described in Adaptation Action #4.

FS will scale up its activities to accelerate the strategic implementation of hazardous fuel treatments and prescribed fire to reduce wildfire risks and to increase forest restoration and reforestation. To significantly reduce the risk of high intensity wildfire, over the next 10 years, the FS will need to treat an additional 20 million acres of NFS land and 30 million acres of other Federal, State, Tribal and private land, especially in the Western United States. These goals are consistent with the recommendations outlined in USDA's Climate Smart Agriculture and Forestry Strategy: 90-Day Progress Report and current

budget priorities. A number of FS programs and initiatives will be engaged to build resilience on forests and grasslands including the Forest Legacy Program, which supports easements and land purchases for private-land conservation, as well as the Community Forest Program (CFP), Forest Stewardship Program (FSP), Sustainable Forestry African American Land Retention Program (SFLR), and Urban and Community Forestry (UCF) Program. Planning and decision-making in these programs and management activities will be based on climate-smart principles informed by FS R&D and the Climate Hubs.

The Climate Hubs will support efforts to build soil and forest health through ongoing work to empower land managers to incorporate climate adaptation into their land management planning. Further details of the Hubs' outward and inward-facing efforts are included in Adaptation Actions #2 and #5, respectively.

Scope, Performance, and Resources

- This action will work to build resilience across diverse landscapes at local to national scales, with a particular emphasis on supporting producers and land managers most vulnerable to climate change impacts. While conservation practices are often implemented at the field, farm, and stand levels, conservation planning can also be coordinated at the area and watershed levels. Large-scale forest treatment and restoration often spans management boundaries.
- USDA will track and estimate benefits of soil health practices using national survey data and program data. These data can be used to estimate soil carbon benefits and other co-benefits of soil health practices. USDA is planning to improve conservation data collection and reporting by implementing new surveys, which will provide more information on the adoption and benefits of soil health practices.
- FS will use its Climate Scorecard, particularly the Adaptation element, to monitor progress.

- Active forest management treatments to reduce wildfire risk on Federal, State, Tribal and private lands will require cross-government coordination.
- The President's FY 2022 Discretionary Funding Request includes significant investments within FS, NRCS, and other USDA agencies to enhance soil and forest health and resilience on public and private lands, including through support for voluntary conservation on working lands and for high-priority hazardous fuels and forest resilience projects.

2. Increase outreach and education to promote adoption and application of climate-smart adaptation strategies

The Nation's farmers, foresters, and ranchers face increased vulnerability of their operations to extreme weather and long-term changes in climate. Low-income, minority, and Tribal communities as well as small-scale, beginning, young, underrepresented, and underserved farmers and foresters will bear the brunt of negative climate change impacts, made more difficult by lack of accessible and useful information sources. Maladapted agriculture and forestry sectors could lead to a less diverse and resilient food system, degraded natural resources, and missed economic opportunities.

The goal of this action is to promote adoption and application of climate-smart adaptation strategies. USDA's Climate Hubs and NIFA, in partnership with the Cooperative Extension Service, Historically Black Colleges and Universities, Tribal colleges, Hispanic Serving Institutions, additional university partners, NGOs, and others, can provide resources to farmers, ranchers, and forest landowners to increase awareness of and engagement in opportunities to address climate change. Investments in the Climate Hubs program will allow the network to scale up their efforts to

develop and deliver science-based, region-specific information and technologies. The Climate Hubs will strengthen partnerships to enhance support for science-based decision-making and facilitate knowledge sharing of climate risks, vulnerabilities, and adaptation strategies. NIFA will evaluate the inclusiveness of climate in its education and extension portfolio and leverage its resources to encourage stakeholders to partner with the Climate Hubs to develop and deliver resources to America's farmers, ranchers, and landowners. Together, the Climate Hubs and NIFA can strengthen the role of extension as a force multiplier in increasing adoption and application of climate-smart practices. With a presence in nearly all of the more than 3,000 counties of the United States, the Cooperative Extension System's network of agents and specialists will be essential to expanding the use of climate-smart strategies described in Adaptation Action #1.

Recent accomplishments by NIFA and the Climate Hubs towards this goal include:

- NIFA support for Cooperative Extension professionals who are actively engaged in the National Extension Climate Initiative (NECI), which promotes the recognition of the climate crisis, coordination and management of climate-smart agriculture and forestry outreach activities, and sharing of program materials;
- A NIFA solicitation for extension and education projects that include partnerships with the USDA Climate Hubs through AFRI's Foundational and Applied Science Request for Applications (RFA);
- Through the Climate Hubs, development of 11 curricula reaching 402 students, production of 118 in-person or virtual workshops with an estimated 7,800 participants, 214 presentations, and 439 engagements with Tribes or Tribal organizations in FY 2020.

The Climate Hubs are a focal point for outreach and education efforts around climate impacts and risk management on working lands. Moreover,



the Hubs act as conveners helping to gather information from Tribal and stakeholder groups to understand regional issues and deliver actionable, relevant information to enhance climate-informed decision making. While many of the Climate Hubs already engage with local communities, states, and Tribes, the Hubs' capacity to increase climate outreach and education could be enhanced through dedicated Tribal and state liaisons. In addition, the Climate Hubs can expand their reach into under-resourced and underserved communities through delivery of timely, relevant, and credible information, data, and tools. NIFA can leverage existing and new funding sources to support colleges and universities, especially minority-serving institutions, in developing partnerships with the Climate Hubs. NIFA will also increase consultations with community colleges and minority-serving institutions to ensure widely accessible climate education and outreach opportunities.

Implementation will be accomplished through an expansion of the USDA Climate Hubs program and establishment of NIFA funding opportunities to address this Adaptation Action. USDA intends to leverage opportunities for enhanced technology transfer and implementation of climate-smart practices by linking USDA staff with other federal climate change coordination efforts such as the Department of the Interior's Climate Adaptation Science Centers (CASCs), NOAA's Regional

Climate Centers and Regional Integrated Sciences and Assessments (RISAs), and U.S. Global Change Research Program (USGCRP) working groups.

The Climate Hubs will evaluate success based on activities including vulnerability assessments, adaptation planning and menus, jointly developing decision-support tools, building technology to support climate resilience, and stakeholder workshops/listening sessions. Key metrics for NIFA include number of RFAs published that include climate change language and projects funded that support climate outreach and education.

Scope, Performance, and Resources

- The USDA Climate Hubs are located at five ARS and five FS research stations comprising ten regions spanning the United States and its territories. The Climate Hubs support local, state, and regional efforts including cross-region and national initiatives when there are common interests or technology needs.
- The Climate Hubs are overseen at the national level by an Executive Committee (EC) comprised of senior program leaders from across the Department who provide leadership on action development, implementation, monitoring, evaluation, and oversight. The National Lead, a 2-year rotating position among ARS, FS, and NRCS, works through the EC to ensure national coordination to capitalize on synergies and efficiencies.
- New NIFA programmatic support for climate extension and education is expected in FY 2022. NIFA will need to balance climate with other priorities across its research, education, and extension portfolio. Additional National Program Leaders with social and behavioral science expertise will help develop effective climate outreach and education programs.

- The President's FY 2022 Discretionary Funding Request for the Climate Hubs will support an expansion of climate science tools and landowner awareness and engagement in climate adaptation practices.

3. Broaden access to and availability of climate data at regional and local scales for USDA Mission Areas, producers, land managers, and other stakeholders

Increasing access to and use of climate data, models, and decision support tools at the regional and local scales for producers, land managers, state and local policymakers, and USDA Mission Areas is a critical and ongoing priority for supporting timely responses to the impacts of climate change. This action necessitates organizing, streamlining, and coordinating data access points and online data delivery. Ensuring that climate adaptation strategies are accessible to all farmers, ranchers, forest landowners, and communities will require that USDA address internet access and other infrastructure or resource issues that limit access and use of climate data.

The Department aims to increase access to reliable climate data by supporting the collection and curation of scientific information on climate change and translating that information into user-friendly decision support tools, models, and recommendations to provide guidance on benefits and outcomes associated with agronomic decisions. To accomplish this goal, the Department must also provide equitable access to technical assistance and training for climate data end users.

Ways in which USDA already collects and provides data for improved resource management in a changing climate include:

- ARS's development of the Agricultural Collaborative Research Outcomes System

(AgCROS) database to provide data to the public research and development community and its Partnerships for Data Innovation (PDI) program to implement sensors and other data collection, integration, and sharing systems that will help farmers get the most from their limited resources;

- ERS's regular evaluation of its Agricultural Resources and Management Survey data products;
- NRCS, which delivers data on conservation practices and is modernizing its Plant List of Accepted Nomenclature, Taxonomy, and Symbols (PLANTS) database;
- FS's Forest Inventory and Analysis (FIA), which provides annual data on forests to assess sustainability of management practices, monitor forest health, productivity and carbon stock change, and predict the effects of climate change;
- NIFA with its AFRI Data Science for Food and Agricultural Systems program area that supports projects that harness data science to aid land managers in decision-making and a collaboration with the National Agriculture Library on an open data framework; and
- The Climate Hubs, which have improved the discoverability and usability of RMA crop insurance data for enhanced climate risk management with the AgRisk Viewer.

This action provides an opportunity to deliver credible science and user-friendly decision-making tools that can help producers and land managers apply climate change and weather-related information to their operations. Reliable data can inform planting decisions, farming practices, and business decisions. By improving current data access, this action enables USDA to provide support and incentives for agricultural data standards and to encourage partnerships with public and private data trusts. Additionally, this action presents the opportunity to create a USDA-wide open access agricultural, rangeland and



forestry database to drive development of more advanced tools for producers and land managers.

The Department will identify existing or emerging issues with data access as well as opportunities for improvement, with a particular focus on access for low-income, socially disadvantaged and historically underserved communities. Consistent financial support will be key to ensure that the necessary infrastructure exists for data access. The lack of a cohesive and consistent cloud computing environment will restrict the ability to deliver spatial data sets, and Chief Information Officer restrictions on research and development application development may delay delivery of user-friendly climate dashboards and tools. Other challenges include the availability of temporally resolved geospatial imagery, the need for additional data science expertise, and the capacity to incorporate social and behavioral sciences to evaluate human dimensions of the food system. Data and decision-support tools need to be accessible to rural communities, which may be challenging with current broadband and internet infrastructure in some communities. Collaborations with federal funding agencies to provide research support will aid in understanding complex climate issues and allow the Department to craft models and decision-making products essential for the sustainability of economic and natural resource systems.

Scope, Performance, and Resources

- Increasing access to climate data is an ongoing priority in the Department, and a reasonable timeframe for achieving the goal will be FY 2021 through FY 2025. The first key milestone of this action will be leveraging new technologies and computing resources to effectively deliver additional climate data through online tools in FY 2022 and FY 2023.
- This action will require contributions and support from ARS, ERS, FS, NASS, NIFA, NRCS, and OCS.
- Maintaining current levels of delivery and data access will likely be possible with existing resources. Direction of additional investments and technical capacity towards this action could further improve data quality, timeliness of delivery and ease of access by users.
- Increased access to and consistency of climate data should be addressed at the national, regional, and local scales.
- Supporting information tools that provide resolution across multiple scales will be critical to allow users to adjust output based on their specific need.
- Increased availability of technical assistance to support climate data and tools, increased access and use of climate and climate-related data, feedback from user communities on the usefulness of information and data, and the reduction in gaps of science and science delivery for agriculture will serve as useful performance measures.
- USDA will work to better understand Tribe and stakeholder needs for climate data, particularly in underserved communities.
- The Department will coordinate with science agencies across the federal government, including the NSF, the Department of Energy, the National Aeronautics and Space Administration, and NOAA to ensure that

federal climate-related data are accessible to those in the agriculture, rangeland, and forestry sectors.

4. Increase support for research and development of climate-smart practices and technologies to inform USDA and help producers and land managers adapt to a changing climate

USDA will continue to support and coordinate the efforts of its research agencies to develop innovations in climate-smart agriculture and forestry. Evaluating the efficacy of adaptive practices and technologies on working lands, including productivity synergies and tradeoffs and mitigation co-benefits on soil carbon storage and GHG emission reductions, is a research priority. Other key topics for climate research include improved fertilizer technologies, genetic studies to identify climate resilient plants and trees, and studies of the impacts of climate change on pollinator communities and vector-borne livestock diseases. Modeling efforts can project the affordability of climate-smart activities, infer adoption likelihood, and project pest and disease outbreaks under different climate change scenarios. USDA's long-term monitoring networks for snowpack, precipitation, and soil moisture provide data to investigate trends and develop management options.

The Department's research activities form the basis for validating existing climate adaptation options and identifying and developing new ones, while ensuring the actions are regionally relevant and economically viable. USDA's research integrates climate and socioeconomic change with production and land-management outcomes, while considering the secondary effects of climate's influence on pollinators, pests, diseases, invasive species, and extreme events such as flooding and drought. New scientific information and tools, contextualized and implemented locally, can help

land and resource managers increase the resilience of those systems and the communities that depend on them. To date, however, implementation has been slow. Increasing partner engagement, science co-production, and delivery will ensure that the best available science is understood and put into practice.

USDA's efforts to understand and minimize climate risks for its stakeholders have yielded important accomplishments, a few of which are highlighted here:

- In July 2020, USDA published a report documenting 20 Climate Indicators for Agriculture to support decision making and to understand the larger climate context of U.S. agriculture.
- NIFA currently supports approximately 400 active projects related to climate change representing an investment of approximately \$200 million.
- Scientists at ARS are developing a Grand Challenge Synergy Project proposal "Creating pollinator landscapes and beekeeping practices for a changing climate," to synergize efforts across ARS and other federal and state agencies to find solutions to the climate change challenges experienced by pollinators. In May 2021, Project Leaders held a workshop to obtain perspectives from scientists and stakeholders and build collaborations required to generate and implement solutions to pollinator loss from climate change.
- FS has developed national and regional syntheses of climate effects on forests, agroforestry, non-timber forest products, forest and rangeland soils, invasive species, and the wildland urban interface and identified management opportunities and adaptation practices.
- In collaboration with ARS, NRCS, NDMC, and university partners, the Climate Hubs developed Grass-Cast to provide enhanced decision support to ranchers and grassland



managers by estimating forage productivity during the growing season.

- FS's FIA program has successfully led to practical tools for forest carbon assessment and monitoring climate change effects on forest species composition and abundance.
- NRCS's Snow Survey and Water Supply Forecasting and Soil Climate Analysis Network data are used to manage water resources and plan for water shortages in the Western United States.

Managing competing research priorities will require a coordinated effort at the Department and agency levels. As described in Adaptation Action #3, translating experimental data into information and decision tools is a complex process that is required for the adoption of climate-smart practices and technologies. Evaluating the effectiveness, tradeoffs, and synergies of climate-smart practices will require a multidisciplinary systems approach.

USDA anticipates that existing organizational, administrative, and coordination capacity will rapidly and efficiently integrate many of the new research and development priorities outlined in this Plan. As described in Adaptation Actions #2 and #5, USDA will work through the Climate Hubs, extension, and other means to understand stakeholder needs and deploy new information, data, practices, tools, and technologies to private landowners and managers for implementation. Relationships with land-grant universities, technical service providers, and other cooperators will be leveraged to achieve this goal. Finally, USDA will use internal and interagency working

groups and review of existing funding authorities to identify research opportunities and increase support where appropriate for climate-smart research activities.

Many ongoing USDA research projects with climate adaptation applications will continue into the foreseeable future, for example:

- ARS has numerous climate adaptation research projects throughout its crop, animal, natural resource, and food nutrition programs.
- FS activities to increase support for applied climate science to develop and evaluate practices and technologies, engage in the development and co-production of science, and use social science to identify adoption barriers will be initiated in FY 2022 and continue at least through FY 2026.
- NIFA will support new Artificial Intelligence Research Institutes focused on climate change in FY 2022 and continue to support climate science in the AFRI Sustainable Agricultural Systems (SAS) RFA.
- FSA's evaluation of the soil benefits of the Conservation Reserve Program will undergo a significant expansion in FY 2021 and will continue for at least five years, with the potential to go beyond 15 years.

Existing monitoring efforts and those developed by USDA's research agencies during adaptation planning will be used to track the outcomes of science implementation and adaptation actions. These efforts will consider the outcomes of focused listening sessions, adaptation case studies, dissemination and training workshops, new tools and tool improvements, research partnerships and measures like adoption rates, publications, data usage, fellowships, and funding levels.

Scope, Performance, and Resources

- OEEP coordinates USDA's climate change activities, including execution of this Plan, through the monthly USDA Global Change Task Force (GCTF) and represents USDA to the interagency USGCRP. OCS

provides Department-wide coordination of agricultural research, education, and extension needs.

- USDA's research spans field-scale practices, whole-farm or forest systems, regional monitoring networks, and national-scale analysis and assessment.
- Coordination is generally a national headquarters activity, while primary research activities largely occur in the field to capture diversity in environmental conditions, production types, and management.
- USDA will continue its participation in the USGCRP's Federal Adaptation and Resilience Group to ensure that climate-driven challenges are anticipated by new information, practices, technologies, and tools.
- Outside of the federal government, shared stewardship agreements between the FS and states will facilitate implementation of adaptive actions and support monitoring efforts.
- USDA agencies will increase consultations with Tribal communities to incorporate traditional ecological knowledge into climate-smart practices.
- Additional consultations with community colleges and minority-serving institutions will be used to make research opportunities under this effort widely accessible.
- International partnerships and dialogues allow USDA's expertise to improve global outcomes beyond U.S. borders.
- USDA research agencies are already or planning to realign personnel time and resources towards USDA's climate priorities. Additional investments would permit expansion of essential research efforts, climate-related program analysis, monitoring networks, and technology transfer.

5. Leverage the USDA Climate Hubs as a framework to support USDA Mission Areas in delivering climate adaptation science, technology, and tools

The Climate Hubs provide necessary USDA infrastructure to deliver climate adaptation science, technology, and tools to USDA agencies who, through their missions, support farmers, ranchers, and forest landowners. The Hubs were established in 2014 with the aim to develop and deliver science-based information and technologies to enable producers and natural resource managers to make climate-smart decisions and minimize risk to their operations. In January 2020, the Hubs completed a five-year review to assess their effectiveness and provided recommendations to inform a new, forthcoming, strategic plan. Over a five-year period (2014-2019), the Climate Hubs and partners hosted over 435 in-person workshops and training events and engaged over 16,000 stakeholders on critical climate issues and adaptation opportunities. The Hubs provided technical expertise through 237 webinars, podcasts, and other digital communication reaching over 17,000 people, and developed more than 25 web-based decision-support tools, including Grass-Cast and AgRisk Viewer.

To integrate climate-smart agriculture and forestry in USDA's mission, programs, operations, and management, USDA will take advantage of the Climate Hubs' unique position to work across organizational boundaries and engage their expertise and awareness of regional priorities. The Climate Hubs and USDA Mission Areas will work together within the three Hubs workstreams:

Workstream 1: Science and Data Synthesis

- The Hubs will promote coordination and joint production of resources and tools between USDA science and program agencies.

- Hubs' applied vulnerability assessments for fire, flood, drought, extreme temperatures, and hurricanes will be used to make recommendations to USDA Mission Areas to increase landscape and community resilience to extreme climate events.
- Using an adaptive management approach, the Climate Hubs plan, implement and monitor actions, analyze and synthesize results, and share their learning. USDA will use the Hubs' regional expertise and awareness of climate-smart agriculture and forestry successes to inform Mission Area management and decision-making.

Workstream 2: Technology and Tool Development and Implementation Support

- The Climate Hubs will leverage their co-production model to produce tools relevant to USDA agencies that use existing technologies and data.
- To promote co-production of tools and resources with stakeholders, the Hubs will pass back local and regional knowledge and climate adaptation needs to ensure that USDA's work is relevant and usable by farmers, ranchers, and landowners.

Workstream 3: Outreach, convening, and training

- The Hubs will provide a platform for USDA agencies to convene and work on common issues and expand their outreach.



- The Hubs will develop new partnerships and strengthen existing relationships with USDA agencies to enhance uptake of existing tools and jointly develop new products. Opportunities to partner with APHIS, FS, FSA, NRCS, RD, RMA, and other agencies will be sought.
- To build a practice of climate-thinking across USDA, the Hubs will integrate the best available science into messaging tools like research publications, gray literature, social and other media communications, and video and podcast products.
- To reach specific agency staff, the Climate Hubs will jointly develop and curate relevant educational modules, webinars, workshops, and trainings.

Scope, Performance, and Resources

- Resources to support the Hubs program are contained within the President’s FY 2022 Discretionary Funding Request. These investments will allow the program to expand to meet growing demand from within and outside USDA.
- Indicators relevant to this action will include training or capacity building activities provided to USDA staff, an increase in intra-agency research or program collaborations, and development of tools, resources, and research to support Mission Area objectives. The Hubs will continue to track webinars, trainings, and other interactions with the public.
- The Climate Hubs report on their progress through quarterly reports to the Executive Committee, newsletters, and annual reports.
- The Climate Hubs have built strong relationships with external partners from local to national scales and across sectors, providing opportunities for collaboration with NGOs and other stakeholder communities to develop adaptation resources and tools to enhance USDA activities.

- The Climate Hubs will share climate adaptation science, tools, and technologies through partnerships with other federal climate service networks including the RISAs, CASCs, and NIDIS DEWS. The Hubs can assess how to adapt these interagency efforts for USDA use to increase efficiency and avoid duplication of efforts.

IV. ENHANCING CLIMATE LITERACY IN USDA’S WORKFORCE

A climate-informed and capable workforce underpins the success of the adaptation actions outlined in the sections above. Enhancing climate literacy across USDA’s workforce is an essential element of integrating climate preparedness into USDA’s mission, programs, operations, and management. USDA has nearly 100,000 employees at more than 4,500 locations across the United States and abroad with a diverse range of roles, responsibilities, and backgrounds. To prepare USDA’s current and future workforce for the impacts of climate change, USDA will expand opportunities for education focused on how climate change affects the mission of the Department and its work. Core education and training should be accessible to staff at all levels in all locations.

Examples of ongoing activities to build climate literacy include:

- The Office of Property and Environmental Management’s (OPEM) Sustainable Practices team convenes working groups on Facilities, Sustainable Buildings, Green Purchasing, Fleet Management, and Real Property to discuss policies, goals, best practices, challenges, and progress in achieving sustainability and climate goals.
- OPEM also hosts events and issues a quarterly newsletter, The EnviroPost, to increase employee awareness of sustainability and climate issues by highlighting agency

successes, best practices, awards, and training opportunities.

- The CCRC, a joint online platform of FS R&D and FS Office of Sustainability and Climate (OSC), hosts a series of three modules on climate change and natural resource management. The modules cover basic climate change science and modeling, climate change effects on forests and grasslands, and responses to climate change.
- FS OSC hosts webinar series on topics related to its mission; its current series is focused on topics related to environmental justice, including Tribes and climate adaptation, water, air, and recreation.
- FS R&D and OSC, the Climate Hubs, and NRCS regularly host webinars and training at various technical levels on topics related to climate that are accessible to USDA staff.

To build on these existing efforts, USDA can:

- Form a climate literacy working group. Coordinated by the Climate Hubs, this group would survey USDA agencies and offices for prior and ongoing climate education activities, identify climate literacy training needs for staff, including environmental justice issues, and suggest how to use existing frameworks to enhance climate literacy. Recognizing the Climate Hubs' intra-agency reach and experience in innovative and interactive methods to increase climate literacy, this working group will suggest how the Hubs can build climate capacity within USDA agencies, including how to reach regional and local offices.
- Expand information dissemination and training access. OEEP and the Climate Hubs will develop a sustainable strategy to disseminate climate science information from REE agencies, FS R&D, and USGCRP to relevant USDA staff. Building off the Climate Hubs' social science insights on encouraging knowledge co-production, USDA can ensure information sharing and

training is relevant, useful, and equitable. USDA can ensure access to and expand the CCRC modules described above to equip staff with an understanding and common vocabulary of climate change and adaptation and mitigation responses.

- Establish a USDA climate seminar series. OEEP will continue development of a yearlong, monthly seminar series that will be at a level accessible to a diverse audience of USDA staff and develops climate literacy with progressively complex topics. The series will be science-focused, for experts and non-experts, and will provide opportunities throughout to ask questions that help dispel misconceptions related to climate. Potential subjects include GHGs in agriculture, climate impacts on crop production and animal agriculture, and options for climate adaptation and mitigation.
- Consider early climate literacy development. Hiring, training, and maintaining a climate literate workforce can start with students before they become USDA staff. Working with land-grant and other university partners, NIFA will continue to play an important role funding training and education. With investments from NIFA and assistance from the Climate Hubs, youth organizations like 4-H could be supported to deliver early climate literacy and promote positive youth development. In addition, USDA could look for opportunities to develop climate-tracks within its Internship and Recent Graduates Programs.

Performance measures developed during agency and office-level adaptation planning should include workforce climate literacy targets. Current means of evaluating climate literacy include annual Sustainability Plans, OMB Scorecards for Efficient Federal Operations and Management, and, at the Forest Service, climate-related training can support progress towards Climate Scorecard elements.



V. USDA ACTIONS FOR CLIMATE-READY SITES AND FACILITIES

USDA will continue to improve the climate resilience of sites, fleet, and facilities and implement its Departmental Regulations and Directives for sustainable and climate adaptive operations of sites, fleet, and facilities. OPEM is responsible for coordinating with agencies, setting annual strategic goals, developing actions, and measuring progress by creating agency scorecards for improvement.

Construct and Operate Climate-Ready Real Property

The Department implements Department of Homeland Security structural integrity guidance to prepare for increasingly frequent and intense natural hazards, such as extreme weather and wildfires. Recent vulnerability assessments indicate many FS dams are vulnerable to large storm events for which they were not originally designed. To enhance resilience, USDA will evaluate needs to increase capacities of spillways to handle extreme storm events.

USDA is raising its standards for design, construction, operation, and maintenance of facilities and infrastructure by applying climate adaptive technologies, increasing renewable energy use and equipment efficiencies to conserve

energy, and reducing its GHG footprint. New buildings are performing 30 percent more energy efficiently than the industry standard and over 45 percent of USDA-owned buildings 10,000 gross square feet and larger meet the Guiding Principles for Sustainable Federal Buildings. USDA uses third-party certification systems such as LEED or Green Globes to validate its green buildings. For construction materials, USDA prefers wood for new buildings due to its capacity for energy savings and ability to sequester carbon. Equipment performance is monitored throughout system lifecycles.

For leased buildings, USDA increasingly seeks out third-party certified green and ENERGY STAR facilities with access to public transit. However, USDA often leases facilities in remote and rural markets with limited options for green buildings. USDA will work to build climate adaptation, resilience, and sustainability awareness in these communities to achieve further facilities-related emissions reductions and climate resilience in the future. In new leases, USDA will follow the General Service Administration's green leasing guidance. By requiring sustainable and resilient buildings in all new leases, the Department would increase availability of these sustainable and resilient buildings in remote and rural markets.

To raise facility performance levels nationwide in sustainability and resilience, USDA also plans to develop a Departmental Manual to guide staff to align sustainable and resilient facility operations with the USDA Departmental Regulations on Climate Change Adaptation and Sustainable Operations.

USDA chooses locations for utility equipment and central data centers to improve operational resilience to flooding and rising sea levels. These centers feature direct digital controls, thermal aisle design, emergency power, and redundant cooling for continuity, lower operating costs, and higher capacities.

Increase Facilities' Energy and Water Resilience

USDA will take the following actions related to facilities energy and water management that

enhance climate adaptation and resilience or have adaptation and resilience co-benefits:

- **Increase onsite renewable energy capacity and installation of microgrids.** The energy and power supply at many USDA facilities are susceptible to the increased frequency and severity of storms. Accordingly, USDA will work to increase onsite renewable energy capacity and install microgrids to improve resilience at its facilities. This may include transitioning from propane/diesel generators to mobile solar energy systems with battery backup at remote sites and installing solar panels to enable facilities to operate off-grid. Exploring the use of energy performance contracts to install solar energy equipment, geothermal energy systems, and microgrids at remote facilities to mitigate impacts from future storms will also be considered. These climate adaptation actions will reduce the cost of electricity and eliminate the dependence on unreliable and poor-quality power at remote sites.
- **Improve the condition and resilience of government-owned infrastructure.** USDA owns miles of aging overhead and underground electrical wiring, steam pipes, natural gas pipes, and domestic water and sewer lines, which are vulnerable to severe weather events. This infrastructure requires periodic maintenance to improve and maintain reliability, functionality, and resilience. To address this issue, agencies will implement actions that have co-benefits to climate adaptation and resilience. Specifically, agencies will perform leak tests on water systems that show inconsistent consumption or lack of integrity, conduct cost-effective maintenance and repair on equipment and infrastructure, and establish and maintain good communications with local utility providers.
- **Switch fuel types, use dual fuel equipment, and reduce the carbon footprint of facilities.** Dual fuel equipment is critical

for USDA's remote buildings that rely on heat from fossil fuels because interruptible natural gas supply requires secondary fuels as a backup, is subject to supply shortages, and can result in extremely high costs and damage to heating equipment. To address this issue, agencies will convert to dual fuel heating equipment, select secondary fuel types with the best GHG emission ratings, and convert heating equipment from fossil fuels to electric heat pumps that can be powered by solar panels.

Optimize Fleet Inventory and Efficiency

USDA is committed to maintaining an optimal fleet inventory and reducing its fleet's carbon footprint for climate adaptation and resilience. This effort includes developing standardized acquisition strategies that identify and eliminate inefficient vehicles and replace them, with safer, more efficient vehicles that use less petroleum per mile, alternative fuels, and electric and hybrid-electric vehicle technology. A focus on efficiency will encourage climate adaptation management actions and sustainable behaviors. Looking ahead, USDA plans to incorporate a standardized fleet replacement planning initiative to transition from primarily fossil fuel vehicles to a combination of biofuels, fully dedicated electric, and hybrid-electric vehicles to reduce costs, improve fleet efficiency, and meet environmental goals. USDA will also identify locations to install biofuel, alternative fueling, and electric vehicle charging infrastructure to better support non-petroleum vehicles.

VI. USDA ACTIONS TO ENSURE A CLIMATE-READY SUPPLY OF PRODUCTS AND SERVICES

Through its Office of Contracting and Procurement (OCP), USDA supports E.O. 14008 Sec. 206 and E.O. 14005 Ensuring the Future Is Made in All of America by All of America's Workers, issued January 25, 2021. USDA is



committed to adhering to the requirements of the Made in America Laws in making clean energy, energy efficiency, and clean energy procurement decisions. Consistent with applicable law, USDA is applying and enforcing the Davis-Bacon Act and prevailing wage and benefit requirements. USDA will stay vigilant should the Secretary of Labor take steps to update prevailing wage requirements or should the Federal Acquisition Regulatory Council develop regulatory amendments to promote increased contractor attention to climate adaptation and resilience with co-benefits of reduced carbon emissions and federal sustainability. Focusing on these adaptation areas can help prevent disruption of supplies and services for mission critical activities. Furthermore, USDA procurement leadership seeks to use contracting as a lever to promote protection of communities and ecosystems where USDA has a presence. Our efforts will focus on the effects of climate change while also building long-term resilience to evolving environmental conditions.

The Department has implemented policies and practices to purchase energy efficient, sustainable, and USDA-designated biobased products in compliance with requirements in the Federal Acquisition Regulation to support climate adaptation efforts. Energy efficiency contributes to climate adaptation by reducing peak energy demand as more energy is required for air conditioning and to address uncertainty in energy generation and use resulting from extreme weather events. USDA is committed to increasing the use of sustainability criteria in its purchasing. For example, USDA continues to use blanket purchase agreements that provide efficient electronic equipment that is registered with the Electronic Product Environmental Assessment Tool (EPEAT). Purchasing EPEAT-

registered equipment reduces GHG emissions, hazardous waste, and water pollutants over the life of the equipment. Procurement requirements to promote resilience apply to contracts for design, construction, operations, and maintenance. USDA selects materials made with post-consumer and pre-consumer recycled materials including carpet, gypsum board, ceiling tiles, millwork, furniture, and furnishings. In addition, the BioPreferred Program continues to support climate adaptation, working with CEQ, OMB's Office of Federal Procurement Policy, and other federal agencies, to develop guidance for establishing annual biobased-only procurement targets.

The five critical areas where procurement processes are at risk due to acute or chronic climate change impacts are:

- 1. Facility upgrades.** USDA facilities need modernization to improve energy efficiency and provide resilient infrastructure. Energy efficiency, water conservation, and sustainability are all considerations for new construction and modernization. To the extent possible, USDA will expand the Solar ARS program, which is based on a contract template that was developed to be customized for performance contracts and appropriate funds projects.
- 2. Forest Service infrastructure.** Forest Service infrastructure is highly susceptible to climate change and large storm events, for which it was not originally designed. For dam infrastructure, actions to address this include an inventory assessment of dam spillway capacity and a spillway rehabilitation plan.
- 3. Puerto Rico infrastructure.** Puerto Rico and its infrastructure are vulnerable to the impacts of climate change particularly increased frequency and severity of storms. At ARS Mayaguez and Isabela facilities, a project to install a microgrid has been developed but remains unfunded. It can be implemented with a performance contract with sufficient capital infusion. The microgrid would eliminate the dependence of the research program on the local electrical grid.

4. Growth of net-zero facilities. ARS has one net-zero electricity facility and another under construction that align with current budget priorities. In 2019 an Energy Conservation Measure at the Jornada Experimental Range in Las Cruces, New Mexico, was awarded an Energy and Water Management Award by the Department of Energy's Federal Energy Management Program. A net-zero project carried out this year, at the Fort Collins Research Farm in Colorado, is complete and awaiting final connection. As energy is saved, environmental sustainability will improve due to decreasing GHG emissions and conservation of limited resources.

5. Forest restoration. Four Forest Restoration Initiative (4FRI) is accelerating a large-scale restoration program across 2 million acres in northern Arizona to improve forest and watershed health so forests are more resilient to climate change. 4FRI has embarked on an ambitious project to award a 20-year contract to provide forest restoration treatments on over 500,000 acres. Increased certainty of supply will help stimulate investment in restoration to reduce the impacts of climate change while supporting forest industries that strengthen local economies and conserving natural resources and aesthetic values.

VII. NEXT STEPS

Concurrent with the release of this plan, USDA will develop guidance for agencies and offices to prepare new climate adaptation plans in line with updated Departmental Regulation 1070-001 with the aim of completing these plans by spring 2022. Agencies and offices will identify how climate change is likely to affect their ability to achieve mission, operations, and program objectives. Through adaptation planning, they will develop, prioritize, implement, and evaluate actions to integrate climate risks into strategic planning and decision-making. Agencies and offices will identify alignment with the vulnerabilities identified in

this Plan and how they might contribute to the vulnerability-specific and cross-cutting adaptation actions. This process will provide the opportunity to identify knowledge gaps or programmatic needs that can be addressed through coordination with OEEP, the Climate Hubs, and intra-agency collaborations.

To measure progress towards achieving climate adaptation goals, during adaptation plan formulation, USDA agencies and offices will develop metrics relevant to their missions and adaptation strategies. The Forest Service Climate Scorecard is one model internal to USDA that can be emulated for each agency's unique needs. These agency-relevant frameworks will be used for measuring, sharing, and learning from adaptation successes and enable USDA to demonstrate how adaptation actions are making the Department and its stakeholders more resilient. Through iterative climate risk management, USDA will address emerging and future climate risks, adjust efforts and resources, and prepare American agriculture, forestry, and rural and urban communities to be resilient in a changing climate.



APPENDIX

U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C. 20250

DEPARTMENTAL REGULATION	NUMBER: DR 1070-001
SUBJECT: U.S. Department of Agriculture Policy Statement on Climate Change Adaptation	DATE: May 26, 2021
OPI: Office of the Secretary	EXPIRATION DATE: May 26, 2026

1. PURPOSE

This Departmental Regulation (DR) provides guidance on the establishment and periodic revision of the United States Department of Agriculture’s (USDA) *Climate Change Adaptation Plan*. It is consistent with guidance from the Council on Environmental Quality (CEQ) for the implementation of Executive Order ([E.O. 14008](#), *Executive Order on Tackling the Climate Crisis at Home and Abroad*, issued on January 27, 2021).

Climate change poses a significant risk to the agriculture and forestry sectors and the communities that support and depend upon them. Through climate adaptation planning and implementation, USDA will identify how climate change is likely to affect its ability to achieve its mission, operations, and policy and program objectives. Climate change adaptation is a critical complement to mitigation; both are required to address the causes and consequences of climate change. Through climate adaptation planning, USDA will develop, prioritize, implement, and evaluate actions to minimize climate risks, and exploit new opportunities that climate change may bring. Climate adaptation planning and implementation should align with USDA efforts to ensure equity and environmental justice. By integrating climate change adaptation strategies into USDA’s programs and operations, USDA better ensures that taxpayer resources are invested wisely, and that USDA services and operations remain effective under current and future climate conditions. Through climate adaptation planning, USDA is taking a leadership role in ensuring the vision of a resilient, healthy, and prosperous Nation in the face of a changing climate.

2. ACTIONS ORDERED

This policy establishes the USDA directive to integrate climate change adaptation planning, implementing actions, and performance metrics into USDA programs, policies, and operations in accordance with executive orders and additional guidance from CEQ.

- a. The Chief Economist, with the full support and participation of USDA Mission Areas, agencies, and staff offices, will:

- (1) Develop a *USDA Climate Change Adaptation Plan* in accordance with E.O. 14008 and CEQ guidance;
 - (2) Issue guidance in accordance with CEQ guidance to Mission Areas, agencies, and staff offices to complete or update their climate adaptation plans, as well as required interim deliverables; and
 - (3) Update the *USDA Climate Change Adaptation Plan* as appropriate and provide progress reports on the status of implementation efforts annually in accordance with CEQ guidance.
- b. USDA Mission Area, agency, and staff office heads, in developing organization-specific contributions, will:
- (1) Analyze how climate change may affect the ability of their organization to achieve its mission and policy, program, and operational objectives and authorities to:
 - (a) Identify potential impacts of climate change on their organization's areas of responsibility;
 - (b) Prioritize, implement, and integrate response actions into their Mission Area's, agency's, or staff office's operation, contingent on the availability of resources;
 - (c) Continuously assess and improve the capacity to adapt to current and future changes in the climate; and
 - (d) Prepare contributions to the Department's *Climate Change Adaptation Plan*.
 - (2) Identify, as appropriate, key performance measures to evaluate progress in climate change adaptation in the annual Departmental and Mission Area, agency, and staff office budget material, to include measures in the Summary of Budget and Performance section of the explanatory notes, submitted as part of the Congressional justification.
 - (a) Identify, to the extent possible, the costs associated with the accomplishment of Mission Area, agency, or staff office performance measures and provide accessible information to producers; and
 - (b) Identify returns to Mission Area, agency, or staff office end-users for climate adaptation actions in terms of a list of expected accomplishments.
 - (3) Identify, as part of the annual budget process, to the Office of Budget and Program Analysis (OBPA), areas where budget adjustments would be necessary to carry out actions identified under this DR;

- (4) Identify, as appropriate, for USDA's Office of the General Counsel, areas where legal analysis is needed to carry out actions identified under this DR; and
- (5) Identify the point of contact for and coordinate actions with the USDA's Global Change Task Force, as appropriate.
- c. USDA Mission Areas, agencies, and staff offices will integrate information that reflects the current understanding of global climate change and its projected impacts when undertaking long-term planning exercises, setting priorities for scientific research and investigations, developing performance metrics, and making decisions affecting Mission Area, agency, or staff office resources, programs, and operations.

3. EFFECTIVE DATE AND TERMINATION

- a. The provisions of this DR are effective immediately and will remain in effect until superseded or revoked.
- b. This policy supersedes and replaces DR 1070-001, *U.S. Department of Agriculture (USDA) Policy Statement on Climate Change Adaptation*, dated June 15, 2015.



/s/ THOMAS J. VILSACK
SECRETARY OF AGRICULTURE



US Department of Education
Climate Adaptation Plan
September 2021

Version 3.0

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Document Revisions

Author(s)	Version	Description	Date(s)
Cheryl Holt	1.0	Initial Development (DRAFT)	5/27/2021
Andrea Falken	2.0	2 nd Draft	7/19/2021
OFO/ OCO	3.0	ED Clearance and DoD comments incorporated	8/5/2021
OFO	3.0	OMB comments incorporated	8/24/2021

Executive Summary

The mission of the U.S. Department of Education (Department or ED) is to promote student achievement and preparation for global competitiveness. Fulfilling this mission requires that we confront the rapidly changing climate, its impact on students, educators, and infrastructure, as well as its implications for the future world in which the United States competes.

The Department's vision for enhancing resilience in the face of the challenges presented by climate change, in response to E.O. 14008, includes leadership to support educator, parent, and student communities that are climate literate and prepared to act in support of climate change mitigation and adaptation, with a particular emphasis on equity. This vision will continue to develop through collaboration with other Federal, state, and local educational agencies as well as non-governmental organizations.

The Department's actions must also include supporting the resilience of state and local educational agencies, schools, and institutions of higher education. This work will emphasize the relationship between climate and equity, particularly equitable access to safe, healthy, sustainable, and resilient 21st century learning environments. This 2021 Climate Adaptation Plan provides a framework to integrate adaptation into management decisions and operations and identifies new opportunities to inform a management, leadership, and policy response based on the identified effects of climate change now and in the future. This Plan is a living document and will be updated as necessary.

Mission

ED's mission is to promote student achievement and preparation for global competitiveness by fostering educational excellence and ensuring equal access. It does this by:

1. Strengthening the Federal commitment to ensuring access to equal educational opportunities for every individual;
2. Supplementing and complementing the efforts of states, local school systems and other instrumentalities of states, the private sector, public and private nonprofit educational research institutions, community-based organizations, parents, and students to improve the quality of education, while encouraging the increased involvement of the public, parents, and students in Federal education programs;
3. Promoting improvements in the quality and usefulness of education through Federally supported research, evaluation, and sharing of information;
4. Improving the coordination of Federal education programs;
5. Improving the management of Federal education activities; and
6. Increasing the accountability of Federal education programs to the President, the Congress, and the public.

The Department's FY 2014 Climate Change Adaptation Plan articulated the potential for climate change to affect the Department's mission.

"Climate change could have an effect on the Department's overall mission of promoting student achievement and preparation for global competitiveness. Climate change could have

an effect on the Department’s ability to ensure equal access to educational opportunity for every individual. Climate change could have an effect on the Department’s efforts to supplement and complement the efforts of states, local school systems, and other instrumentalities of the states.”

With this FY 2021 Climate Adaptation Plan, the Department acknowledges that climate change is affecting the Department’s mission and the need for comprehensive and urgent action to promote adaptation and resilience through the Department’s programs and operations.

Past ED sustainability action plans, climate change adaptation plans, and environmental justice plans were designed to bring ED into this work.¹ This plan builds upon the lessons learned from those earlier plans to offer new actions that the Department can undertake to better adapt to climate change and develop both agency resilience as well as resilience across the nation’s schools.

U.S. Department of Education Policy Statement on Climate Change Adaptation

I. Background:

- a) In 2020, the United States experienced a record-breaking 22 natural disasters that each resulted in at least \$1 billion in damages, including a record 7 linked to landfalling hurricanes or tropical storms. As these extreme weather events experienced across the United States have shown, climate change is affecting communities, school districts, and institutions of higher education. Moreover, certain disadvantaged communities bear disproportionately high and adverse human health, environmental, and climate-related impacts.² Climate change adaptation is a critical complement to mitigation; both are required to address the causes and consequences of climate change.
- b) Adaptation planning will allow the Department to minimize negative impacts of climate change that are already occurring and take advantage of any new science or technologies that may mitigate or moderate climate change in its operations. Furthermore, through its example, the Department can reinforce the importance of climate adaptation planning to states, districts, schools, and institutions of higher education.
- c) Through adaptation planning, the Department will deepen its understanding of how climate change is impacting its ability to operate its facilities and meet its policy and program objectives. Through adaptation planning, the Department will develop, prioritize, implement, and evaluate actions to moderate climate change risks and explore new potential opportunities that are consistent with the Department’s mission and the changing world around us.
- d) By integrating climate change adaptation strategies into our programs and operations, the Department better ensures that taxpayer resources are invested wisely, and Department services and operations respond effectively to current and future climate conditions.
- e) Through climate adaptation planning, the Department is contributing to the Federal Government’s leadership role in sustainability and pursuing the vision of a resilient, healthy, just, and prosperous nation in the face of a changing climate.

II. Directive:

- a) The goal of this policy is to ensure that the Department:
 - i. executes and adapts its mission and operations securely, effectively, and efficiently as the climate continues to change,
 - ii. exhibits leadership in the areas of climate adaptation planning,
 - iii. advances educational equity and justice in the context of climate adaptation, and
 - iv. complies with E.O. 14008, which directs agencies to take action to address the climate crisis at home and abroad.
- b) This policy reaffirms the need to integrate climate change adaptation planning and actions into Department programs, policies, and operations.
- c) The Department shall take on climate change adaptation planning and action measures making use of the best available data and information.
- d) The Department shall develop and publish a Department-wide climate adaptation plan no later than September 2021. The plan shall include consideration of each of the Department's Principal Offices, as appropriate, and incorporate this policy statement. The plan will identify how climate change is impacting the Department's ability to achieve its mission, effectively operate its programs, promulgate effective policies, and manage its operations. The plan will identify priority adaptation actions and establish mechanisms to evaluate progress toward continually improving the Department's capacity to effectively adapt to current and future changes in the climate. The Department shall produce progress reports on the status of implementation efforts. The Department shall make progress reports public and post them on the Department's website, to the extent consistent with applicable law.
- e) The Department shall fully consider the Interim Instructions for Preparing Draft Climate Action Plans issued by the White House Council on Environmental Quality under Executive Order 14008, Tackling the Climate Crisis at Home and Abroad, and other applicable authorities.
- f) The Department shall, in a manner consistent and compatible with its mission, analyze how climate change and environmental justice are impacting its ability to achieve its mission, promulgate effective policy, operate its programs, and meet its operational objectives by reviewing existing programs, operations, policies, and authorities to: (1) identify potential impacts of climate change and environmental justice on Principal Office areas of responsibility; (2) prioritize and plan for implementation of response actions; and (3) assess and improve capacity to adapt to current and future changes in the climate and advance environmental justice.
- g) In particular, the Department shall: 1) leverage its leadership to inform the education sector in promoting climate adaptation; and 2) consider appropriate inclusion of climate change vulnerabilities, impacts, and adaptation strategies in policies, programs, guidance, technical assistance, and data initiatives.

The Department will coordinate with other agencies and interagency efforts, including the National Climate Task Force and the Environmental Justice Interagency Council, on climate change adaptation and environmental justice issues that cut across agency missions, including areas where national adaptation plans are being or have been developed, and will identify a process for sharing climate change adaptation planning information throughout the Department and with the public.

III. Department Coordination and Implementation

- a) The Deputy Secretary is responsible for ensuring implementation of all aspects of this policy. This policy does not alter or affect any existing duty or authority of individual components or Principal Offices.
- b) The Department Climate Change Adaptation Work Group will coordinate Department-wide climate change adaptation planning and implementation. The Work Group will be chaired by the Deputy Secretary and will include representation from Principal Offices, as appropriate.
- c) This policy is effective immediately and will remain in effect until it is amended, superseded, or revoked.



Date: 09/09/2021

Miguel A. Cardona, Ed.D.

Agency Responsibility

The Chief Adaptation Officer for the U.S. Department of Education is the Deputy Secretary. The Deputy Secretary is responsible for ensuring implementation of all aspects of the Climate Adaptation Plan and associated laws, guidance, and policies. As such, the Chief Adaptation Officer has been given authority to review the laws, establish program responsibilities, monitor climate change adaptation actions, evaluate the need to adjust activities as new information becomes available, and review and update the climate plan. The Climate Change Adaptation Work Group will collaborate with internal and external stakeholders to evaluate programs and operations related to this plan, as appropriate.

Identified Climate Change Risks to ED Mission

The Fourth National Climate Assessment details a range of climate change impacts that affect the Department's ability to carry out its missions, operations, and programs.¹ Major climate change events include flooding, hurricanes, tornadoes, extreme heat, extreme cold, wildfires, and drought.

¹ USG CRP, 2018: *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 1515 pp. doi: 10.7930/NCA4.2018.

In 2020, the United States experienced a record \$22 billion in damage from weather and climate disasters.²

Climate change is impacting students, schools, and communities across the country. In California, in the 2018-2019 school year, more than 1 million students were impacted by school closures due to wildfires.³ After Hurricanes Maria and Irma in Puerto Rico, students missed an average of 78 days of school.⁴ Reporting in 2017 found that 6,353 schools serving 4 million children are in a floodplain.⁵ As just one example, flooding in West Virginia in June 2016 caused \$130 million in damage to schools.⁶

Climate change impacts on students, families, schools, and communities across the country are present, severe, and worsening. Pathways through which climate change affects student achievement include school closures due to extreme weather or unsafe conditions, poor environmental conditions within schools that impede learning, students' own personal health and safety, increased social and emotional anxiety related to climate change and extreme weather events, and increased migration and economic disruption for households and communities.

Students and schools in certain disadvantaged communities are particularly exposed to climate change impacts. The Fourth National Climate Assessment lays out a clear nexus between equity and climate change: "People who are already vulnerable, including lower-income and other marginalized communities, have lower capacity to prepare for and cope with extreme weather and climate-related events and are expected to experience greater impacts. Prioritizing adaptation actions for the most vulnerable populations would contribute to a more equitable future within and across communities." Schools with higher enrollment of low-income students are far more likely to have permanent buildings that are in poor or only fair condition than other schools.⁷ According to the Federal Emergency Management Agency (FEMA), aging buildings are particularly vulnerable to natural disasters.⁸ Students' performance is negatively affected by elevated temperatures in classrooms, and extreme heat days are responsible for school closures where facilities are not equipped with air-conditioning.⁹

² [Record number of billion-dollar disasters struck U.S. in 2020 | National Oceanic and Atmospheric Administration \(noaa.gov\)](https://www.noaa.gov/news/record-number-of-billion-dollar-disasters-struck-u-s-in-2020)

³ See Disaster Days by CalMatters and the CA Department of Education. Available at: <https://disasterdays.calmatters.org/california-school-closures>

⁴ [Average Puerto Rican Student Missed 78 Days of School After Maria, Study Finds \(edweek.org\)](https://www.edweek.org/technology/article/average-puerto-rican-student-missed-78-days-of-school-after-maria-study-finds)

⁵ Urahn, S.K. and Wathen, T. (2017) "Flooding Threatens Public Schools Across the Country: Infrastructure analysis evaluates county-level flood risk" The PEW Charitable Trusts. Available at: https://www.pewtrusts.org/-/media/assets/2017/08/fpc_flooding_threatens_public_schools_across_the_country.pdf

⁶ The Intelligencer (2019) "West Virginia Lawmakers Quickly OK Flood Cost Bill" September 20. Available at: <https://www.theintelligencer.net/news/top-headlines/2016/09/west%E2%80%88virginia-lawmakers-quickly-ok-flood-cost-bill/>

⁷ Debbie Alexander & Laurie Lewis (2014). Condition of America's Public School Facilities: 2012–13, NCES 2014-022, U.S. Department of Education, National Center for Education Statistics. Available at: <http://nces.ed.gov/pubs2014/2014022.pdf>

⁸ FEMA (2017) "Safer, Stronger, Smarter: A Guide to Improving School Natural Hazard Safety" June. Available at: https://preparecenter.org/sites/default/files/natural_hazards_school_safety.pdf

⁹ Greenberg, Zoe (2018) "Is the Heat Day the New Snow Day?" The New York Times, September 6. Available at: <https://www.nytimes.com/2018/09/06/nyregion/heat-day-schools-extreme-climate-change.html>

Evidence suggests that hot weather days disproportionately affect students of color and are responsible for approximately 5% of the racial achievement gap.¹⁰ Beyond navigating and responding to the physical impacts of climate change, the Department must respond to the changing set of skills and mindsets required to prepare the people of today to live sustainably and thrive in a rapidly changing climate. All students deserve to attend sustainable schools that enhance their health and wellness, prepare them for 21st century careers, and support a thriving planet. The Department's Climate Adaptation Plan looks to implement strategies that put the nation on the path toward sustainable, healthy, resilient, and equitable learning environments.

Priority Adaptation Actions

Priority Adaptation #1: Leadership and Public Engagement

Description

[Existing Effort] Leverage ED leadership to activate the education sector in promoting climate adaptation, environmental and sustainability literacy, and environmental justice.

Goal

Help educators, students, and parents to understand and adopt ways to combat climate change through the education system.

Agency Lead

Office of the Deputy Secretary and Office of Communications and Outreach (OCO).

Opportunities

- Embrace the role of education in the climate emergency and inspire others to do the same.
- Elevate the connections between education and climate adaptation and the opportunities for addressing climate change adaptation within the education sector.
- Leverage expertise and a track record of leadership related to sustainable schools within the Department.
- Leverage OCO's expertise in sustainable schools from developing and overseeing the existing U.S. Department of Education Green Ribbon Schools (ED-GRS) recognition award. (This program also provides ED with some state education agency contacts related to infrastructure and environmental learning and examples of success to highlight in messaging.)
- Develop staff knowledge and the familiarity of ED staff with climate change concepts so the agency is prepared and able to embark on this work.

¹⁰ Park, R. Jisung, Joshua Goodman, Michael Hurwitz, and Jonathan Smith. 2020. "Heat and Learning." *American Economic Journal: Economic Policy*, 12 (2): 306-39.

Risks

The education community may not see a direct connection between this issue and providing educational opportunity to all students.

Scale - National

Timeframe - Ongoing public outreach and engagement events.

Implementation Methods

- Consistently communicate the importance of climate adaptation and mitigation.
- Conduct regular visits to sustainable and resilient schools.
- Support Federal, state, and local efforts related to sustainable and resilient schools.
- Conduct self-assessments to align climate vulnerability assessments with disaster planning, COOP planning, and ED publication standards. (The review process will include the collaboration of leadership across ED.)

Performance

- Media coverage promoting ED efforts to support and promote sustainable, resilient schools.
- Growth in applications to the ED-Green Ribbon Schools recognition award.
- Participation in environment, sustainability, and climate related events by senior leadership.

Intergovernmental Coordination

ED will work with the White House as well as other Federal agencies to coordinate and support efforts related to climate adaptation and mitigation. ED will work with the General Services Administration (GSA) to identify the vulnerabilities in each of the buildings and/or regions in its leased portfolio. This collaboration will assist ED to develop informed responses to disasters with the goal to minimize the impact to operations, address potential problems before they occur, create redundancy in critical systems or sites, and identify projects to increase the use of sustainable products or services.

Resource Implications

ED could leverage existing staff knowledge and pro bono technical assistance from stakeholders. Travel funds would not likely exceed what is normally required of the Office of the Secretary and OCO, and some gift travel is available in this area with outside entities offering to cover the cost of travel.

Challenges/Further Considerations

Balancing these issues with other pressing demands related to reopening schools and managing the ongoing pandemic.

Highlights of Accomplishments to Date

- The Secretary and Deputy Secretary are engaged in public discussions regarding climate and sustainable, healthy schools. Their efforts are leading to a broader focus within the agency.
- ED leadership has played a visible and supportive role for schools and communities experiencing negative impacts from climate change.
- ED-GRS for more than 10 years has highlighted the practices of schools, districts, and postsecondary institutions making efficiency, conservation, health, and environmental education a priority.

Priority Adaptation #2: Policy, Guidance, and Programs

Description

[New Action] Imbue agency guidance, policies, and program design with an understanding of climate change vulnerabilities, impacts, and adaptation strategies.

Goal

The Department's guidance, policies, and program designs promote climate adaptation, environmental and sustainability literacy, and equitable access to healthy, safe, sustainable, resilient, 21st century learning environments (environmental justice).

Lead

Office of Planning, Evaluation, and Policy Development in partnership with grantmaking or policy offices (e.g., Office of Elementary and Secondary Education, Office of English Language Acquisition, Office of Special Education and Rehabilitative Services, Office of Postsecondary Education, Office of Career, Technical, and Adult Education, and Office for Civil Rights).

Opportunities

- ED's policy, guidance, and programs inform and support states, districts, schools, institutions of higher education, and other partners in the private and nonprofit sectors.
- This work supports the climate change commitments of the Biden Administration (e.g., greenhouse gas emission reductions, Justice40 initiative).
- There is a robust and growing community of supportive advocates for climate change work in states and nongovernmental organizations who will welcome and could provide pro bono technical assistance and feedback on this effort.
- ED will begin to improve climate literacy among a broad range of agency staff, so the agency is prepared and able to embark on this work. Due to the multidisciplinary nature of the work, ED will need to identify and collaborate with appropriate partners.
- The White House Council on Environmental Quality, the National Climate Taskforce, and the Office of the National Climate Advisor represent knowledgeable allies.

Risks

- ED has only a handful of small grant programs that fund school infrastructure or relate directly to climate change.

Scale: National

Timeframe: Immediate start and aligned with climate adaptation by FY 2025.

Implementation Methods

- Initiate agency effort to enhance climate literacy in its management workforce (Topic Area 2).
- Hold stakeholder meetings to immediately identify high-leverage opportunities to update guidance, technical assistance, and other policies.
- Develop policies and procedures to consistently apply a climate adaptation lens to the agency's guidance and policies.
- Develop the knowledge and familiarity of ED staff with climate change concepts so the agency is prepared and able to embark on this work.

Performance

- The Office of Human Resources will develop a strategy and execute a plan to enhance climate literacy and capacity related to climate change adaptation within ED.
- New processes will reflect the intention of the agency to consistently and appropriately incorporate climate change into guidance, policies, and programs.
- Guidance and requirements for existing programs will be reviewed and updated to appropriately incorporate environmental and sustainability literacy.
- ED will collect feedback from stakeholders to inform actions.

Intergovernmental Coordination

Given the multidisciplinary nature of the work, ED will benefit from ongoing communication with knowledgeable individuals and teams at the White House Council on Environmental Quality, Environmental Protection Agency, Department of Energy, Department of Transportation, Department of Agriculture, and National Oceanic and Atmospheric Administration, among others.

Resource Implications

A time commitment of existing ED employees to consider guidance, policies, and programs with a climate lens. Possible hiring of new expertise or training of existing employees in these areas.

Challenges/Further Considerations

- Effective design and implementation of agency human capital development programs to increase climate literacy will be essential to enable and support this work throughout the agency.

- The President’s American Jobs Plan proposal would provide \$112 billion to modernize K-12 schools and institutions of higher education, which would require ED to develop new policies and guidance, where appropriate.

Highlights of Accomplishments to Date

- Since Hurricanes Katrina and Rita in 2005, ED has assisted state educational agencies, local educational agencies, and institutions of higher education (IHEs) in post-disaster related activities through programs supported through emergency appropriations, including emergency aid to IHEs and schools, and through Project School Emergency Response to Violence (Project SERV), which is funded annually. School closures due to major disasters disrupt educational opportunities for students, and the Department has partnered with states, schools, and institutions of higher education to support their recovery.
- Another example is the Department of Education Disaster Recovery Unit, which provides resources to K-12 and higher education communities following natural disasters, such as the Texas ice storm of 2021 and wildfires in 2020 and 2021.

Priority Adaptation #3: Technical Assistance

Description

[New Action] Enhance the capabilities and knowledge of the Department related to climate adaptation in educational settings.

Goal

Address the needs of state and local educational agencies for specialized knowledge related to climate adaptation strategies.

Agency Lead

Office of Elementary and Secondary Education, Office of Postsecondary Education, Office of Career, Technical, and Adult Education, with the Institute of Education Sciences (IES).

Opportunities

- Schools are currently experiencing the impacts of climate change and require adaptation to enhance resilience. In other words, there is an urgent need for specialized knowledge related to climate change adaptation in schools. ED has an opportunity (and responsibility) to develop capacity related to this existential challenge facing schools and communities.
- Climate change vulnerabilities and adaptation strategies vary based on geography (i.e., climate change adaptation in the Northeast region differs from climate change adaptation in the Southwest region). ED has an opportunity to build capacity related to specific adaptation strategies for schools in different geographies.
- Leading states have accumulated experience and expertise related to climate literacy. This capacity may be leveraged to share examples from across the country for consideration by state and local leaders.

- Building on the U.S. Department of Education Green Ribbon Schools recognition award and Green Strides School Sustainability Resource Hub, ED will increase its capacity to support states, districts, schools, and institutions of higher education by disseminating resources related to school facilities and climate education.
- ED will explore which current ED-funded technical assistance providers are positioned and suited to provide technical assistance to states, districts, schools, and institutions of higher education regarding climate adaptation strategies.

Risks

- ED's technical assistance centers would need to incorporate work related to climate adaptation within existing responsibilities.

Scale – National

Timeframe – Beginning in 2022 and Ongoing

Implementation Methods

- Assess current capacity within ED to provide technical assistance to address the needs of states and local educational agencies (LEAs) within their geographies.
- Develop new partnerships with technical assistance providers to enhance support for states and LEAs.
- Explore opportunities to enhance data efforts within IES, along with other evidence-building partners within and beyond the Department, to inform climate adaptation work and the promotion of equitable access to healthy, safe, sustainable, resilient, 21st century learning environments (environmental justice).
- Develop a plan to leverage and enhance existing capacity within the Department.
- Leverage the Green Ribbon Schools recognition award and the Green Strides School Sustainability Resource Hub to provide technical assistance more broadly.
- Develop Dear Colleague Letters with recommendations and resources for states and districts related to climate change adaptation and literacy.
- Review existing National Center for Education Statistics (NCES) mapping projects to evaluate them for superimposition with data from the Environmental Protection Agency (EPA), National Oceanic and Atmospheric Administration (NOAA), and Energy Information Administration (EIA) to form the basis for monitoring environmental conditions.

Performance Measures

- ED has developed a strategy for internal capacity-building related to education and climate change.
- ED has identified and developed partnerships with relevant bodies (including other Federal agencies, state agencies, research organizations, and other nongovernmental organizations) to complement and enrich ED expertise.
- ED has issued research, reports, newsletters, and/or other work products related to climate change.

- Other Federal agencies, state and local education agencies, schools, and other stakeholders see ED as a resource at the intersection of climate change and education.

Intergovernmental Coordination

- ED will coordinate with the Departments of Energy, Labor, Transportation, and Agriculture to understand emerging workforce development needs, as well as technical subject matter expertise related to climate adaptation, transportation, and agriculture sectors.
- Coordination with NOAA will provide subject matter expertise on climate change vulnerabilities, current and forecasted.
- Coordination with FEMA will inform technical assistance related to pre-disaster mitigation activities as well as post-disaster recovery.
- Coordination with EPA will inform environmental conditions affecting students and potential regulatory matters.

Resource Implications

A time commitment of existing ED employees to consider guidance, policies, and programs with climate considerations in mind.

Highlights of Accomplishments to Date

- Developed the Green Strides School Sustainability Resource Hub in coordination with the Center for Green Schools at the U.S. Green Building Council.
- Provided emergency/disaster-related responses and support for impacted states and districts. (Since Hurricanes Katrina and Rita in 2005, ED has assisted state educational agencies (SEAs) and LEAs in post-disaster related activities through programs supported through emergency appropriations, including emergency aid to restart schools, and through Project SERV, which is funded annually. School closures due to major disasters disrupt educational opportunities for students, and the Department has partnered with states, schools, and institutions of higher education to support their recovery. Under the Readiness and Emergency Management for Schools (REMS) program, the Department provided grant funding to support efforts by LEAs to create, strengthen, and improve emergency management plans at the district and school-building levels, including training school personnel on emergency management procedures; communicating with parents about emergency plans and procedures; and coordinating with local law enforcement, public safety or emergency management, public health, mental health agencies, and local government. Grant funds could be used for: reviewing and revising emergency management plans; training school staff; conducting building and facilities audits; communicating emergency response policies to parents and guardians; implementing the National Incident Management System (NIMS); developing an infectious disease plan; developing or revising food defense plans; purchasing school safety equipment (to a limited extent); conducting drills and tabletop simulation exercises; and preparing and distributing copies of emergency management plans.

TOPIC AREAS

Topic 1: Update Climate Vulnerability Assessments

While ED has not yet updated its vulnerability assessment, building on prior adaptation actions and climate vulnerability assessments outlined in the FY 2012 ED Climate Change Adaptation Plan and subsequent internal working groups, ED will update the agency's most recent assessment using the latest climate information included or referenced in the Fourth National Climate Assessment. This update will begin with identifying and assessing five vulnerabilities directly tied to management functions and decision points for managing procurement, real property, and financial programs as suggested by the Council on Environmental Quality (CEQ).

These vulnerability assessments will include descriptions of 1) the climate threat and the expected impact, including the impact of no action; 2) the determined adaptation action, including the known barriers to implementation; 3) an estimate of the timeline and any measures for indicating progress over time and success; 4) a determination if managing the risk and overcoming the barrier are achievable within existing agency resources or consistent with the agency's budget request; and 5) identification of how the vulnerability either is or will be disclosed in annual agency financial reporting and integrated into the agency's enterprise risk management process.

ED will update its Guide to School Vulnerability Assessments¹¹ to include updated climate change information and resources provided by the US Global Change Research Program and the Fourth National Climate Assessment. The guide describes the key elements to be considered when selecting an assessment tool appropriate for school environments and provides guidance for conducting an assessment that will inform school emergency management activities.

Topic 2: Efforts to Enhance Climate Literacy in Its Management Workforce

The Department is considering the following efforts to enhance climate literacy:

- Develop ED employee rewards and recognition programming for leadership in climate adaptation, resilience, and sustainability.
- Launch climate literacy education and communications programs to mainstream adaptation actions and integrate adaptation actions into the management of programs and operations.
- Update its Human Capital Operating Plan (HCOP) to ensure agency capacity to bring climate adaptation and resilience leadership to agency programming and operations.
- Establish major key milestone date(s) in 2022 to initiate efforts to create the learning platform.
- Engage and leverage the work of other government agencies and nonprofits that have developed tools for climate literacy that will benefit ED's employees.
- Use an incremental approach to pilot classes among a select group of managers in the agency for the purpose of obtaining feedback, applying lessons learned, and addressing challenges.

¹¹ https://rems.ed.gov/docs/Guide_for_Developing_High-Quality_School_Emergency_Operations_PlansResources07172013R.pdf

- Develop the action plan to roll out the training to every manager and ultimately to every employee once the trial period has ended.

Topic 3A: Agency Actions to Enhance Climate Resilience (Climate-Ready Sites and Facilities)

ED leases all its facilities and, therefore, does not have control over many of the factors that go into climate-ready sites and facilities. ED will work with GSA in its modernization and lease renewal process to ensure/enhance climate adaptation. Agency actions to enhance climate-ready sites and facilities will build on previous success in the ED Space Modernization Program (ESMP), Federal Real Property Portfolio Programs, and ED-GRS recognition award. ED will review current programs and initiatives and update all programming requirements, standards, and criteria. This information will support a determination of whether and how adaptation criteria and requirements are integrated into management functions and decision points for these processes. ED will also develop criteria to advance the equitable distribution of environmental risks and benefits and to avoid maladaptation (i.e., increasing the environmental burden on vulnerable communities) in accordance with E.O 13985 and E.O. 14008.

The ESMP is continuously working to reduce ED's footprint and implement facility space initiatives to meet this goal. In conjunction with GSA, ESMP requires compliance with standards in construction and furniture procurements to build high-performance sustainable office space. This effort begins with design practices, construction, and building operations, to protect occupants' health, wellness, and productivity. ED is committed to meet or exceed Executive Order 13834, Planning for Federal Sustainability in the Next Decade, to achieve a more sustainable design for its newly modernized office space.

Compliance: Beginning with sustainable acquisition, ED supports GSA in its efforts to ensure that applicable contracts contain the appropriate requirements to meet standards set by, but not limited to:

- Environmental Protection Agency (EPA)
- National Institute of Standards and Technology (NIST)
- Federal Energy Management Program (FEMP)
- US Green Building Council (USBC)
- Leadership in Energy and Environmental Design (LEED)

Construction: LEED is the most widely used green building rating system in the world. GSA and ESMP require that all new leases follow LEED as a framework for healthy, highly efficient, and cost-saving green buildings. Contractors must submit product data as official Environmental Requirements Declarations (EPD) and Health Product Declarations (HPD).

All products and services purchased by GSA, and used in ED facilities, must meet strict sustainability requirements including:

- Low Volatile Organic Compounds (VOCs)
- Indoor Water Use reduction (plumbing and appliances)
- Chain of Custody (transport/shipping/flow of materials)
- Forest Stewardship Council (FSC) (point of harvest/extraction/recovery)

- Waste management (divert construction debris from landfills and incinerators)
- Low Emitting Diodes (LED) fixtures with automatic lighting controls
- Building Monitoring & Controls (BMC) for Heating, Ventilation, and Air Conditioning (HVAC)

Furnishings, Fixtures, and Equipment: Additionally, ED's Contract Acquisition Management (CAM) group and GSA's Integrated Workplace Acquisition Center (IWAC) have established Blanket Purchase Agreements (BPAs) for Furnishings, Fixtures, and Equipment (FF&E). Only environmentally responsible products, which support ED's commitment to conserving materials and natural resources and use clean technologies in manufacturing processes and achieve certifications from third-party organizations such as those listed below, will be procured or allowed in ED facilities.

- Business and Institutional Furniture Manufacturers Association (BIFMA) certification
- Forest Stewardship Council (FSC)
- GREENGUARD Environmental Institute
- Cradle to Cradle Certified
- International Organization for Standardization (ISO) 14001
- SCS Indoor Advantage Gold
- MTS, a SMaRT Certification

Real Estate Portfolio: ED is a tenant in all the buildings it occupies, and energy, water, and waste management services are all included in its leases and thus paid by GSA. However, working with GSA, through the ESMP, ED is 1) reducing the size and number of leased locations; 2) redesigning spaces to support different work patterns and activities, including innovative space layouts, increased natural lighting, and enhanced technology integration; and 3) meeting OMB guidelines to achieve an average of 150-180 useable square feet per person. Below are highlights of recent ESMP Projects:

- ED's strategic priorities are currently focused on the Headquarters Consolidation Project, which includes increasing the density and modernizing the Lyndon Baines Johnson (LBJ) Headquarters (HQ) Building and Potomac Center Plaza (PCP) to vacate 216,600 square feet of space at Union Center Plaza by 2026.
- The ED Dallas relocation project was completed in 2021, with a 50% reduction in square footage. New York and Philadelphia relocation projects will also lower the agency's overall environmental impact. New York will have a 38% reduction in square footage in FY 2023, and Philadelphia will have a 30% reduction in square footage in FY 2024.
- As a result of heavy teleworking in 2020 and 2021 due to the COVID pandemic, ED recognized the opportunity to support a long-term teleworking plan and continue the momentum of reducing the size of the portfolio. All remaining ED facilities are undergoing evaluation in FY 2022 for opportunities to save space, cost, and greenhouse (GHG) emissions.

Other ED initiatives include:

- The Office of the Chief Information Officer (OCIO) will review operational procedures to reduce energy usage for IT equipment. One example includes reducing the amount of equipment for each user. As the agency implements new telework policies, OCIO will play a significant role in designing facilities to incorporate energy efficient printers, monitors, etc., to

support ED's workforce and address climate adaptation in technology investments. OCIO works closely with ESMP on all new construction and renovation projects in all ED facilities.

- The Office of the Secretary and Deputy Secretary will build infrastructure employing strategies/decisions that minimize the impact on future successors' ability to sustain the initiatives, services, or programs that are implemented in response to E.O. 14008.

An additional consideration for climate-ready sites and facilities is that systems to address adaptation, physical infrastructure, and natural environments can be very costly, especially when retrofitting existing buildings. Managing expectations appropriately will reduce the risks when executing long-term facilities investments. ED leadership will need to support and fund new initiatives to meet the objectives of climate adaptation, making projects a priority in capital planning.

The capital planning process is linked to the budget available to support making incremental changes to ED's environments. Each project is evaluated based on merit and the long-term return on investment as well as other OMB Directives to reduce the footprint. Although the projects are highlighted in the 2020 Sustainability Report and the 2021 Capital Plan, they are interlinked with this Climate Action Plan. ED will ensure that there are consistent management decisions and/or review of the projects that are still in the planning phases to increase opportunities to address products and services that will adapt to climate change objectives. The long-term strategy is to make incremental changes in all the buildings to include adding infrastructure for climate resilience and at the same time provide co-benefits for the future use of electric vehicles, water stations, and HVAC updates that include filtration for harmful bacteria or other contaminants

Highlights of Accomplishments to Date

- To date, ED has utilized innovative space design and technology enhancements in all new renovated space. Wherever possible, lowering operating costs is the focus for each project. This is done by increasing natural light flooding the space, lowering panel heights, and using glass partitions for additional protection and surfaces that do not dampen light penetration. ED also includes touchless fixtures in restrooms and pantries helping to reduce water consumption and energy bills. Working with GSA, to date modernization projects have been implemented in Chicago and Dallas (regional offices) and two floors in the LBJ and PCP HQ buildings.
- ED has already researched the impact of adding electric charging stations in GSA-owned HQ facilities with the objective to start this project in FY 2022.

Topic 3B: Enhance Climate Resilience (Climate-Ready Supply of Products and Services)

The Office of Acquisitions and Grants Administration is the lead for actions to support a climate-ready supply of products and services. ED follows the Federal Acquisition Regulations (FAR) for purchasing products and services. This existing effort by ED includes climate change adaptation components in grants and contract awards as feasible, consistent with statute and regulations. Contract policies and language are updated to mandate GREEN purchasing to the maximum extent practicable for all applicable procurements in the planning, award, and execution phases of acquisitions. ED will review current programs and initiatives and update programming requirements, standards, and criteria with the goal to leverage the Federal Government's ability to lead by policy and example.

ED will develop tools and methods to assist management with decisions that include anticipating climate change. Performance will be based on the number of grants awarded and the dollar amount of each award to each grantee. ED designs contracts to include GREEN purchasing requirements for all new applicable contracts and agreement vehicles, where applicable.

In terms of ED purchases, the Department will continue to benchmark GREEN purchasing with GSA and other agencies of similar size. ED also will continue to meet with national education leaders and Federal and state governments with the purpose of sharing information about how climate change events may be limiting equitable education opportunities and how to address those issues.

ED will review its supply chain to determine the critical areas that may have an impact on the performance of its mission and assess operational resiliency during climate change events. For example, operational components may be shifted when regional areas are impacted by extreme heat, power outages, or internet outages. These types of events may affect the IT infrastructure, staff capabilities to perform duties, school closings, and communities that are served by ED. These potential impacts will be included in the Department's vulnerability assessments to prepare management for proactive responses.

ED's Contract Management Division may include training on GREEN Procurement for existing contract professionals. Position Descriptions for new hires may also be updated, as appropriate, to include GREEN purchasing.

ED will establish an implementation schedule for a climate-ready supply chain that will allow for incremental review of, and updates to, the GREEN purchasing policies and all grants and contracts. The level of effort, particularly in the pandemic environment, is significant. Consideration of the major impact on workload to meet these goals is necessary. Management buy-in and clear decisions are also necessary to redirect resources appropriately.

U.S. Department of Justice

Climate Action Plan



Prepared by:

U.S. Department of Justice
Justice Management Division
Facilities and Administrative Services Staff
Environmental and Sustainability Services

July 2021

EXECUTIVE SUMMARY

This document presents the Department of Justice (DOJ) Climate Action Plan, to be submitted to the National Climate Task Force and the Federal Chief Sustainability Officer. Collectively with other Federal agencies, DOJ is required to comply with the directives included in Executive Order (EO) 14008, *Tackling the Climate Crisis at Home and Abroad*, to combat the climate crisis.

In accordance with these requirements, this Climate Action Plan documents an updated DOJ Policy for Climate Change Adaptation and Resilience, designates the DOJ Official Responsible for Implementation of the Climate Action Plan, and outlines a streamlined action plan for climate adaptation and climate resilience:

- DOJ commits to the following five priority adaptation actions:
 - Incorporate climate adaptation and resilience concepts, principles, and guidelines into real property actions
 - Revisit and update DOJ’s vulnerability assessment of its most mission-critical supplies and services
 - Comprehensively consider environmental justice in DOJ’s climate adaptation efforts
 - Complete a study to determine the potential for electrification of DOJ’s vehicle fleet
 - Incorporate climate adaptation considerations into DOJ’s strategic planning and risk profile processes
- DOJ has identified the following five climate-related vulnerabilities, for which it has established initial adaptation actions:
 - Continued availability of workforce
 - Continued operation of mission-critical facilities
 - Supply chain disruptions
 - Limited knowledge and understanding of climate adaptation concepts and best practices for enhancing adaptive capacity
 - Need to enhance systematic and formalized internal processes and guidance
- To enhance climate literacy across DOJ’s management workforce, DOJ will:
 - Enhance climate literacy among Department-wide staff, with a focus on senior management personnel
 - Broadly disseminate outreach materials and training content among Department personnel
- To ensure climate-ready sites and facilities, DOJ will work to establish processes to more systematically ensure that adaptation criteria and requirements are properly integrated into management functions and decision points for the procurement for design, construction, operations, and maintenance of DOJ facilities.
- To ensure a climate-ready supply of products and services, DOJ will work to establish processes to more systematically ensure that adaptation criteria and requirements are properly integrated into the acquisition of mission-critical supplies and services.

AGENCY POLICY FOR CLIMATE ADAPTATION AND RESILIENCE

Purpose: This policy establishes a Department-wide directive to integrate climate change adaptation planning and actions into Department of Justice (DOJ) policies, programs, and operations.

Authorities: Section 211 of Executive Order (EO) 14008, *Tackling the Climate Crisis at Home and Abroad*, requires that Federal agencies submit a Climate Action Plan that describes the steps the agency can take to bolster adaptation and increase resilience to the impacts of climate change. Specifically, EO 14008 requires each agency to describe the agency's climate vulnerabilities and the agency's plan to use the power of procurement to increase the energy and water efficiency of agency buildings and facilities and ensure they are climate ready.

Background: According to the Fourth National Climate Assessment prepared by the United States (U.S.) Global Change Research Program, the Earth's climate is now changing faster than at any point in the history of modern civilization. Increasing greenhouse gas concentrations in our atmosphere are contributing to—among other things—record high temperatures, regionalized drought, increased frequency of heavy precipitation events, increased wildfire, warming and rising seas, and more frequent flooding. Future impacts associated with these climate-induced stressors could have important consequences on the Department's ability to fulfill its mission and manage critical assets. DOJ's commitment to climate change adaptation and resilience planning will increase the capacity to systematically identify and mitigate risks to its critical mission, programs, and operations.

Scope: Coordination for climate change preparedness planning across the Department will be led by the Justice Management Division (JMD). To facilitate this critical coordination, JMD's Facilities and Administrative Services Staff (FASS), Environment and Sustainability Services (ESS) will chair DOJ's Climate Adaptation Team. Comprised of representatives from DOJ's five bureaus, JMD, and the Environment and Natural Resources Division (ENRD), the Climate Adaptation Team will work collaboratively to identify and implement priority actions that enhance the Department's capacity for adapting to a changing climate.

Policy: DOJ is committed to contributing to the Federal government leadership role to combat the climate crisis by integrating the most current climate science and assessment of climate-related risks into the management of its procurement, real property, and financial programs. In response to EO 14008, DOJ prepared a Climate Action Plan that commits the Department to continue pursuing the following activities to bolster DOJ's adaptive capacity, enhance climate literacy, and ensure climate-ready facilities and a climate-ready supply of products and services:

- Systematically integrate climate adaptation and resilience principles into DOJ's programs, processes, operations, and management of procurement, real property, and financial programs.
- Ensure that climate adaptation and resilience policies and programs integrate climate information that reflects the most current understanding of global climate change.
- Identify facilities, utilities infrastructure, and critical assets that are most vulnerable to the broad range of potential impacts of a changing climate.

- Continue to identify, prioritize, and implement measures that reduce the energy and water loads of DOJ-occupied facilities as a means of making them more climate-ready.
- Create and update climate adaptation and resilience outreach and educational materials for broad distribution across agency personnel, with a particular focus on DOJ's management workforce.
- Identify current climate resiliency best practices and lessons learned from within DOJ and throughout the Federal government.
- Continue to collaborate with other Federal agencies, state, local, tribal and territorial partners in climate adaptation and resilience planning efforts.
- Consider and appropriately incorporate environmental justice across DOJ's collective actions to enhance the Department's capacity for adapting to a changing climate.

Lee Lofthus  Date: 2021.07.23
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Lee J. Lofthus
Assistant Attorney General for Administration
Chief Sustainability Officer
U.S. Department of Justice

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ABBREVIATIONS AND ACRONYMS

ATF	Bureau of Alcohol, Tobacco, Firearms and Explosives
BOP	Federal Bureau of Prisons
CEQ	White House Council on Environmental Quality
DEA	Drug Enforcement Administration
DOE	Department of Energy
DOEJ	Director of Environmental Justice
DOJ	Department of Justice
ECM	Energy conservation measure
EJ	Environmental justice
EJ IAC	White House Environmental Justice Interagency Council
ENRD	Environment and Natural Resources Division
EO	Executive Order
EPA	Environmental Protection Agency
ERM	Enterprise risk management
ESA	Energy sales agreement
ESPC	Energy savings performance contract
ESS	Environmental and Sustainability Services
EV	Electric vehicle
FASS	Facilities and Administrative Services Staff
FBI	Federal Bureau of Investigation
FEMP	Federal Energy Management Program
FEVAR	Federal Electric Vehicle Agency Roundtable
FEWCIP	FBI Energy and Water Conservation Investment Program
FRPP	Federal Real Property Profile
FY	Fiscal year
GS	General Schedule
GSA	General Services Administration
INTERFUEL	Interagency Committee on Alternative Fuels and Low Emission Vehicles
JMD	Justice Management Division
LMT	Logistics Management Team
NC3	National Crisis Coordination Center
NREL	National Renewable Energy Laboratory
OAM	Office of Acquisition Management

OCIO	Office of the Chief Information Officer
OMB	Office of Management and Budget
PV	Photovoltaic
Q	Quarter
RPMS	Real Property Management Services
SAMM	Sustainable Acquisition and Materials Management
SEPS	Security and Emergency Planning Staff
SMART	Specific, Measurable, Achievable, Relevant, and Timely
SPPS	Strategic Planning and Performance Staff
SWAT	Special weapons and tactics unit
TRN	Technical Resilience Navigator
UESC	Utility energy service contract
U.S.	United States
USMS	U.S. Marshals Service

1. AGENCY OFFICIAL RESPONSIBLE FOR IMPLEMENTATION OF THE PLAN

Lee Lofthus, Assistant Attorney General for Administration/Chief Sustainability Officer, is the senior agency official responsible for the implementation of Department of Justice's (DOJ) enclosed Climate Action Plan.

2. PRIORITY ADAPTATION ACTIONS

This section describes the five priority actions that DOJ will implement across its mission, programs, operations, and management of procurement, real property, and risk assessment to enhance the Department's capacity for adapting to a changing climate. The five adaptation actions described below leverage and build on progress from prior climate adaptation and resilience actions (previously required by Executive Order [EO] 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, and EO 13653, *Preparing the United States for the Impacts of Climate Change*), while also considering DOJ's evolving needs and vulnerabilities to a changing climate.

Each priority adaptation action is described in a separate table that describes the action, goal, agency lead(s), scale, timeframe, risks and/or opportunities, implementation methods, milestones, performance measures, needs for interagency coordination, resource implications, challenges, and accomplishments to date.

Priority Action #1: Incorporate Climate Adaptation and Resilience Principles and Best Practices into Existing Buildings/Assets and Real Property Actions
<p>Action Description: Continue to more universally incorporate climate adaptation and resilience principles and best practices into:</p> <ul style="list-style-type: none"> (1) Existing DOJ-owned and leased buildings/assets identified as high risk; (2) The design and construction specifications for new construction and renovation/modernization projects in DOJ-owned and leased buildings; and (3) The solicitation process for future leased buildings. <p><i>Continuation of Existing Effort</i> <input checked="" type="checkbox"/> <i>New Action</i> <input type="checkbox"/></p>
<p>Action Goal: Enhance DOJ's existing knowledge and awareness of the Department's mission-critical real property assets most vulnerable to the impacts of climate change and address these vulnerabilities to enhance the collective climate readiness of DOJ's existing and future facility and infrastructure portfolio.</p>

<p>Agency Lead(s):</p> <ul style="list-style-type: none"> • Justice Management Division (JMD), Environmental and Sustainability Services (ESS) • Bureau Sustainability/Energy Program Managers • Bureau procurement staff • JMD, Real Property Management Services (RPMS) 	<p>Scale:</p> <p>Department-wide/National</p>	<p>Timeframe:</p> <p>Expected start: Fiscal Year (FY) 2021</p> <p>Expected completion: FY 2022</p>
<p>Risk or Opportunity:</p> <p>Climate change impacts pose a range of risks to DOJ’s facilities that support mission-critical or mission-dependent operations and mission readiness. DOJ has the opportunity to leverage existing and proven processes and tools and develop and implement new tools and processes to more systematically incorporate resilient design and operational strategies into its existing and future real property. Options could include evaluating capital improvements plans for opportunities to incorporate adaptive designs (e.g., hardening facilities to better withstand the impacts of climate change; relocating critical equipment and/or infrastructure to prevent the potential for operational downtime and costly damage), updating design/build and lease solicitation processes and documents to require climate adaptation considerations, and examining lease terms for possible renovation or relocation options.</p>		
<p>Implementation Methods:</p> <p><u>Approach:</u></p> <p>DOJ will revisit and build on prior efforts to <i>understand</i> the Department’s risks associated with the full range of impacts of climate change on its most mission-critical real property assets and develop and implement an approach to systematically <i>address</i> these risks.</p> <p><u>Key Milestones:</u></p> <ul style="list-style-type: none"> • Evaluate readily available resources and tools that enable a more sophisticated and precise analysis of expected climate impacts for a given location to better inform appropriate actions to address climate impacts and associated risks; if appropriate, update DOJ’s Facility Climate Adaptation Checklist to incorporate references to newly available tools/resources for more precisely evaluating vulnerabilities. • Re-evaluate all DOJ-owned facilities for vulnerabilities to coastal and inland flooding, extreme heat, drought, and wildfire using the revised DOJ Facility Climate Adaptation Checklist. • Evaluate DOJ’s mission-critical leased facilities for vulnerabilities to coastal and inland flooding, extreme heat, drought, and wildfire using the revised DOJ Facility Climate Adaptation Checklist. • Compile a summary of best practices for enhancing facility resiliency for use by bureau Sustainability/Energy Program Managers and facilities staff for resiliency planning efforts. • Designate at least one meeting of DOJ’s Climate Adaptation Team to facilitate the exchange of proven processes, approaches, and tools among bureaus/stakeholders for incorporating facility resiliency into real property actions. • Convene at least one meeting with the General Services Administration (GSA) to discuss: <ul style="list-style-type: none"> ○ Options for enhancing the climate resiliency of DOJ’s mission-critical GSA-leased facilities determined to be at high risk of experiencing impacts associated with climate change. ○ GSA’s solicitation process for future facility leases that ensure the incorporation of climate resiliency principles (e.g., siting and adaptive design considerations). 		

Performance:

To measure performance related to this priority action, DOJ plans to monitor and track the following metrics:

- Completion date and results of the evaluation of readily available resources and tools that enable a more sophisticated and precise analysis of expected climate impacts for a given location.
- Completion dates of re-evaluating DOJ-owned facilities and evaluating DOJ’s mission-critical leased facilities for vulnerabilities to coastal and inland flooding, extreme heat, drought, and wildfire using the revised DOJ Facility Climate Adaptation Checklist.
- Completion date of summary of best practices for enhancing facility resiliency.
- Completion date(s) and results of the Climate Adaptation Team meeting designated for the exchange of information between bureaus/stakeholders.
- Completion date(s) and results of the meeting(s) with GSA.

Inter-governmental Coordination:

DOJ anticipates the need to further coordinate with GSA to better understand DOJ’s opportunities for enhancing adaptive capacity in both existing and future GSA-leased facilities. DOJ also anticipates coordination with other federal agencies to exchange knowledge, processes, approaches, and tools related to incorporating climate resilience principles and guidelines into the design and construction of new facilities and major renovations and the solicitation process for direct leases.

Resource Implications:

This action will be prioritized within available resources.

Challenges/Further Considerations:

- DOJ will specifically consider the increased exposure to wildfire and drought especially in the western United States (U.S.).
- Options to address vulnerabilities at leased facilities could be constrained by existing lease terms and could require coordination and working with GSA.
- DOJ has identified several instances where the Department and/or components have limited control over location-specific vulnerabilities and must work with other offices, agencies, and organizations to encourage climate resilient considerations. For example, the Federal Bureau of Prisons (BOP) and the U.S. Marshals Service (USMS) have limited control over the location of their facilities. BOP prison facility locations are often determined by Congress and USMS offices must be co-located with the courts.

Highlights of Accomplishments to Date:

- In September 2015, JMD issued the DOJ Facility Climate Adaptation Checklist to Bureau Sustainability Program Managers and facilities personnel.
- In 2016, JMD collaborated with Bureau Sustainability Program Managers and facilities personnel to evaluate all DOJ-owned facilities for vulnerabilities to coastal and inland flooding, extreme heat, drought, and wildfire using the DOJ Facility Climate Adaptation Checklist.
- Federal Bureau of Investigation (FBI) is updating the FBI Sustainable Design and Construction Specifications (FBI Specs) to reflect the 2020 Guiding Principles—specifically Guiding Principles 6.1 and 6.2, which address facility resilience and adaptation.
- FBI is evaluating options for incorporating microgrid capabilities for the north portion of the Bureau’s Redstone campus in Huntsville, Alabama, which will enhance operational resiliency in the event of grid outages. For the south campus at Redstone, FBI’s master planning team is

mapping out a process to ensure that climate resilience features are incorporated into building and infrastructure designs at the outset of the design process.

- FBI has partnered with the Department of Energy’s (DOE’s) Federal Energy Management Program (FEMP) and the National Renewable Energy Laboratory (NREL) to pilot the Technical Resilience Navigator (TRN) to assess the energy resilience of the Quantico campus and develop an energy resilience strategy to address potential areas of vulnerability.

Priority Action #2: Revisit and Update DOJ’s Vulnerability Assessment of its Most Mission-Critical Supplies and Services

Action Description: DOJ has a wide-ranging mission encompassing numerous operations that are vital to the safety and security of the U.S. Each of these operations requires a reliable supply of products and services, many of which have the potential to experience disruptions in supply due to climate-related stressors. To enhance the resilience of its supply chain, DOJ will revisit and build on prior efforts to better understand the climate change-related vulnerabilities of DOJ’s most mission-critical supplies and services.

Continuation of Existing Effort *New Action*

Action Goal:
 Improve knowledge and understanding of DOJ’s current supply chain vulnerabilities to inform efforts to bolster supply chain resiliency.

<p>Agency Lead(s):</p> <ul style="list-style-type: none"> • JMD, Office of Acquisition Management (OAM) • JMD, ESS • Bureau Sustainability Program Managers • Bureau Procurement Officials 	<p>Scale:</p> <p>Department-wide/National</p>	<p>Timeframe:</p> <p>Expected start: 1st Quarter (Q) FY 2022</p> <p>Expected completion: 4Q FY 2022</p>
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Risk or Opportunity: Numerous acute extreme weather events and long-term climate stressors have the potential to threaten DOJ’s secure supply of various mission-critical goods and services such as medical supplies and food for inmates housed BOP institutions and utilities and telecommunications. Improving awareness and understanding of these vulnerabilities will continue to inform DOJ’s future actions to further bolster the Department’s supply chain resiliency.

Implementation Methods:
Approach:
 The updated vulnerability assessment of DOJ’s supply chain will be informed by numerous resources within the federal community, including:

- GSA’s Supply Chain Risk Management Framework;
- Continued active participation in the Interagency Sustainable Acquisition and Materials Management Practices (SAMM) Working Group; and
- Collective knowledge and experience across the Federal acquisition community.

<p>Key Milestones:</p> <ul style="list-style-type: none"> • Obtain and analyze spending data (by category) for the most recent complete FY for each of DOJ’s five bureaus and other select components to inform the identification and prioritization of the Department’s mission-critical supplies and services that are most vulnerable to potential disruptions associated with the impacts of climate change. • Utilize the compiled component-level spending data and input provided in April 2021 by bureaus about their most critical supplies and service, paired with GSA’s Supply Chain Risk Management Framework to identify and prioritize the portions of DOJ’s supply chain at greatest risk to climate change-related threats. 	
<p>Performance:</p> <p>To measure performance related to this priority action, DOJ plans to monitor and track the following metrics:</p> <ul style="list-style-type: none"> • Receipt of component-level spending data for the most recent complete FY • Completion date and results of supply chain vulnerability analysis using GSA’s Supply Chain Risk Management Framework 	<p>Inter-governmental Coordination:</p> <p>DOJ anticipates that its success relative to this priority may require collaboration with and/or guidance from GSA related to the use of GSA’s Supply Chain Risk Management Framework, as well as with other federal agencies for the exchange of knowledge, tools, and best practices.</p>
<p>Resource Implications:</p> <p>This action will be prioritized within available resources.</p>	
<p>Challenges/Further Considerations:</p> <ul style="list-style-type: none"> • None at this time. 	
<p>Highlights of Accomplishments to Date:</p> <ul style="list-style-type: none"> • In May 2015, DOJ provided input for the U.S. Government Accountability Office’s survey on climate-related risks to federal supply chains. The purpose of this survey was to determine the extent to which key agencies have identified (and taken action to mitigate) climate-related risks to their critical supply chains. • DOJ held an internal meeting with DOJ procurement managers to discuss DOJ supply chains and climate change adaptation. • DOJ acquired Bureau-level spending data to help identify critical supply chains with vulnerabilities related to climate change. • DOJ met with GSA in October 2015 to discuss approaches for evaluating DOJ’s climate change-related supply chain vulnerabilities. • Throughout 2016, DOJ met with Bureau Sustainability Program Managers and procurement officials to discuss bureau-specific climate change-related supply chain vulnerabilities. • For several years, DOJ has provided mandatory sustainable acquisitions training to contracting professionals in the General Schedule (GS)-1102 and GS-1105 job series, Contracting Officer’s Representatives, and purchase cardholders. • Some DOJ components have started to proactively increase the flexibility of supply contracts to enable substitutions that might be necessary under emergency circumstances. For example, DOJ’s Procurement Services Staff, which fulfills the acquisition needs of the Department’s Offices, Boards and Divisions, allows “equipment swaps” without a formal modification under some of its hardware contracts. 	

- BOP has started to utilize telehealth to provide remote medical care and treatment for its inmate population. This relatively new practice circumvents the need for inmate transport, which could be impacted by acute severe weather events.
- BOP incorporates adaptive capacity and resiliency concepts into continuity of operations planning to address food and water supplies, evacuation plans, and plans for bringing in additional staff during emergencies.
- Many of DOJ’s service contracts provide flexibility for support contractors to provide “on-site/off-site” support.

Priority Action #3: Comprehensively Consider Environmental Justice in DOJ’s Climate Adaptation Efforts

Action Description:

DOJ will seek to better understand how the Department’s climate adaptation strategies may impact environmental justice issues by addressing questions such as:

- (1) Where existing environmental justice problems under DOJ’s jurisdiction increase a population’s vulnerability to a particular climate-related hazard;
- (2) How existing environmental justice problems under DOJ’s jurisdiction could be exacerbated by climate change; and
- (3) How DOJ’s response to climate-related risk may cause an environmental justice issue itself.

Continuation of Existing Effort *New Action*

Action Goal:

Identify opportunities to maximize DOJ’s positive impact on vulnerable communities as part of the Department’s broader strategy for enhancing its adaptive capacity.

<p>Agency Lead(s):</p> <ul style="list-style-type: none"> • DOJ’s Director of Environmental Justice (DOEJ)¹ • JMD • Environment and Natural Resources Division (ENRD) (supporting role) 	<p>Scale:</p> <p>Department-wide/National</p>	<p>Timeframe:</p> <p>Expected start: To be determined</p> <p>Expected completion: To be determined</p>
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¹ The Department’s 2014 Environmental Justice Strategy specifies that the Director of Environmental Justice, assigned by the Associate Attorney General, is tasked with leading the Department’s Environmental Justice Working Group and other coordination functions in this area. Executive Order 14008 directs the Attorney General to “ensure comprehensive attention to environmental justice throughout the Department of Justice, including by considering creating an Office of Environmental Justice within the Department to coordinate environmental justice activities among Department of Justice components and United States Attorneys’ Offices nationwide.” This Action may be revisited depending on the outcome of the Attorney General’s deliberations.

Risk or Opportunity:

EO 14008 includes a specific requirement that the Attorney General “ensure comprehensive attention to environmental justice throughout the Department of Justice.” Under this mandate, DOJ recognizes its responsibility to systematically evaluate and ensure that its Department-wide climate adaptation planning efforts not only avoid maladaptation (i.e., increasing the environmental burden on vulnerable communities), but also comprehensively consider opportunities to positively impact vulnerable communities.

Implementation Methods:

Approach:

DOJ’s DOEJ, JMD, and ENRD will leverage existing internal communities of practice, such as DOJ’s Environmental Justice Working Group and Climate Adaptation Team, to convene relevant stakeholders to collectively enhance the Department’s understanding of the intersection of environmental justice and its climate adaptation efforts.

Key Milestones:

- Convene cross-collaborative meeting(s) of DOJ’s Environmental Justice Working Group and Climate Adaptation Team.
- Gain familiarity with and disseminate the geospatial Climate and Economic Justice Screening Tool (which Section 222 of EO 14008 requires that the White House Council on Environmental Quality [CEQ] develop by late July 2021) to relevant DOJ stakeholders to aid in identifying disadvantaged communities.
- Summarize findings from the questions outlined in this priority action that can be used to inform and guide the Department’s future environmental justice practices with respect to climate adaptation.

Performance:

To measure performance related to this priority action, DOJ plans to monitor and track the following metrics:

- Resulting actions from the internal meetings of DOJ’s Environmental Justice Working Group and Climate Adaptation Team
- DOJ’s familiarity with and use of the U.S. Environmental Protection Agency’s (EPA’s) existing EJSCREEN Tool and the pending CEQ-developed geospatial Climate and Economic Justice Screening Tool
- Incorporation of findings from this priority action into future updates of DOJ’s Environmental Justice Strategy

Inter-governmental Coordination:

DOJ anticipates that this priority action may adjust to ensure concurrence with further direction and guidance provided by the White House Environmental Justice Interagency Council (EJ IAC).

Resource Implications:

This action will be prioritized within available resources.

Challenges/Further Considerations:

- The White House EJ IAC guidance to the member agencies regarding their Environmental Justice strategies will further inform DOJ’s efforts to comprehensively consider environmental justice in its Department-wide climate adaptation efforts.
- DOJ leadership has not yet designated a DOEJ.

Highlights of Accomplishments to Date:

- In 1995, DOJ first established an internal Environmental Justice Working Group.
- In 2014, Environmental Justice Working Group updated and reissued the Department’s Environmental Justice Strategy and Guidance documents.
- In 2016, ENRD developed an EJ toolkit on the DOJ intranet for use by U.S. Attorneys’ Offices and ENRD staff.
- In 2018, ENRD worked with the National Advocacy Center (operated by the Executive Office for United States Attorneys) to develop a webinar course focused on environmental justice.

Priority Action #4: Complete Study to Determine the Potential for Electrification of DOJ’s Vehicle Fleet

Action Description:

DOJ’s Fleet Management Office will conduct a Department-wide study to evaluate the potential for electrifying its fleet of more than 40,000 law enforcement and non-law enforcement vehicles, balancing the Department’s unique mission requirements, technical feasibility, and cost-effectiveness.

Continuation of Existing Effort *New Action*

Action Goal:

Better understand the potential for electrifying DOJ’s Department-wide vehicle fleet to ensure the resiliency of DOJ’s mission-critical mobility requirements. Investigate how DOJ’s fleet can be more secure to climate change-related impacts and the potential pathway(s), notable obstacles, and associated costs while continuing to meet its mission.

<p>Agency Lead(s):</p> <ul style="list-style-type: none"> • JMD Fleet Management Office 	<p>Scale:</p> <p>Department-wide/National</p>	<p>Timeframe:</p> <p>Expected start: FY 2021 Expected completion: FY 2022</p>
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Risk or Opportunity:

DOJ recognizes that both acute severe weather and longer-term climate stressors have the potential to limit DOJ’s mission-critical mobility requirements. For example, during Superstorm Sandy, the garage of FBI’s New York Field Office flooded, destroying about 80 vehicles. Such events can also contribute to regional fuel supply shortages, which has the potential to limit DOJ’s mission critical mobility. The electrification of DOJ’s vehicle fleet may mitigate the risk of limited fuel supplies and present an opportunity to think critically about how to optimize the siting of vehicles and support infrastructure to prevent future damage and/or loss due to climate stressors. DOJ’s efforts to electrify its vehicle fleet must, however, be balanced with the ability to meet the Department’s critical law enforcement mission.

Implementation Methods:

Approach:

DOJ’s Fleet Management Office regularly convenes an internal Fleet Management Working Group with representatives from all bureaus and will utilize this group to inform the completion of the study. DOJ’s Fleet Management Office will also continue to participate in interagency working groups, such as FEMP’s Interagency Committee on Alternative Fuels and Low Emission Vehicles (INTERFUEL) and Federal Electric Vehicle Agency Roundtable (FEVAR), to stay abreast of emerging trends, technologies, and best practices related to fleet electrification.

Key Milestones:

- Ongoing participation in interagency meetings and working groups.
- Ongoing meetings of DOJ’s internal Fleet Management Working Group.
- Representative(s) from DOJ’s Fleet Management Office will join a future DOJ Energy Management Team meeting (comprised of Bureau Energy Program Managers and facility management staff) to present updates on/results from the DOJ’s Fleet Electrification study and discuss areas of overlap with Bureau Energy Program Managers (e.g., the use of performance contracts to install electric vehicle [EV] supply equipment.)
- Draft report containing findings of study.
- Final report containing findings of study.

Performance:

To measure performance related to this priority action, DOJ plans to monitor and track the following metrics:

- Dates and actions resulting from interagency meetings
- Dates and actions resulting from internal DOJ Fleet Management Working Group meetings
- Date(s) and outcomes from participation in DOJ Energy Management Team meeting(s)
- Milestones and dates for completing draft and final study components

Inter-governmental Coordination:

DOJ anticipates that its success relative to this priority action will require continued collaboration with GSA to evaluate options for expanding DOJ’s fleet of EVs through GSA-leases. DOJ will also rely on further direction and guidance provided by FEMP and the FEVAR.

Resource Implications:

This action will be prioritized within available resources.

Challenges/Further Considerations:

- A large portion of DOJ’s existing vehicle fleet is comprised of DOJ-owned vehicles. A critical component of DOJ’s strategy for fleet electrification will be the transition from DOJ-owned vehicles to GSA-leased vehicles.
- Many of DOJ’s owned fleet vehicles are law enforcement vehicles, which presents a collection of unique challenges when considering a shift to GSA-leased EVs, including:
 - Individual DOJ bureaus have existing “in-house” vehicle maintenance programs, staff, infrastructure, and funding, and will need to determine how a shift to GSA-leased EVs will impact these existing resources.
 - DOJ has existing sunk costs in vehicles that require customized modifications. There are both financial and logistical concerns regarding the feasibility of replacing these with GSA-leased EVs.

Highlights of Accomplishments to Date:

- DOJ’s Fleet Management Working Group has initiated the process of comprehensively evaluating and identifying candidate vehicles to transition from DOJ-owned to GSA-leased.
- Two of DOJ’s bureaus have already begun to transition certain types of vehicles from owned to leased.
- Bureaus with well-established EV charging station programs for employee-owned EVs hope to leverage this experience to efficiently deploy EV supply equipment for government owned/operated EVs.

Priority Action #5: Incorporate Climate Adaptation Considerations into DOJ’s Strategic Planning and Risk Profile Processes

Action Description:

Office of Management and Budget (OMB) Circular A-123 (“Management’s Responsibility for Enterprise Risk Management and Internal Control”) and A-11, Part 6 (“The Federal Performance Framework for Improving Program and Service Delivery”) emphasizes the importance of using enterprise risk management to identify challenges early, bring them to the attention of agency leadership, and develop solutions to the issues facing agencies.

To that regard, DOJ’s Strategic Planning and Performance Staff (SPPS) has implemented an Enterprise Risk Management (ERM) program to proactively identify and manage the full spectrum of risks, events, or circumstances that may significantly impact its ability to achieve strategic goals and objectives.

For FY 2021, DOJ will take a multi-prong approach to facilitate discussions and activities related to climate change adaption/resiliency. DOJ will:

- Incorporate climate change considerations during this year’s strategic planning process to ensure DOJ is appropriately addressing the issues in the Department’s Strategic Plan for FY 2022-2026. DOJ anticipates that climate change and associated uncertainties (risks) will be an important part of the Department’s strategic planning process moving forward.

<ul style="list-style-type: none"> • Convene ad hoc meeting(s) of the ERM Workgroup to revisit climate change threats potentially impacting DOJ component operations, and to identify opportunities to develop strategies and share lessons learned that reflect the current understanding of global climate change as it relates to the Department’s management of its procurement, real property, public lands, waters, and financial programs. • Conduct an assessment of climate change risk(s) to determine whether climate change should be included in the Department-level risk profile. 		
<p><i>Continuation of Existing Effort</i> <input type="checkbox"/> <i>New Action</i> <input checked="" type="checkbox"/></p>		
<p>Action Goal: Incorporate climate adaptation considerations into DOJ’s strategic planning and risk assessment processes.</p>		
<p>Agency Lead(s):</p> <ul style="list-style-type: none"> • JMD, SPPS • JMD, ESS 	<p>Scale: Department-wide/National</p>	<p>Timeframe: Expected start: FY 2021 Expected completion: FY 2022</p>
<p>Risk or Opportunity: This action intends to address the full spectrum of possible climate change-related risks to DOJ’s ability to execute its mission by ensuring that these risks are appropriately and explicitly incorporated into DOJ’s enterprise risk assessment and strategic planning processes.</p>		
<p>Implementation Methods:</p> <p><u>Approach:</u> DOJ will use a multi-prong approach to incorporate climate adaptation into its strategic planning process to inform the Department’s FY 2022-2026 Strategic Plan. First, as part of the strategic planning process for DOJ’s FY 2022-2026 Strategic Plan, SPPS will engage with DOJ leadership in JMD to develop Department-wide strategies that appropriately consider climate change adaption and resiliency. Second, once strategies are developed, SPPS will work with DOJ components to identify and rank climate-related risks and opportunities to manage/mitigate these risks. Third, SPPS will work with DOJ components to develop the Department’s Learning Agenda—a multi-year set of priority research questions—to include priority questions related to climate change in alignment with strategic and operational objectives over the short and long term.</p> <p><u>Key Milestones:</u></p> <ul style="list-style-type: none"> • Convene an ERM Workgroup meeting to discuss climate adaption/challenges and to assist components in better understanding the range of possible risks associated with climate change. • Develop strategies to manage/mitigate risks associated with climate change. • Determine if there are SMART (Specific, Measurable, Achievable, Relevant, and Timely) performance metrics that can produce data to track progress that aligns to program outcomes. • Determine whether to recommend a climate-related Department-level risk statement for senior leadership approval as part of the Department Risk Profile process. 		

<p>Performance:</p> <p>To measure performance related to this priority action, SPPS plans to coordinate with performance staff in each relevant DOJ component to obtain climate-related performance measures that align with DOJ strategic objectives. SPPS will monitor the status of the following:</p> <ul style="list-style-type: none"> • Results of performance metrics (trends and likely outcomes) • Actions resulting from the internal meetings of DOJ’s ERM Workgroup 	<p>Inter-governmental Coordination:</p> <p>DOJ does not currently have any specific interagency coordination needs identified, however anticipates that interagency coordination would be beneficial to discuss challenges, share best practices, and, where possible, collaborate on strategies for addressing climate risks in agencywide enterprise risk management.</p>
<p>Resource Implications:</p> <p>DOJ has not yet been able to comprehensively evaluate and identify the expected resource implications of this action.</p>	
<p>Challenges/Further Considerations:</p> <ul style="list-style-type: none"> • The timelines for DOJ’s strategic planning and risk profile processes are both dependent on senior leadership availability. 	
<p>Highlights of Accomplishments to Date:</p> <ul style="list-style-type: none"> • DOJ’s SPPS has established an ERM Workgroup, comprised of representatives from each of the law enforcement, litigating, and grant-making components. During the April 2021 meeting of the Workgroup, SPPS provided an overview of EO 14008 and requested that Workgroup members start thinking about and identifying potential climate-related risks to their respective missions that DOJ might consider designating as enterprise-wide risks. 	

3. SPECIFIC TOPIC AREAS

3.1 Topic 1: Update Climate Vulnerability Assessments

Since 2011, DOJ has used a structured process to organize its approach to climate change preparedness planning and evaluation. This process has allowed DOJ to identify and explore climate change vulnerabilities and prioritize actions to better understand and address these vulnerabilities. In 2011-2012, DOJ prepared a high-level climate vulnerability assessment, whereby JMD and representatives from DOJ’s five bureaus evaluated agency mission activities with respect to climate change impacts on critical assets and infrastructure. Through this evaluation, DOJ identified buildings, utilities infrastructure (including telecommunications, data, voice, power, and water), and personnel as the three most vulnerable critical assets.

Building on this prior vulnerability assessment and incorporating updated input from DOJ components,² DOJ has identified five vulnerabilities tied to management functions and decision points for managing procurement, real property, and financial programs. In some instances, the vulnerabilities overlap with the priority adaptation actions identified in Section 2.

Vulnerability #1: Availability of Workforce	
Description of Vulnerability:	Continued availability of workforce to support mission-critical and mission-dependent operations during climate-related and extreme weather events.
Climate Threat and Expected Impact:	Climate-related stressors, such as wildfire and drought, and extreme weather events affect the availability of workforce to support mission-critical and mission-dependent operations. Some of DOJ's operations can be conducted remotely or via telework capabilities. Other operational teams, however, such as FBI's evidence response, SWAT, and hostage rescue teams, and BOP's institutional and medical staff cannot conduct operations remotely. For this workforce, there are certain employees that must have access to mobility to be present in specific locations to ensure continuity of operations. The availability of the workforce could be negatively impacted by stressors that limit mobility such as severe storms, coastal and inland flooding, and heavy snowfall.
Impact of No Action:	During climate events and extreme weather events, the availability of workforce to support mission-critical and mission-dependent operations could be limited. Some operations could be performed remotely while other operations that require an on-site workforce could be hindered. The effectiveness and success of these operations could be drastically diminished.
Determined Adaptation Action:	Enhance existing systems, programs, risk management practices, emergency plans, continuity of operations plans, training, and telework plans to improve the adaptive capacity of personnel and address potential vulnerabilities. Solicit and document input and best practices on workforce vulnerability from components and bureaus.
Known Barriers to Implementation:	None.
Estimate of Timeline:	Ongoing

² While DOJ did not have adequate time to perform an exhaustive update to its 2012 climate vulnerability assessment for the purposes of informing this Climate Action Plan, JMD did conduct a comprehensive request for information in April 2021 to compile input from DOJ components about updates to the climate vulnerabilities previously identified in 2011-2012. DOJ expects to more comprehensively revisit its previous vulnerability assessment (see vulnerability #2) to consider and incorporate more recent climate data.

Metrics:Progress:

- Number of components and bureaus providing input by FY 2022.
- Completion date of receiving and compiling input from components and bureaus.

Success:

- Implementation of workforce best practices across components and bureaus.

Feasibility of Managing Risk with Existing Agency Resources:

Identifying deficiencies and implementing enhancements to improve the adaptive capacity of personnel and address potential vulnerabilities could be accomplished within available resources.

Disclosure in Financial Reporting and Integration into Enterprise Risk Management:

As part of DOJ's internal process for preparing the Department's FY 2023 budget request, DOJ's Budget Staff has included new language in guidance circulated to all components emphasizing the need to prioritize climate change considerations as part of the budget development process. DOJ is commencing an effort to specifically integrate the Department's climate vulnerabilities into DOJ's ERM processes (see Section 3, Priority Action #5, SPPS for additional details).

Vulnerability #2: Continued Operation of Mission-Critical Facilities**Description of Vulnerability:**

Continued operation of mission-critical facilities during energy and/or water supply shortages.

Climate Threat and Expected Impact:

Climate and extreme weather events such as flooding, hurricanes, drought, wildfire, and extreme temperatures could affect DOJ's ability to provide continuous operations of mission-critical facilities. For example, DEA's South-Central Laboratory in Dallas, TX, had its operations shut down for over a week in the February 2021 Texas deep freeze. BOP facilities must consider food and water supplies and implement contingencies for drought, floods, and water and food shortages. The severity and type of impact on the operation of mission-critical facilities varies on several factors including the agency's mission, adaptive capacity and resiliency of the facility and personnel, and then length of the climate or extreme weather event.

Impact of No Action:

The shortage or unavailability of energy and/or water supplies could impact the continuity of the agency's mission, availability of workforce, and operation of mission-critical facilities.

Determined Adaptation Action:

Increase the adaptive capacity of facilities, infrastructure, and utilities to reduce risks and vulnerabilities. Comprehensively revisit DOJ's previous vulnerability assessment to specifically consider the increased exposure to wildfire and drought especially in the western U.S.

Known Barriers to Implementation:

None.

Estimate of Timeline: Ongoing

Metrics:Progress:

- Number of high-risk facilities evaluated for potential to increase adaptive capacity by FY 2022.
- Update of DOJ's vulnerability assessment to consider the exposure to wildfire and drought in the western U.S.

Success:

- Performance will be measured by the number of previously classified high-risk facilities and utilities infrastructure that have implemented climate adaptation and resilience measures.

Feasibility of Managing Risk with Existing Agency Resources:

Implementation of climate adaptation and resiliency measures will be accomplished within available resources.

Disclosure in Financial Reporting and Integration into Enterprise Risk Management:

As part of DOJ's internal process for preparing the Department's FY 2023 budget request, DOJ's Budget Staff has included new language in guidance circulated to all components emphasizing the need to prioritize climate change considerations as part of the budget development process. DOJ is commencing an effort to specifically integrate the Department's climate vulnerabilities into DOJ's ERM processes (see Section 3, Priority Action #5, SPPS for additional details).

Vulnerability #3: Supply Chain Disruptions**Description of Vulnerability:**

Supply chain disruptions for critical or priority supplies such as building operation equipment (heating, ventilation, air conditioning, chillers, etc.), medical equipment, sanitation supplies, and food.

Climate Threat and Expected Impact:

Critical or priority supplies and services are vulnerable to acute extreme weather events and long-term climate change. Extreme weather events can disrupt telecommunications, power and energy supply, fuel supply, transportation and delivery routes which disrupt logistics and supply chain activities and the availability and cost of critical supplies.

Impact of No Action:

Supply chain activities would be vulnerable to extreme weather events and long-term climate change. The magnitude of the disruptions would depend on several factors including the length of the event, availability of the critical supply, and agency mission.

Determined Adaptation Action:

Conduct vulnerability assessments with the five bureaus (and other select components, where determined appropriate) to identify the most vulnerable mission-critical supplies (see Priority Action #2 in Section 2). Document and disseminate best practices for modifying the procurement process minimizing supply chain disruptions.

Known Barriers to Implementation:

None.

Estimate of Timeline: Begin in FY 2022

Metrics:Progress:

- Completion of supply chain vulnerability assessments for five bureaus and other select components, where determined appropriate.

Success:

- No incidents of disruption to mission-critical supply chain.

Feasibility of Managing Risk with Existing Agency Resources:

Conducting risk assessments and documenting best practices could be accomplished within available resources.

Disclosure in Financial Reporting and Integration into Enterprise Risk Management:

As part of DOJ's internal process for preparing the Department's FY 2023 budget request, DOJ's Budget Staff has included new language in guidance circulated to all components emphasizing the need to prioritize climate change considerations as part of the budget development process DOJ is commencing an effort to specifically integrate the Department's climate vulnerabilities into DOJ's ERM processes (see Section 3, Priority Action #5, SPPS for additional details).

Vulnerability #4: Limited Knowledge and Understanding of Climate Adaptation Concepts and Best Practices for Enhancing Adaptive Capacity

Description of Vulnerability:

Limited knowledge and understanding of climate adaptation concepts and best practices for enhancing adaptive capacity.

Climate Threat and Expected Impact:

Climate stressors and extreme weather events pose a risk to the DOJ mission, operations, assets, facilities, and infrastructure. The DOJ workforce would benefit from increased climate literacy, especially related to the anticipated impacts of climate change, applying climate adaptation concepts, enhancing the understanding of adaptive capacity, and the possible consequences of not addressing DOJ's climate change vulnerabilities at the mission, facility, and personnel level.

Impact of No Action:

There would continue to be a need to increase the knowledge and understanding of climate adaption concepts. This could lead to a hesitancy or resistance among DOJ components to adopt climate adaptation concepts and policies.

Determined Adaptation Action:

In collaboration with the Climate Adaptation Team, JMD/ESS will distribute outreach materials highlighting climate adaptation concepts and best practices for enhancing adaptive capacity for broad distribution among agency personnel.

Known Barriers to Implementation:

Limited availability of personnel in some components to support climate literacy initiatives.

Estimate of Timeline: Ongoing

Metrics:

Progress:

- Completion date of collaboration between JMD/ Facilities and Administrative Services Staff (FASS) and the Climate Adaptation Team to establish a plan of creating and updating outreach materials and trainings.
- Enumeration of outreach materials and trainings created and updated in FY 2022.

Success:

- DOJ does not currently have a mechanism for evaluating success in the area of enhancing climate literacy but will consider the feasibility of developing tool(s) to do so (e.g., surveys, competency evaluations as part of training modules).

Feasibility of Managing Risk with Existing Agency Resources:

Creating and updating outreach materials to enhance climate literacy could be accomplished within available resources.

Disclosure in Financial Reporting and Integration into Enterprise Risk Management:

As part of DOJ's internal process for preparing the Department's FY 2023 budget request, DOJ's Budget Staff has included new language in guidance circulated to all components emphasizing the need to prioritize climate change considerations as part of the budget development process. DOJ is commencing an effort to specifically integrate the Department's climate vulnerabilities into DOJ's ERM processes (see Section 3, Priority Action #5, SPPS for additional details).

Vulnerability #5: Need to Enhance Systematic and Formalized Internal Processes and Guidance**Description of Vulnerability:**

The need to enhance systematic and formalized DOJ-wide processes and guidance for appropriately planning and budgeting for climate adaptation and resilience considerations across operations.

Climate Threat and Expected Impact:

Increased climate and extreme weather events increase the demand for fiscal resources to fund emergency, management activities, maintenance actions, and climate resiliency measures.

Impact of No Action:

There would continue to be a need to systematically plan, budget, and track fiscal resources allocated to climate adaptation and resilience measures and initiatives. Long-term climate change and extreme weather events could negatively affect the agency mission and operations.

Determined Adaptation Action:

Prepare a strategy for systematically integrating climate adaptation and resilience considerations into Department-wide project planning, budgeting, and funding request processes—especially those related to infrastructure and facilities.

Known Barriers to Implementation:

None.

Estimate of Timeline: Begin in FY 2022

Metrics:Progress:

- Completion date of strategy for systematically integrating climate adaptation and resilience considerations into Department-wide project planning, budgeting, and funding request processes.

Success:

- The availability of revised and clearly communicated guidance and process that enable all DOJ components to consistently and systematically incorporate climate adaptation and resilience considerations into project planning, budgeting, and funding requests.

Feasibility of Managing Risk with Existing Agency Resources:

Preparing a strategy will be accomplished within available resources.

Disclosure in Financial Reporting and Integration into Enterprise Risk Management:

As part of DOJ's internal process for preparing the Department's FY 2023 budget request, DOJ's Budget Staff has included new language in guidance circulated to all components emphasizing the need to prioritize climate change considerations as part of the budget development process. DOJ is commencing an effort to specifically integrate the Department's climate vulnerabilities into DOJ's ERM processes (see Section 3, Priority Action #5, SPPS for additional details).

3.2 Topic 2: Efforts to Enhance Climate Literacy in DOJ's Management Workforce

DOJ is committed to enhancing climate literacy across the Department. Since 2011, DOJ has implemented several climate literacy efforts to increase awareness, share information about climate resiliency, and describe potential impacts from climate change. The efforts included a variety of methods, including the organization of the working groups, fact sheets, checklists, one-on-one meetings with components, and evaluation of components' needs for climate literacy, training, and technical assistance (see Table 1 for additional details).

Table 1. DOJ's Climate Literacy Initiatives and Accomplishments Since 2011

Year	Initiatives/Accomplishments
2011	<ul style="list-style-type: none"> Established DOJ's first Climate Change Adaptation Policy Statement Created an internal DOJ climate change adaptation planning fact sheet
2012	<ul style="list-style-type: none"> Established DOJ's first Climate Adaptation Team (active until 2017) Updated the DOJ climate change adaptation planning fact sheet
2014	<ul style="list-style-type: none"> Refreshed the DOJ climate change adaptation planning fact sheet
2015	<ul style="list-style-type: none"> Developed and distributed an internal informational document outlining relevant climate adaptation requirements, the latest climate change research, and key resources and terminology Developed the facility climate adaptation checklist Collected input from DOJ components about their respective experiences managing and responding to extreme weather events
2016	<ul style="list-style-type: none"> Completed bureau-specific facility climate adaptation checklists
2017	<ul style="list-style-type: none"> Evaluated DOJ's needs for climate literacy, training, and technical assistance Completed bureau facility climate vulnerability fact sheets

Year	Initiatives/Accomplishments
2021	<ul style="list-style-type: none"> • Reconvened DOJ’s Climate Adaptation Team • Requested input from DOJ components on climate literacy needs as part of compilation of 2021 Climate Action Plan • Initiated participation in the FEVAR, which will provide important guidance and best practices to inform DOJ’s efforts to electrify its fleet. • Established a DOJ Sustainable Acquisition Workgroup that will serve as an important forum for disseminating outreach and guidance related to enhancing the climate resiliency of DOJ’s supply chain

In 2017, DOJ implemented a focused effort to request input on climate literacy needs from JMD and the five DOJ Bureaus. JMD/FASS requested feedback on climate-related topics for training, outreach, and technical assistance; the preferred methods for distributing the climate literacy information; key staff and stakeholders who would benefit from the climate literacy information; and suggestions to improve DOJ’s efforts to improve climate preparedness and resiliency. Following receipt of the input, however, progress was paused due to changes in priorities of the administration.

Across DOJ’s components, there are ongoing efforts to improve the knowledge and understanding of environmental topics and issues. While not specifically focused on enhancing climate literacy, these outreach efforts touch on environmental awareness, climate mitigation efforts, sustainability, energy efficiency, and water conservation. Examples of these outreach efforts include DEA’s Green Notes newsletter, Earth Day activities, recognition of Energy Action Month, and DOJ green procurement training. DOJ can leverage and build on these ongoing efforts to expand the knowledge and understanding of climate adaptation concepts and best practices for enhancing adaptive capacity.

Initially established in 2012, DOJ’s internal Climate Adaptation Team was formed to ensure a cohesive DOJ-wide strategy for increasing adaptive capacity to climate impacts and to facilitate exchanging information and best practices. The group actively met and collaborated to implement components of the Department’s prior Climate Adaptation Plan, before disbanding in 2017 due to changes in priorities of the administration. In April 2021, DOJ reconvened the Department’s Climate Adaptation Team in response to EO 14008. Figure 1 illustrates the current composition and organization of the Climate Adaptation Team.

In April 2021, JMD/FASS requested input from the five bureaus and additional components about the need for enhanced climate literacy, including a request for information about priority stakeholder groups (including management) with the most critical need for climate literacy training. Responses universally suggested a need to refresh and enhance climate literacy efforts across management and the workforce. Bureaus emphasized the need to directly link environmental initiatives, directives, and climate literacy to mission-oriented messaging in order to be most effective. Climate literacy should be enriched to increase the workforce’s understanding of potential climate change impacts, mitigation actions, and possible consequences of not addressing climate change vulnerabilities at the mission, facility, and personnel levels.

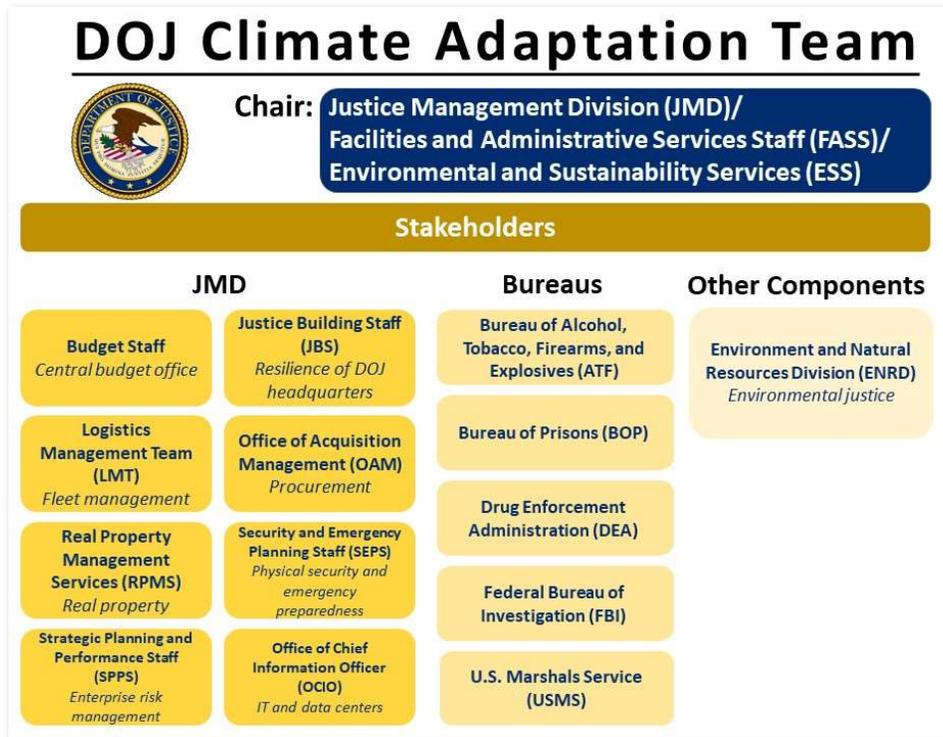


Figure 1. Climate Adaption Team Organization Chart

Topics to address through climate literacy efforts vary widely. Bureaus described the need to encourage energy conservation applicable to daily operations and steps that can be taken to mitigate climate change and its impacts. Across DOJ, bureaus and components requested outreach regarding recent Executive Orders, Administration priorities, and best practices from other agencies. Input from DOJ bureaus and components identified the need for training on how to implement low-cost changes to enhance climate adaptation and resiliency prior to committing to larger and more resource-intensive projects.

DOJ has identified several climate literacy needs to enhance understanding and incorporate climate change risks into investment and planning decisions. DOJ components recommended that JMD distribute materials and visuals from the most recent National Climate Assessment on the location and extent of projected extreme heat, extreme rainfall, drought, sea level rise, disease vectors, wildlife, and other impacts of climate change. Climate Adaptation Team stakeholders also requested better information on Federal Emergency Management Agency-established floodplain boundaries and more detailed flood modeling that incorporates both rainfall and sea level rise projections. This information would provide a better baseline above which to assess risk and vulnerabilities, harden facilities and infrastructure, and plan for flood-related contingencies.

DOJ is committed to enhancing climate literacy among Department-wide staff, with a particular focus on management personnel responsible for key decisions that impact the Department’s collective capacity for adapting to a changing climate. Consistent with vulnerability #4 (outlined above in Section 3.1), JMD/ESS—in collaboration with DOJ’s Climate Adaptation Team—will

lead the action to broadly disseminate guidance, outreach materials, and training content highlighting climate adaptation concepts and best practices for enhancing adaptive capacity.

3.3 Topic 3: Actions to Enhance Climate Resilience

This section outlines DOJ's existing and planned processes and actions to enhance the climate resilience of the Department's facilities and critical supply chain.

a) Actions for Climate-Ready Sites and Facilities

As a result of DOJ's 2012 Climate Vulnerability Analysis, the Department included numerous actions in its 2014 Climate Adaptation Plan and subsequent Climate Adaptation Progress Reports that centered on enhancing the resilience of DOJ facilities, including examining capital improvement plans for opportunities to incorporate adaptive designs and examining lease terms for possible renovation or relocation options. In subsequent years, however, as climate mitigation and adaptation were deprioritized by the administration, DOJ paused formal implementation of its 2014 Climate Adaptation Plan.

Despite this shift in focus across the federal community, DOJ components have continued to think critically about and consider the impacts of climate change on the design, construction, and operation of their facilities. For example:

- BOP has considered design and construction of facilities that are more self-sustaining during climate and emergency events. These design and construction concepts would make BOP facilities inherently more resilient to climate and extreme weather events because it would increase the ability to defend in place under a wide range of conditions.
- FBI developed and actively utilizes the FBI Specs to ensure that FBI's procurement of all new facility construction and major renovation projects requires the incorporation of a range of sustainability aspects. FBI is currently updating the FBI Specs to reflect the 2020 Guiding Principles—specifically Guiding Principles 6.1 and 6.2, which address facility resilience and adaptation.
- FBI has recently established the National Crisis Coordination Center (NC3)—a framework within which FBI Headquarters components come together in the Strategic Information and Operations Center during critical incidents. NC3 serves as an important single point of coordination during large-scale critical incidents for the purpose of enabling FBI headquarters components to assist field offices more effectively and efficiently. In parallel, FBI has identified a Crisis Manager within the Facilities and Finance Division to act as a liaison between the facilities and operational personnel when the NC3 is activated. While this construct was established to respond to critical operational crises nationwide, this mechanism could be a significant future nexus for preparedness planning for climate change impacts to mission readiness as a result of extreme weather events.
- In 2016, DEA identified the water supply to a leased data center as a key vulnerability and is exploring—with GSA and the lessor—the feasibility of an air-cooled system to mitigate the risks of a single water supply. With respect to new construction, DEA is

in the early planning stage for a new laboratory in New Hampshire. The project planning group has adopted the motto “lean and green,” and DEA management has directed staff to design the facility as a “lab of the future.” Planning group members are hoping to add climate resiliency measures into the site selection and design.

As DOJ moves into the implementation phase of this revived Climate Action Plan, the Department will work to establish processes to more systematically ensure that adaptation criteria and requirements are properly integrated into management functions and decision points for the procurement for design, construction, operations, and maintenance of DOJ facilities (see vulnerability #5 in Section 3.1 above).

DOJ has established and routinely updates a Department-wide Environmental Management Policy that includes discrete sections related to facility energy and water management. This overarching policy includes specific mandates for each DOJ bureau to achieve reductions of facility energy and water consumption, but ultimately defers to each bureau to develop their own respective processes and strategies for identifying, prioritizing, and implementing measures to reduce facility energy and water loads.

- ATF utilizes onsite operations and maintenance contractor support to continuously identify opportunities for optimizing facility energy performance. The Bureau also actively partners with its electric utility providers to identify and implement demand-side management projects using funding provided by utility energy efficiency rebate programs. ATF is in the process of establishing energy management systems for its three owned facilities through participation in the DOE’s 50001 Ready program. ATF expects participation in 50001 Ready will enable the bureau to more systematically manage and reduce energy and water consumption and also provide a framework through which ATF can strategically incorporate climate adaptation considerations to make its facilities more climate ready.
- Historically, BOP has largely relied on energy savings performance contracts (ESPCs) and utility energy service contracts (UESCs) to fund energy conservation measures (ECMs). To the maximum extent possible, BOP leverages these contract vehicles to pursue opportunities for implementing onsite renewable energy as a means to increase facility resiliency and reduce operating costs. Since 2003, BOP has executed 34 ESPCs and three UESCs, 19 of which have included onsite renewable energy. BOP is in the process of pursuing four additional performance contracts—one through the ESPC ENABLE program and three UESCs. As funding permits, BOP supplements its portfolio of performance contracts with the implementation of directly funded projects having short payback periods, such as lighting upgrades.
- Using an energy sales agreement (ESA) via an ESPC ENABLE contract, DEA successfully implemented a 2.5-megawatt solar photovoltaic (PV) system that provides 100 percent of the electricity demand at the El Paso Intelligence Center—a project that FEMP used as a case study for successful implementation of onsite renewable energy using the ESA framework.³ DEA has also been a model for success in pursuing and securing grant funding for the implementation of facility

³ <https://www.energy.gov/sites/default/files/2019/10/f68/espc-esa-case-study.pdf>

resiliency projects. The Bureau has received two grants from DOE's Assisting Federal Facilities with Energy Conservation Technologies grant program—a 2019 grant for a rooftop solar PV project at DEA's Aviation Operations Center in Fort Worth, TX, and a 2020 grant that DEA plans to use to fund a suite of ECMs across five of its Regional Laboratories through participation in DOE's Smart Labs Accelerator Program. DEA hopes to leverage this opportunity to incorporate resilience best practices where possible, including innovative concepts for emergency backup power.

- In FY 2018, FBI established the internal FBI Energy and Water Conservation Investment Program (FEWCIP), whereby FBI evaluates, selects, and funds energy and water projects at FBI-owned/operated facilities through an internal competitive process. FEWCIP supports FBI's goal to be a leader in sustainability and energy resilience by funding projects that may otherwise be deferred or not as highly prioritized in the standard budgeting process. FBI also actively utilizes numerous FEMP-sponsored programs and resources to implement demand-side management of energy and water in its facilities:
 - FBI is actively piloting the implementation of FEMP's 50001Ready program at the FBI-Redstone campus in Huntsville, AL, and the FBI Academy in Quantico, VA.
 - FBI is participating in FEMP's Re-Tuning Challenge to demonstrate the use of building- and system-level controls to improve energy performance and provide hands-on training for facility managers at the FBI Academy.
 - FBI has partnered with FEMP and NREL to pilot the TRN to assess the energy resilience of the Quantico campus and develop an energy resilience strategy to address potential areas of vulnerability.
- While USMS has no owned or operated facilities in its portfolio (and thus has limited opportunities to directly influence the resilience of its facilities), USMS is engaged in DOJ's Climate Adaptation Team and committed to actively exploring opportunities to work with GSA and private lessors to enhance the resilience of its facilities.

While DOJ has an internal Environmental Justice Working Group that has previously contributed to efforts to incorporate environmental justice considerations as part of the Department's climate adaptation strategy, DOJ has not yet established formal criteria to advance equitable distribution of environmental risks and benefits associated with procurement processes for facility design, construction, operations, and maintenance. DOJ plans to address this, however, as part of priority action #4 (outlined in Section 3.1).

b) Actions to Ensure a Climate-Ready Supply of Products and Services

In 2015 and 2016, DOJ initiated numerous efforts to better understand its critical supply chains with potential vulnerabilities related to climate change. DOJ met with GSA to discuss GSA's Supply Chain Risk Management Framework, obtained bureau-level spending data, and met individually with bureau Sustainability Program Managers and procurement officials to discuss bureau-specific critical supply chains. In April 2021, JMD solicited input from bureaus related to their respective critical supply chains. Based on DOJ's collective efforts to evaluate its supply chain, DOJ believes the following are

the Department's current top five most critical supplies and services vulnerable to the impacts of climate change:

- Utilities – Grid-provided electricity and water are most critical to the operations of DOJ's data centers and BOP facilities.
- Telecommunications
- Fuel – Diesel for onsite emergency power generation and gasoline for fleet vehicles
- Disaster response supplies – Includes personal protective equipment (e.g., gloves, waders), bottled water, food, medical equipment and supplies, and cleaning supplies
- Human capital – Includes contractor resources

For several years, DOJ's OAM has provided mandatory sustainable acquisitions training to select contracting professionals, Contracting Officer's Representatives, and purchase cardholders. DOJ will strive to develop Department-wide processes to broadly and systematically advance a more climate-robust supply of goods and services and hopes that the Office of Federal Procurement Policy will aid in this effort by developing and distributing guidance and best practices across the federal community. In 2021, OAM established a DOJ Sustainable Acquisition Workgroup, which will serve as forum for disseminating outreach and guidance related to enhancing the climate resiliency of DOJ's supply chain. To this point, however, OAM has deferred to each DOJ component to independently consider climate resiliency as part of their procurement processes. For example:

- Some DOJ components have started to proactively increase the flexibility of supply contracts to enable substitutions that might be necessary under emergency circumstances. DOJ's Procurement Services Staff, which fulfills the acquisition needs of the Departments Offices, Boards and Divisions, allows "equipment swaps" without a formal modification under some of its hardware contracts.
- BOP has started to utilize telehealth to provide remote medical care and treatment for its inmate population. This relatively new practice circumvents the need for inmate transport, which could be impacted by acute severe weather events.
- As part of FBI's NC3, the Bureau's Facilities and Finance Division is evaluating how to access critical supplies and services in the event of a crisis, which could include a climate-related severe weather event.

As DOJ moves into the implementation phase of this revived Climate Action Plan, the Department will work to establish processes to more systematically ensure that adaptation criteria and requirements are properly integrated into the acquisition of mission-critical supplies and services (see vulnerability #5 in Section 3.1 above).

While DOJ has an internal Environmental Justice Working Group that has previously contributed to efforts to incorporate environmental justice considerations as part of the Department's climate adaptation strategy, DOJ has not yet established formal criteria to advance equitable distribution of environmental risks and benefits associated with the acquisition of mission-critical supplies and services. DOJ plans to address this, however, as part of priority action #4 (outlined in Section 3.1).

September 2021



THE UNITED STATES DEPARTMENT OF LABOR

Climate Action Plan

The Department of Labor is committed to deliberate and strategic climate change resilience and adaptive action to protect our planet.



**SECRETARY OF LABOR
WASHINGTON, D.C. 20210**

September 9, 2021

Dear Colleagues,

On January 27, 2021, President Joseph R. Biden issued Executive Order (EO) 14008, “Tackling the Climate Crisis at Home and Abroad,” charting definitive public policy that will reduce the federal government’s carbon footprint, increase our climate resilience, and boldly lead by example in protecting our environment.

At the Department of Labor (DOL), we affirm our support for EO 14008, and we embrace it as an opportunity to advance our mission. Given the many threats that climate change poses to working people in America and around the world – and given the many opportunities to prepare workers for good, green jobs that support families and strengthen communities – climate action is essential to our shared vision of empowering all workers morning, noon, and night.

Attached is our Climate Action Plan, which details our approach and commitment to these ambitious goals.

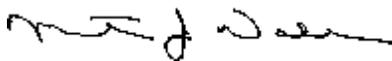
DOL leadership is committed to strengthening our mitigation, adaptation and resilience efforts. As a team, we will lead by example in all that we do, from DOL procurement and acquisition, to energy efficiency, mission resilience, innovation, and workforce training.

Below is our Agency Policy for Climate Change and Adaptation:

“The Department of Labor is committed to deliberate and strategic climate change mitigation and adaptive action to protect our planet and its people. Consistent with our existing missions, we will collaboratively model best practices to ensure that our nation’s workforce has a sustainable and bright future as we empower workers, employers, and industries to foster environmental justice, establish measurable and sustainable mitigation progress, and improve climate resilience.”

Implementing this policy and Climate Action Plan will take the collaborative efforts of every single Department employee, and I want to thank you in advance for all of your work. Together we will make the DOL a visible leader that models best environmental practices for our peer agencies and private industry, and we will help make a better and safer world for today’s workers and for the next generation of workers and families who inherit our planet.

Sincerely,



MARTIN J. WALSH

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Introduction

The Department of Labor (DOL) fosters and promotes the welfare of job seekers, wage earners and retirees of the United States by improving their working conditions, advancing their opportunities for profitable employment, and protecting their retirement, health care, and other benefits. To fulfill this mission, the Department must be prepared and resilient to adapt to changing climate conditions across the Nation.

Policy for Climate Change and Adaptation:

DOL is committed to deliberate and strategic climate change mitigation and adaptive action to protect our planet and its people. Consistent with our existing missions, we will collaboratively model best practices to ensure that our nation's workforce has a sustainable and bright future as we empower workers, employers, and industries to foster environmental justice, establish measurable and sustainable mitigation progress, and improve climate resilience.

Agency Official Responsible for Implementation of the Climate Action Plan:

Julia Tritz, Director, Business Operations Center (BOC), within the Office of the Assistant Secretary for Administration and Management (OASAM), is the Agency Official (AO) responsible for implementation of the Climate Adaptation Plan (CAP). DOL's National Contact Center phone number is 1-866-487-2365.

Statement of Intent:

In response to Executive Order (EO) 14008 and the growing significance of climate change on economic prosperity and the delivery of federal services, the Department of Labor has established a Climate Action Plan to adapt to changing climate conditions and provide innovative and progressive federal leadership to address this growing threat to national security. The intent of this plan is to build on the 2014 Climate Change Adaptation Plan, assess and update vulnerabilities to DOL mission success, and construct clear adaptive measures to ensure resilience to climate change.

The CAP identifies key vulnerabilities, resilience opportunities, priority adaptation actions, and procurement challenges for our agencies and articulates our leadership plan for both immediate and long-term transformation. DOL's ability to pursue these opportunities to combat the climate crisis and lead by example will require either additional fiscal and personnel resources or the realignment of existing resources.

The Secretary of Labor, as a member of the National Climate Taskforce, the Interagency Working Group on Coal and Power Plant Communities and Economic Revitalization, Interagency Working Group on Extreme Heat, Interagency Working Group on Flood Resilience, and the White House Environmental Justice Interagency Council, will promote environmental equity and robust labor adaptation to all federal efforts on climate change.

DOL's Chief Sustainability Officer (CSO) is responsible for assessment of DOL assets for vulnerabilities to climate change and determination of appropriate adaptive measures to meet our resilience requirements. The CSO will also provide leadership to ensure that environmental justice and sustainable best practices are exemplified across all DOL agencies.



Priority Adaptation Actions:

Because DOL operates campuses and mission efforts in all 50 States and Puerto Rico, our exposure to potential climate related risk varies significantly from campus to campus and include both acutely disruptive events (storms, hurricanes, wild fires, etc.) and long-term challenges (sea-level rise, water and energy security, facility resilience, adaptive workforce program changes, economic shifts, etc.). With that perspective, DOL has identified five priority adaptation actions (PAAs) that inclusively address gaps in both our short-term and long-term climate resilience posture.

Ensuring Worker Safety (PAA #1):

The Occupational Safety and Health Administration (OSHA) at DOL has prioritized worker safety as a serious climate resilience issue. Due to climate change, workers face increasing risks of injury, illness, and death while working in extreme weather conditions (e.g., exposure to hazardous heat) or while exposed to health and safety risks during response and recovery to extreme weather events (e.g., hurricanes, wildfires, tornadoes, floods, and severe winter weather). Due to increased adverse outcomes from climate change events, employers must consider preparedness and mitigation for tolerances previously considered safe in construction, industrial and chemical engineering, transportation, and other critical infrastructure industries. OSHA is committed to stronger policies, guidance, and interagency coordination to protect workers as their working conditions change.

This action is a national effort and our goals include:

- Reducing worker injuries, illnesses and deaths from occupational exposure to hazardous heat or health and safety risks during emergency response and recovery.
- Raising awareness, educating employers and workers on strategies, and providing practical tools for employers and workers to implement these strategies to prevent worker injuries, illnesses, and death from hazardous heat and emergency response efforts as climate conditions change.
- Engaging stakeholders to understand challenges and promote current best practices to respond to climate change related hazards and trends.
- Tracking and analyzing climate change related hazard trends to address policy gaps.

OSHA will be the lead agency to address this action and agency efforts will result in:

- Providing stronger technical assistance and supporting workplace safety during and after extreme weather events.
- Fewer injuries, illnesses, and deaths of workers from hazardous heat or health and safety risks during emergency response and recovery.
- Increased employer and worker knowledge of strategies and implementation of those strategies to prevent injuries, illnesses, and deaths from hazardous heat or health and safety risks during emergency response and recovery.

Risks and challenges associated with these actions include:

- Extreme weather preparedness and training can be time consuming and resource intensive.
- Concurrent OSHA staffing limitations as we balance the need for preparedness activities while also conducting maximum enforcement operations.
- Multiple climate and other emergency/disaster response efforts ongoing simultaneously (e.g. the COVID-19 pandemic, wildfire response, and acute extreme heat events all happening at once).
- Reaching workers that are most vulnerable to hazardous heat exposures. These workers are difficult to reach due to a number of factors (e.g., language barriers, lack of access to technology, transient nature of work).
- Regulatory efforts to address hazardous heat face numerous technical issues and considerations (e.g., heat stress thresholds, heat acclimatization planning, exposure monitoring, and medical monitoring).
- The scope of policy, guidance, regulatory, and enforcement efforts to protect workers from climate change related hazards is extremely broad.

Since the passage of the Occupational Safety and Health Act of 1970, OSHA has consistently led efforts across Federal, State, Local, Territorial, and Tribal governments as well as public partners and stakeholders to protect the safety and health of workers. Our mission continues as we now face the challenges of climate change. OSHA will adapt policy, guidance, regulatory, and enforcement efforts to continue to protect workers during and after acute and long-term climate events.

To accomplish these goals, OSHA will coordinate with:

- The White House National Security Council.
- Federal, State, Local, Territorial, and Tribal governments and agencies to coordinate and amplify messaging and promote tools and resources for protecting workers from climate change related hazards.
- DOL agencies (e.g., Wage and Hour, Bureau of International Labor Affairs) to expand the reach of these efforts to key stakeholders.
- OSHA Cooperative Program participants including public employers, non-governmental agencies and voluntary organizations, and unions and labor organizations.
- Congress to provide technical assistance to establish laws to protect workers before, during, and after extreme weather events and to consider the development of an enforceable federal standard to ensure workers and employers can recognize and respond to the signs of heat stress in indoor and outdoor work environments.

We anticipate the following timeline for this Priority Adaptation Action:

- OSHA worker safety efforts began in 1970.
- Planning specific to the climate crisis began in Q4 FY2021.
- Development of the action plan and metrics to track success by Q4 FY2021.
- Implementation of the action plan will begin by Q4 FY2023.
- Completion of the effort will be ongoing.



Facilities Resilience and Mission Readiness (Paa #2):

Adapt DOL owned Mine Safety and Health Administration (MSHA), Job Corps Center (JCC), and Conservation Corps Center (CCC) facilities to bolster climate resiliency and maintain robust mission capacity during acute and long-term climate disruptions. DOL will also collaborate closely with the General Services Administration (GSA) to ensure that leased facilities are resilient and mission capable.

It is important to note that while DOL owned facilities comprise 89.3% of our 24.8 million square feet of facilities space, most of these facilities are associated with JCC and CCC campus operations and are managed separately from DOL employee space management and Future of Work planning efforts.

The goals of this action are national and include:

- Assessment of potential physical vulnerabilities and risks that could result from climate events across our 2,600 facility assets.
- Identification of potential adaptive measures to ensure facility resilience to climate events.
- Balancing adaptive measures to optimize resiliency with additional consideration of GHG reductions and environmental justice.
- Improving health and safety for employees and visitors to DOL facilities.
- Maintaining robust 24/7 Information Technology (IT) and Communications infrastructure.

OASAM and the BOC will be the lead agencies to address this action and our efforts will result in:

- Increased resilience of facility assets.
- Modernized facilities that are both climate resilient and energy efficient.
- Secure and capable IT and communications during normal and emergency conditions.
- Improved health, safety, and comfort for employees and visitors using our facilities.
- Campuses prepared for electrified fleet operations.
- Active efforts to achieve EO 14008's net-zero electricity procurement goal by 2035.

Risks and challenges associated with these actions include:

- Staff and resource bandwidth to plan and manage these renewed efforts.
- Availability of renewable energy sources to replace petroleum based options.
- Facility resilience during acute climate and other emergencies without petroleum based contingency resources.

BOC began action on this priority more than a decade ago as we:

- Actively integrated and prioritized sustainability and energy efficiencies into our new construction and modernization efforts.
- Engaged professional services to pursue stronger energy audits and actions on those audit findings with our JCCs.
- Renewed our interest in financed energy projects to accomplish energy efficiency and modernization efforts from a budget neutral position.

To accomplish these goals, DOL will coordinate with:

- The Federal Energy Management Program (FEMP) for expertise in financed energy projects and other energy efficiency opportunities.

We anticipate the following timeline:

- Strategic planning began in Q2 FY2020.
- Development of the action plan and metrics to track success by Q4 FY2023.
- Implementation of the action plan will begin by Q1 FY2024.
- Completion of the effort is anticipated by Q4 FY2035.

Competitive Employment and Training (PAA #3):

Strengthen competitive employment and training grant opportunities focused on equitable, energy sector strategies that prepare workers for high-quality jobs in occupations and industries critical to delivering a clean energy future.

This action is a national effort and our goals include:

- Leveraging competitive grants, including Workforce Opportunity for Rural Communities (WORC) grants and Veteran Clean Energy Training grants, to prepare workers for clean energy sector jobs.
- Providing intensive and ongoing technical assistance focused on increasing completion rates of participants entering training to ensure that they receive the skills and certifications needed to contribute to a net-zero emission economy.
- Collecting and disseminating information on occupations related to clean energy, including new and emerging tasks and technology skills to help individuals make informed training and career choices.
- Reviewing Job Corps' career technical training offerings and identifying opportunities to promote educational training programs in renewable and clean energy and incorporate "green" training elements into other programs.

The Employment and Training Administration (ETA) will be the lead agency to address this action and our efforts will result in:

- Participants enrolled in and completing training programs in environmentally sustainable sectors or occupations essential to "greening" the economy.
- More robust occupational data on environmentally sustainable jobs.
- Additional Job Corps students selecting clean energy career technical training offerings or receiving instruction in skills that contribute to reducing carbon emissions.

ETA's history of action on this priority includes:

- Past Green Jobs Grant Programs funded by the American Recovery and Reinvestment Act of 2009 (Recovery Act):
 - Energy Training Partnerships (ETP) Grants
 - Pathways out of Poverty (POP) Grants
 - State Energy Sector Partnership and Training (SESP) Grants



- State Labor Market Improvement (LMII) Grants
- Green Capacity Building Grants (GCBG)
- Collaboration with the Department of Commerce/EDA, NIST/MEP, and the Delta Regional Authority on the following initiatives:
 - Jobs and Innovation Accelerator Challenge
 - Make it in America Challenge
- Job Corps instituted a number of measures to “green” its job training programs and facilities. Recovery Act funding was used to:
 - Incorporate “green” training elements into the automotive, advanced manufacturing, and construction trades at Job Corps centers nationwide.
 - Pilot three new “green” training programs at selected Job Corps centers: Solar Panel Installation, Weatherization, and SmartGrid technology.
- Collaboration, in 2021, with the Treasury Department to award a SIPPPRA grant to the New York State Energy Research and Development Authority (NYSERDA) for clean energy job training.

To accomplish this Priority Adaptation Action, DOL will coordinate with:

- The National Science Foundation (NSF)
- The Treasury Department
- The Environmental Protection Agency (EPA)
- Other federal agencies including those serving as ex-officio members of the Advisory Committee on Apprenticeship (Commerce, Education, HUD, HSS, Transportation and Energy) to coordinate on joint actions and opportunities for collaboration.

We anticipate the following timeline to incorporate these efforts into our FY2022 Agency Management Plan (AMP):

- Strategic planning began in Q3 FY2021.
- Development of the AMP action plan and metrics to track success by Q4 FY2021.
- Implementation of the AMP action plan will begin by Q1 FY2022.
- Completion of AMP integration is anticipated by Q4 FY2022.

Community Economic Resilience (PAA #4):

Assist communities negatively impacted by the transition to renewable energy to retrain and adapt their workforce for high-quality jobs in non-carbon intensive industries. This includes continuing to work with the Interagency Working Group on Coal and Power Plant Communities and Economic Revitalization for a clean and resilient energy future.

This action is a national effort and our goals include:

- Developing and awarding grants for communities that have been impacted or are likely to be impacted by coal mining and coal power plant employment loss. These grants will prepare dislocated workers for good jobs in high-demand occupations aligned with regional or community economic development.

- Identifying opportunities to assist the Interagency Working Group on Coal and Power Plant Communities and Economic Revitalization (“the Working Group”) efforts to support and revitalize the economies of coal and power plant communities.
- Implementing the Working Group’s recommendations on how to best deploy grants, technical assistance, financing, procurement, and other programs to achieve these aims.

ETA will be the lead agency to address this action and our efforts will result in:

- Expanded opportunities for workers in fossil-fuel dependent communities to switch to jobs that contribute to the transition to a net-zero future.
- Economic development and revitalization in coal and fossil fuel-dependent regions affected by the clean energy transition.
- Ecologically and economically stronger and resilient communities.

Risks and challenges associated with these actions include:

- Market forces, the business cycle, and the technological developments may create challenges to matching newly trained workers to clean energy sector opportunities.

ETA began action on this priority in 2021 when ETA issued a funding notice for Workforce Opportunity for Rural Communities (WORC) demonstration grants, which included an additional emphasis on Energy Communities and will be administered in partnership with the Appalachian Regional Commission (ARC) and the Delta Regional Authority (DRA).

To accomplish these goals, DOL will coordinate with:

- The Working Group to identify opportunities to support and revitalize the economies of coal and power plant communities.
- Other agencies as directed by the Working Group.
- The Economic Development Administration (EDA) to ensure that grants are aligned with economic development strategies.

We anticipate the following timeline to incorporate these objectives into ETA’s FY2022 Agency Management Plan:

- Strategic planning began in Q3 FY2021.
- Development of the action plan and metrics to track success by Q4 FY2021.
- Implementation of the action plan will begin by Q1 FY2022.
- Completion of the effort is anticipated by Q4 FY2022.

Procurement and Acquisition Resilience (PAA #5):

Adapt our procurement policies and specifications to evolving best practices in resilience that will support nimble mission continuity and preparation for acute and long-term climate disruptions to upstream and downstream supply chains.

This action is a national effort and our goals include:

- Assessment of potential vulnerabilities and risks to procurement processes.
- Developing climate literacy and informing the acquisition community of resiliency provisions necessary to strengthen our long-term climate change preparedness.

- Identifying supply-chain vulnerabilities and contracting options ahead of acute disruptions and develop robust strategies to manage those challenges to best support mission resilience.
- Reducing Agency cradle-to-grave carbon footprint by ensuring applicable resilient and sustainable terms and conditions are included in relevant contract actions.

The Office of the Senior Procurement Executive (OSPE) will be the lead agency to address this action and our efforts will result in:

- Responsive flexibility and capacity during climate emergencies.
- Greater understanding of responsible sourcing and its impact on climate change.
- Assurance that prospective vendors have the requirements necessary to provide DOL with environmentally responsible goods and services.
- Stronger use of federal procurement regulations to draw contractors' attention to their impact on the environment as they provide goods and services.

Risks and challenges associated with these actions include:

- Potentially significant increases in the costs of goods and services for DOL.
- Longer delivery time(s) leading to delays or missed deadlines.
- Increased regulation may narrow options for suppliers of goods and services.

OSPE began action on this priority in 2019 by increasing acquisition training and compliance with clauses to elevate progressive contractor support of our resilience goals. We will continue to ramp up our compliance and contractor expectations in FY 2022- FY2025 while concurrently supporting Federal Acquisition Regulations (FAR) requirements.

To accomplish this Priority Adaptation Action, DOL will coordinate and collaborate with:

- The Federal Acquisition Institute's Cornerstone on Demand to align training efforts.
- All DOL program activities to ensure they are aware of the training resources available for their staff to be supportive of the initiative.

We anticipate the following timeline:

- Strategic planning will begin in Q1 FY2022.
- Development of the action plan and metrics to track success by Q1 FY2022.
- Implementation of the action plan will begin by Q2 FY2022.
- This priority adaptation action will be ongoing and, therefore, no completion date has been set.



Updating Climate Vulnerability Assessments (Topic 1):

This Climate Action Plan is our first step in renewing efforts for systematic assessment and action on climate risks to our Agency missions. We have identified five key climate related vulnerabilities to mission success and are in the process of developing metrics to define milestones to measure progress in addressing these challenges.

While the first three vulnerabilities focus on Washington DC (where our Headquarters facilities are located), they are also national vulnerabilities as these issues are common to several of our regional facilities in cities across the country.

Vulnerability 1: Temperature Shifts

Temperature shifts due to climate change are threats to DOL Headquarters and regional assets across the United States. This vulnerability may increase power outages and brownouts at DOL Headquarters and regional assets. An unstable electrical grid may also negatively affect telework options that would otherwise support mission critical efforts.

In 2016, the Department of Energy and Environment (DDOE), within the District of Columbia, completed a Climate Vulnerability and Risk Assessment (VRA)¹ and identified this infrastructure issue. DDOE has primary responsibility to address adaptation efforts in collaboration with Congress and GSA. DOL will coordinate with DDOE and collaborate on adaptive action.

In order to maintain mission readiness during acute climate related events, DOL Headquarters will maintain existing back-up power capabilities for essential services and improve our energy infrastructure to maximize renewable energy and minimize petroleum based generation solutions.

Meaningful implementation of renewable energy capacity at Headquarters will take 5-8 years. In the interim, DOL has sufficient diesel generation capacity to support essential operations.

Barriers to implementation may include potential DDOE or GSA adaptation delays that may alter our ability to minimize the disruptive nature of these vulnerabilities.

DOL will be evaluating each of our facility assets across the country for similar temperature vulnerabilities and prepare resilience strategies accordingly to each region's unique circumstances.

DOL does not anticipate a financial disclosure or risk management requirement for this work (beyond normative budget and worker safety efforts) but will maintain records sufficient to articulate the cost and/or savings of adaptation and expanded use of renewable energy.

¹Page 24, VRA, Climate Change Adaptation Plan for the District of Columbia (2016)

Vulnerability 2: Sea Level Rise and Flooding

Sea level rise will increase risks of flooding along coasts and rivers near DOL assets. This vulnerability cascades into threats to utility services (power, water, sanitation, and steam) for DOL facility assets and employees. Loss of utilities and/or sanitation service could force temporary closures of DOL facilities by making them uninhabitable. These vulnerabilities could hamper mission readiness and force maximum telework postures more frequently.

DOL Headquarters are in Washington DC, where the DDOE VRA² identified flooding and tidal rise as a serious infrastructure threat. While the District of Columbia has primary responsibility to address flooding adaptation efforts, DOL will be significantly impacted by any DDOE action. Thus, DOL will collaborate with GSA and coordinate with DDOE on adaptive action. Likewise, DOL will coordinate with local and state agencies in other regions where our assets are at risk.

In FY2022, DOL will review and adjust telework policy to include climate change contingency planning and be prepared to implement adaptive telework policies across the Agency beginning in FY2023. DOL is confident that implementation is possible by Q2 FY2023 due to our recent experience and lessons learned with the COVID 19 Pandemic.

Barriers to adaptation may include:

- Negotiating changes with bargaining units and the renewal cycles of these agreements.
- Potential DDOE or GSA adaptation delays that may alter our ability to minimize the disruptive nature of these vulnerabilities.

DOL will work closely with Human Resources to maintain an open and transparent process to this policy adaptation with employees and bargaining units.

Vulnerability 3: Transportation Infrastructure

The Fourth National Climate Assessment (FNCA)³ identified increased flooding as a threat to both above-grade and below-grade transportation infrastructure. This is likely to affect DOL operations across the country and may create DOL workforce transportation issues that will disrupt normal operations and force maximum telework postures more frequently.

DOL will work with GSA and local municipalities to address transportation infrastructure issues for continuity of operations. DOL will adapt telework policy and provide resources to be agile in deploying maximum telework posture while maintaining mission performance during transportation disruptions.

In FY2022, in coordination with Vulnerability 1 and 2, DOL will review and adjust telework policy to include climate change contingency planning and be prepared to implement adaptive telework policies across the Agency in FY2023. DOL is confident that implementation is possible by Q2 FY2023.

²Page 19, VRA, Climate Change Adaptation Plan for the District of Columbia (2016)

³Page 449, Fourth National Climate Assessment, Volume II (2018)

Barriers to implementation may include:

- Negotiating changes with bargaining units, contractor services, and the renewal cycles of these agreements.
- Potential state, local, and/or GSA adaptation delays that may alter our ability to minimize the disruptive nature of these vulnerabilities.

DOL will work closely with Human Resources and OSPE to maintain an open and transparent process to this policy adaptation with employees and contractors.

Vulnerability 4: Job Corps Centers and Conservation Corps Centers

The 121 Job Corps Centers and Conservation Corps Centers owned by DOL across the United States and Puerto Rico have a wide variety of facility vulnerabilities that may threaten their suitability of use, habitability, and mission capacity in the event of acute or prolonged climate events.

Coordinated by the Job Corps National Office (OJC), the Employment and Training Administration (ETA) will develop Regional climate action strategies to identify, assess, and address climate related threats and options to preserve mission capacity and resilience. DOL will use the vulnerabilities identified for FNCA National Climate Assessment Regions⁴ as guidance for framing priority efforts.

Having experienced the challenges of suspending nearly all Job Corps Center training programs for months during the recent pandemic and closing, realigning, and rebuilding facilities in Puerto Rico, Texas, and along the Gulf Coast due to acute climate events, OJC understands the threat climate change presents to the economically disadvantaged workers and communities we serve. We intend to strengthen our resilience across all OJC programs with special focus on our most vulnerable economic and environmentally unstable regions.

Building on previous momentum, ETA climate action strategies will be updated in FY2022-2023 and be ready to deploy by Q3 FY2024. DOL anticipates piloting strategy development with the Philadelphia Region in FY2022 and using lessons learned from the pilot to expedite development for the remaining five Regions in FY2023. DOL will update the Climate Action Plan as regional efforts evolve.

Barriers to implementation may include:

- Expertise at Regional levels.
- Potential local, state, or other agency adaptation delays beyond DOL control.

DOL will disclose these plans via publication of our Annual Sustainability Plan and incorporate discussion of the opportunities and challenges as routine public relations activities within the Agency.

⁴ Page 5 & Pages 669-1278, Fourth National Climate Assessment, Volume II (2018)

Vulnerability 5: DOL Leased Space

DOL has 2.7 million square feet of leased office space, primarily through General Services Administration (GSA), across all 50 States. Climate change may threaten suitability of use and habitability in the event of acute or prolonged climate events. These vulnerabilities vary considerably by location.

Coordinated by OASAM, the BOC Asset Management team will develop Regional climate action strategies to identify, assess, and address climate related threats and options to preserve mission capacity and resilience in all leased facilities. DOL will also collaborate with GSA on action plans and facility resilience priorities. DOL will update the Climate Action Plan as these efforts evolve and use the vulnerabilities identified in the FNCA⁵ as guidance for framing priority efforts.

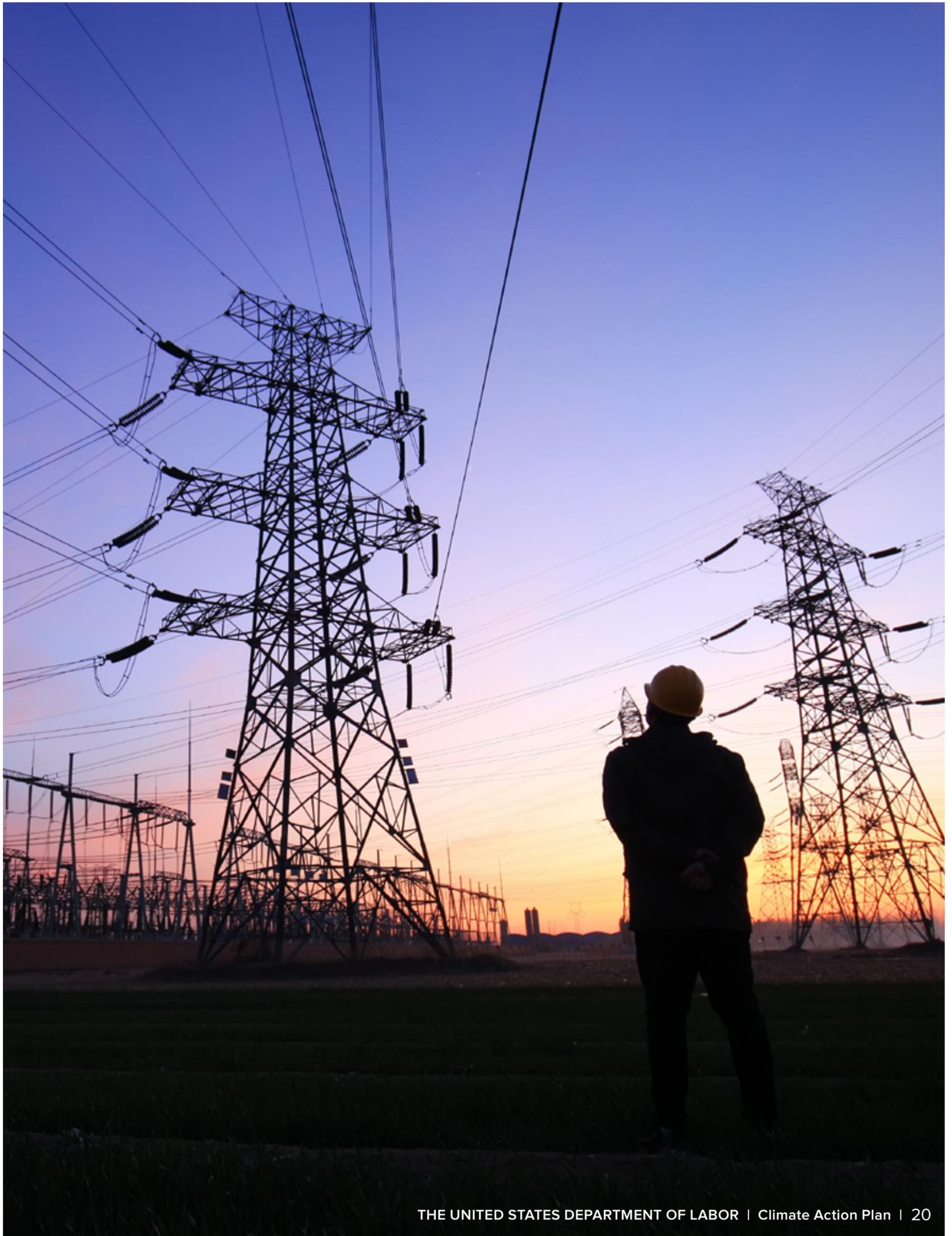
Regional climate action strategies for leased facilities will be developed in FY2022-2023 and be prepared to deploy in FY2024.

Barriers to implementation may include:

- Lease contracts may require renegotiations and concessions.
- Potential local, state, or other agency adaptation delays beyond DOL control.

DOL will disclose these plans via publication of our Annual Sustainability Plan and incorporate discussion of the opportunities and challenges as routine public relations activities within the Agency.

⁵ Page 5 & Pages 669-1278, Fourth National Climate Assessment, Volume II (2018)



Improving Climate Literacy (Topic 2):

Strengthening management climate literacy at DOL serves three key purposes:

- Well-informed leadership and management teams are prepared to prioritize, coordinate, and integrate resilience and adaptation efforts into Agency-wide strategic planning.
- Leadership and management have significant influence on the tone and pace of change for an organization.
- Informed leadership consensus promotes opportunities for interagency synergy at all levels.

Initially, climate literacy is essential for our OASAM, BOC, OSPE, and ETA management teams to drive well-informed consensus as we address the five PAAs identified in this plan:

- PAA #1 - Ensuring Worker Safety
- PAA #2 - Facility and Campus Resilience
- PAA #3 - Workforce Training Adaptation
- PAA #4 - Community Economic Resilience
- PAA #5 - Procurement and Acquisition Resilience

The Chief Sustainability Officer (CSO) and Sustainability team will prepare and disseminate a leadership training course focused on management considerations and environmental justice for climate change by Q4 FY2022. The CSO will also provide regular input at senior staff meetings on the needs and progress of climate change efforts.

Climate literacy will be essential at all levels as we seamlessly integrate our existing missions with our PAAs. From the basics of understanding how the ecosystem drives availability and needs for products and services to the complex interaction between workforce adaptability and community economic resilience, climate literacy training for all DOL employees will drive our holistic approach to adaptation. In collaboration with DOL's Human Resources office, the Sustainability team will develop an all-hands training course to be available on Learning Link by Q4 FY2022 and add climate literacy to new employee orientation sessions beginning in Q2 FY2022.

While training topics will vary by professional audience, focus elements may include:

Understanding our Fragile, yet Resilient, Ecosystem

- Nature, Community, and Industry are Interconnected.
- The Environmental Costs of Products, Services, Energy, and Indifference.

Embracing the Intent and Ambitious Challenge of Executive Order 14008

- Incorporating Environmental Stewardship into our Missions.
 - Interconnected Stakeholders to Local, National, and Global Choices.
 - Valuing and Empowering all Stakeholders.
- Understanding “Net-Zero” in Balancing Mission and Environmental Stewardships.
- Environmental Justice in Our Interconnected World.

- Understanding and Avoiding Disproportionate Negative Consequences.
Promoting Positive Change within our Professional Scope of Influence
- Holistic Cost Considerations.

360 Degree Perspectives - Making a Difference at Home, at Work, and at Play

- Safe, Secure, and Environmentally Responsible Leadership
- Commitment to Cradle-to-Grave Environmental Stewardship:
 - Reduce, Reuse, Recycle – Leaving the Campground better than we found it.
 - Passing it On –Generational Opportunities for Change.
- Resilient Facilities
 - Design Considerations
 - Sustainable Utilization
 - Sustainable Modernization

Enhancing Climate Resilience (Topic 3):

Overseen by OASAM and coordinated through the BOC, determination of climate change policy, criteria, and priorities are a team effort at DOL. Leadership from BOC, OJC, ETA, OSPE, and the Office of Worker Safety and Health (OWSH) collaborate to establish climate action requirements for Sustainability, Facilities, and Asset Management to execute within budget capacity.

Equity is a paramount consideration at every level of mission engagement at DOL. As we develop our environmental justice strategy, equitable distribution of environmental risk and the benefits of climate action initiatives will be emphasized across all phases of our work and will be a strategic emphasis in upcoming OJC Regional Climate Action Strategies (being developed in FY2022-2023).

Actions for Climate-Ready Sites and Facilities

Through robust planning and execution of design, construction, modernization, and recommissioning opportunities, DOL will reduce carbon emissions at our campuses and foster sustainable best practices through the following efforts:

Engage Energy Savings Performance Contracting (ESPC) and Utility Energy Savings Contracts (UESC) to improve energy efficiency, electrification, and resilience across DOL facilities. Specifically, DOL will target the following timeline for executing modernization ESPC/UESC opportunities at the following locations:

- MSHA Triadelphia by Q4 FY2023
- DOL Headquarters by Q2 FY2023
- OJC Regions 1-3 by Q4 FY2024
- OJC Regions 4-6 by Q4 FY2025

Transition DOL Fleet Vehicles from petroleum fueled vehicles to increasing the use of hybrid and electric vehicles between FY2024 and FY2035. This will include:

- Re-examining fleet replacements for appropriate electric vehicles and hybrids that can meet mission requirements while reducing our carbon footprint. DOL leases approximately 3,639 vehicles from GSA and replaces approximately 12% of the fleet each year.
- Improving electric vehicle charging station access at DOL facilities (including JCCs and CCCs) for both government and privately owned vehicles.

Increase the use of renewable energy (solar/wind/geothermal) at DOL owned or operated facilities by 400% by FY2026.

Improve preventive maintenance and recommissioning efforts to optimize energy efficiency and performance of existing energy intensive systems (primarily HVAC, Chiller, and Boiler Operations) at all DOL maintained facilities.

Reinvigorate “Green Teams” across our 121 JCC and CCC properties to identify energy and sustainability targets that can be included in modernization efforts.

Actions To Ensure Climate-Ready Supply of Products and Services

DOL's mission is "to foster, promote, and develop the welfare of the wage earners, job seekers, and retirees of the United States; improve working conditions; advance opportunities for profitable employment; and assure work related benefits and rights."⁶ When job markets and communities become disrupted by evolving climate actions or a force majeure, our ability to fulfill these missions are compromised and challenged. These challenges require more than contingency planning for maintaining operations. DOL must be prepared to assist at-risk communities in adapting their job markets to changing climate conditions and prevent damage to the continuity of robust business and industry labor opportunities.

DOL serves and supports our labor communities. Acute extreme weather events and/or long-term climate change pose significant risks to our ability to deliver on our mission in five critical areas:

1. Ability to secure lawful wages and working conditions for America's workers.
2. Ability to secure safe and healthful working conditions for America's workers.
3. Support timely and accurate benefits for unemployed workers.
4. Provide equitable training programs at Mine Safety and Health Administration (MSHA), Job Corps Centers (JCCs), and Conservation Corp Centers (CCCs) across America.
5. Promote a fair global playing field for America's workers and businesses.

As we prepare and execute climate adaptation efforts, our foremost priorities are to lead and deliver on our mission to promote and secure a bright future for American workers.

Conclusion:

Through assessing climate vulnerabilities with our assets and equities, we will develop adaptive measures to support climate resilience. Our actions will emphasize responsible planning, leveraging adaptive strengths, and collaborating with business and industry to optimize mission resilience, embrace a robust environmental justice strategy, and lead by example. With thoughtful attention to science and social accountability, DOL will engage projects and strategies that shift us from a risk management posture to a prepared resilience capable of effectively serving our citizens today and tomorrow.

Final implementation decisions will be based on the priorities outlined in this Climate Action Plan, the evolving science on climate change, and resource levels.

⁶ Page 4, Department of Labor FY2018-2022 Labor Strategic Plan





UNITED STATES DEPARTMENT OF LABOR

[dol.gov](https://www.dol.gov)

DEPARTMENT OF ENERGY

[EERE-2020-BT-DET-0017]

Final Determination Regarding Energy Efficiency Improvements in ANSI/ASHRAE/IES Standard 90.1-2019

AGENCY: Office of Energy Efficiency and Renewable Energy, Department of Energy.

ACTION: Notification of determination.

SUMMARY: The U.S. Department of Energy (DOE) has reviewed ANSI/ASHRAE/IES Standard 90.1-2019: *Energy Standard for Buildings, Except Low-Rise Residential Buildings* and determined the updated edition would improve energy efficiency in commercial buildings subject to the code. DOE analysis indicates that buildings meeting Standard 90.1-2019, as compared with buildings meeting the 2016 edition, would result in national site energy savings of 4.7 percent, source energy savings of 4.3 percent, and energy cost savings of approximately 4.3 percent of commercial building energy consumption. Upon publication of this affirmative determination, each State is required to review the provisions of their commercial building code regarding energy efficiency, and, as necessary, update their codes to meet or exceed Standard 90.1-2019. Additionally, this notice provides guidance on state code review processes and associated certifications.

DATES: Certification statements provided by States shall be submitted by July 28, 2023.

ADDRESSES: A copy of the supporting analysis, as well as links to the Federal docket and public comments received, are available at: <https://www.energycodes.gov/development/determinations>.

Certification Statements must be addressed to the Building Technologies Office—Building Energy Codes Program Manager, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, 1000 Independence Avenue SW, EE-5B, Washington, DC 20585.

FOR FURTHER INFORMATION CONTACT:

Jeremiah Williams; U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, 1000 Independence Avenue SW, EE-5B, Washington, DC 20585; (202) 441-1288; Jeremiah.Williams@ee.doe.gov.

For legal issues, please contact Matthew Ring; U.S. Department of Energy, Office of the General Counsel, 1000 Independence Avenue SW, GC-33,

Washington, DC 20585; (202) 586-2555; Matthew.Ring@hq.doe.gov.

SUPPLEMENTARY INFORMATION:

- I. Background
- II. Public Participation
- III. Determination Statement
- IV. State Certification

I. Background

Title III of the Energy Conservation and Production Act, as amended (ECPA), establishes requirements for DOE to review consensus-based building energy conservation standards. (42 U.S.C. 6831 *et seq.*) Section 304(b), as amended, of ECPA provides that whenever the ANSI/ASHRAE/IESNA¹ Standard 90.1-1989 (Standard 90.1-1989 or 1989 edition), or any successor to that code, is revised, the Secretary of Energy (Secretary) must make a determination, not later than 12 months after such revision, whether the revised code would improve energy efficiency in commercial buildings, and must publish notice of such determination in the **Federal Register**. (42 U.S.C. 6833(b)(2)(A)) If the Secretary makes an affirmative determination, within two years of the publication of the determination, each State is required to certify that it has reviewed and updated the provisions of its commercial building code regarding energy efficiency with respect to the revised or successor code and include in its certification a demonstration that the provisions of its commercial building code, regarding energy efficiency, meet or exceed the revised Standard. (42 U.S.C. 6833(b)(2)(B)(i)) Standard 90.1-2019, the most recent edition, was published in October 2019, triggering the statutorily required DOE review process. The Standard is developed under ANSI-approved consensus procedures,² and is under continuous maintenance under the purview of an ASHRAE Standing Standard Project Committee (commonly referenced as SSPC 90.1). ASHRAE has an established program for regular publication of addenda, or revisions, including procedures for timely, documented, consensus action on requested changes to the Standard. More information on the consensus process and ANSI/ASHRAE/IES Standard 90.1-2019 is available at <https://www.ashrae.org/technical-resources/bookstore/standard-90-1>.

¹ ANSI—American National Standards Institute; ASHRAE—American Society of Heating, Refrigerating, and Air-Conditioning Engineers; IES—Illuminating Engineering Society.

² See <https://www.ansi.org/american-national-standards/info-for-standards-developers/standards-developers>.

In addition, on January 20, 2021, the President issued Executive Order 13990, “Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis.” 86 FR 7037 (Jan. 25, 2021). The Executive Order directed DOE to consider publishing for notice and comment a proposed rule suspending, revising, or rescinding the final technical determination regarding the ASHRAE Standard 90.1-2016 by May 2021. *Id.* at 86 FR 7038. In response, DOE has reviewed the current Standard 90.1-2019 so that DOE’s determination under section 304(b) of ECPA reflects the most recent version of Standard 90.1, and to facilitate State and local adoption of the Standard, which will improve energy efficiency in the nation’s commercial buildings.

To meet the statutory requirement, and to satisfy the directive issued under Executive Order 13990, DOE issued a preliminary determination and published supporting analysis to quantify the expected energy savings associated with Standard 90.1-2019 relative to the previous 2016 version. The preliminary determination and analysis are available at: <https://www.regulations.gov/document/EERE-2020-BT-DET-0017-0001>.

II. Public Participation

In an April 21, 2021 **Federal Register** notice, DOE requested public comments on its preliminary analysis of Standard 90.1-2019. (82 FR 34513) DOE received eight public comments, all of which DOE considered in arriving at its final determination. DOE has now issued the final analysis of the expected energy savings associated with Standard 90.1-2019 as compared to Standard 90.1-2016. A summary of public comments received, and DOE responses, is included in Appendix A of this Notice. The final analysis is available at: <https://www.energycodes.gov/development/determinations>.

III. Determination Statement

Commercial buildings meeting Standard 90.1-2019 (compared to the previous 2016 edition) are expected to result in the following savings on a weighted national average basis:

- 4.7 percent *site* energy savings
- 4.3 percent *source* energy savings
- 4.3 percent energy *cost* savings

DOE has rendered the conclusion that Standard 90.1-2019 will improve energy efficiency in commercial buildings, and, therefore, receives an affirmative determination under Section 304(a) of ECPA. States can experience significant benefits by updating their codes to reflect current construction

standards, a total estimated \$63.80 billion in energy cost savings and 476.77 MMT of avoided CO₂ emissions in commercial buildings (cumulative 2010 through 2040), or \$2.80 billion in annual energy cost savings and 21.16 MMT in annual avoided CO₂ emissions (annually by 2030). These benefits, including emissions reductions, are estimated in a revised 2021 interim report addressing building code impacts.³ Though not quantified in the interim report, there may also be costs to regulated entities as a result of updated commercial building codes.

IV. State Certification

Upon publication of this affirmative determination, each State is required to review and update, as necessary, the provisions of its commercial building energy code to meet or exceed the provisions of the 2019 edition of Standard 90.1. (42 U.S.C. 6833(b)(2)(B)(i)) This action is required not later than 2 years from the date the final Notice of Determination is published in the **Federal Register**, unless an extension is provided.

State Review & Update

DOE recognizes that some States do not have a State commercial building energy code, or have a State code that does not apply to all commercial buildings. States may base their certifications on reasonable actions by units of general-purpose local government. Each such State must review the information obtained from the local governments, and gather any additional data and testimony in preparing its own certification.

The applicability of any State revisions to new or existing buildings would be governed by the State building codes. States should be aware that the scope of Standard 90.1 includes high-rise (greater than three stories) multi-family residential buildings, and hotels, motels, and other transient residential building types of any height, as commercial buildings for energy code purposes. Consequently, commercial buildings, for the purposes of certification to DOE, would include high-rise multi-family residential buildings, hotels, motels, and other transient residential building types of any height.

³ See https://www.pnnl.gov/main/publications/external/technical_reports/PNNL-31437.pdf for the 2021 interim code impact report. Financial benefits are calculated by applying historical and future fuel prices to site energy savings and by discounting future savings to 2020 dollars. Historical and future real fuel prices are obtained through EIA's AEO 2015 report (EIA 2015).

State Certification Statements

Section 304(b) of ECPA, as amended, requires each State to certify to the Secretary of Energy that it has reviewed and updated the provisions of its commercial building energy code regarding energy efficiency to meet or exceed the Standard 90.1–2019. (42 U.S.C. 6833(b)) The certification must include a demonstration that the provisions of the State's commercial building energy code regarding energy efficiency meets or exceeds Standard 90.1–2019. If a State intends to certify that its commercial building energy code already meets or exceeds the requirements of Standard 90.1–2019, the State should provide an explanation of the basis for this certification (*e.g.*, Standard 90.1–2019 is incorporated by reference in the State's building code regulations). The chief executive of the State (*e.g.*, the governor), or a designated State official (*e.g.*, director of the State energy office, State code commission, utility commission, or equivalent State agency having primary responsibility for commercial building energy codes), would provide the certification to the Secretary. Such a designated State official would also provide the certifications regarding the codes of units of general purpose local government based on information provided by responsible local officials.

The DOE Building Energy Codes Program tracks and reports State code adoption and certification.⁴ Once a State has adopted a new commercial energy code, DOE typically provides software, training, and support for the new code as long as the new code is based on the national model code (*i.e.*, ASHRAE Standard 90.1–2019). DOE has issued previous guidance on how it intends to respond to technical assistance requests related to implementation resources, such as building energy code compliance software. (79 FR 15112) DOE Secretary is required to provide incentive funding to States to implement the requirements of section 304, and to improve and implement State residential and commercial building energy efficiency codes, including increasing and verifying compliance with such codes. (See 42 U.S.C. 6833(e)) Some States develop their own codes that are only loosely related to the national model codes, and DOE may not be able to provide technical support for those codes. DOE does not prescribe how each State adopts and enforces its energy codes.

⁴ Available at <https://www.energycodes.gov/adoption/states>.

Requests for Extensions

Section 304(c) of ECPA requires that the Secretary permit an extension of the deadline for complying with the certification requirements described previously, if a State can demonstrate that it has made a good faith effort to comply with such requirements and that it has made significant progress toward meeting its certification obligations. (42 U.S.C. 6833(c)) Such demonstrations could include one or both of the following: (1) A plan for response to the requirements stated in Section 304; or (2) a statement that the State has appropriated or requested funds (within State funding procedures) to implement a plan that would respond to the requirements of Section 304 of ECPA. This list is not exhaustive. Requests are to be sent to the address provided in the **ADDRESSES** section, or may be submitted to BuildingEnergyCodes@ee.doe.gov.

Appendix A

DOE received comments on its preliminary determination and supporting analysis of Standard 90.1–2019 from the following stakeholders:

- U.S. Army
- U.S. Air Force
- Responsible Energy Codes Alliance (RECA)
- Edison Electric Institute (EEI)
- Air-Conditioning, Heating, and Refrigeration Institute (AHRI)
- Three individual commenters

The comments are summarized below and are available at: <https://www.regulations.gov/document/EERE-2020-BT-DET-0017-0001/comment>. DOE responded to all comments received. Several issues raised by commenters are distinct from the energy efficiency analysis DOE has undertaken pursuant to its statutory obligations. These include the social cost of carbon, life-cycle cost, and cost effectiveness; among these issues, social cost of carbon garnered the most attention from commenters and is therefore emphasized in the responses below.

Comment: The anonymous submitter of comment ID EERE–2020–BT–DET–0017–0002 stated that the reduction in emissions is low for a five-year code cycle and the standards should be stricter.

DOE response: DOE notes that the reported savings estimates represent a 3-year code cycle—Standard 90.1–2019 compared to the 2016 edition—and not 5 years as stated by the commenter. The stringency of each version of 90.1 is determined by the ANSI consensus process used to revise Standard 90.1, as administered by ASHRAE. While DOE is directed to participate in the ASHRAE consensus process, the Department holds no special status. DOE's role in code review and consensus processes for commercial energy codes, including Standard 90.1, is further described at <https://www.energycodes.gov/development/commercial/codes>.

Comment: The U.S. Army stated that some of the requirements are not “reasonable” or “practicable” and that requirements should

be operable and maintainable with typical maintenance staff and budgets.

DOE response: DOE notes that, in making its determination, its directive under ECPA is to assess whether updated editions of Standard 90.1 would improve *energy efficiency* in commercial buildings. DOE believes that the issue of whether code provisions are “reasonable” and “practicable” is complex and most appropriately addressed directly by the established code development process, as administered by ASHRAE, used for Standard 90.1. That process is inclusive of a wide range and variety of stakeholders, and features a robust public comment process to ensure that the concepts evaluated for inclusion in new versions of Standard 90.1 are indeed reasonable, practicable, feasible and cost effective, among many other considerations.

Comment: The anonymous submitter of comment ID EERE-2020-BT-DET-0017-0004 asked, for buildings that are already using 100% renewable energy, whether the source energy and CO₂ savings are going to be zero.

DOE response: DOE’s determination is focused on a typical new building meeting the minimum requirements of ASHRAE Standard 90.1-2019. A building that is using 100% renewable energy was not contemplated in DOE’s analysis.

Comment: The anonymous submitter of comment ID EERE-2020-BT-DET-0017-0005 asked why DOE shows building-only savings for natural gas and building plus upstream savings for electricity. The commenter suggested DOE should account for regional variations in gas and electricity production.

DOE response: Both gas and electricity savings are expressed as both site energy and source energy. The source energy factors for natural gas and electricity are shown on pages 16 and 17 of the technical support document referenced in the preliminary determination notice. The source energy emissions for electricity include both the losses in terms of generation as well as losses in transmission and distribution. For natural gas, the source energy factor of 1.088 includes losses due to both pipeline leakage and transmission energy (compression) and the derivations are documented in the technical support document. Regarding regional variation in production, DOE considers use of national assumptions for gas and electricity production the most appropriate way to estimate the national energy impact of one edition of a model standard compared to the previous edition, which is consistent with DOE’s directive under ECPA.

Comment: The U.S. Air Force’s first comment stated that the determination does not address institutional, industrial, or campus buildings that often have mass walls and reduced window area.

DOE response: The suite of prototype building models relied upon by the Standard 90.1 development committee and applied in DOE’s analysis of ASHRAE Standard 90.1-2019 represents approximately 76% of U.S. new non-residential construction volume and includes mass walls, steel framed, metal

building, and wood frame construction. Window-to-wall ratio varies in these models from 1% to 40%, as is commonly the case in the commercial building stock, as represented by the prototype models. While the prototypes cannot address every possible combination of building type and building construction types in the analysis, they do include a representative range of building construction types, and are relied upon by established decision-making processes, including the Standard 90.1 development process.

Comment: The U.S. Air Force also recommended that the life-cycle cost analysis (LCCA) should not use U.S. average utility rates.

DOE response: In making its determination, DOE’s directive under ECPA is to assess whether updated editions of Standard 90.1 would improve *energy efficiency* in commercial buildings. 42 U.S.C. 6833(b)(2)(A) With respect to the energy cost savings calculation, DOE considers use of a national average utility rate the most appropriate way to estimate the national energy cost savings of one edition of a model energy standard compared to the previous edition, which is consistent with DOE’s directive under ECPA. The range of utility tariffs available in the U.S. numbers in the thousands, and DOE is ultimately charged with issuing a national determination. DOE notes that it does apply more specific rates in other analyses, where appropriate, such as in estimating energy code impacts at the state level.

Comment: The U.S. Air Force’s final comment stated it does not appear that maintenance tail expenses for mechanical requirements such as enthalpy wheels were incorporated into the LCCA.

DOE response: In making its determination, DOE’s directive under ECPA is to assess whether updated editions of Standard 90.1 would improve *energy efficiency* in commercial buildings. 42 U.S.C. 6833(b)(2)(A) Concepts such as life-cycle cost and cost effectiveness represent economic analysis and are distinct from the energy efficiency analysis that DOE is directed to assess through its determination. However, DOE recognizes the value of such analysis in informing state and local decisions surrounding code review and update processes, as well as design decisions associated with specific buildings and systems. DOE provides a variety of additional analysis, including cost-effectiveness analysis, outside the scope of DOE’s determination, and in response to the Department’s separate directive to provide technical assistance to support state code implementation. When conducting analysis such as cost-effectiveness analysis, DOE does indeed rely upon a life-cycle perspective and accounts for costs associated with the maintenance and replacement of building systems and components.

Comment: RECA’s first comment recommended that DOE provide technical support for Standard 90.1.

DOE response: DOE is directed under ECPA to provide technical assistance supporting the implementation of building energy codes. Consistent with this directive,

DOE intends to continue providing robust technical assistance supporting state and local implementation of buildings energy codes. DOE recognizes the importance of supporting the states and local governments who ultimately adopt and implement codes, as well as the wide range of industry stakeholders who rely upon energy codes and strive to achieve compliance in practice.

Comment: RECA’s second comment recommended that DOE provide cost-effectiveness analysis.

DOE response: As outlined in previous responses, DOE notes that the current determination is focused solely on whether the revised Standard would improve energy efficiency in commercial buildings. However, DOE recognizes the value of additional forms of technical analysis supporting building energy codes to support the implementation of state building energy codes (42 U.S.C. 6833(d)), and intends to continue to provide both national and state-level cost-effectiveness analysis of Standard 90.1-2019 in the future.

Comment: RECA’s third comment recommended that DOE provide state-level energy and cost analyses.

DOE response: Consistent with the previous comment response, DOE intends to provide state-level energy and cost analyses in the future.

Comment: RECA’s fourth comment recommended that DOE compare 90.1-2019 to the 2021 IECC.

DOE response: DOE recognizes that adopting states and local governments often review the commercial provisions of the International Energy Conservation Code (IECC), and can benefit from knowing how the IECC compares to Standard 90.1 (*i.e.*, the model energy code established under ECPA). DOE has provided such analysis in the past and intends to prepare similar analysis in the future.

Comment: RECA’s fifth comment recommended that DOE remove old versions of Standard 90.1 from COMcheck.

DOE response: In maintaining its compliance resources, such as the COMcheck software⁵, DOE typically supports the three most recent editions of the model codes. (79 FR 15112) Following the current determination, and in accordance with established DOE policy, this will include the 2019, 2016 and 2013 editions of Standard 90.1, which represents the range of recent code editions, and helps ensure limited federal resources remain focused on the latest model codes. DOE intends to maintain consistency with this approach.

Comment: RECA’s sixth comment recommended that DOE provide implementation support for 90.1-2019.

DOE response: Consistent with previous comment responses, DOE intends to continue providing robust support for states and local governments implementing building energy codes. DOE notes that several resources, including training on Standard 90.1-2019, are already available via the DOE Building

⁵ COMcheck is a software tool developed and maintained by DOE for the purpose of verifying compliance in commercial buildings. Learn more at <https://www.energycodes.gov/comcheck>.

Energy Codes Program technical assistance website, <https://www.energycodes.gov>. DOE intends to provide additional resources supporting Standard 90.1 implementation in the future.

Comment: RECA's seventh comment recommended that DOE find new opportunities to support model code adoption, compliance, and enforcement.

DOE response: DOE appreciates RECA's support in seeking new opportunities to support code adoption and implementation. DOE intends to continue to explore new and innovative means of supporting code implementation and welcomes additional suggestions in this area.

Comment: RECA's eighth comment stated that RECA agrees with and supports DOE's positive determination.

DOE response: DOE appreciates the support.

Comment: EEI's first comment stated that the EPA greenhouse gas equivalencies calculator overstates the emissions impact.

DOE response: As outlined in previous responses, DOE notes that the current determination is focused solely on whether the revised Standard would improve energy efficiency in commercial buildings. However, DOE recognizes the value of additional forms of technical analysis supporting state implementation of building energy codes, including emissions analyses. DOE relies on greenhouse gas emission coefficients established by the Environmental Protection Agency (EPA) in estimating current year CO₂ savings. EPA's emission coefficients are designed to reflect marginal CO₂ savings from electricity savings occurring on the building site, which DOE considers appropriate for evaluating the carbon savings stemming from an improved energy standard. This approach is consistent with how DOE has performed similar calculations in previous determinations.

Comment: EEI's second comment recommended that DOE's determination should take into account the commitments utilities have made to reduce carbon emissions.

DOE response: As outlined in previous responses, DOE notes that the current determination is focused solely on whether the revised Standard would improve energy efficiency in commercial buildings. However, DOE recognizes the value of additional forms of technical analysis supporting state implementation of building energy codes, including emissions analyses. DOE's analysis is based on several metrics—energy cost, site energy, source energy—and in addition reports the corresponding carbon emissions on a first-year basis. DOE recognizes the progress being made by utilities in decarbonizing the electric grid, and emphasizes that estimates provided in the supporting technical analysis are based on current emission levels and are subject to change in the future.

Comment: AHRI, p. 2–5. AHRI commented that historically DOE did not estimate emission reductions or apply a value to emission reductions as part of the results and basis for the determination. They further stated that including emission reductions or their value, including the SCC, as part of the

basis for determination was outside DOE's authority to consider (42 U.S.C. 6833(b)(2)(A)), because EPCA is an energy conservation statute and excludes environmental objectives (see 42 U.S.C. 6312 which excludes environmental objectives), and that DOE does not have the statutory authority to consider greenhouse gas estimates in determinations regarding commercial building codes. AHRI opined that the SCC should only be included for rulemakings where DOE has clear statutory authority to do so and stated that it lacks such statutory authority as to building energy codes.

DOE response: In making its determination, DOE's directive under EPCA is to assess whether updated editions of Standard 90.1 would improve energy efficiency in commercial buildings. 42 U.S.C. 6833(b)(2)(A) DOE emphasizes that the estimates pertaining to CO₂ are provided only as supplemental information and are not considered as part of the final determination, which is based on energy efficiency as required under 42 U.S.C. 6833(b)(2)(A). DOE's analysis includes an estimate of a one-year reduction in CO₂ emissions on a normalized per square foot basis for buildings constructed to 90.1–2019 versus those constructed to 90.1–2016. Climate benefits associated with the expected CO₂ emissions reductions are monetized using estimates of the social cost of carbon (SC–CO₂) presented in the *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990* ("February 2021 TSD").⁶

DOE has determined that the estimates from the February 2021 TSD are based upon sound analysis and provide well founded estimates for DOE's analysis of the impacts of CO₂ related to the reductions of emissions from updating the 90.1 Standard to the 2019 edition. However, DOE emphasizes that DOE is reporting estimates related to CO₂ only because information on the carbon emissions associated with buildings are valued by many stakeholders, including states and local governments who ultimately implement building codes, and who have expressed a need for this information. These estimates are not considered as part of DOE's ultimate determination of whether Standard 90.1–2019 will improve energy efficiency.

Comment: AHRI, p. 2, 5. AHRI stated that DOE is ignoring clear Congressional intent in including emissions in the narrowly scoped building energy code review defined in the statutory text (42 U.S.C. 6833(b)(1)). It further stated that Congress could have added global climate change as a variable to weigh in the determination, but did not do so and so DOE should not include this in the determination.

DOE response: See response to previous AHRI comment.

Comment: AHRI, p. 2. AHRI requested that DOE remove carbon emissions from the determination for building energy codes, including ASHRAE 90.1–2019.

DOE response: See previous response to AHRI comment.

Comment: AHRI p. 2. Irrespective of the authority consideration, AHRI requested that DOE must act to remedy inaccurate assumptions and conclusions on the SC–CO₂ benefits analysis. AHRI opined that the benefits claimed from full fuel cycle and global impact of emissions and SCC are speculative and tangential and that these are calculated over a time period (100 years) that greatly exceeds that used to measure economic costs.

DOE response: In making its determination, DOE's directive under EPCA is to assess whether updated editions of Standard 90.1 would improve energy efficiency in commercial buildings. 42 U.S.C. 6833(b)(2)(A). DOE emphasizes that the estimates pertaining to CO₂ are provided only as supplemental information and are not considered as part of the final determination, which is based on energy efficiency as required under 42 U.S.C. 6833(b)(2)(A).

In calculating related CO₂ impacts, DOE used the estimates for the SC–CO₂ from February 2021 TSD. DOE has determined that the estimates from the February 2021 TSD, as described more below, are based upon sound analysis and provide well founded estimates for DOE's analysis of the impacts of CO₂ related to the reductions of emissions from updating the 90.1 Standard to the 2019 edition. The SC–CO₂ estimates in the February 2021 TSD are interim values developed under Executive Order (E.O.) 13990 for use until an improved estimate of the impacts of climate change can be developed based on the best available science and economics. The SC–CO₂ estimates used in this analysis were developed over many years, using a transparent process, peer-reviewed methodologies, the best science available at the time of that process, and with input from the public. Specifically, an interagency working group (IWG) that included DOE, the EPA and other executive branch agencies and offices used three integrated assessment models (IAMs) to develop the SC–CO₂ estimates and recommended four global values for use in regulatory analyses. Those estimates were subject to public comment in the context of dozens of proposed rulemakings as well as in a dedicated public comment period in 2013.

The SC–CO₂ estimates were first released in February 2010 and updated in 2013 using new versions of each IAM. In 2015, as part of the response to public comments received to a 2013 solicitation for comments on the SC–CO₂ estimates, the IWG announced a National Academies of Sciences, Engineering, and Medicine review of the SC–CO₂ estimates to offer advice on how to approach future updates to ensure that the estimates continue to reflect the best available science and methodologies. In January 2017, the National Academies released their final report, *Valuing Climate Damages: Updating Estimation of the Social Cost of Carbon Dioxide*, and recommended specific criteria for future updates to the SC–CO₂ estimates, a modeling framework to satisfy the specified criteria, and both near-term updates and longer-term research needs pertaining to various components of the estimation process (National Academies 2017). On January 20, 2021, President Biden

⁶ For more information on DOE's use of the estimates from this document, please section 4.2 and 5 of the TSD for the final determination.

issued Executive Order 13990, which directed the IWG to ensure that the U.S. Government's (USG) estimates of the SC-CO₂ and other greenhouse gases reflect the best available science and the recommendations of the National Academies (2017). The IWG was tasked with first reviewing the estimates currently used by the USG and publishing interim estimates within 30 days of E.O. 13990 that reflect the full impact of GHG emissions, including taking global damages into account.⁷ The interim SC-CO₂ estimates published in February 2021 are used here to estimate the climate benefits associated with this determination and related model building energy code updates.

DOE acknowledges that there are a number of challenges in attempting to assess the incremental economic impacts of CO₂ emissions. The science and economic understanding of climate change and its impacts is improving over time; research focused on the assessment of climate damages and socioeconomic emissions projections is particularly important for reducing uncertainty in the calculation of the social cost of greenhouse gases (SC-GHG),⁸ as is quantifying and being transparent about where key uncertainties in the models remain.⁹ But contrary to AHRI's suggestion that uncertainty should cause DOE to discount or abandon monetization of the social benefits of reducing CO₂ emissions, as stated by the interagency working group ("IWG") that performed the review described in the February 2021 TSD, due to a number of sources of uncertainty, there is a likelihood that the social cost of greenhouse gases (SC-GHG) is an underestimate of the true social cost of emissions.¹⁰ Despite the limits of both quantification and monetization, SC-CO₂ estimates can be useful in estimating the social benefits of reducing CO₂ emissions. As a result, DOE has used the IWG's SC-CO₂ estimates in monetizing the social benefits of reducing CO₂ emissions. However, as discussed in previous comments, DOE's SC-CO₂ analysis

using these estimates was not considered in DOE's ultimate determination of whether Standard 90.1-2019 will improve energy efficiency.

Comment: AHRI p. 2, 3. As part of the rationale for not including SCC, AHRI further commented that DOE has acknowledged the uncertainty of SCC estimates and stated that these are both provisional and revisable. Further, they noted that the interagency working group developing the SCC noted that the underlying models were imperfect and incomplete and notes that the intergovernmental panel on climate change (IPCC) which the IWG relied on also stated in 2013 that no best estimate for equilibrium climate sensitivity could then be given because of the lack of agreement on values across assessed lines of evidence and studies.

DOE response: In making its determination, DOE's directive under ECPA is to assess whether updated editions of Standard 90.1 would improve *energy efficiency* in commercial buildings. 42 U.S.C. 6833(b)(2)(A) DOE emphasizes that the estimates pertaining to CO₂ are provided only as supplemental information and are not considered as part of the final determination, which is based on energy efficiency as required under 42 U.S.C. 6833(b)(2)(A).

As noted previously, DOE determined that the estimates from the February 2021 TSD are based upon sound analysis and provide well founded estimates for DOE's analysis of the impacts of CO₂ related to the reductions of emissions from updating the 90.1 Standard to the 2019 edition. As explained in the February 2021 TSD and while the IWG works to assess how best to incorporate the latest, peer reviewed science to develop an updated set of SC-GHG estimates, the IWG has determined that it is appropriate for agencies to revert to the same set of four values drawn from the SC-GHG distributions based on three discount rates as were used in regulatory analyses between 2010 and 2016 and subject to public comment. For each discount rate, the IWG combined the distributions across models and socioeconomic emissions scenarios (applying equal weight to each) and then selected a set of four values for use in benefit-cost analyses: An average value resulting from the model runs for each of three discount rates (2.5%, 3%, and 5%), plus a fourth value, selected as the 95th percentile of estimates based on a 3 percent discount rate. The fourth value was included to provide information on potentially higher-than-expected economic impacts from climate change, conditional on the 3% estimate of the discount rate. As explained in the February 2021 TSD, this update reflects the immediate need to have an operational SC-GHG for use in regulatory benefit-cost analyses and other applications that was developed using a transparent process, peer-reviewed methodologies, and the science available at the time of that process. Those estimates were subject to public comment in the context of dozens of proposed rulemakings as well as in a dedicated public comment period in 2013. However, as discussed in previous comments, DOE's SC-CO₂ analysis using these estimates was not considered in DOE's ultimate determination of whether Standard 90.1-2019 will improve energy efficiency.

Comment: AHRI, p. 3.5. AHRI commented that EPCA's focus is on benefits accruing with this nation, hence incorporation of SCC at the global level is beyond the scope and authority of DOE. See 42 U.S.C. 6833(b)(2)(B)(I). They further noted that EPCA originally arose out of the 1970's oil embargo and that nothing in the subsequent amendments suggests a different statutory focus other than improving the energy economics within the United States. AHRI notes that DOE analyzes expected national [domestic] energy savings, but does not scale back reported SCC calculations to reflect domestic impacts only.

DOE response: In making its determination, DOE's directive under ECPA is to assess whether updated editions of Standard 90.1 would improve *energy efficiency* in commercial buildings. 42 U.S.C. 6833(b)(2)(A) DOE emphasizes that the estimates pertaining to CO₂ are provided only as supplemental information and are not considered as part of the final determination, which is based on energy efficiency as required under 42 U.S.C. 6833(b)(2)(A). As to the use of a SC-CO₂ value that includes impacts outside the boundaries of the United States, the February 2021 TSD provides a complete discussion of the IWG's initial review conducted under E.O. 13990. In particular, the IWG found that a global perspective is essential for SC-GHG estimates because climate impacts occurring outside U.S. borders can directly and indirectly affect the welfare of U.S. citizens and residents. Thus, U.S. interests are affected by the climate impacts that occur outside U.S. borders. Examples of affected interests include: Direct effects on U.S. citizens and assets located abroad, international trade, and tourism, and spillover pathways such as economic and political destabilization and global migration. In addition, assessing the benefits of U.S. GHG mitigation activities requires consideration of how those actions may affect mitigation activities by other countries, as those international mitigation actions will provide a benefit to U.S. citizens and residents by mitigating climate impacts that affect U.S. citizens and residents.

As noted previously, DOE determined that the estimates from the February 2021 TSD are based upon sound analysis, and therefore, in analyzing the impacts of CO₂ related to the reductions of emissions from updating the 90.1 Standard to the 2019 edition, DOE has focused on a global measure of SC-GHG. As noted in the February 2021 TSD, the IWG will continue to review developments in the literature, including more robust methodologies for estimating SC-GHG values based on purely domestic damages, and explore ways to better inform the public of the full range of carbon impacts, both global and domestic. As a member of the IWG, DOE will likewise continue to follow developments in the literature pertaining to this issue. However, as discussed in previous comments, DOE's SC-CO₂ analysis using these estimates was not considered in DOE's ultimate determination of whether Standard 90.1-2019 will improve energy efficiency.

Comment: AHRI, p.3.4. AHRI stated that DOE wrongly assumes that SCC values

⁷ The E.O. instructs the IWG to undertake a fuller update of the SC-GHG estimates by January 2022.

⁸ The social cost of greenhouse gases (SC-GHG) is the monetary value of the net harm to society associated with adding a small amount of that GHG to the atmosphere in a given year and, therefore, should reflect the societal value of reducing emissions of the gas in question by one metric ton. The marginal estimate of social costs will differ by the type of greenhouse gas (such as carbon dioxide, methane, and nitrous oxide) and by the year in which the emissions change occurs. The estimates of the social cost of carbon (SC-CO₂), social cost of methane (SC-CH₄), and social cost of nitrous oxide (SC-N₂O) published in the February 2021 TSD allow agencies to understand the social benefits of reducing emissions of each of these greenhouse gases, or the social costs of increasing such emissions, in the policy making process. Collectively, these values are referenced as the "social cost of greenhouse gases" (SC-GHG).

⁹ National Academy of Sciences, Engineering, and Medicine, *Valuing Climate Damages: Updating Estimation of the Social Cost of Carbon Dioxide*, National Academies Press: Washington, DC, 2017.

¹⁰ See Interagency Working Group on Social Cost of Greenhouse Gases, *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide. Interim Estimates Under Executive Order 13990*, Washington, DC, February 2021.

increase over time in real dollars and states that this is contrary to “historical experience and to economic development science” and that the more economic development that occurs, the more adaptation and mitigation efforts a population living in a growing economy can afford to undertake (AHRI cites the IWG indicating that developed countries can eliminate 90% of the economic impacts and developing countries could eventually eliminate 50% of the economic impacts of climate change). They comment that they see no indication that DOE considered this separately.

DOE response: In making its determination, DOE’s directive under ECPA is to assess whether updated editions of Standard 90.1 would improve *energy efficiency* in commercial buildings. 42 U.S.C. 6833(b)(2)(A) DOE emphasizes that the estimates pertaining to CO₂ are provided only as supplemental information and are not considered as part of the final determination, which is based on energy efficiency as required under 42 U.S.C. 6833(b)(2)(A).

The model scenarios reported by the IWG demonstrate that the damage assessments and corresponding valuation (SC–CO₂), adjusted for inflation, increase through time. As explained in the February 2021 TSD, “[the SC–GHG estimates increase over time within the models—*i.e.*, the societal harm from one metric ton emitted in 2030 is higher than the harm caused by one metric ton emitted in 2025—because future emissions produce larger incremental damages as physical and economic systems become more stressed in response to greater climatic change, and because GDP is growing over time and many damage categories are modeled as proportional to GDP.” As noted previously, DOE determined that the estimates from the February 2021 TSD are based upon sound analysis and provide well founded estimates for DOE’s analysis of the impacts of CO₂ related to the reductions of emissions from updating the 90.1 Standard to the 2019 edition in its building codes impact analysis. Accordingly, DOE incorporated the IWG’s considerations in its analysis. However, as discussed in previous comments, DOE’s SC–CO₂ analysis using these estimates was not considered in DOE’s ultimate determination of whether Standard 90.1–2019 will improve energy efficiency.

Comment: AHRI, p. 4. AHRI argued that it is arbitrary and capricious to use different timeframes and assumptions for costs and benefits and notes that DOE must clarify precisely why and how it believes it has statutory authority under 42 U.S.C. 6833(b) to consider SCC issues and cites why such action is legally arbitrary without sufficient documented reason for treating similar situations differently. AHRI notes that DOE, in clarifying why it believes it has such authority, can establish how it is acting consistently in terms of the analysis of benefits.

DOE response: See previous response to AHRI comment on the issue of authority. On the issue of costs and benefits, DOE reemphasizes that its determination analysis is not assessing the costs and benefits associated with the updated Standard 90.1, that the determination is solely based on

energy efficiency, and that the reported carbon emissions are reported only as supplemental information for the benefit of interested parties and in support of the directives of Executive Order 12866. To clarify the issue of timeframe, the emission estimates are based on a one-year time period (*i.e.*, the annual energy consumption estimated via the energy efficiency analysis). However, the step of projecting the associated CO₂ impacts captures the longer-term impact of those single-year emissions, as they persist in the atmosphere (and drive the damage impacts over the time they persist), which is then discounted to present value for the year when the emissions occur. DOE does not find an economic inconsistency in this approach to reporting emission benefits. Such a calculation is similar to life-cycle analysis, for instance, which is performed in a similar fashion, where a single year event occurs (*e.g.*, a purchase of more efficient equipment), but the energy savings are calculated over the time they exist (*e.g.*, the life of the equipment), and discounted back to the present value to reflect an overall life-cycle cost. DOE’s reporting here of discounted damage impacts is consistent with that general approach.

Signing Authority

This document of the Department of Energy was signed on July 19, 2021, by Kelly Speakes-Backman, Principal Deputy Assistant Secretary and Acting Assistant Secretary for Energy Efficiency and Renewable Energy, pursuant to delegated authority from the Secretary of Energy. That document with the original signature and date is maintained by DOE. For administrative purposes only, and in compliance with requirements of the Office of the Federal Register, the undersigned DOE Federal Register Liaison Officer has been authorized to sign and submit the document in electronic format for publication, as an official document of the Department of Energy. This administrative process in no way alters the legal effect of this document upon publication in the **Federal Register**.

Signed in Washington, DC, on July 22, 2021.

Treana V. Garrett,

Federal Register Liaison Officer, U.S.

Department of Energy.

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DEPARTMENT OF ENERGY

[Case Number 2020–003; EERE–2020–BT–WAV–0020]

Energy Conservation Program: Notification of Petition for Waiver of Hussmann Corporation From the Department of Energy Commercial Refrigerators, Freezers and Refrigerator-Freezers Test Procedure and Notification of Grant of Interim Waiver

AGENCY: Office of Energy Efficiency and Renewable Energy, Department of Energy.

ACTION: Notification of petition for waiver and grant of an interim waiver; request for comments.

SUMMARY: This notification announces receipt of and publishes a petition for waiver and interim waiver from Hussmann Corporation (“Hussmann”), which seeks a waiver for specified Commercial Refrigerator, Freezer, and Refrigerator-Freezer (“CRE”) basic models from the U.S. Department of Energy (“DOE”) test procedure used for determining the energy consumption of CRE. DOE also gives notification of an Interim Waiver Order that requires Hussmann to test and rate the specified CRE basic models in accordance with the alternate test procedure set forth in the Interim Waiver Order. DOE solicits comments, data, and information concerning Hussmann’s petition, its suggested alternate test procedure, and the alternate test procedure required under the Interim Waiver Order so as to inform DOE’s final decision on Hussmann’s waiver request.

DATES: Written comments and information are requested and will be accepted on or before August 27, 2021.

ADDRESSES: Interested persons are encouraged to submit comments using the Federal eRulemaking Portal at <https://www.regulations.gov>. Alternatively, interested persons may submit comments, identified by docket number EERE–2020–BT–WAV–0020, by any of the following methods:

- **Federal eRulemaking Portal:** <https://www.regulations.gov>. Follow the instructions for submitting comments.

- **Email:** to HussmannCRE2020WAV0020@ee.doe.gov. Include docket number EERE–2020–BT–WAV–0020 in the subject line of the message.

No telefacsimilies (“faxes”) will be accepted. For detailed instructions on submitting comments and additional information on this process, see the **SUPPLEMENTARY INFORMATION** section of this document.

REPORT ON THE FEDERAL OIL AND GAS LEASING PROGRAM

Prepared in Response to Executive Order 14008

U.S. Department of the Interior

November 2021

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I. INTRODUCTION

This report responds to Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad*, which directed the Department of the Interior (DOI) to conduct a review of Federal oil and gas leasing and permitting practices.¹ This report considers both onshore and offshore oil and gas leasing programs in light of the Secretary of the Interior's broad stewardship responsibilities over public lands and Federal offshore waters.

The review found a Federal oil and gas program that fails to provide a fair return to taxpayers, even before factoring in the resulting climate-related costs that must be borne by taxpayers; inadequately accounts for environmental harms to lands, waters, and other resources; fosters speculation by oil and gas companies to the detriment of competition and American consumers; extends leasing into low potential lands that may have competing higher value uses; and leaves communities out of important conversations about how they want their public lands and waters managed.

The fiscal components of the onshore Federal oil and gas program are particularly outdated, with royalty rates that have not been raised for 100 years. States with leading oil and gas production apply royalty rates on State lands that are significantly higher than those assessed on Federal lands. The Texas royalty rate, for example, can be double the Federal rate. Likewise, bonding levels have not been raised for 50 years. Federal minimum bids and rents have been the same for over 30 years. These antiquated approaches hurt not only the Federal taxpayer but also State budgets because States receive a significant share of Federal oil and gas revenues.

For decades, the Government Accountability Office (GAO) and DOI's Office of Inspector General (OIG) have sounded the alarm bell on the Federal oil and gas program. The GAO, a non-partisan independent agency that works for Congress, has consistently called for Congress and the Executive Branch to reform oil and gas leasing on Federal lands. The OIG, which provides independent oversight of DOI, has regularly highlighted energy management in its annual reports on major management and performance challenges,² saying, "many of DOI's energy programs are vulnerable to waste, fraud, and mismanagement, which can jeopardize public safety and environmental integrity and increase the financial burden on the American public."³

To inform this report, DOI reviewed studies, some going back decades, of the Federal oil and gas program's deficiencies, including from GAO and OIG. The DOI also conducted formal Tribal consultations; held a forum with expert panelists; reviewed public feedback; and met with States, members of Congress, and representatives from the oil and gas industry, labor organizations, conservation organizations, Indigenous organizations, environmental justice organizations, and academics. Issues were identified across all steps of Federal oil and gas development, from land use planning to decommissioning.

This review and outreach reconfirmed well-documented and long reported deficiencies in the Federal oil and gas program that support this report's findings and recommendations related to fiscal terms and bonding. This report identifies a number of recommendations that begin to modernize Federal land management. The reforms serve three main programmatic goals:

- Providing a fair return to the American public and States from Federal management of public lands and waters, including for development of energy resources;
- Designing more responsible leasing and development processes that prioritize areas that are most suitable for development and ensure lessees and operators have the financial and technical capacity to comply with all applicable laws and regulations; and
- Creating a more transparent, inclusive, and just approach to leasing and permitting that provides meaningful opportunity for public engagement and Tribal consultation.

These recommendations represent an overdue reform agenda, which is urgent even as the Interior Department begins to take into account new stressors and new opportunities for our public lands and waters, including addressing biodiversity loss, tackling climate change, and deploying new technology ranging from harnessing offshore wind in public waters, to sequestering carbon on public lands. Accordingly, this report focuses primarily on necessary reforms to the fiscal terms, leasing process, and remediation requirements related to deficiencies with the Federal oil and gas program, which are well documented as detailed below.

As the Department considers how to best implement the recommendations contained in this report,⁴ the Administration will continue to work closely with Congress, State, Tribal and local officials, industry, labor organizations, environmental justice communities, and stakeholders to ensure that proper consideration is given to creating jobs, harnessing American ingenuity, and building a brighter, more sustainable future.

Overview: The Federal Oil and Gas Program

Onshore

The Bureau of Land Management (BLM) oversees 245 million acres of Federal public lands, including lands that are managed for outdoor recreation; development of oil, gas, coal, and renewable energy resources; grazing and timber production; safeguarding treasured cultural heritage and sacred sites; and supporting wildlife habitat and ecosystem functions.

In 1976, the Federal Land Policy and Management Act (FLPMA) established particular land and resource management authorities for BLM, bringing to the forefront multiple-use, sustained yield, and environmental protection as the guiding principles for public land management.⁵ The FLPMA directs BLM to manage some areas for conservation to consider the best use of public lands in a broader context than economic return, and to take action necessary to prevent unnecessary or undue degradation of the lands. One of the many uses that BLM oversees is the management of energy and mineral resource development on approximately 245 million acres of Federal onshore lands and 700 million acres of subsurface Federal minerals, which is guided by the Mineral Leasing Act.⁶

Federal onshore oil and gas production accounts for approximately seven percent of domestically produced oil and eight percent of domestically produced natural gas. The BLM currently manages 37,496 Federal oil and gas leases covering 26.6 million acres with nearly 96,100 wells.⁷ Of the more than 26 million onshore acres under lease today to the oil and gas industry, nearly 13.9 million (or 53 percent) of those acres are non-producing.⁸

The oil and gas industry has a substantial number of unused permits to drill onshore. As of September 30, 2021, the oil and gas industry holds more than 9,600 approved permits that are available to drill. In fiscal year (FY) 2021, BLM approved more than 5,000 drilling permits, and more than 4,400 are still being processed.⁹ Industry suggests that the significant surplus of leases and permits is necessary for a successful business model, but this speculative approach contributes to unbalanced land management. When land is under contract for potential oil and gas activity, the shared public lands cannot be managed for other purposes, such as conservation or recreation.

Offshore

The Bureau of Ocean Energy Management (BOEM) and Bureau of Safety and Environmental Enforcement (BSEE) work to ensure the development of energy and mineral resources on the U.S. Outer Continental Shelf (OCS) is done in a safe and environmentally and economically responsible way. The OCS is comprised of submerged lands generally starting three nautical miles offshore the United States¹⁰—totaling nearly 2.3 billion acres in the Pacific, Atlantic, Gulf of Mexico and offshore Alaska and Hawaii. These offshore areas also have shared uses, such as supporting marine wildlife habitat, coastal tourism, subsistence uses, recreational and commercial fishing, and national defense activities.

The Outer Continental Shelf Lands Act (OCSLA) explains that the OCS is a “vital natural resource reserve held by the Federal Government for the public,”¹¹ and establishes policies and procedures to develop and manage OCS oil and gas resources, achieve national economic and energy policy goals, enhance national security, and reduce dependence on foreign sources of energy.¹² In recognition of the significant impacts on coastal and non-coastal areas that exploration, development, and production of OCS resources can have, OCSLA requires that development be conducted in a safe manner and subject to environmental safeguards. Amendments made to OCSLA in 1978 established the policy that oil and natural gas resources on the OCS should be preserved, protected, and developed in a manner that is consistent with the need to meet the nation’s energy needs; balance development with protection of the human, marine, and coastal environments; and ensure a fair and equitable return on resources through a competitive leasing process.

In FY 2020, the OCS produced approximately 642 million barrels of oil and 910 million cubic feet of gas, accounting for 16 percent of all oil production and 3 percent of natural gas production in the United States.¹³ Most of this production is in the Gulf of Mexico, where the amount of acreage under lease has declined by more than two-thirds over the last 10 years.¹⁴ This decline is mostly driven by market conditions and changes in companies’ strategic approach to leasing. Of the more than 12 million acres under lease, about 45 percent is either producing oil and gas or is subject to approved exploration or development plans, which are preliminary steps leading to production. The 55 percent of the leased acreage that is non-producing may be in an earlier stage of the development process, or being held for speculative reasons, indicating a sufficient inventory of leased acreage to sustain development for years to come.

The Need for Reform

In recent decades, the nation’s energy needs and the mix of resources available on domestic and global energy markets have materially changed, while the statutes and policies underpinning the nation’s oil and gas program have remained largely static. Utility-scale renewable energy production has emerged as a viable source of energy that can be generated on public lands and in offshore waters. The direct and indirect impacts associated with oil and gas development on our nation’s land, water, wildlife, and the health and security of communities—particularly communities of color, who bear a disproportionate burden of pollution—merit a fundamental rebalancing of the Federal oil and gas program.

The Federal oil and gas program has been identified on GAO’s “High Risk List” for more than a decade, which notes programs and operations that are “vulnerable to waste, fraud, abuse, or mismanagement, or in need of transformation.”¹⁵ As far back as 1989, GAO noted that BLM “is not exercising balanced stewardship over the public lands.”¹⁶ In 1990, GAO observed that BLM would approve “some drilling permits without first completing the environmental studies.”¹⁷ This Administration has taken action to stop that practice. Indeed, GAO has issued frequent reports outlining serious concerns with the onshore oil and gas leasing program. In just the last three years, GAO has highlighted deficiencies with noncompetitive leasing (GAO-21-138), royalty relief policies (GAO-21-169T), data collection (GAO-21-209), ensuring a fair return (GAO-19-718T), and bonding and reclamation practices (GAO-19-615). Offshore, GAO has raised recent concerns about decommissioning liabilities (GAO-16-40), safety and environmental oversight (GAO-17-293), fiscal returns from the leasing program (GAO-19-531), and pipeline safety and decommissioning (GAO-21-293).

Internally, OIG has regularly highlighted energy management in its annual reports of “Major Management and Performance Challenges facing the U.S. Department of the Interior,” stating, “many of DOI’s energy programs are vulnerable to waste, fraud, and mismanagement, which can jeopardize public safety and environmental integrity and increase the financial burden on the American public.”¹⁸ In recent years, OIG has identified specific concerns with the collection, verification, and distribution of energy resource revenues; issues arising from aging onshore and offshore infrastructure; oversight and management of oil and gas production; and offshore environmental compliance and enforcement, among other issues.¹⁹

Members of Congress from both sides of the aisle have also introduced various bills in recent years to reform and reimagine the Federal leasing programs. The bills include proposals to raise royalty rates to provide a fair return to taxpayers; address bonding deficiencies to ensure that companies properly restore public lands following extractive activities; support non-extractive uses of public lands and waters; restore community input in leasing decisions; and set emissions reductions strategies, among other reforms.

II. RECOMMENDATIONS

What follows is a high-level blueprint to begin to modernize the onshore and offshore oil and gas leasing programs in order to better restore balance and transparency to public land and ocean management and deliver a fair and equitable return to American taxpayers.²⁰

Providing a Fair Return to American Taxpayers and States

Onshore

Adjusting and modernizing the fiscal terms used in the Federal onshore oil and gas program increases returns to the public and disincentivizes speculators or less responsible actors. The GAO has reported extensively that taxpayers have not received a fair rate of return due to outdated fiscal terms.²¹ For example, Federal onshore oil and gas royalty rates are consistently lower than on State-issued leases and Federal offshore leases (see Tables 1 and 2); in fact, onshore royalty rates have never been raised. Likewise, bonding levels have not been raised for 60 years, and minimum bids and rents have been the same for over 30 years. If a lease is not sold competitively at auction, for two years it can be sold non-competitively for a modest administrative fee, with no bonus bid required. These noncompetitive leases are frequently less diligently developed as competitively issued leases. From 2013 to 2019, average revenues from competitive leases were nearly three times greater than revenues from noncompetitive leases.²²

Such low prices for leases, coupled with generous 10-year lease initial terms that are frequently extended, encourage speculators to purchase leases with the intent of waiting for increases in resource prices, adding assets to their balance sheets, or even reselling leases at a profit rather than attempting to produce oil or gas. In one particularly egregious recent case, an individual purchased nearly 300 oil and gas leases and resold many of them almost immediately for up to 13 times the original purchase price.²³ Speculators, not taxpayers, receive the profits from these resales. Because information on lease resales is not easily accessible, local communities are often in the dark when it comes to who has the right to develop oil and gas nearby.

The BLM should improve the return to taxpayers and create an oil and gas program that is more consistent with BLM's multiple-use and sustained yield mandates. Consideration should be given to raising royalty rates and, to the extent allowed by statute, to increasing the current minimum levels for bids, rents, royalties, and bonds. Congressional passage of pending bipartisan legislation could further modernize fiscal terms. States will also benefit from a modernized fiscal system since they receive 49 percent of all oil and gas revenues generated from public lands within their borders.²⁴ Onshore revenues also fund water reclamation projects throughout the West through contributions to the Reclamation Fund, and may also contribute to the National Parks and Public Land Legacy Restoration Fund.

Royalties

The Mineral Leasing Act was passed in 1920 and set royalties at a minimum of 12.5 percent for oil and gas produced from public lands. Today, 100 years later, leases are still being sold using these low rates, which are out of step with modern times. Numerous public reports provide support for raising royalty rates for leasing on public lands, and nearly all State and private lands require that operators pay a royalty rate higher than 12.5 percent.²⁵ In June 2017, GAO reported that studies showed that raising Federal royalty rates for onshore oil and gas could “decrease production on federal lands by a small amount or not at all but could increase overall federal revenue.”²⁶

Table 1: Oil and Gas Royalty Rates across Federal Public, Private, and State Lands²⁷

Leasing Jurisdiction	Oil & Gas Royalty Rate
California	Negotiated lease-by-lease, but generally no less than 16.67 percent
Colorado	20 percent
Montana	16.67 percent
New Mexico	18.75-20 percent
North Dakota	16.67 or 18.75 percent depending on the county
Oklahoma	18.75 percent
Texas	20-25 percent
Utah	16.67 percent
Wyoming	16.67 percent
Private Lands	Generally, 12.5-25 percent
Federal Lands	12.5 percent, sometimes less

This table shows the oil and gas royalty rate based on jurisdiction.

Taxpayers for Common Sense released a report last year stating that the Federal Government “lost up to \$12.4 billion in revenue from oil and gas drilling on federal lands from 2010 through 2019” because Federal royalty rates are too low.²⁸ Additionally, the same report found little evidence supporting claims that increasing the Federal onshore royalty rate would drive developers away and reduce overall revenues. This finding aligns with the results seen in Colorado and Texas, where there was no significant effect on production from State lands after State royalty rates were raised.²⁹

The BLM should begin to adjust royalties for competitive leases offered in individual lease sales and initiate a rulemaking to establish a higher minimum royalty for onshore oil and gas leases. The BLM also should consider limiting discretionary royalty relief, which it has provided extensively to lessees in the recent past, while it updates its current royalty relief guidance and reassesses the economic assumptions used during royalty relief application evaluations.

Bonus Bids

A bonus bid is the price paid at a lease sale for an oil and gas lease. The minimum bonus bid is set at \$2 per acre—an amount that has not been changed since 1987.³⁰ If an area offered for lease does not receive a bid during the lease sale, the bonus bid is waived, and the area can be acquired during the next two years by the first party that pays a nominal application fee.

The GAO found that leases purchased with a higher bonus bid of more than \$100 per acre are over 20 times more likely to be developed in their first lease term than leases purchased with the minimum bid of \$2 per acre.³¹ The BLM should initiate rulemaking to increase the minimum bid to discourage speculators and to provide a better return to the taxpayer.

Rental Rates

Companies pay rent until the lease is in production, and then they pay royalties on the oil and gas produced. The rental rates, which have not changed since 1987, are \$1.50 per acre per year for the first five years, then \$2 per acre per year for the next five years, at which point a non-producing lease would expire. The lease is automatically extended as long as production continues.

A GAO report from 2009 concluded that:

Interior does less to encourage development of federal oil and gas leases than some state and private landowners. Interior officials cited one lease provision that may encourage development—escalating rental rates. ... Compared to Interior, the eight states we reviewed undertook more efforts to encourage development on their oil and gas leases, using increasing rental rates as well as shorter lease terms and escalating royalty rates. Some states also do more than Interior to structure leases to reflect the likelihood of oil and gas production, which may encourage faster development.³²

The BLM should initiate a rulemaking in order to increase rental rates for future lease sales.

Bonding

Current regulations require financial assurance from all lessees to ensure compliance with lease terms and requirements, which is generally provided in the form of a lease surety bond. A lease surety bond remains in place until all lease obligations have been met, including decommissioning, which can extend beyond the expiration of the lease. A surety bond can be issued as a lease-specific bond, a statewide bond, or a nationwide bond, and additional bonds may be necessary to ensure compliance with lease obligations and regulations.

Insufficient bonding levels provide an inadequate incentive for companies to meet their reclamation obligations and increase the risk that taxpayers will be required to cover the cost of reclaiming wells in the event that the operator refuses to do so or declares bankruptcy. According to a 2019 GAO report:

... weaknesses with bonds for coal mining and for oil and gas development pose a financial risk to the federal government as laws, regulations, or agency practices have not been adjusted to reflect current economic circumstances. We have also reported that BLM has no mechanism to pay for reclaiming well sites that operators have not reclaimed.³³

The risks associated with low bonding rates have become more apparent in light of the recent increase in bankruptcies. Company liquidations often result in wells becoming orphaned, which then fall to the Federal Government or States to address, while some companies have used Chapter 11 restructuring to get out of reclamation obligations.³⁴

According to the same 2019 GAO report, oil and gas lease bonds do not provide sufficient financial assurance because, among other things, most individual, statewide, and nationwide lease bonds are set at regulatory minimum values that have not been adjusted for inflation since the 1950s and 1960s.³⁵ These minimum bond amounts and the year calculated are: individual lease, \$10,000—1960; statewide, \$25,000—1951; nationwide, \$150,000—1951.³⁶ The National Petroleum Reserve—Alaska bonds were set in 1981; an individual lease is \$100,000, and a

reserve-wide bond is \$300,000.³⁷ While individual States have bonding levels that are often too low to fully reclaim modern horizontally-drilled wells, most States require significantly higher bonds than the Federal Government, often with bonding requirements that adjust based on the depth and number of wells covered.³⁸

The BLM should increase minimum bond amounts and set the appropriate levels taking into consideration changes in technology, the complexity and depth of modern wells, inflation, and the risk of abandonment. While such regulations are being developed, BLM should adjust bonds for individual, high risk leases through adequacy reviews and when leases are reinstated or applications for permits to drill are extended.

Offshore

Royalties and Royalty Relief

The BOEM evaluates lease terms on a sale-by-sale basis to ensure they are consistent with current market or resource conditions. The OCSLA sets the minimum offshore royalty rate at 12.5 percent and directs that leasing be conducted in a way that ensures the government receives fair market value (FMV). OCSLA also directs that management of the OCS be conducted in a way that considers economic, social, and environmental values, and protects the human, marine, and coastal environments.

A 2019 GAO report that assessed BOEM’s process to evaluate whether it was receiving FMV for offshore leases recommended that BOEM take steps to reform its methodology to ensure that it was capturing the full value of the lease tracts it was offering.³⁹ The BOEM is in the process of responding to several of GAO’s recommendations concerning oil and gas valuation procedures.

Table 2: Offshore Oil and Gas Royalty Rates (BOEM)

Water Depth (meters)	Royalty Rate Prior to 2007⁴⁰	Royalty Rate 2007	Royalty Rate 2008-March 2017	Royalty Rate August 2017-2020 (Sale 256)
0 to < 200m	16.67%	16.67%	18.75%	12.5%
200 to < 400m	16.67%	16.67%	18.75%	18.75%
400m+	12.5%	16.67%	18.75%	18.75%

This table shows the royalty rate based on water depth. Fiscal terms are evaluated and set on a sale-by-sale basis. Date ranges indicate the years in which sales were held using those terms.

Revenues from lease sales, royalties on production, and rental fees are distributed to the U.S. Treasury, several coastal States through OCSLA section 8(g) and the Gulf of Mexico Energy Security Act, the Historic Preservation Fund, the Land and Water Conservation Fund, and Legacy Restoration Fund.⁴¹

As with BLM, BOEM, and BSEE will be continuing to study the most appropriate method for revising royalty rates and other fiscal terms to monetarily account for the costs of carbon dioxide, methane, and nitrous oxide.

Also similar to BLM, BOEM and BSEE have the authority to provide discretionary royalty relief depending on economic circumstances, and those agencies likewise will be reevaluating existing royalty relief guidance and the economic assumptions used to evaluate royalty relief applications,⁴² insofar as royalty relief can have the effect of subsidizing uneconomic production at taxpayers' expense. The BSEE recently determined, for example, that the April 2020 Special Case Royalty Relief guidance neither formalized application and evaluation procedures nor provided adequate training to implement them, and BSEE has discontinued this specific royalty relief option.

Financial Assurances

Financial assurance requirements for operators offshore are similar to those onshore: all lessees must provide a general lease surety bond, which covers all terms and conditions of a lease and remains in place until all lease obligations have been met, including decommissioning, which can extend beyond the expiration of the lease. A surety bond can be issued as a lease-specific bond or as an area-wide bond that guarantees obligations on all leases held by a lessee within a specified area. Additional bonds may be necessary to ensure compliance with lease obligations and regulations.

Table 3. Bonding Amounts for Offshore Oil and Gas Activity⁴³

Lease Activity	Lease-Specific Bond Amount	Area-Wide Bond Amounts
No approved operational activity	\$50,000	\$300,000
Exploration Plan	\$200,000	\$1,000,000
Development Production Plan	\$500,000	\$3,000,000
Pipeline Right of Way (ROW)	N/A	\$300,000

This table shows the amounts for lease-specific and area-wide bonds.

Lessees, owners of operating rights, and ROW holders are jointly and severally responsible for decommissioning obligations and are required to perform this duty in a timely manner, consistent with regulations and guidance.

Recent bankruptcies have in some cases resulted in companies being unable to cover their decommissioning liabilities, leading to orphaned wells and idle infrastructure. The BSEE estimates that the liability for currently orphaned infrastructure on the OCS is approximately \$65 million, with the potential to increase if more companies go bankrupt and create additional orphaned infrastructure. The GAO recently found that there were approximately \$2.3 billion in decommissioning liabilities on the OCS that were not covered by bonds, and roughly \$33 billion in liabilities had bonds waived because the financial condition of the leaseholder was considered

strong enough.⁴⁴ The current regulatory structure governing financial assurances does not have the appropriate checks to intervene in advance of bankruptcies to require additional financial assurances. Financial assurance coverage should be strengthened to protect the Federal Government and taxpayers and to ensure that companies are financially able to meet their lease and decommissioning obligations.

In 2020, BOEM and BSEE published a notice of proposed rulemaking to address this issue.⁴⁵ The agencies will carefully consider comments received on both the proposed rule and this review to inform their approach for improving financial assurance requirements to better manage the risks associated with industry activities on the OCS.

Fitness to Operate

Offshore leases are significantly more expensive to acquire than onshore leases, which, among other reasons, results in less of a role for speculators in the leasing process. However, companies with poor environmental, safety, or reclamation histories are still allowed to bid for leases or acquire them from other companies. The BOEM plans to develop a “Fitness to Operate” standard for companies seeking to be designated as oil and gas operators and evaluate how to apply such a standard to potential new lessees or current lessees seeking to gain additional properties. The Fitness to Operate standard will establish criteria that companies would need to meet in order to operate on the U.S. OCS. Requiring companies to meet minimal fitness to operate standards will ensure companies can meet their safety, environmental, and financial responsibilities.

Designing More Responsible Processes

Onshore

Through the land use planning process, BLM determines what lands may be available for oil and gas leasing, what lease stipulations will be applied to protect other resources and values, and what “conditions of approval” may be necessary on permits to drill for additional protection. The land use planning process requires extensive collaboration with Tribal, State, and local governments and the public regarding how Federal lands will be used and minerals will be extracted at specific locations.

As an overarching policy, BLM should ensure that oil and gas is not prioritized over other land uses, consistent with BLM’s mandate of multiple-use and sustained yield. The BLM should carefully consider what lands make the most sense to lease in terms of expected yields of oil and gas, prospects of earning a fair return for U.S. taxpayers, and conflicts with other uses, such as outdoor recreation and wildlife habitat. The BLM should always ensure it is considering the views of local communities, Tribes, businesses, State and local governments, and other stakeholders.

Low Potential Lands

Common practice in BLM land use planning has been to leave the majority of Federal lands open for leasing and allow industry to drive decisions on what areas will be nominated for oil and gas leasing. Since there is no cost to nominate parcels of land for leasing, there is little disincentive for companies to identify large amounts of acreage regardless of the resource potential of that

land or how seriously the nominator is considering bidding for the nominated parcels. The burden and expense then fall on BLM to process those parcels, triggering the dedication of BLM staff resources to analyze marginal lands that companies may not be interested in bidding on and that may never be leased, much less developed. At the same time, sales of large amounts of low-potential land often ignite local community concerns (particularly since low-potential lands are more likely to be in areas that are not accustomed to local oil and gas development) and result in protests that are time-consuming and resource-intensive to adjudicate.

The BLM should evaluate operational adjustments to its leasing program that will avoid nomination or leasing of low potential lands and instead focus on areas that have moderate or high potential for oil and gas resources and which are in proximity to existing oil and gas infrastructure.

Bidding Requirements

The current leasing process does not thoroughly screen buyers, which creates the potential for widespread speculative leasing, unqualified buyers, and large numbers of leases that may be issued noncompetitively. Indeed, speculative leasing has been observed in the leasing program as far back as 1980, when GAO wrote, “We found much inactive land being held by individuals who were not affiliated with oil companies and were, therefore, presumably speculators.”⁴⁶

Unlike the offshore or coal leasing programs, the onshore oil and gas program does not pre-clear bidders based on their ability to responsibly and diligently pursue development. Combined with artificially low minimum bids and rental rates, the system is easily taken advantage of by speculators seeking to re-sell leases at higher prices later, and it allows bidders to shield the identity of companies purchasing leases, leaving communities in the dark as to who is seeking to develop oil and gas on nearby public lands.

The BLM should consider reforms that ensure that bidders—and any subsequent proposed leaseholders or operators—are publicly identified and financially and technically qualified to develop leases.

Offshore

For future National OCS Oil and Gas Leasing Programs, BOEM should consider advancing alternatives to the practice of area-wide leasing, under which the entire planning area is offered with few exclusions for a lease sale. Area-wide leasing is not required under OCSLA; it was first implemented by Interior Secretary James Watt in 1982 and has since been applied during the majority of OCS lease sales. An early assessment of the practice by GAO in 1985 found that the first 10 area-wide lease sales resulted in an estimated loss of \$7 billion to the Federal Government,⁴⁷ and a review of the process published in 2006 found that area-wide leasing significantly reduced the amount of competition and the value of bids for each lease tract.⁴⁸ Moving to a leasing model where smaller areas are offered according to a number of criteria—including environmental protection, subsistence use needs, resource potential and financial considerations—will help ensure that American taxpayers are receiving a fair return for offshore oil and gas resources.

Creating a More Inclusive and Just Approach to Managing Public Lands and Waters

The stewardship mission of DOI mandates processes for outreach and receipt of public input, including from communities that may be most affected by DOI activities. These processes have not always been adequate, fair, or equitable, which thus perpetuates environmental injustice. Practices such as allowing anonymous lease nominations and recent efforts to restrict or eliminate public notice and comment periods can leave local community voices—including, in particular, Tribal voices—out of leasing and permitting processes. The DOI should undertake meaningful Tribal consultations and solicit public input more generally regarding its leasing and permitting processes.

III. CONCLUSION

Modernization of the Federal oil and gas program has been delayed for decades to the detriment of the American public, their public lands and waters, the environment, wildlife, and more. In its current form, the program falls short of serving the public interest in a number of important respects. It provides insufficient opportunities for public input, shortchanges taxpayers and States, and tilts toward opening up low potential lands without adequately considering competing multiple-use opportunities.

This report lays out actions that the Administration is considering taking, consistent with legal authorities and the Executive Branch's broad discretion, to provide a fair return to taxpayers and to steward shared resources. It also encourages Congress to act on pending legislation to provide fundamental reforms to the onshore and offshore oil and gas programs.

The DOI will continue to seek out honest and pragmatic paths forward—in concert with communities; Federal, State, local, and Tribal leaders; businesses and labor; and other stakeholders—to bring a common purpose to the management of America's public lands and waters, and the value they hold.

IV. ENDNOTES

¹ Exec. Order No. 14,008, 86 Fed. Reg. 7,619 (Jan. 27, 2021).

² U.S. Department of the Interior Office of Inspector General, “Inspector General’s Statement Summarizing the Major Management and Performance Challenges Facing the U.S. Department of the Interior for Fiscal Year 2019,” November 2019, available at <https://www.doioig.gov/reports/other/inspector-generals-statement-summarizing-major-management-and-performance-0>; U.S. Department of the Interior Office of Inspector General, “Inspector General’s Statement Summarizing the Major Management and Performance Challenges Facing the U.S. Department of the Interior for Fiscal Year 2018, November 2018, available at <https://www.doioig.gov/reports/other/inspector-generals-statement-summarizing-major-management-and-performance-1>; U.S. Department of the Interior Office of Inspector General, “Inspector General’s Statement Summarizing the Major Management and Performance Challenges Facing the U.S. Department of the Interior,” November 2017, available at <https://www.doioig.gov/reports/other/inspector-generals-statement-summarizing-major-management-and-performance-2>; U.S. Department of the Interior Office of Inspector General, “Inspector General’s Statement Summarizing the Major Management and Performance Challenges Facing the U.S. Department of the Interior,” November 2016, available at <https://www.doioig.gov/reports/other/inspector-generals-statement-summarizing-major-management-and-performance-3>.

³ U.S. Department of the Interior Office of Inspector General, “Inspector General’s Statement Summarizing the Major Management And Performance Challenges Facing The U.S. Department Of The Interior,” November 2015, available at <https://www.doioig.gov/reports/other/inspector-generals-statement-summarizing-major-management-and-performance-4>.

⁴ This report includes only suggestions as to future Departmental actions, which will be promulgated, if at all, in compliance with the Administrative Procedure Act and other applicable law. This report is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or equity by a party against the United States, its departments, agencies, instrumentalities or entities, its officer or employees, or any other person.

⁵ 43 U.S.C. § 1701.

⁶ 30 U.S.C. § 181.

⁷ Bureau of Land Management, *Oil and Gas Statistics*, available at <https://www.blm.gov/programs-energy-and-minerals-oil-and-gas-oil-and-gas-statistics>.

⁸ *Ibid.*

⁹ Bureau of Land Management, *APD Status Report September 2021*, available at <https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/operations-and-production/permitting/applications-permits-drill>.

¹⁰ The OCS begins nine nautical miles off the Gulf of Mexico coasts of Florida and Texas.

¹¹ 43 U.S.C. § 1332(3).

¹² 43 U.S.C. §§ 1331-1356.

¹³ U.S. Department of the Interior, “Natural Resources Revenue Data,” available at <https://revenuedata.doi.gov/>; U.S. Energy Information Administration, “Crude Oil Production,” available at https://www.eia.gov/dnav/pet/pet_crd_crpdn_adc_mbb1_a.htm; U.S. Energy

Information Administration, “Natural Gas Gross Withdrawals and Production,” Marketed Production data series, available at https://www.eia.gov/dnav/ng/ng_prod_sum_a_EPG0_VGM_mmcf_m.htm.

¹⁴ Bureau of Ocean Energy Management, “Combined Leasing Report July 1, 2021” and “Combined Leasing Report As of February 3, 2011,” available at <https://www.boem.gov/oil-gas-energy/leasing/combined-leasing-status-report>.

¹⁵ U.S. Government Accountability Office, “OFFSHORE OIL AND GAS: Opportunities Exist to Better Ensure a Fair Return on Federal Resources,” (2019); High Risk List,” U.S. Gov't Accountability Office, <https://www.gao.gov/high-risk-list>.

¹⁶ U.S. General Accounting Office, Change in Approach Needed to Improve the Bureau of Land Management’s Oversight of Public Lands 1 (1989).

¹⁷ U.S. General Accounting Office, “FEDERAL LAND MANAGEMENT: Better Oil and Gas Information Needed to Support Land Use Decisions,” June 1990, available at <http://archive.gao.gov/d24t8/141709.pdf>.

¹⁸ U.S. Department of the Interior Office of Inspector General, “Inspector General’s Statement Summarizing the Major Management And Performance Challenges Facing The U.S. Department Of The Interior,” November 2015, available at <https://www.doioig.gov/reports/other/inspector-generals-statement-summarizing-major-management-and-performance-4>.

¹⁹ U.S. Department of the Interior Office of Inspector General, “Inspector General’s Statement Summarizing the Major Management and Performance Challenges Facing the U.S. Department of the Interior for Fiscal Year 2019,” November 2019, available at <https://www.doioig.gov/reports/other/inspector-generals-statement-summarizing-major-management-and-performance-0>; U.S. Department of the Interior Office of Inspector General, “Inspector General’s Statement Summarizing the Major Management and Performance Challenges Facing the U.S. Department of the Interior for Fiscal Year 2018, November 2018, available at <https://www.doioig.gov/reports/other/inspector-generals-statement-summarizing-major-management-and-performance-1>; U.S. Department of the Interior Office of Inspector General, “Inspector General’s Statement Summarizing the Major Management and Performance Challenges Facing the U.S. Department of the Interior,” November 2017, available at <https://www.doioig.gov/reports/other/inspector-generals-statement-summarizing-major-management-and-performance-2>; U.S. Department of the Interior Office of Inspector General, “Inspector General’s Statement Summarizing the Major Management and Performance Challenges Facing the U.S. Department of the Interior,” November 2016, available at <https://www.doioig.gov/reports/other/inspector-generals-statement-summarizing-major-management-and-performance-3>.

²⁰ This report focuses on reforms to the oil and gas leasing program, but DOI will also be conducting similar analyses and reviews on the Federal coal program to identify reforms in that program as well, including exploring ways that the costs of climate change are appropriately reflected in coal leasing terms.

²¹ U.S. Government Accountability Office, “OFFSHORE OIL AND GAS: Opportunities Exist to Better Ensure a Fair Return on Federal Resources,” September 2019, available at <https://www.gao.gov/assets/gao-19-531.pdf>.

²² U.S. Government Accountability Office, “OIL AND GAS: Onshore Competitive and Noncompetitive Lease Revenues,” November 2020, available at <https://www.gao.gov/assets/gao-21-138-highlights.pdf>.

²³ N. Groom, "How a Burmese immigrant profited by flipping cheap oil leases from Trump auctions," *Reuters*, March 2021, available at <https://www.reuters.com/article/us-usa-drilling-myanmar-insight/how-a-burmese-immigrant-profited-by-flipping-cheap-oil-leases-from-trump-auctions-idUSKBN2BE1C5>.

²⁴ 30 U.S.C. § 191.

²⁵ Taxpayers for Common Sense, “Royally Losing: Higher Royalties on State and Offshore Oil and Gas Production Reap Billions More than Drilling on Federal Lands,” February 2020, available at <https://www.taxpayer.net/wp-content/uploads/2020/02/TCS-Royally-Losing-2020.pdf>.

²⁶ U.S. Government Accountability Office, “OIL, GAS, AND COAL ROYALTIES: Raising Federal Rates Could Decrease Production on Federal Lands but Increase Federal Revenue,” June 2017, available at <https://www.gao.gov/assets/gao-17-540.pdf>.

²⁷ Taxpayers for Common Sense, “Royally Losing: Higher Royalties on State and Offshore Oil and Gas Production Reap Billions More than Drilling on Federal Lands,” February 2020, available at <https://www.taxpayer.net/wp-content/uploads/2020/02/TCS-Royally-Losing-2020.pdf>.

²⁸ Ibid.

²⁹ Taxpayers for Common Sense, “Royally Losing: Higher Royalties on State and Offshore Oil and Gas Production Reap Billions More than Drilling on Federal Lands,” February 2020, available at <https://www.taxpayer.net/wp-content/uploads/2020/02/TCS-Royally-Losing-2020.pdf>; U.S. Government Accountability Office, “OIL, GAS, AND COAL ROYALTIES: Raising Federal Rates Could Decrease Production on Federal Lands but Increase Federal Revenue,” June 2017, available at <https://www.gao.gov/assets/gao-17-540.pdf>.

³⁰ 30 U.S.C. § 226(b)(1)(B); 43 C.F.R. § 3120.1-2.

³¹ U.S. Government Accountability Office, “OIL AND GAS: Onshore Competitive and Non-Competitive Lease Revenues,” November 2020, available at <https://www.gao.gov/assets/gao-21-138.pdf>.

³² U.S. Government Accountability Office, “OIL AND GAS LEASING: Federal Oil and Gas Resource Management and Revenue Collection in Need of Comprehensive Reassessment,” March 2009, available at <https://www.gao.gov/assets/gao-09>

³³ U.S. Government Accountability Officer, “FEDERAL ENERGY DEVELOPMENT: Challenges to Ensuring a Fair Return for Federal Energy Resources,” September 2019, available at <https://www.gao.gov/assets/gao-19-718t.pdf>.

³⁴ N. Sadasivam, “How bankruptcy lets oil and gas companies evade cleanup rules,” *Grist*, June 2021, available at <https://grist.org/accountability/oil-gas-bankruptcy-fieldwood-energy-petroshare/>.

³⁵ U.S. Government Accountability Office, “FEDERAL ENERGY DEVELOPMENT: Challenges to Ensuring a Fair Return for Federal Energy Resources,” September 2019, available at <https://www.gao.gov/assets/gao-19-718t.pdf>.

³⁶ 43 C.F.R. §§ 3104.2, 3104.3

³⁷ 43 C.F.R. § 3134.1.

³⁸ Western Organization of Resource Councils, “BLM Oil and Gas Bonding Rules Leave Lands a Mess and Taxpayers Responsible,” April 2020, available at <http://www.worc.org/publication/8671/>.

³⁹ U.S. Government Accountability Office, “OFFSHORE OIL AND GAS: Opportunities Exist to Better Ensure a Fair Return on Federal Resources,” September 2019, available at <https://www.gao.gov/assets/gao-19-531.pdf>.

⁴⁰ Predominant royalty rates, particularly in the decades immediately preceding 2006. But not all lease sales, particularly older ones, had these exact royalty rates.

⁴¹ U.S. Department of the Interior, “Natural Resources Revenue Data,” available at <https://revenue.data.doi.gov/>.

⁴² Congressional Research Service, “Offshore Royalty Relief: Status During the COVID-19 Pandemic,” May 2020, available at <https://crsreports.congress.gov/product/pdf/IN/IN11380>.

⁴³ 30 C.F.R. §§ 556.900, 556.901.

⁴⁴ U.S. Government Accountability Office, “Offshore Oil and Gas Resources: Actions Needed to Better Protect Against Billions of Dollars in Federal Exposure to Decommissioning Liabilities,” December 2015, available at <https://www.gao.gov/products/gao-16-40>.

⁴⁵ 85 Fed. Reg. 65,904 (Oct. 16, 2020).

⁴⁶ U.S. General Accounting Office, “Impact of Making The Onshore Oil And Gas Leasing System More Competitive,” March 1980, available at <https://www.gao.gov/assets/emd-80-60.pdf>.

⁴⁷ U.S. General Accounting Office, Early Assessment of Interior’s Area-Wide Program for Leasing Offshore Lands (1985).

⁴⁸ J. Boué and others, “A Question of Rigs, of Rules, or of Rigging the Rules?: Upstream Profits and Taxes in US Gulf Offshore Oil and Gas, *Oxford University Press*, 2006.

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Parts 531, 533, 536, and 537

[NHTSA–2021–0053]

RIN 2127–AM34

Corporate Average Fuel Economy Standards for Model Years 2024–2026 Passenger Cars and Light Trucks

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).
ACTION: Notice of proposed rulemaking.

SUMMARY: NHTSA, on behalf of the Department of Transportation, is proposing revised fuel economy standards for passenger cars and light trucks for model years 2024–2026. On January 20, 2021, President Biden signed an Executive order (E.O.) entitled, “Protecting Public Health and the Environment and Restoring Science To Tackle the Climate Crisis.” In it, the President directed that “The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks” (hereafter, “the 2020 final rule”) be immediately reviewed for consistency with our Nation’s abiding commitment to empower our workers and communities; promote and protect our public health and the environment; and conserve our national treasures and monuments, places that secure our national memory. President Biden further directed that the 2020 final rule be reviewed at once and that (in this case) the Secretary of Transportation consider “suspending, revising, or rescinding” it, via a new proposal, by July 2021. Because of the President’s direction in the E.O., NHTSA reexamined the 2020 final rule under its authority to set corporate average fuel economy (CAFE) standards. In doing so, NHTSA tentatively concluded that the fuel economy standards set in 2020 should be revised so that they increase at a rate of 8 percent year over year for each model year from 2024 through 2026, for both passenger cars and light trucks. This responds to the agency’s statutory mandate to improve energy

conservation. This proposal also makes certain minor changes to fuel economy reporting requirements.

DATES: *Comments:* Comments are requested on or before October 26, 2021. In compliance with the Paperwork Reduction Act, NHTSA is also seeking comment on a revision to an existing information collection. For additional information, see the Paperwork Reduction Act Section under Section IX, below. All comments relating to the information collection requirements should be submitted to NHTSA and to the Office of Management and Budget (OMB) at the address listed in the **ADDRESSES** section on or before October 26, 2021. See the **SUPPLEMENTARY INFORMATION** section on “Public Participation,” below, for more information about written comments.

Public Hearings: NHTSA will hold one virtual public hearing during the public comment period. The agency will announce the specific date and web address for the hearing in a supplemental **Federal Register** notification. The agency will accept oral and written comments on the rulemaking documents and will also accept comments on the Supplemental Environmental Impact Statement (SEIS) at this hearing. The hearing will start at 9 a.m. Eastern standard time and continue until everyone has had a chance to speak. See the **SUPPLEMENTARY INFORMATION** section on “Public Participation,” below, for more information about the public hearing.

ADDRESSES: You may send comments, identified by Docket No. NHTSA–2021–0053, by any of the following methods:

- *Federal eRulemaking Portal:* <http://www.regulations.gov>. Follow the instructions for submitting comments.
- *Fax:* (202) 493–2251.
- *Mail:* Docket Management Facility, M–30, U.S. Department of Transportation, West Building, Ground Floor, Rm. W12–140, 1200 New Jersey Avenue SE, Washington, DC 20590.
- *Hand Delivery:* Docket Management Facility, M–30, U.S. Department of Transportation, West Building, Ground Floor, Rm. W12–140, 1200 New Jersey Avenue SE, Washington, DC 20590, between 9 a.m. and 4 p.m. Eastern Time, Monday through Friday, except Federal holidays.

Comments on the proposed information collection requirements should be submitted to: Office of Management and Budget at www.reginfo.gov/public/do/PRAMain. To find this particular information collection, select “Currently under Review—Open for Public Comment” or use the search function. NHTSA requests that comments sent to the OMB also be sent to the NHTSA rulemaking docket identified in the heading of this document.

Instructions: All submissions received must include the agency name and docket number or Regulatory Information Number (RIN) for this rulemaking. All comments received will be posted without change to <http://www.regulations.gov>, including any personal information provided. For detailed instructions on sending comments and additional information on the rulemaking process, see the “Public Participation” heading of the **SUPPLEMENTARY INFORMATION** section of this document.

Docket: For access to the dockets or to read background documents or comments received, please visit <http://www.regulations.gov>, and/or Docket Management Facility, M–30, U.S. Department of Transportation, West Building, Ground Floor, Rm. W12–140, 1200 New Jersey Avenue SE, Washington, DC 20590. The Docket Management Facility is open between 9 a.m. and 4 p.m. Eastern Time, Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Rebecca Schade, NHTSA Office of Chief Counsel, National Highway Traffic Safety Administration, 1200 New Jersey Avenue SE, Washington, DC 20590; email: rebecca.schade@dot.gov.

SUPPLEMENTARY INFORMATION:

Does this action apply to me?

This action affects companies that manufacture or sell new passenger automobiles (passenger cars) and non-passenger automobiles (light trucks) as defined under NHTSA’s CAFE regulations.¹ Regulated categories and entities include:

¹ “Passenger car” and “light truck” are defined in 49 CFR part 523.

Category	NAICS Codes ^A	Examples of potentially regulated entities
Industry	335111	Motor Vehicle Manufacturers.
	336112	
Industry	811111	Commercial Importers of Vehicles and Vehicle Components.
	811112	
	811198	
	423110	
Industry	335312	Alternative Fuel Vehicle Converters.
	336312	
	336399	
	811198	

^A North American Industry Classification System (NAICS).

This list is not intended to be exhaustive, but rather provides a guide regarding entities likely to be regulated by this action. To determine whether particular activities may be regulated by this action, you should carefully examine the regulations. You may direct questions regarding the applicability of this action to the person listed in **FOR FURTHER INFORMATION CONTACT**.

I. Executive Summary

NHTSA, on behalf of the Department of Transportation, is proposing to amend standards regulating corporate average fuel economy (CAFE) for passenger cars and light trucks for model years (MYs) 2024–2026. This proposal responds to NHTSA’s statutory obligation to set maximum feasible CAFE standards to improve energy conservation, and to President Biden’s directive in Executive Order 13990 of January 20, 2021 that “The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks”,

2020 final rule or 2020 CAFE rule (85 FR 24174 (April 30, 2020)), be immediately reviewed for consistency with our Nation’s abiding commitment to promote and protect our public health and the environment, among other things. NHTSA undertook that review immediately, and this proposal is the result of that process.

The proposed amended CAFE standards would increase in stringency from MY 2023 levels by 8 percent per year, for both passenger cars and light trucks over MYs 2024–2026. NHTSA tentatively concludes that this level is maximum feasible for these model years, as discussed in more detail in Section VI, and seeks comment on that conclusion. The proposal considers a range of regulatory alternatives, consistent with NHTSA’s obligations under the National Environmental Policy Act (NEPA) and Executive Order 12866. While E.O. 13990 directed the review of CAFE standards for MYs 2021–2026, statutory lead time requirements mean that the soonest

model year that can currently be amended in the CAFE program is MY 2024. The proposed standards would remain vehicle footprint-based, like the CAFE standards in effect since MY 2011. Recognizing that many readers think about CAFE standards in terms of the miles per gallon (mpg) values that the standards are projected to eventually require, NHTSA currently projects that the proposed standards would require, on an average industry fleet-wide basis, roughly 48 mpg in MY 2026. NHTSA notes both that real-world fuel economy is generally 20–30 percent lower than the estimated required CAFE level stated above, and also that the actual CAFE standards are the footprint target curves for passenger cars and light trucks, meaning that ultimate fleet-wide levels will vary depending on the mix of vehicles that industry produces for sale in those model years. Table I–1 shows the incremental differences in stringency levels for passenger cars and light trucks, by regulatory alternative, in the model years subject to regulation.

Table I-1 – Incremental Stringency Levels (mpg above Baseline) for Passenger Cars and Light Trucks, by Regulatory Alternative

Model Year	Alternative 0 (Baseline/No Action)	Alternative 1	Alternative 2	Alternative 3
Passenger cars				
2024	-	3.9	3.3	4.3
2025	-	4.9	6.8	9.2
2026	-	5.9	10.8	14.7
Light trucks				
2024	-	3.5	2.2	3.0
2025	-	4.2	4.7	6.4
2026	-	5.1	7.6	10.4
Total				
2024	-	3.7	2.6	3.5
2025	-	4.5	5.5	7.5
2026	-	5.3	8.7	11.9

This proposal is significantly different from the conclusion that NHTSA reached in the 2020 final rule, but this is because important facts have changed, and because NHTSA has reconsidered how to balance the relevant statutory considerations in light of those facts. NHTSA tentatively concludes that significantly more stringent standards are maximum feasible. Contrary to the 2020 final rule, NHTSA recognizes that the need of the United States to conserve energy must include serious consideration of the energy security risks of continuing to consume oil, which more stringent fuel economy standards can reduce. Reducing our Nation's climate impacts can also benefit our national security. Additionally, at least part of the automobile industry appears increasingly convinced that improving fuel economy and reducing greenhouse gas (GHG) emissions is a growth market for them, and that the market rewards investment in advanced technology. Nearly all auto manufacturers have announced forthcoming new higher fuel-economy and electric vehicle models, and five major manufacturers voluntarily bound themselves to stricter GHG requirements than set forth by NHTSA and the Environmental Protection Agency (EPA) in 2020 through contractual agreements with the State of California, which will result in their achieving fuel economy levels well above the standards set forth in the 2020 final rule. These companies are sophisticated, for-profit enterprises. If they are taking these steps, NHTSA can be more confident than the agency was in 2020 that the market is getting ready to make the leap to significantly higher

fuel economy. The California Framework and the clear planning by industry to migrate toward more advanced fuel economy technologies are evidence of the practicability of more stringent standards. Moreover, more stringent CAFE standards will help to encourage industry to continue improving the fuel economy of all vehicles, rather than simply producing a few electric vehicles, such that all Americans can benefit from higher fuel economy and save money on fuel. NHTSA cannot consider the fuel economy of dedicated alternative fuel vehicles like battery electric vehicles when determining maximum feasible standards, but the fact that industry increasingly appears to believe that there is a market for these vehicles is broader evidence of market (and consumer) interest in fuel economy, which is relevant to NHTSA's determination of whether more stringent standards would be economically practicable. For all of these reasons, NHTSA tentatively concludes that standards that increase at 8 percent per year are maximum feasible.

This proposal is also different from the 2020 final rule in that it is issued by NHTSA alone, and EPA has issued a separate proposal. The primary reason for this is the difference in statutory authority—EPA does not have the same lead time requirements as NHTSA and is thus able to amend MY 2023 in addition to MYs 2024–2026. An important consequence of this is that EPA's proposed rate of stringency increase, after taking a big leap in MY 2023, looks slower than NHTSA's over the same time period. NHTSA emphasizes, however, that the proposed

standards are what NHTSA believes best fulfills our statutory directive of energy conservation, and in the context of the EPA standards, the analysis we have done is tackling the core question of whether compliance with both standards should be achievable with the same vehicle fleet, after manufacturers fully understand the requirements from both proposals. The differences in what the two agencies' standards require become smaller each year, until alignment is achieved. While NHTSA recognizes that the last several CAFE standard rulemakings have been issued jointly with EPA, and that issuing separate proposals represents a change in approach, the agencies worked together to avoid inconsistencies and to create proposals that would continue to allow manufacturers to build a single fleet of vehicles to meet both agencies' proposed standards. Additionally, and importantly, NHTSA has also considered and accounted for California's Zero Emission Vehicle (ZEV) program (and its adoption by a number of other states) in developing the baseline for this proposal, and has accounted for the aforementioned "Framework Agreements" between California and BMW, Ford, Honda, Volkswagen of America (VWA), and Volvo, which are national-level GHG standards to which these companies committed for several model years.

A number of other improvements and updates have been made to the analysis since the 2020 final rule. Table I–2 summarizes these, and they are discussed in much more detail below and in the documents accompanying this preamble.

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Table I-2 – Key Analytical Updates from 2020 Final Rule

Key Updates
In all regulatory alternatives, account for the Zero Emission Vehicle (ZEV) mandates applicable in California and the States that have adopted them.
In all regulatory alternatives, account for some vehicle manufacturers' (BMW, Ford, Honda, VWA, and Volvo) voluntary commitments to the State of California to continued annual nation-wide reductions of vehicle greenhouse gas emissions through model year (MY) 2026, with greater rates of electrification than would have been required under the 2020 final rule.
In all regulatory alternatives, account for manufacturers' responses to both CAFE (alternatives) and baseline carbon dioxide standards jointly (rather than only separately).
Procedures to ensure that modeled technology application and production volumes are the same across all regulatory alternatives in the earliest model years.
Procedures to focus application of the Energy Policy and Conservation Act's (EPCA) "standard setting constraints" (i.e., regarding the consideration of compliance credits and additional dedicated alternative fueled vehicles) more precisely to only those model years for which NHTSA is proposing or finalizing new standards.
More accurate accounting for compliance treatment of flex-fuel vehicles (FFVs) and plug-in hybrid electric vehicles (PHEVs).
Include CAFE civil penalties in the "effective cost" metric used when simulating manufacturers' potential application of fuel-saving technologies.
COVID adjustment to vehicle miles traveled (VMT) model inputs (per Federal Highway Administration estimate of 2020 national VMT).
Embed Federal Highway Administration's VMT model in CAFE Model (dynamic model).
Criteria pollutant health effects reported separately for refining and electricity generation.
New procedures to estimate the impacts and corresponding monetized damages of highway vehicle crashes that do not result in fatalities, now based on historical data and future trend models that reflect the impacts of advanced crash avoidance technologies.
Social cost of carbon and damage costs for methane and nitrous oxide (interim guidance February 19, 2021).
Fuel and electricity prices using Energy Information Administration's Annual Energy Outlook 2021.
Analysis fleet updated to MY 2020.
Updated large scale simulation using Argonne National Laboratory's Autonomie model.
Inclusion of 400- and 500-mile battery electric vehicles (BEVs).
Updated battery and battery management unit size and costs using BatPaC version 4.0 (October 2020).
Updated hybrid electric vehicles, PHEV, and BEV electric machine and battery sizing.
Inclusion of high compression ratio (HCR) engines with cylinder deactivation.
Expanded turbo-downsizing to include reducing low-powered 4-cylinder naturally aspirated engines to 3-cylinder turbocharged engines.
Updated 10-speed automatic transmission efficiency characteristics based on benchmarking data from Southwest Research Institute.
Updated cold start offset assumptions using MY 2020 compliance data.
Updated mass regression analysis values for engines and electric motors.
More accurate accounting for off-cycle incremental costs relative to MY 2020 baseline fleet.
Updated fuel cell vehicle technology inputs.

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NHTSA estimates that this proposal could reduce average undiscounted fuel outlays over the lifetimes of MY 2029 vehicles by about \$1,280, while increasing the average cost of those vehicles by about \$960 over the baseline described above. With the social cost of

carbon (SCC) discounted at 2.5 percent and other benefits and costs discounted at 3 percent, for the three affected model years NHTSA finds \$65.8 billion in benefits attributable to the proposed standards and \$37.4 billion in proposed costs so that present net benefits could

be \$28.4 billion.² Applied to the entire fleet for MYs 1981–2029, NHTSA estimates \$120 billion in costs and \$121

² As discussed in Section III.G.2.b), NHTSA has discounted the SCC at 2.5% when other benefits and costs are discounted at 3% but seeks comment on this approach.

billion in benefits attributable to the proposed standards, such that the present value of aggregate net benefits to society could be \$1 billion. Like any analysis of this magnitude attempting to forecast future effects of current policies, significant uncertainty exists about many key inputs. Changes in the price of fuel or in the social cost of carbon could dramatically change benefits, for example, and readers should expect that the eventual final rule will reflect any updates made to those (and many other) values that occur between now and then. It is also worth stressing that NHTSA's statutory authority requires that its standards be maximum feasible, taking into account four statutory factors. While NHTSA's estimates of costs and benefits are important considerations, it is the maximum feasible analysis that controls the setting of CAFE standards.

Like many other types of regulations, CAFE standards apply only to new vehicles. The costs attributable to new CAFE standards are thus "front-loaded," because they result primarily from the application of fuel-saving technology to new vehicles. On the other hand, the impact of new CAFE standards on fuel consumption and greenhouse gases—

and the associated benefits to society—occur over an extended time, as drivers buy, use, and eventually scrap these new vehicles. By accounting for many model years and extending well into the future (2050), our analysis accounts for these differing patterns in impacts, benefits, and costs. Our analysis also accounts for the potential that, by changing new vehicle prices and fuel economy levels, CAFE standards could indirectly impact the operation of vehicles produced before or after the model years (2024–2026) for which we are proposing new CAFE standards. This means that some of the proposal's impacts and corresponding benefits and costs are actually attributable to indirect impacts on vehicles produced before and after model years 2024–2026.

The bulk of our analysis considers a "model year" (MY) perspective that considers the lifetime impacts attributable to all vehicles produced prior to model year 2030, accounting for the operation of these vehicles over their entire useful lives (with some model year 2029 vehicles estimated to be in service as late as 2068). This approach emphasizes the role of model years 2024–2026, while accounting for the potential that it may take

manufacturers a few additional years to produce fleets fully responsive to the proposed MY 2026 standards, and for the potential that the proposal could induce some changes in the operation of vehicles produced prior to MY 2024.

Our analysis also considers a "calendar year" (CY) perspective that includes the annual impacts attributable to all vehicles estimated to be in service in each calendar year for which our analysis includes a representation of the entire registered light-duty fleet. For this NPRM, this calendar year perspective covers each of calendar years 2021–2050, with differential impacts accruing as early as model year 2023. Compared to the "model year" perspective, this calendar year perspective emphasizes model years of vehicles produced in the longer term, beyond those model years for which standards are currently being proposed. Table I–3 summarizes estimates of selected physical impacts viewed from each of these two perspectives, as well as corresponding estimates of the present values of cumulative benefits, costs, and net benefits.

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Table I-3 – Selected Cumulative Impacts - Model and Calendar Year Perspectives

	Alt. 1	Alt. 2	Alt. 3
Avoided Gasoline Consumption (b. gal)			
MYs 1981-2029	30	50	75
CYs 2023-2050	105	205	290
Additional Electricity Consumption (TWh)			
MYs 1981-2029	90	275	395
CYs 2023-2050	395	1,150	1,690
CO ₂ Emissions (mmt)			
MYs 1981-2029	295	465	665
CYs 2023-2050	1,055	1,845	2,615
Benefits (\$b, 3% Discount Rate)			
MYs 1981-2029	83	121	173
CYs 2023-2050	267	434	607
Costs (\$b, 3% Discount Rate)			
MYs 1981-2029	66	121	176
CYs 2023-2050	186	334	475
Net Benefits (\$b, 3% Discount Rate)			
MYs 1981-2029	16	0	-3
CYs 2023-2050	81	100	132
Benefits (\$b, 7% Discount Rate)			
MYs 1981-2029	52	76	108
CYs 2023-2050	145	236	332
Costs (\$b, 7% Discount Rate)			
MYs 1981-2029	49	91	133
CYs 2023-2050	109	199	286
Net Benefits (\$b, 7% Discount Rate)			
MYs 1981-2029	2	-15	-25
CYs 2023-2050	36	37	46

Finally, for purposes of comparing the benefits and costs of new CAFE standards to the benefits and costs of other Federal regulations, policies, and

programs, we have computed “annualized” benefits and costs. These are the annual averages of the cumulative benefits and costs over the

covered model or calendar years, after expressing these in present value terms.

Table I-4 – Estimated Costs, Benefits, and Net Benefits Across MYs 1981-2029 (billions of dollars), Total Fleet for Alternative 1

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	66.5	49.3	2.61	3.58
Benefits	82.6	51.6	3.24	3.75
Net Benefits	16.1	2.3	0.63	0.17

Table I-5 – Estimated Costs, Benefits, and Net Benefits Across MYs 1981-2029 (billions of dollars), Total Fleet for Alternative 2

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	121.1	90.7	4.75	6.59
Benefits	121.4	75.6	4.76	5.49
Net Benefits	0.3	-15.1	0.01	-1.10

Table I-6 – Estimated Costs, Benefits, and Net Benefits Across MYs 1981-2029 (billions of dollars), Total Fleet for Alternative 3

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	176.3	132.8	6.91	9.65
Benefits	172.9	107.6	6.78	7.82
Net Benefits	-3.4	-25.2	-0.13	-1.83

Table I-7 – Estimated Costs, Benefits, and Net Benefits Across Calendar Years 2021-2050 (billions of dollars), Total Fleet for Alternative 1

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	185.7	108.9	9.47	8.77
Benefits	266.6	145.2	13.60	11.70
Net Benefits	81.0	36.4	4.13	2.93

Table I-8 – Estimated Costs, Benefits, and Net Benefits Across Calendar Years 2021-2050 (billions of dollars), Total Fleet for Alternative 2

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	333.6	198.9	17.02	16.03
Benefits	433.6	236.0	22.12	19.02
Net Benefits	100.0	37.1	5.10	2.99

Table I-9 – Estimated Costs, Benefits, and Net Benefits Across Calendar Years 2021-2050 (billions of dollars), Total Fleet for Alternative 3

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	474.8	285.8	24.22	23.03
Benefits	606.5	331.7	30.94	26.73
Net Benefits	131.7	45.9	6.72	3.70

As discussed in detail below, the monetized estimated costs and benefits

of this proposal are relevant and important to the agency's tentative

conclusion, but they are not the whole of the conclusion.

Additionally, although NHTSA is prohibited from considering the availability of certain flexibilities in making our determination about the levels of CAFE standards that would be

maximum feasible, manufacturers have a variety of flexibilities available to them to reduce their compliance burden. Table I-10 through Table I-13 below summarizes available compliance

flexibilities. NHTSA seeks comment on whether to retain non-statutory flexibilities for the final rule.

Table I-10 – Statutory Flexibilities for Over-compliance with Standards

Regulatory Item	NHTSA	
	Authority	Current Program
Credit Earning	49 U.S.C. 32903(a)	Denominated in tenths of a mpg
Credit “Carry-forward”	49 U.S.C. 32903(a)(2)	5 MYs into the future
Credit “Carryback” (AKA “deficit carry-forward”)*	49 U.S.C. 32903(a)(1)	3 MYs into the past
Credit Transfer	49 U.S.C. 32903(g)	Up to 2 mpg per fleet; transferred credits may not be used to meet minimum domestic passenger car standard (MDPCS)
Credit Trade*	49 U.S.C. 32903(f)	Unlimited quantity; traded credits may not be used to meet MDPCS

*NHTSA did not expressly model credit carryback, and credit trades were only modeled for credits that existed at the beginning of the modeling simulation. All other credits in this table were modeled.

Table I-11 – Current and Proposed Flexibilities that Address Gaps in Compliance Test Procedures

Regulatory Item	NHTSA	
	Authority	Current and <i>Proposed</i> Program
Air conditioning efficiency	49 U.S.C. 32904	Allows manufacturers to earn “fuel consumption improvement values” (FCIVs) equivalent to EPA credits starting in MY 2017
Off-cycle	49 U.S.C. 32904	Allows manufacturers to earn “fuel consumption improvement values” (FCIVs) equivalent to EPA credits starting in MY 2017 <i>For MY 2020 and beyond, NHTSA proposes to implement CAFE provisions equivalent to the EPA proposed changes</i>

Table I-12 – Incentives that Encourage Application of Technologies

Regulatory Item	NHTSA	
	Authority	<i>Proposed</i> Program
Full-size pickup trucks with HEV or overperforming target*	49 U.S.C. 32904	Allows manufacturers to earn FCIVs equivalent to EPA credits for MYs 2017-2021 <i>NHTSA proposes to reinstate incentives for strong hybrid OR overperforming target by 20% for MYs 2022-2025</i>

*These credits were not modeled for the NPRM analysis.

Table I-13 – Incentives that Encourage Alternative Fuel Vehicles

Regulatory Item	NHTSA	
	Authority	Current Program
Dedicated alternative fuel vehicle	49 U.S.C. 32905(a) and (c)	Fuel economy calculated assuming gallon of liquid or gallon equivalent gaseous alt fuel = 0.15 gallons of gasoline; for EVs petroleum equivalency factor
Dual-fueled vehicles	49 U.S.C. 32905(b), (d), and (e); 32906(a)	Fuel economy calculated using 50% operation on alt fuel and 50% on gasoline through MY 2019. Starting with MY 2020, NHTSA uses the Society of Automotive Engineers (SAE) defined "Utility Factor" methodology to account for actual potential use, and "F-factor" for FFV; NHTSA will continue to incorporate the 0.15 incentive factor

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NHTSA recognizes that the lead time for this proposal is shorter than past rulemakings have provided, and that the economy and the country are in the process of recovering from a global pandemic and the resulting economic distress. At the same time, NHTSA also recognizes that at least parts of the industry are nonetheless stepping up their product offerings and releasing more and more high fuel-economy vehicle models, and many companies did not deviate significantly from product plans established in response to the standards set forth in the 2012 final rule (77 FR 62624, Oct. 15, 2012) and confirmed by EPA in its January 2017 Final Determination. With these considerations in mind, NHTSA is proposing to amend the CAFE standards for MYs 2024–2026. NHTSA, like any other Federal agency, is afforded an opportunity to reconsider prior views and, when warranted, to adopt new positions. Indeed, as a matter of good governance, agencies *should* revisit their positions when appropriate, especially to ensure that their actions and regulations reflect legally sound interpretations of the agency’s authority and remain consistent with the agency’s views and practices. As a matter of law, “an Agency is entitled to change its interpretation of a statute.”³ Nonetheless, “[w]hen an Agency adopts a materially changed interpretation of a statute, it must in addition provide a ‘reasoned analysis’ supporting its decision to revise its interpretation.”⁴ The analysis presented in this preamble

and in the accompanying Technical Support Document (TSD), Preliminary Regulatory Impact Analysis (PRIA), Supplemental Environmental Impact Statement (SEIS), CAFE Model documentation, and extensive rulemaking docket fully supports the proposed decision and revised balancing of the statutory factors for MYs 2024–2026 standards. NHTSA seeks comment on the entirety of the rulemaking record.

II. Introduction

In this notice of proposed rulemaking (NPRM), NHTSA is proposing to revise CAFE standards for model years (MYs) 2024–2026. On January 20, 2021, the President signed Executive Order (E.O.) 13990, “Protecting Public Health and the Environment and Restoring Science To Tackle the Climate Crisis.”⁵ In it, the President directed that “The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks” (hereafter, “the 2020 final rule”), 85 FR 24174 (April 30, 2020), must be immediately reviewed for consistency with our Nation’s abiding commitment to empower our workers and communities; promote and protect our public health and the environment; and conserve our national treasures and monuments, places that secure our national memory. E.O. 13990 states expressly that the Administration prioritizes listening to the science, improving public health and protecting the environment, reducing greenhouse gas emissions, and improving environmental justice while creating well-paying union jobs. The E.O. thus directs that the 2020 final rule be reviewed at once and that (in this case) the Secretary of Transportation consider

“suspending, revising, or rescinding” it, via an NPRM, by July 2021.⁶

Section 32902(g)(1) of Title 49, United States Code allows the Secretary (by delegation to NHTSA) to prescribe regulations amending an average fuel economy standard prescribed under 49 U.S.C. 32902(a), like those prescribed in the 2020 final rule, if the amended standard meets the requirements of 32902(a). The Secretary’s authority to set fuel economy standards is delegated to NHTSA at 49 CFR 1.95(a); therefore, in this NPRM, NHTSA proposes revised fuel economy standards for MYs 2024–2026. Section 32902(g)(2) states that when the amendment makes an average fuel economy standard more stringent, it must be prescribed at least 18 months before the beginning of the model year to which the amendment applies. NHTSA generally calculates the 18-month lead time requirement as April of the calendar year prior to the start of the model year. Thus, 18 months before MY 2023 would be April 2021, because MY 2023 begins in September 2022. Because of this lead time requirement, NHTSA is not proposing to amend the CAFE standards for MYs 2021–2023, even though the 2020 final rule also covered those model years. For purposes of the CAFE program, the 2020 final rule’s standards for MYs 2021–2023 will remain in effect.

For the MYs for which there is statutory lead time to amend the standards, however, NHTSA is proposing amendments to the currently applicable fuel economy standards. Although only one year has passed since the 2020 final rule, the agency believes it is reasonable and appropriate to revisit the CAFE standards for MYs 2024–2026. In particular, the agency has further considered the serious adverse effects on energy conservation that the standards finalized in 2020 would cause

³Phoenix Hydro Corp. v. FERC, 775 F.2d 1187, 1191 (D.C. Cir. 1985).
⁴Alabama Educ. Ass’n v. Chao, 455 F.3d 386, 392 (D.C. Cir. 2006) (quoting Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 57 (1983)); see also Encino Motorcars, LLC v. Navarro, 136 S.Ct. 2117, 2125 (2016) (“Agencies are free to change their existing policies as long as they provide a reasoned explanation for the change.”) (citations omitted).

⁵86 FR 7037 (Jan. 25, 2021).

⁶Id., Sec. 2(a)(ii).

as compared to the proposed standards. The need of the U.S. to conserve energy is greater than understood in the 2020 final rule. In addition, standards that are more stringent than those that were finalized in 2020 appear economically practicable. Nearly all auto manufacturers have announced forthcoming new advanced technology vehicle models with higher fuel economy, making strong public commitments that mirror those of the Administration. Five major manufacturers voluntarily bound themselves to stricter national-level GHG requirements as part of the California Framework agreement. Meanwhile, certain facts on the ground remain similar to what was before NHTSA in the prior analysis—gas prices still remain relatively low in the U.S., for example, and while light-duty vehicle sales fell sharply in MY 2020, the vehicles that *did* sell tended to be, on average, larger, heavier, and more powerful, all factors that increase fuel consumption. However, the renewed focus on addressing energy conservation and the industry's apparent ability to meet more stringent standards show that

a rebalancing of the EPCA factors, and the proposal of more stringent standards, is appropriate for model years 2024–2026.

The following sections introduce the proposal in more detail.

A. *What is NHTSA proposing?*

NHTSA is proposing to set CAFE standards for passenger cars and light trucks manufactured for sale in the United States in MYs 2024–2026. Passenger cars are generally sedans, station wagons, and two-wheel drive crossovers and sport utility vehicles (CUVs and SUVs), while light trucks are generally four-wheel drive vehicles, larger/heavier two-wheel drive sport utility vehicles, pickups, minivans, and passenger/cargo vans.⁷ The proposed standards would increase at 8 percent per year for both cars and trucks, and are represented by regulatory Alternative 2 in the agency's analysis. The proposed standards would be defined by a mathematical equation that represents a constrained linear function relating vehicle footprint to fuel

⁷ "Passenger car" and "light truck" are defined at 49 CFR part 523.

economy targets for both cars and trucks; vehicle footprint is roughly measured as the rectangle that is made by the four points where the vehicle's tires touch the ground. Generally, passenger cars will have more stringent targets than light trucks regardless of footprint, and smaller vehicles will have more stringent targets than larger vehicles. No individual vehicle or vehicle model need meet its target exactly, but a manufacturer's compliance is determined by how its average fleet fuel economy compares to the average fuel economy of the targets of the vehicles it manufactures.

The proposed target curves⁸ for passenger cars and light trucks are as follows; curves for MYs 2020–2023 are included in Figure II–1 and Figure II–2 for context.

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⁸ NHTSA underscores that the equations and coefficients defining the curves are what the agency is proposing, and not the mpg numbers that the agency currently estimates could result from manufacturers complying with the curves. Because the estimated mpg numbers are an *effect* of the proposed curves, they are presented in the following section.

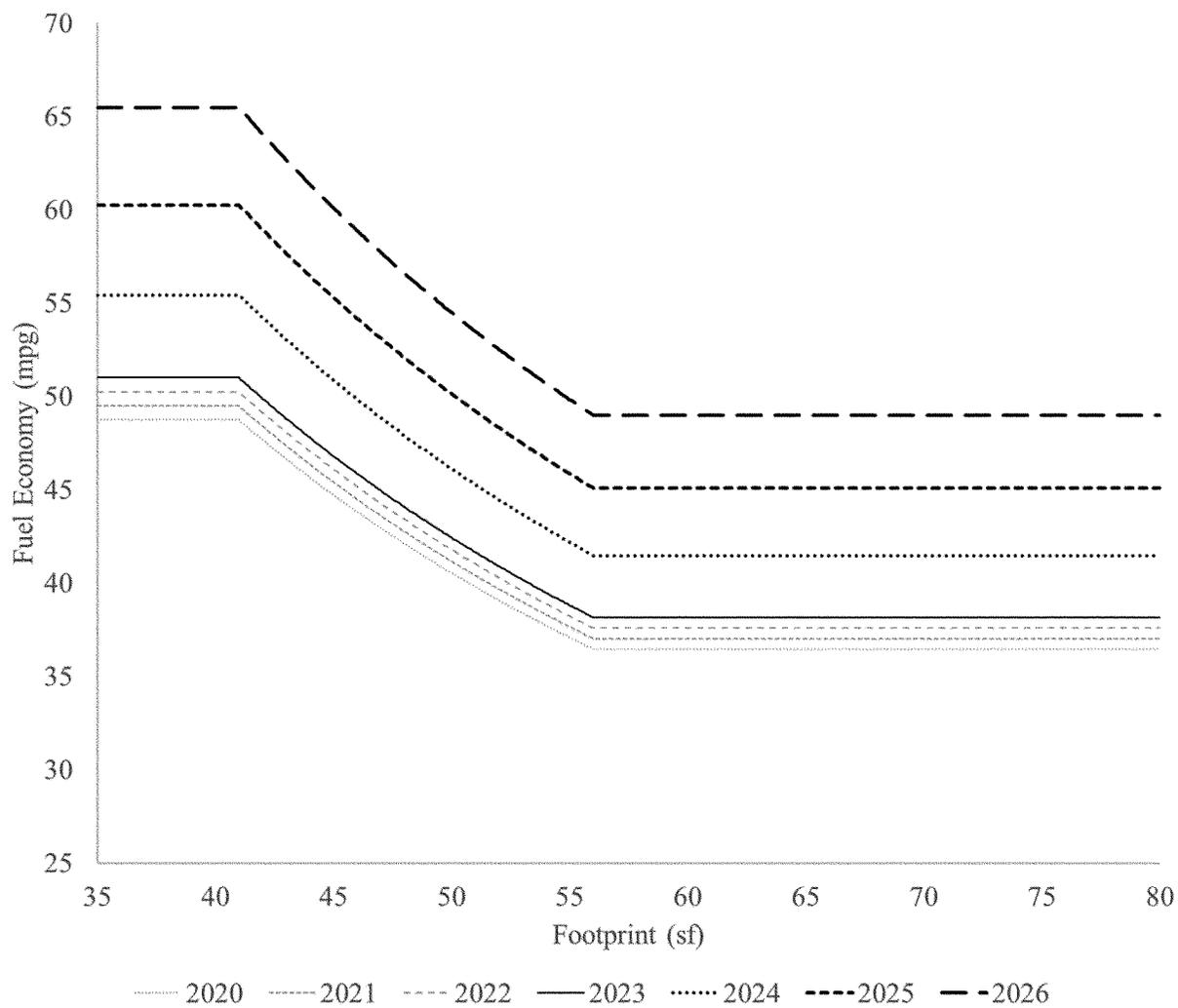


Figure II-1 – Passenger Car Fuel Economy, Proposed Target Curves

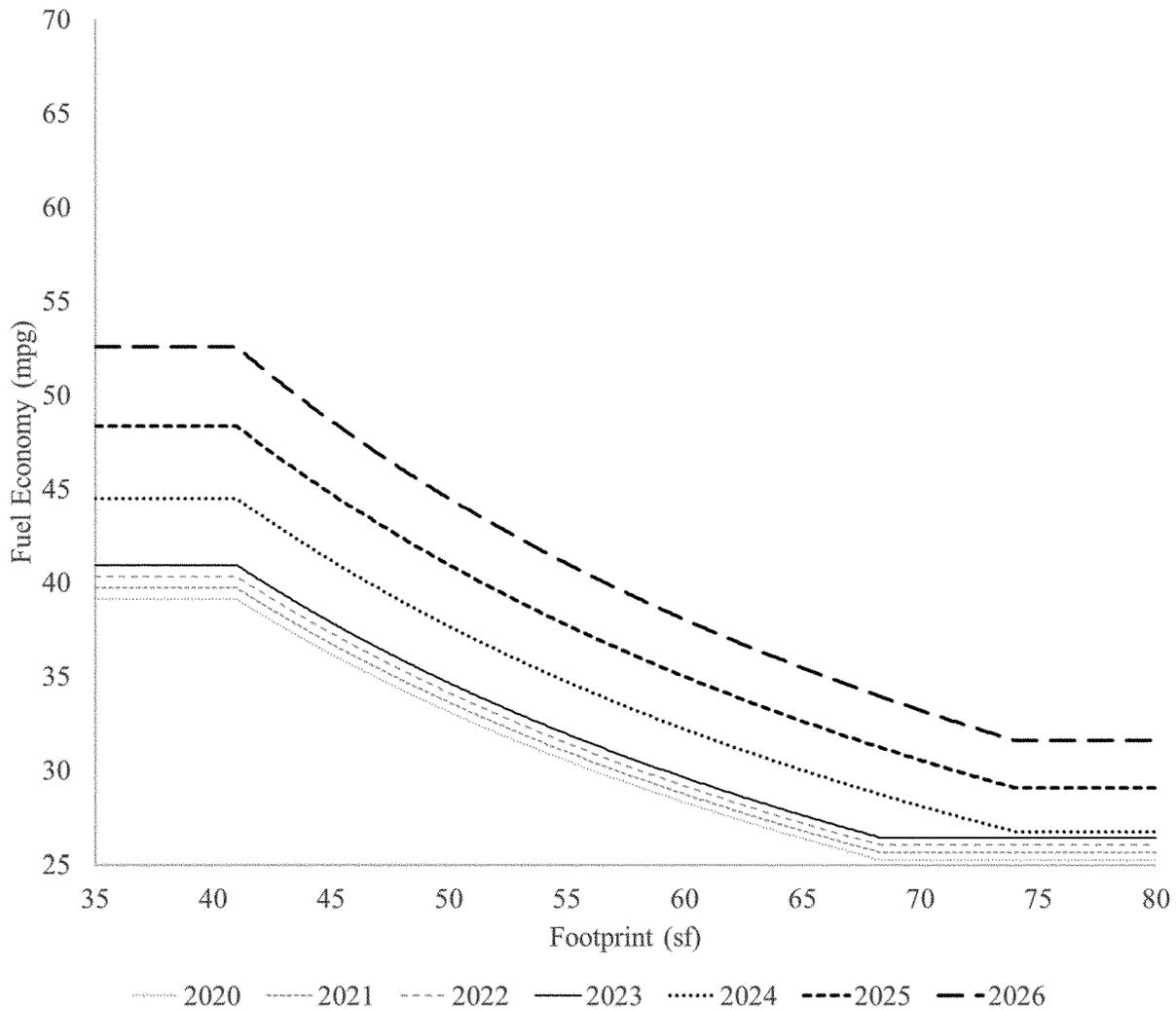


Figure II-2 – Light Truck Fuel Economy, Proposed Target Curves

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NHTSA is also proposing to amend the minimum domestic passenger car CAFE standards for MYs 2024–2026. The provision at 49 U.S.C. 32902(b)(4)

requires NHTSA to project the minimum standard when it promulgates passenger car standards for a model year, so it is appropriate to revisit the minimum standards at this time.

NHTSA is proposing to retain the 1.9 percent offset used in the 2020 final rule, such that the minimum domestic passenger car standard would be as shown in Table II-1.

Table II-1 – Proposed Minimum Domestic Passenger Car Standards

2024	2025	2026
44.4 mpg	48.2 mpg	52.4 mpg

The next section describes some of the effects that NHTSA estimates would follow from this proposal, including how the curves shown above translate to estimated average mile per gallon requirements for the industry.

B. What does NHTSA estimate the effects of proposing this would be?

As for past CAFE rulemakings, NHTSA has used the CAFE Model to estimate the effects of proposed CAFE standards, and of other regulatory alternatives under consideration. Some inputs to the CAFE Model are derived from other models, such as Argonne National Laboratory’s “Autonomie”

vehicle simulation tool and Argonne’s Greenhouse gases, Regulated Emissions, and Energy use in Transportation (GREET) fuel-cycle emissions analysis model, the U.S. Energy Information Administration’s (EIA’s) National Energy Modeling System (NEMS), and EPA’s Motor Vehicle Emission Simulator (MOVES) vehicle emissions model. Especially given the scope of the

NHTSA’s analysis (through model years 2050, with driving of model year 2029 vehicles accounted for through calendar year 2068), these inputs involve a multitude of uncertainties. For example, a set of inputs with significant uncertainty could include future population and economic growth, future gasoline and electricity prices, future petroleum market characteristics (e.g., imports and exports), future battery costs, manufacturers’ future responses to standards and fuel prices, buyers’

future responses to changes in vehicle prices and fuel economy levels, and future emission rates for “upstream” processes (e.g., refining, finished fuel transportation, electricity generation). Considering that all of this is uncertain from a 2021 vantage point, NHTSA underscores that all results of this analysis are, in turn, uncertain, and simply represent the agency’s best estimates based on the information currently before us.

NHTSA estimates that this proposal would increase the eventual⁹ average of manufacturers’ CAFE requirements to about 48 mpg by 2026 rather than, under the No-Action Alternative (i.e., the baseline standards issued in 2020), about 40 mpg. For passenger cars, the average in 2026 is estimated to reach about 58 mpg, and for light trucks, about 42. This compares with 47 mpg and 34 mpg for cars and trucks, respectively, under the No-Action Alternative.

Table II-2 – Estimated Average of CAFE Levels (mpg) Required Under Proposal

Fleet	2024	2025	2026	2027	2028	2029
Passenger Cars	49	53	58	58	58	58
Light Trucks	35	38	42	42	42	42
Overall Fleet	41	44	48	48	48	48

Because manufacturers do not comply exactly with each standard in each model year, but rather focus their compliance efforts when and where it is most cost-effective to do so, “estimated

achieved” fuel economy levels differ somewhat from “estimated required” levels for each fleet, for each year. NHTSA estimates that the industry-wide average fuel economy achieved in

MY 2029 could increase from about 44 mpg under the No-Action Alternative to about 49 mpg under the proposal.

Table II-3 – Estimated Average of CAFE Levels (mpg) Achieved Under Proposal

Fleet	2024	2025	2026	2027	2028	2029
Passenger Cars	54	57	60	61	61	61
Light Trucks	37	38	40	41	41	41
Overall Fleet	43	45	48	48	49	49

As discussed above, NHTSA’s analysis—unlike its previous CAFE analyses—estimates manufacturers’ potential responses to the combined effect of CAFE standards and separate CO₂ standards (including agreements some manufacturers have reached with California), ZEV mandates, and fuel prices. Together, the aforementioned

regulatory programs are more binding than any single program considered in isolation, and this analysis, like past analyses, shows some estimated overcompliance with the proposed CAFE standards, albeit by much less than what was shown in the NPRM that preceded the 2020 final rule, and any

overcompliance is highly manufacturer-dependent.

Expressed as equivalent required and achieved average CO₂ levels (using 8887 grams of CO₂ per gallon of gasoline vehicle certification fuel), the above CAFE levels appear as shown in Table II-4 and Table II-5.

Table II-4 – Estimated Average of CAFE Levels Required Under Proposal (as Equivalent Gram per Mile CO₂ Levels)

Fleet	2024	2025	2026	2027	2028	2029
Passenger Cars	181	166	153	153	153	153
Light Trucks	253	233	214	214	214	214
Overall Fleet	219	201	185	185	185	184

⁹Here, “eventual” means by MY 2029, after most of the fleet will have been redesigned under the MY 2026 standards. NHTSA allows the CAFE Model to

continue working out compliance solutions for the regulated model years for three model years after the last regulated model year, in recognition of the

fact that manufacturers do not comply perfectly with CAFE standards in each model year.

Table II-5 – Estimated Average of CAFE Levels Achieved Under Proposal (as Equivalent Gram per Mile CO₂ Levels)

Fleet	2024	2025	2026	2027	2028	2029
Passenger Cars	165	156	149	147	145	145
Light Trucks	243	234	221	218	216	215
Overall Fleet	206	197	187	184	182	181

Average requirements and achieved CAFE levels would ultimately depend on manufacturers' and consumers' responses to standards, technology developments, economic conditions, fuel prices, and other factors.

NHTSA estimates that over the lives of vehicles produced prior to MY 2030, the proposal would save about 50 billion gallons of gasoline and increase electricity consumption (as the percentage of electric vehicles increases

over time) by about 275 terawatts (TWh), compared to levels of gasoline and electricity consumption NHTSA projects would occur under the baseline standards (*i.e.*, the No-Action Alternative).

Table II-6 – Estimated Changes in Energy Consumption vs. No-Action Alternative

Energy Source	Change in Consumption
Gasoline	-50 billion gallons
Electricity	+275 TWh

NHTSA's analysis also estimates total annual consumption of fuel by the entire on-road fleet from calendar year 2020 through calendar year 2050. On this basis, gasoline and electricity

consumption by the U.S. light-duty vehicle fleet evolves as shown in Figure II-3 and Figure II-4, each of which shows projections for the No-Action Alternative (Alternative 0, *i.e.*, the

baseline), Alternative 1, Alternative 2 (the proposal), and Alternative 3.

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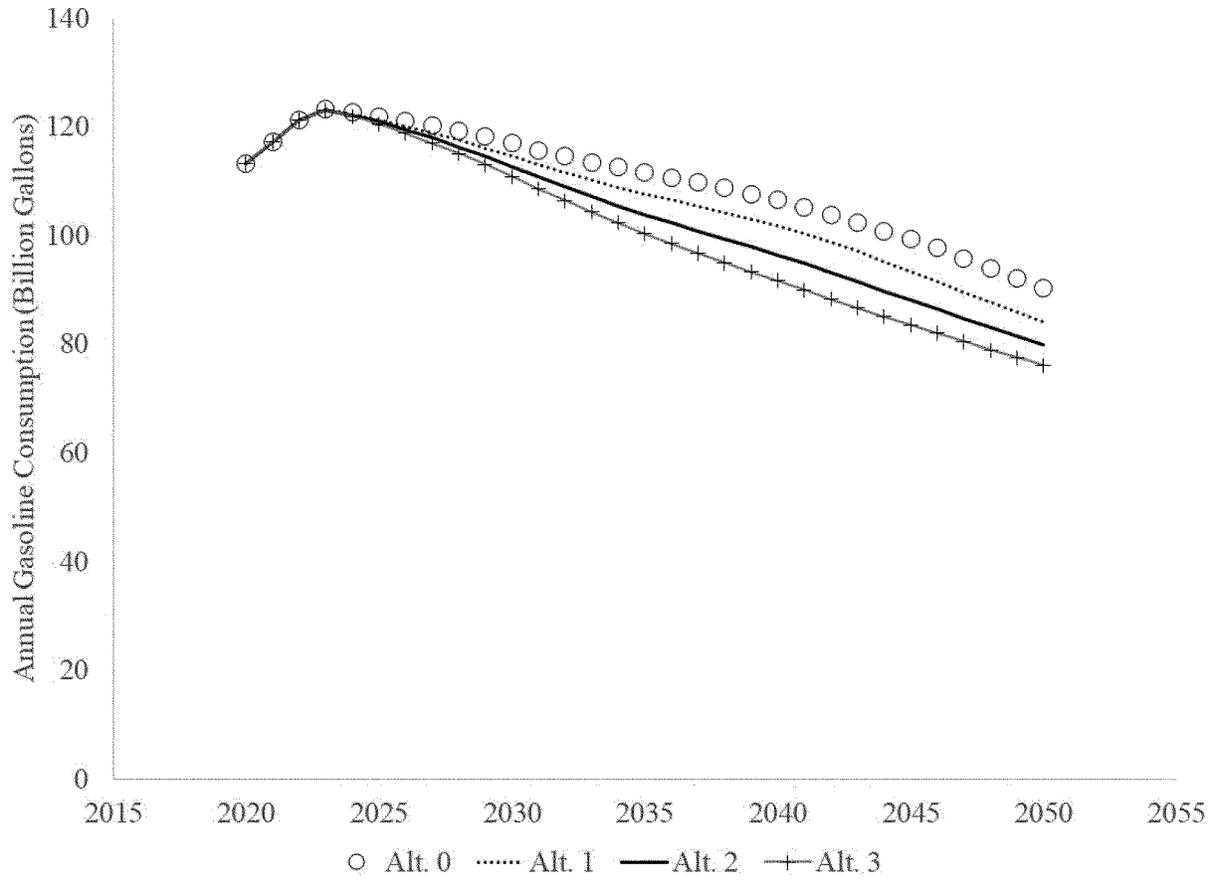


Figure II-3 – Estimated Annual Gasoline Consumption by Light-Duty On-Road Fleet

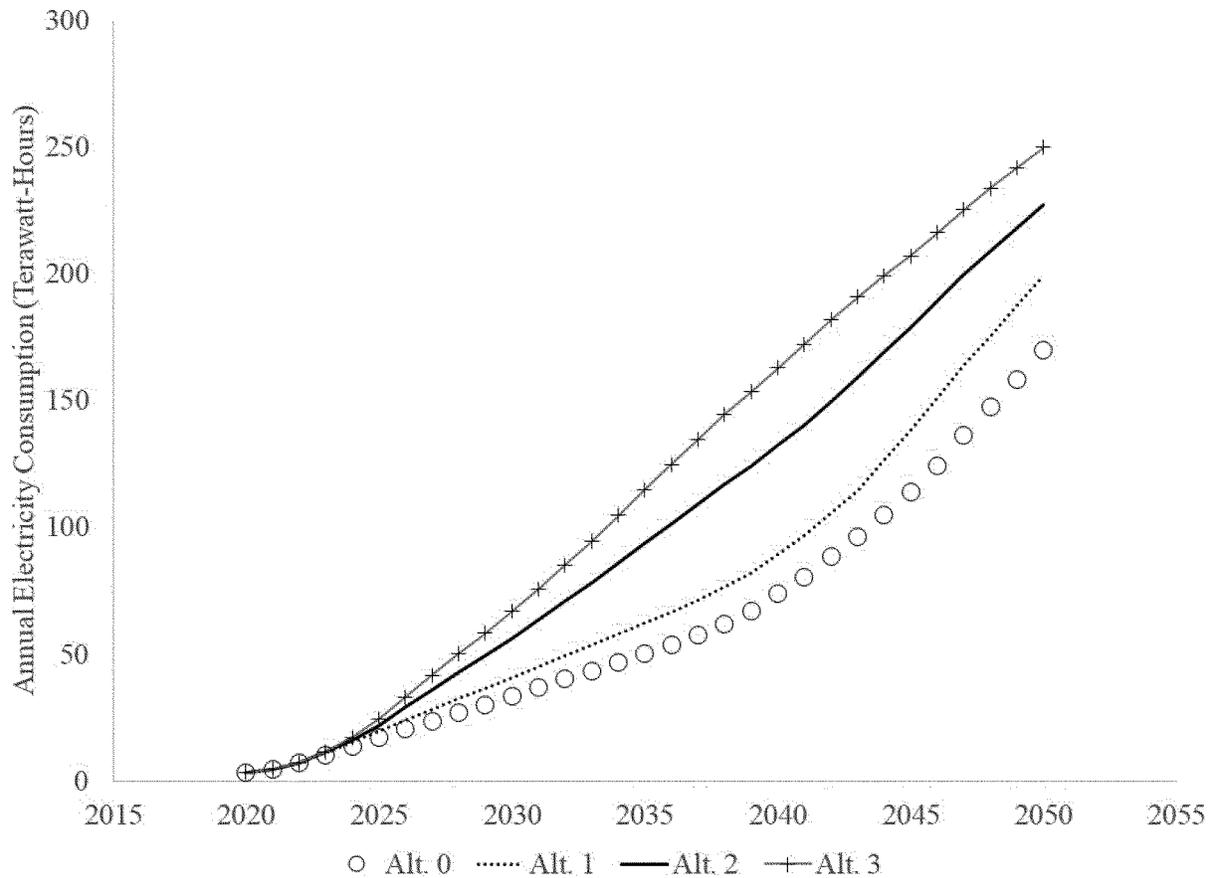


Figure II-4 – Estimated Electricity Consumption by Light-Duty On-Road Fleet

Accounting for emissions from both vehicles and upstream energy sector processes (e.g., petroleum refining and electricity generation), NHTSA

estimates that the proposal would reduce greenhouse gas emissions by about 465 million metric tons of carbon dioxide (CO₂), about 500 thousand

metric tons of methane (CH₄), and about 12 thousand tons of nitrous oxide (N₂O).

Table II-7 – Estimated Changes in Greenhouse Gas Emissions (Metric Tons) vs. No-Action Alternative

Greenhouse Gas	Change in Emissions
Carbon Dioxide (CO ₂)	-465 million tons
Methane (CH ₄)	-500 thousand tons
Nitrous Oxide (N ₂ O)	-12 thousand tons

As for fuel consumption, NHTSA’s analysis also estimates annual emissions attributable to the entire on-road fleet from calendar year 2020 through

calendar year 2050. Also accounting for both vehicles and upstream processes, NHTSA estimates that CO₂ emissions could evolve over time as shown in

Figure II-5, which accounts for both emissions from both vehicles and upstream processes.

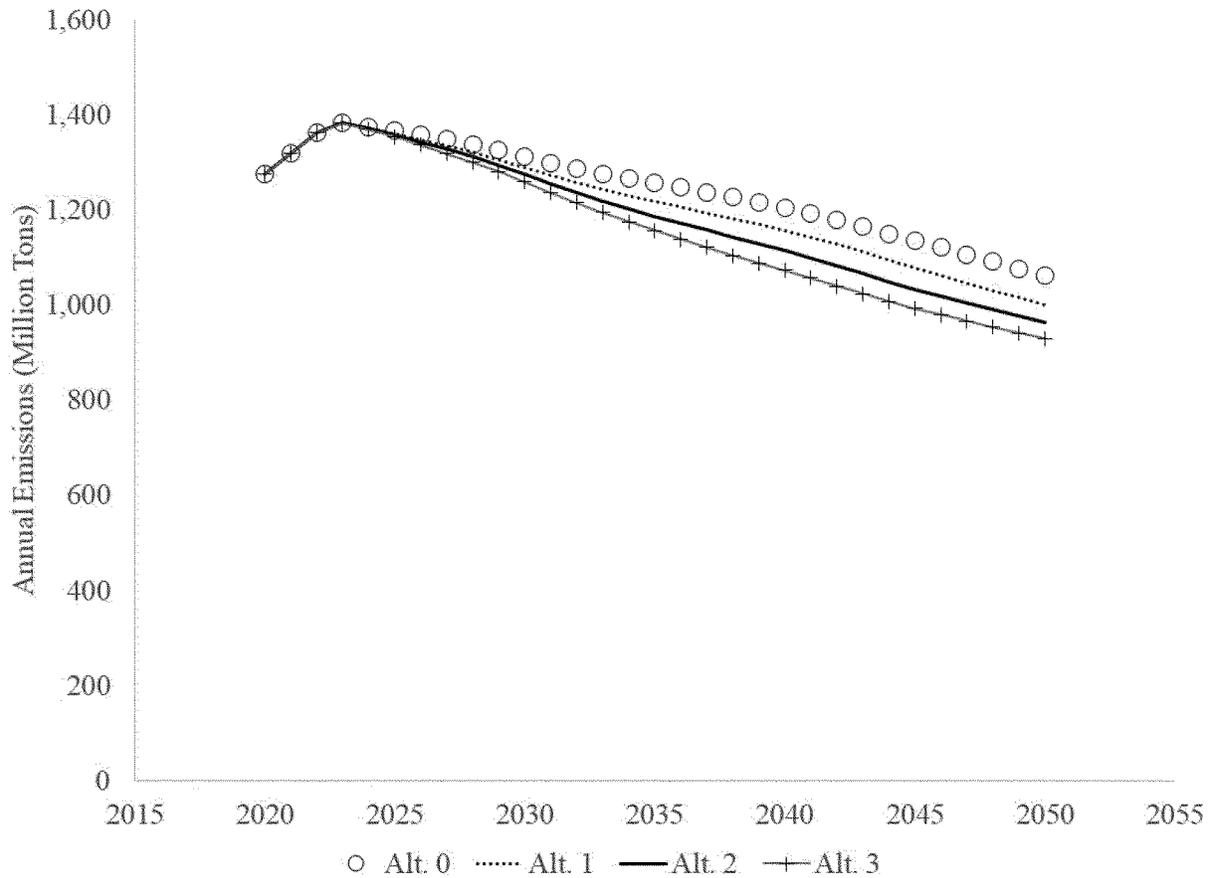


Figure II-5 – Estimated Annual CO₂ Emissions Attributable to Light-Duty On-Road Fleet

Estimated emissions of methane and nitrous oxides follow similar trends. As discussed in the TSD, PRIA, and this NPRM, NHTSA has performed two types of supporting analysis. This NPRM and PRIA focus on the “standard setting” analysis, which sets aside the potential that manufacturers could respond to standards by using compliance credits or introducing new alternative fuel vehicle (including BEVs) models during the “decision years” (for this NPRM, 2024, 2025, and 2026). The accompanying SEIS focuses on an

“unconstrained” analysis, which does not set aside these potential manufacturer actions. The SEIS presents much more information regarding projected GHG emissions, as well as model-based estimates of corresponding impacts on several measures of global climate change.

Also accounting for vehicular and upstream emissions, NHTSA has estimated annual emissions of most criteria pollutants (*i.e.*, pollutants for which EPA has issued National Ambient Air Quality Standards).

NHTSA estimates that under each regulatory alternative, annual emissions of carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxide (NO_x), and fine particulate matter (PM_{2.5}) attributable to the light-duty on-road fleet will decline dramatically between 2020 and 2050, and that emissions in any given year could be very nearly the same under each regulatory alternative. For example, Figure II-6 shows NHTSA’s estimate of future NO_x emissions under each alternative.

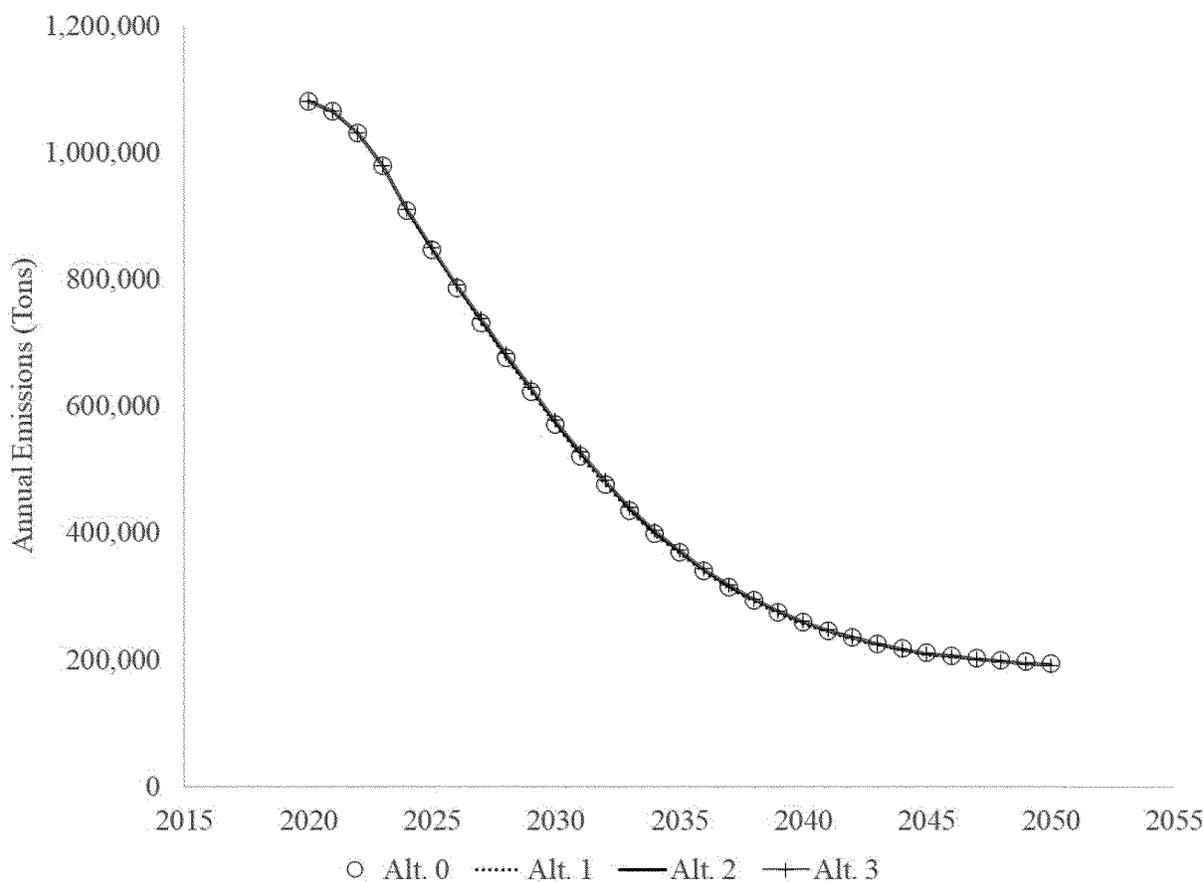


Figure II-6 – Estimated Annual NO_x Emissions Attributable to Light-Duty On-Road Fleet

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On the other hand, as discussed in the PRIA and SEIS, NHTSA projects that annual SO₂ emissions attributable to the light-duty on-road fleet could increase modestly under the action alternatives, because, as discussed above, NHTSA projects that each of the action alternatives could lead to greater use of electricity (for PHEVs and BEVs). The adoption of actions—such as actions prompted by President Biden’s Executive order directing agencies to develop a Federal Clean Electricity and Vehicle Procurement Strategy—to reduce electricity generation emission rates beyond projections underlying NHTSA’s analysis (discussed in the TSD) could dramatically reduce SO₂ emissions under all regulatory alternatives considered here.¹⁰

For the “standard setting” analysis, the PRIA accompanying this NPRM provides additional detail regarding projected criteria pollutant emissions and health effects, as well as the inclusion of these impacts in this benefit-cost analysis. For the “unconstrained” or “EIS” type of analysis, the SEIS accompanying this NPRM presents much more information regarding projected criteria pollutant emissions, as well as model-based estimates of corresponding impacts on several measures of urban air quality and public health. As mentioned above, these estimates of criteria pollutant emissions are based on a complex analysis involving interacting simulation techniques and a myriad of input estimates and assumptions. Especially extending well past 2040, the

analysis involves a multitude of uncertainties. Therefore, actual criteria pollutant emissions could ultimately be different from NHTSA’s current estimates.

To illustrate the effectiveness of the technology added in response to this proposal, Table II-8 presents NHTSA’s estimates for increased vehicle cost and lifetime fuel expenditures if we assumed the behavioral response to the lower cost of driving were zero.¹¹ These numbers are presented in lieu of NHTSA’s primary estimate of lifetime fuel savings, which would give an incomplete picture of technological effectiveness because the analysis accounts for consumers’ behavioral response to the lower cost-per-mile of driving a more fuel-efficient vehicle.

¹⁰ <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/>, accessed June 17, 2021.

¹¹ While this comparison illustrates the effectiveness of the technology added in response to this proposal, it does not represent a full consumer welfare analysis, which would account for drivers’ likely response to the lower cost-per-

mile of driving, as well as a variety of other benefits and costs they will experience. The agency’s complete analysis of the proposal’s likely impacts on passenger car and light truck buyers appears in the PRIA, Appendix I, Table A-23-1.

Table II-8 – Estimated Impact on Average MY 2029 Vehicle Costs vs. No-Action Alternative¹²

Consumer Impact	Dollar Value
Price Increase	\$960
Lifetime Fuel Savings	\$1,280

With the SCC discounted at 2.5% and other benefits and costs discounted at 3%, NHTSA estimates that costs and benefits could be approximately \$120 billion and \$121 billion, respectively, such that the present value of aggregate

net benefits to society could be somewhat less than \$1 billion. With the social cost of carbon (SCC) discounted at 3% and other benefits and costs discounted at 7%, NHTSA estimates approximately \$90 billion in costs and

\$76 billion in benefits could be attributable to vehicles produced prior to MY 2030 over the course of their lives, such that the present value of aggregate net costs to society could be approximately \$15 billion.¹³

Table II-9 – Present Value of Estimated Benefits and Costs vs. No-Action Alternative for MYs through 2029

	3% Discount Rate (2.5% for SCC)	7% Discount Rate (3% for SCC)
Benefits	\$121b	\$76b
Costs	\$121b	\$91b
Net Benefits	<\$1b	-\$15b

Model results can be viewed many different ways, and NHTSA’s rulemaking considers both “model year” and “calendar year” perspectives. The “model year” perspective, above, considers vehicles projected to be produced in some range of model years, and accounts for impacts, benefits, and costs attributable to these vehicles from the present (from the model year’s perspective, 2020) until they are projected to be scrapped. The bulk of NHTSA’s analysis considers vehicles produced prior to model year 2030, accounting for the estimated indirect impacts new standards could have on the remaining operation of vehicles already in service. This perspective

emphasizes impacts on those model years nearest to those (2024–2026) for which NHTSA is proposing new standards. NHTSA’s analysis also presents some results focused only on model years 2024–2026, setting aside the estimated indirect impacts on earlier model years, and the impacts estimated to occur during model years 2027–2029, as some manufacturers and products “catch up” to the standards. Another way to present the benefits and costs of the proposal is the “calendar year” perspective shown in Table II-10, which is similar to how EPA presents benefits and costs in its proposal for GHG standards for MYs 2023–2026. The calendar year

perspective considers all vehicles projected to be in service in each of some range of future calendar years. NHTSA’s presentation of results from this perspective considers calendar years 2020–2050, because the model’s representation of the full on-road fleet extends through 2050. Unlike the model year perspective, this perspective includes vehicles projected produced during model years 2030–2050. This perspective emphasizes longer-term impacts that could accrue if standards were to continue without change. Table II-10 shows costs and benefits for MYs 2023–2026 while Table II-9 shows costs and benefits through MY 2029.

¹² Assumes no rebound effect.
¹³ NHTSA interprets the 2021 IWG draft guidance as indicating that a 2.5% discount rate for the SCC is consistent with discounting near-term benefits and costs of the proposal at the OMB-recommended

consumption discount rate of 3%. For the OMB-recommended discount rate of 7%, NHTSA concluded that a 3% discount rate for the SCC was reasonable given that the IWG draft guidance suggested that the appropriate discount rate for the SCC was likely lower than 3%. NHTSA refers

readers specifically to pp. 16–17 of that guidance, available at https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf?source=email.

Table II-10 – Estimates of Benefits and Costs of the Preferred Alternative for Model Years 2023 through 2026, 3% Discount Rate

MY	Cost	Benefit	Net Benefits
	Present Values		
2023	\$5.6	\$3.5	-\$2.1
2024	\$8.9	\$13.6	\$4.7
2025	\$10.7	\$21.2	\$10.5
2026	\$12.2	\$27.5	\$15.3
Sum	\$37.4	\$65.8	\$28.4

Though based on the exact same model results, these two perspectives provide considerably different views of estimated costs and benefits. Because technology costs account for a large share of overall estimated costs, and are also projected to decline over time (as manufacturers gain more experience with new technologies), costs tend to be “front loaded”—occurring early in a vehicle’s life and tending to be higher in earlier model years than in later model years. Conversely, because social benefits of standards occur as vehicles are driven, and because both fuel prices and the social cost of CO₂ emissions are projected to increase in the future, benefits tend to be “back loaded.” As a result, estimates of future fuel savings, CO₂ reductions, and net social benefits are higher under the calendar year perspective than under the model year perspective. On the other hand, with longer-term impacts playing a greater role, the calendar year perspective is more subject to uncertainties regarding, for example, future technology costs and fuel prices.

Even though NHTSA and EPA estimate benefits, costs, and net benefits using similar methodologies and achieve similar results, different approaches to accounting may give the false appearance of significant divergences. Table II–10 above presents NHTSA’s results using comparable accounting to EPA’s preamble Table 5. EPA also presents cost and benefit information in its RIA over calendar years 2021 through 2050. The numbers most comparable to those presented in EPA’s RIA are those NHTSA developed to complete its Supplemental Environmental Impact Statement (SEIS) using an identical accounting approach. This is because the statutory limitations constraining NHTSA’s standard setting analysis, such as those in 49 U.S.C. 32902(h) prohibiting consideration of full vehicle electrification during the rulemaking timeframe, or consideration

of the trading or transferring of overcompliance credits, do not similarly apply to its EIS analysis.¹⁴ NHTSA’s EIS analysis estimates \$312 billion in costs, \$443 billion in benefits, and \$132 billion in net benefits using a 3% discount rate over calendar years 2021 through 2050.¹⁵ NHTSA describes its cost and benefit accounting approach in Section V of this preamble.

C. Why does NHTSA tentatively believe the proposal would be maximum feasible, and how and why is this tentative conclusion different from the 2020 final rule?

NHTSA’s tentative conclusion, after consideration of the factors described below and information in the administrative record for this action, is that 8 percent increases in stringency for MYs 2024–2026 (Alternative 2 of this analysis) are maximum feasible. The Department of Transportation is deeply committed to working aggressively to improve energy conservation and reduce security risks associated with energy use, and higher standards appear increasingly likely to be economically practicable given almost-daily announcements by major automakers about forthcoming new high-fuel-economy vehicle models, as described in more detail below. Despite only one year having passed since the 2020 final rule, enough has changed in the U.S. and the world that revisiting the CAFE standards for MYs 2024–2026, and raising their stringency considerably, is both appropriate and reasonable.

The 2020 final rule set CAFE standards that increased at 1.5 percent

¹⁴ As the EIS analysis contains information that NHTSA is statutorily prevented from considering, the agency does not rely on this analysis in regulatory decision-making.

¹⁵ See PRIA Chapter 6.5 for more information regarding NHTSA’s estimates of annual benefits and costs using NHTSA’s standard setting analysis. See Tables B–7–25 through B–7–30 in Appendix II of the PRIA for a more detailed breakdown of NHTSA’s EIS analysis.

per year for cars and trucks for MYs 2021–2026, in large part because it prioritized industry concerns and reducing vehicle purchase costs to consumers and manufacturers. This proposed rule acknowledges the priority of energy conservation, consistent with NHTSA’s statutory authority. Moreover, NHTSA is also legally required to consider the environmental implications of this action under NEPA, and while the 2020 final rule did undertake a NEPA analysis, it did not prioritize the environmental considerations aspects of the statutory need of the U.S. to conserve energy.

NHTSA recognizes that the amount of lead time available before MY 2024 is less than what was provided in the 2012 rule. As will be discussed further in Section VI, NHTSA believes that the evidence suggests that the proposed standards are still economically practicable.

We note further that while this proposal is different from the 2020 final rule (and also from the 2012 final rule), NHTSA, like any other Federal agency, is afforded an opportunity to reconsider prior views and, when warranted, to adopt new positions. Indeed, as a matter of good governance, agencies *should* revisit their positions when appropriate, especially to ensure that their actions and regulations reflect legally sound interpretations of the agency’s authority and remain consistent with the agency’s views and practices. As a matter of law, “an Agency is entitled to change its interpretation of a statute.”¹⁶ Nonetheless, “[w]hen an Agency adopts a materially changed interpretation of a statute, it must in addition provide a ‘reasoned analysis’ supporting its decision to revise its interpretation.”¹⁷

¹⁶ Phoenix Hydro Corp. v. FERC, 775 F.2d 1187, 1191 (D.C. Cir. 1985).

¹⁷ Alabama Educ. Ass’n v. Chao, 455 F.3d 386, 392 (D.C. Cir. 2006) (quoting Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.,

This preamble and the accompanying TSD and PRIA all provide extensive detail on the agency's updated analysis, and Section VI contains the agency's explanation of how the agency has considered that analysis and other relevant information in tentatively determining that the proposed CAFE standards are maximum feasible for MYs 2024–2026 passenger cars and light trucks.

D. How is this proposal consistent with EPA's proposal and with California's programs?

The NHTSA and EPA proposals remain coordinated despite being issued as separate regulatory actions. Because NHTSA and EPA are regulating the exact same vehicles and manufacturer will use the same technologies to meet both sets of standards, NHTSA and EPA coordinated during the development of each agency's independent proposal to revise the standards set forth in the 2020 final rule. The NHTSA-proposed CAFE and EPA-proposed CO₂ standards for MY 2026 represent roughly equivalent levels of stringency and may serve as a coordinated starting point for subsequent standards. While the proposed CAFE and CO₂ standards for MYs 2024–2025 are different, this is largely due to the difference in the “start year” for the revised regulations—EPA is proposing to revise standards for MY 2023, while EPCA's lead time requirements, which do not apply to EPA, prevent NHTSA from proposing revised standards until MY 2024. In order to set standards for MY 2023, EPA intends to issue its final rule by December 31, 2021, whereas NHTSA has until April 2022 to finalize standards for MY 2024. The difference in timing makes separate rulemaking actions reasonable and prudent. The specific differences in what the two agencies' standards require become smaller each year, until alignment is achieved. The agencies still have coordinated closely to minimize inconsistency between the programs and will continue to do so through the final rule stage.

While NHTSA's and EPA's programs differ in certain other respects, like programmatic flexibilities, those differences are not new in this proposal. Some parts of the programs are harmonized, and others differ, often as a result of statute. Since NHTSA and EPA began regulating together under President Obama, differences in

programmatic flexibilities have meant that manufacturers have had (and will have) to plan their compliance strategies considering both the CAFE standards and the GHG standards and assure that they are in compliance with both, while still building a single fleet of vehicles to accomplish that goal. NHTSA is proposing CAFE standards that increase at 8 percent per year over MYs 2024–2026 because that is what NHTSA has tentatively concluded is maximum feasible in those model years, under the EPCA factors, and is confident that industry would still be able to build a single fleet of vehicles to meet both the NHTSA and EPA standards. Auto manufacturers are extremely sophisticated companies, well-able to manage complex compliance strategies that account for multiple regulatory programs concurrently. If different agencies' standards are more binding for some companies in certain years, this does not mean that manufacturers must build *multiple* fleets of vehicles, simply that they will have to be more strategic about *how* they build their fleet.

NHTSA has also considered and accounted for California's ZEV mandate (and its adoption by a number of other states) in developing the baseline for this proposal, and has also accounted for the Framework Agreements between California, BMW, Ford, Honda, VWA, and Volvo. NHTSA believes that it is reasonable to include ZEV in the baseline for this proposal regardless of whether California receives a waiver of preemption under the Clean Air Act (CAA) because, according to California, industry overcompliance with the ZEV mandate has been extensive, which indicates that whether or not a waiver exists, many companies intend to produce ZEVs in volumes comparable to what a ZEV mandate would require. Because no decision has yet been made on a CAA waiver for California, and because modeling a sub-national fleet is not currently an analytical option for NHTSA, NHTSA has not expressly accounted for California GHG standards in the analysis for this proposal, although we seek comment on whether and how to account for them in the final rule. Chapter 6 of the accompanying PRIA shows the estimated effects of all of these programs simultaneously.

III. Technical Foundation for NPRM Analysis

A. Why does NHTSA conduct this analysis?

NHTSA is proposing to establish revised CAFE standards for passenger cars and light trucks produced for model years (MYs) 2024–2026.

NHTSA's review of the existing standards is consistent with Executive Order 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis, signed on January 20, 2021, directing the review of the 2020 final rule that established CAFE standards for MYs 2021–2026 and the consideration of whether to suspend, revise, or rescind that action by July 2021.¹⁸ NHTSA establishes CAFE standards under the Energy Policy and Conservation Act, as amended, and this proposal is undertaken pursuant to that authority. This proposal would require CAFE stringency for both passenger cars and light trucks to increase at a rate of 8 percent per year annually from MY 2024 through MY 2026. NHTSA estimates that over the useful lives of vehicles produced prior to MY 2030, the proposal would save about 50 billion gallons of gasoline and increase electricity consumption by about 275 TWh. Accounting for emissions from both vehicles and upstream energy sector processes (*e.g.*, petroleum refining and electricity generation), NHTSA estimates that the proposal would reduce greenhouse gas emissions by about 465 million metric tons of carbon dioxide (CO₂), about 500 thousand tons metric tons of methane (CH₄), and about 12 thousand tons of nitrous oxide (N₂O).

When NHTSA promulgates new regulations, it generally presents an analysis that estimates the impacts of such regulations, and the impacts of other regulatory alternatives. These analyses derive from statutes such as the Administrative Procedure Act (APA) and National Environmental Policy Act (NEPA), from Executive orders (such as Executive Order 12866 and 13653), and from other administrative guidance (*e.g.*, Office of Management Budget Circular A–4). For CAFE, the Energy Policy and Conservation Act (EPCA), as amended by the Energy Independence and Security Act (EISA), contains a variety of provisions that require NHTSA to consider certain compliance elements in certain ways and avoid considering other things, in determining maximum feasible CAFE standards. Collectively, capturing all of these requirements and guidance elements analytically means that, at least for CAFE, NHTSA presents an analysis that spans a meaningful range of regulatory alternatives, that quantifies a range of technological, economic, and environmental impacts, and that does so in a manner that accounts for EPCA's express requirements for the CAFE program

463 U.S. 29, 57 (1983)); *see also* Encino Motorcars, LLC v. Navarro, 136 S.Ct. 2117, 2125 (2016) (“Agencies are free to change their existing policies as long as they provide a reasoned explanation for the change.”) (Citations omitted).

¹⁸ 86 FR 7037 (Jan. 25, 2021).

(e.g., passenger cars and light trucks are regulated separately, and the standard for each fleet must be set at the maximum feasible level in each model year).

NHTSA's decision regarding the proposed standards is thus supported by extensive analysis of potential impacts of the regulatory alternatives under consideration. Along with this preamble, a Technical Support Document (TSD), a Preliminary Regulatory Impact Analysis (PRIA), and a Supplemental Environmental Impact Statement (SEIS), together provide an extensive and detailed enumeration of related methods, estimates, assumptions, and results. NHTSA's analysis has been constructed specifically to reflect various aspects of governing law applicable to CAFE standards and has been expanded and improved in response to comments received to the prior rulemaking and based on additional work conducted over the last year. Further improvements may be made based on comments received to this proposal, the 2021 NAS Report,¹⁹ and other additional work generally previewed in these rulemaking documents. The

¹⁹ National Academies of Sciences, Engineering, and Medicine (NASEM), 2021. *Assessment of Technologies for Improving Fuel Economy of Light-Duty Vehicles—2025–2035*, Washington, DC: The National Academies Press (hereafter, "2021 NAS Report"). Available at <https://www.nationalacademies.org/our-work/assessment-of-technologies-for-improving-fuel-economy-of-light-duty-vehicles-phase-3> and for hard-copy review at DOT headquarters.

analysis for this proposal aided NHTSA in implementing its statutory obligations, including the weighing of various considerations, by reasonably informing decision-makers about the estimated effects of choosing different regulatory alternatives.

NHTSA's analysis makes use of a range of data (*i.e.*, observations of things that have occurred), estimates (*i.e.*, things that may occur in the future), and models (*i.e.*, methods for making estimates). Two examples of *data* include (1) records of actual odometer readings used to estimate annual mileage accumulation at different vehicle ages and (2) CAFE compliance data used as the foundation for the "analysis fleet" containing, among other things, production volumes and fuel economy levels of specific configurations of specific vehicle models produced for sale in the U.S. Two examples of *estimates* include (1) forecasts of future GDP growth used, with other estimates, to forecast future vehicle sales volumes and (2) the "retail price equivalent" (RPE) factor used to estimate the ultimate cost to consumers of a given fuel-saving technology, given accompanying estimates of the technology's "direct cost," as adjusted to account for estimated "cost learning effects" (*i.e.*, the tendency that it will cost a manufacturer less to apply a technology as the manufacturer gains more experience doing so).

NHTSA uses the CAFE Compliance and Effects Modeling System (usually shortened to the "CAFE Model") to

estimate manufacturers' potential responses to new CAFE and CO₂ standards and to estimate various impacts of those responses. DOT's Volpe National Transportation Systems Center (often simply referred to as the "Volpe Center") develops, maintains, and applies the model for NHTSA. NHTSA has used the CAFE Model to perform analyses supporting every CAFE rulemaking since 2001. The 2016 rulemaking regarding heavy-duty pickup and van fuel consumption and CO₂ emissions also used the CAFE Model for analysis (81 FR 73478, October 25, 2016).

The basic design of the CAFE Model is as follows: the system first estimates how vehicle manufacturers might respond to a given regulatory scenario, and from that potential compliance solution, the system estimates what impact that response will have on fuel consumption, emissions, and economic externalities. In a highly-summarized form, Figure III–1 shows the basic categories of CAFE Model procedures and the sequential flow between different stages of the modeling. The diagram does not present specific model inputs or outputs, as well as many specific procedures and model interactions. The model documentation accompanying this preamble presents these details, and Chapter 1 of the TSD contains a more detailed version of this flow diagram for readers who are interested.

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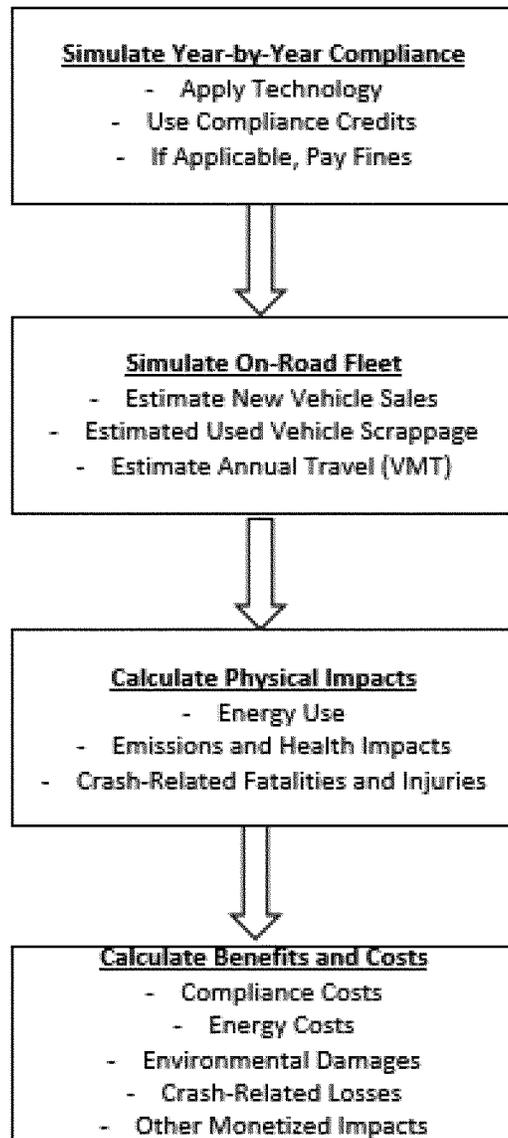


Figure III-1 – CAFE Model Procedures and Logical Flow

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More specifically, the model may be characterized as an integrated system of models. For example, one model estimates manufacturers' responses, another estimates resultant changes in total vehicle sales, and still another estimates resultant changes in fleet turnover (*i.e.*, scrappage). Additionally, and importantly, the model does not determine the form or stringency of the standards. Instead, the model applies inputs specifying the form and stringency of standards to be analyzed and produces outputs showing the impacts of manufacturers working to meet those standards, which become the basis for comparing between different potential stringencies. A regulatory scenario, meanwhile, involves specification of the form, or shape, of

the standards (*e.g.*, flat standards, or linear or logistic attribute-based standards), scope of passenger car and truck regulatory classes, and stringency of the CAFE standards for each model year to be analyzed. For example, a regulatory scenario may define CAFE standards that increase in stringency by 8 percent per year for 3 consecutive years.

Manufacturer compliance simulation and the ensuing effects estimation, collectively referred to as compliance modeling, encompass numerous subsidiary elements. Compliance simulation begins with a detailed user-provided²⁰ initial forecast of the vehicle

²⁰ Because the CAFE Model is publicly available, anyone can develop their own initial forecast (or other inputs) for the model to use. The DOT-

models offered for sale during the simulation period. The compliance simulation then attempts to bring each manufacturer into compliance with the standards²¹ defined by the regulatory scenario contained within an input file developed by the user.

Estimating impacts involves calculating resultant changes in new vehicle costs, estimating a variety of costs (*e.g.*, for fuel) and effects (*e.g.*, CO₂ emissions from fuel combustion) occurring as vehicles are driven over their lifetimes before eventually being

developed market data file that contains the forecast used for this proposal is available on NHTSA's website.

²¹ With appropriate inputs, the model can also be used to estimate impacts of manufacturers' potential responses to new CO₂ standards and to California's ZEV program.

scrapped, and estimating the monetary value of these effects. Estimating impacts also involves consideration of consumer responses—*e.g.*, the impact of vehicle fuel economy, operating costs, and vehicle price on consumer demand for passenger cars and light trucks. Both basic analytical elements involve the application of many analytical inputs. Many of these inputs are developed *outside* of the model and not *by* the model. For example, the model *applies* fuel prices; it does not *estimate* fuel prices.

NHTSA also uses EPA's MOVES model to estimate "tailpipe" (a.k.a. "vehicle" or "downstream") emission factors for criteria pollutants,²² and uses four Department of Energy (DOE) and DOE-sponsored models to develop inputs to the CAFE Model, including three developed and maintained by DOE's Argonne National Laboratory. The agency uses the DOE Energy Information Administration's (EIA's) National Energy Modeling System (NEMS) to estimate fuel prices,²³ and uses Argonne's Greenhouse gases, Regulated Emissions, and Energy use in Transportation (GREET) model to estimate emissions rates from fuel production and distribution processes.²⁴ DOT also sponsored DOE/Argonne to use Argonne's Autonomie full-vehicle modeling and simulation system to estimate the fuel economy impacts for roughly a million combinations of technologies and vehicle types.²⁵ ²⁶ The TSD and PRIA describe details of the agency's use of these models. In

²² See <https://www.epa.gov/moves>. This proposal uses version MOVES3, available at <https://www.epa.gov/moves/latest-version-motor-vehicle-emission-simulator-moves>.

²³ See https://www.eia.gov/outlooks/aeo/info_nems_archive.php. This proposal uses fuel prices estimated using the Annual Energy Outlook (AEO) 2021 version of NEMS (see <https://www.eia.gov/outlooks/aeo/pdf/02%20AEO2021%20Petroleum.pdf>).

²⁴ Information regarding GREET is available at <https://greet.es.anl.gov/index.php>. This NPRM uses the 2020 version of GREET.

²⁵ As part of the Argonne simulation effort, individual technology combinations simulated in Autonomie were paired with Argonne's BatPaC model to estimate the battery cost associated with each technology combination based on characteristics of the simulated vehicle and its level of electrification. Information regarding Argonne's BatPaC model is available at <https://www.anl.gov/cse/batpac-model-software>.

²⁶ In addition, the impact of engine technologies on fuel consumption, torque, and other metrics was characterized using GT-POWER simulation modeling in combination with other engine modeling that was conducted by IAV Automotive Engineering, Inc. (IAV). The engine characterization "maps" resulting from this analysis were used as inputs for the Autonomie full-vehicle simulation modeling. Information regarding GT-POWER is available at <https://www.gtisoft.com/gt-suite-applications/propulsion-systems/gt-power-engine-simulation-software>.

addition, as discussed in the SEIS accompanying this NPRM, DOT relied on a range of climate models to estimate impacts on climate, air quality, and public health. The SEIS discusses and describes the use of these models.

To prepare for analysis supporting this proposal, DOT has refined and expanded the CAFE Model through ongoing development. Examples of such changes, some informed by past external comments, made since early 2020 include:

- Inclusion of 400- and 500-mile BEVs;
- Inclusion of high compression ratio (HCR) engines with cylinder deactivation;
- Accounting for manufacturers' responses to both CAFE and CO₂ standards jointly (rather than only separately)
- Accounting for the ZEV mandates applicable in California and the "Section 177" states;
- Accounting for some vehicle manufacturers' (BMW, Ford, Honda, VW, and Volvo) voluntary agreement with the State of California to continued annual national-level reductions of vehicle greenhouse gas emissions through MY 2026, with greater rates of electrification than would have been required under the 2020 Federal final rule;²⁷

- Inclusion of CAFE civil penalties in the "effective cost" metric used when simulating manufacturers' potential application of fuel-saving technologies;
- Refined procedures to estimate health effects and corresponding monetized damages attributable to criteria pollutant emissions;
- New procedures to estimate the impacts and corresponding monetized damages of highway vehicle crashes that do not result in fatalities;
- Procedures to ensure that modeled technology application and production volumes are the same across all regulatory alternatives in the earliest model years; and
- Procedures to more precisely focus application of EPCA's "standard setting constraints" (*i.e.*, regarding the consideration of compliance credits and additional dedicated alternative fueled vehicles) to only those model years for which NHTSA is proposing or finalizing new standards.

These changes reflect DOT's long-standing commitment to ongoing refinement of its approach to estimating

²⁷ For more information on the Framework Agreements for Clean Cars, including the specific agreements signed by individual manufacturers, see <https://www2.arb.ca.gov/news/framework-agreements-clean-cars>.

the potential impacts of new CAFE standards.

NHTSA underscores that this analysis exercises the CAFE Model in a manner that explicitly accounts for the fact that in producing a single fleet of vehicles for sale in the United States, manufacturers face the *combination* of CAFE standards, EPA CO₂ standards, and ZEV mandates, and for five manufacturers, the voluntary agreement with California to more stringent CO₂ reduction requirements (also applicable to these manufacturers' total production for the U.S. market) through model year 2026. These regulations and contracts have important structural and other differences that affect the strategy a manufacturer could use to comply with each of the above.

As explained, the analysis is designed to reflect a number of statutory and regulatory requirements applicable to CAFE and tailpipe CO₂ standard-setting. EPCA contains a number of requirements governing the scope and nature of CAFE standard setting. Among these, some have been in place since EPCA was first signed into law in 1975, and some were added in 2007, when Congress passed EISA and amended EPCA. EPCA/EISA requirements regarding the technical characteristics of CAFE standards and the analysis thereof include, but are not limited to, the following, and the analysis reflects these requirements as summarized:

Corporate Average Standards: The provision at 49 U.S.C. 32902 requires standards that apply to the average fuel economy levels achieved by each corporation's fleets of vehicles produced for sale in the U.S.²⁸ The CAFE Model calculates the CAFE and CO₂ levels of each manufacturer's fleets based on estimated production volumes and characteristics, including fuel economy levels, of distinct vehicle models that could be produced for sale in the U.S.

Separate Standards for Passenger Cars and Light Trucks: The provision at 49 U.S.C. 32902 requires the Secretary of Transportation to set CAFE standards separately for passenger cars and light trucks. The CAFE Model accounts separately for passenger cars and light trucks when it analyzes CAFE or CO₂ standards, including differentiated standards and compliance.

²⁸ This differs from safety standards and traditional emissions standards, which apply separately to each vehicle. For example, every vehicle produced for sale in the U.S. must, on its own, meet all applicable Federal motor vehicle safety standards (FMVSS), but no vehicle produced for sale must, on its own, meet Federal fuel economy standards. Rather, each manufacturer is required to produce a mix of vehicles that, taken together, achieve an average fuel economy level no less than the applicable minimum level.

Attribute-Based Standards: The provision at 49 U.S.C. 32902 requires the Secretary of Transportation to define CAFE standards as mathematical functions expressed in terms of one or more vehicle attributes related to fuel economy. This means that for a given manufacturer's fleet of vehicles produced for sale in the U.S. in a given regulatory class and model year, the applicable minimum CAFE requirement (*i.e.*, the numerical value of the requirement) is computed based on the applicable mathematical function, and the mix and attributes of vehicles in the manufacturer's fleet. The CAFE Model accounts for such functions and vehicle attributes explicitly.

Separately Defined Standards for Each Model Year: The provision at 49 U.S.C. 32902 requires the Secretary to set CAFE standards (separately for passenger cars and light trucks²⁹) at the maximum feasible levels in each model year. The CAFE Model represents each model year explicitly, and accounts for the production relationships between model years.³⁰

Separate Compliance for Domestic and Imported Passenger Car Fleets: The provision at 49 U.S.C. 32904 requires the EPA Administrator to determine CAFE compliance separately for each manufacturer's fleets of domestic passenger cars and imported passenger cars, which manufacturers must consider as they decide how to improve the fuel economy of their passenger car fleets. The CAFE Model accounts explicitly for this requirement when simulating manufacturers' potential responses to CAFE standards, and combines any given manufacturer's domestic and imported cars into a single fleet when simulating that manufacturer's potential response to CO₂ standards (because EPA does not have separate standards for domestic and imported passenger cars).

Minimum CAFE Standards for Domestic Passenger Car Fleets: The provision at 49 U.S.C. 32902 requires that domestic passenger car fleets meet a minimum standard, which is calculated as 92 percent of the industry-wide average level required under the applicable attribute-based CAFE standard, as projected by the Secretary

²⁹ 49 U.S.C. chapter 329 uses the term "non-passenger automobiles," while NHTSA uses the term "light trucks" in its CAFE regulations. The terms' meanings are identical.

³⁰ For example, a new engine first applied to given vehicle model/configuration in model year 2020 will most likely be "carried forward" to model year 2021 of that same vehicle model/configuration, in order to reflect the fact that manufacturers do not apply brand-new engines to a given vehicle model every single year. The CAFE Model is designed to account for these real-world factors.

at the time the standard is promulgated. The CAFE Model accounts explicitly for this requirement for CAFE standards and sets this requirement aside for CO₂ standards.

Civil Penalties for Noncompliance: The provision at 49 U.S.C. 32912 (and implementing regulations) prescribes a rate (in dollars per tenth of a mpg) at which the Secretary is to levy civil penalties if a manufacturer fails to comply with a CAFE standard for a given fleet in a given model year, after considering available credits. Some manufacturers have historically demonstrated a willingness to pay civil penalties rather than achieving full numerical compliance across all fleets. The CAFE Model calculates civil penalties for CAFE shortfalls and provides means to estimate that a manufacturer might stop adding fuel-saving technologies once continuing to do so would be effectively more "expensive" (after accounting for fuel prices and buyers' willingness to pay for fuel economy) than paying civil penalties. The CAFE Model does not allow civil penalty payment as an option for CO₂ standards.

Dual-Fueled and Dedicated Alternative Fuel Vehicles: For purposes of calculating CAFE levels used to determine compliance, 49 U.S.C. 32905 and 32906 specify methods for calculating the fuel economy levels of vehicles operating on alternative fuels to gasoline or diesel through MY 2020. After MY 2020, methods for calculating alternative fuel vehicle (AFV) fuel economy are governed by regulation. The CAFE Model is able to account for these requirements explicitly for each vehicle model. However, 49 U.S.C. 32902 prohibits consideration of the fuel economy of dedicated alternative fuel vehicle (AFV) models when NHTSA determines what levels of CAFE standards are maximum feasible. The CAFE Model therefore has an option to be run in a manner that excludes the additional application of dedicated AFV technologies in model years for which maximum feasible standards are under consideration. As allowed under NEPA for analysis appearing in EISs informing decisions regarding CAFE standards, the CAFE Model can also be run without this analytical constraint. The CAFE Model does account for dual- and alternative fuel vehicles when simulating manufacturers' potential responses to CO₂ standards. For natural gas vehicles, both dedicated and dual-fueled, EPA has a multiplier of 2.0 for model years 2022–2026.³¹

³¹ While EPA is proposing changes to this and other flexibility provisions in its separate NPRM,

ZEV Mandates: The CAFE Model can simulate manufacturers' compliance with ZEV mandates applicable in California and "Section 177"³² states. The approach involves identifying specific vehicle model/configurations that could be replaced with PHEVs or BEVs, and immediately making these changes in each model year, before beginning to consider the potential that other technologies could be applied toward compliance with CAFE or CO₂ standards.

Creation and Use of Compliance Credits: The provision at 49 U.S.C. 32903 provides that manufacturers may earn CAFE "credits" by achieving a CAFE level beyond that required of a given fleet in a given model year, and specifies how these credits may be used to offset the amount by which a different fleet falls short of its corresponding requirement. These provisions allow credits to be "carried forward" and "carried back" between model years, transferred between regulated classes (domestic passenger cars, imported passenger cars, and light trucks), and traded between manufacturers. However, credit use is also subject to specific statutory limits. For example, CAFE compliance credits can be carried forward a maximum of five model years and carried back a maximum of three model years. Also, EPCA/EISA caps the amount of credit that can be transferred between passenger car and light truck fleets and prohibits manufacturers from applying traded or transferred credits to offset a failure to achieve the applicable minimum standard for domestic passenger cars. The CAFE Model explicitly simulates manufacturers' potential use of credits carried forward from prior model years or transferred from other fleets.³³ The provision at 49

for purposes of this NPRM, the CAFE Model only reflects the current EPA regulatory flexibilities.

³² The term "Section 177" states refers to states which have elected to adopt California's standards in lieu of Federal requirements, as allowed under Section 177 of the CAA.

³³ The CAFE Model does not explicitly simulate the potential that manufacturers would carry CAFE or CO₂ credits back (*i.e.*, borrow) from future model years, or acquire and use CAFE compliance credits from other manufacturers. At the same time, because EPA has currently elected not to limit credit trading, the CAFE Model can be exercised in a manner that simulates unlimited (a.k.a. "perfect") CO₂ compliance credit trading throughout the industry (or, potentially, within discrete trading "blocs"). NHTSA believes there is significant uncertainty in how manufacturers may choose to employ these particular flexibilities in the future: For example, while it is reasonably foreseeable that a manufacturer who over-complies in one year may "coast" through several subsequent years relying on those credits rather than continuing to make technology improvements, it is harder to assume with confidence that manufacturers will rely on

U.S.C. 32902 prohibits consideration of manufacturers' potential application of CAFE compliance credits when setting maximum feasible CAFE standards. The CAFE Model can be operated in a manner that excludes the application of CAFE credits for a given model year under consideration for standard setting. For modeling CO₂ standards, the CAFE Model does not limit transfers. Insofar as the CAFE Model can be exercised in a manner that simulates trading of CO₂ compliance credits, such simulations treat trading as unlimited.³⁴

Statutory Basis for Stringency: The provision at 49 U.S.C. 32902 requires the Secretary to set CAFE standards at the maximum feasible levels, considering technological feasibility, economic practicability, the need of the United States to conserve energy, and the impact of other motor vehicle standards of the Government. EPCA/EISA authorizes the Secretary to interpret these factors, and as the Department's interpretation has evolved, NHTSA has continued to expand and refine its qualitative and quantitative analysis to account for these statutory factors. For example, one of the ways that economic practicability considerations are incorporated into the analysis is through the technology effectiveness determinations: The Autonomie simulations reflect the agency's judgment that it would not be economically practicable for a manufacturer to "split" an engine

future technology investments to offset prior-year shortfalls, or whether/how manufacturers will trade credits with market competitors rather than making their own technology investments. Historically, carry-back and trading have been much less utilized than carry-forward, for a variety of reasons including higher risk and preference not to 'pay competitors to make fuel economy improvements we should be making' (to paraphrase one manufacturer), although NHTSA recognizes that carry-back and trading are used more frequently when standards increase in stringency more rapidly. Given the uncertainty just discussed, and given also the fact that the agency has yet to resolve some of the analytical challenges associated with simulating use of these flexibilities, the agency considers borrowing and trading to involve sufficient risk that it is prudent to support this proposal with analysis that sets aside the potential that manufacturers could come to depend widely on borrowing and trading. While compliance costs in real life may be somewhat different from what is modeled today as a result of this analytical decision, that is broadly true no matter what, and the agency does not believe that the difference would be so great that it would change the policy outcome. Furthermore, a manufacturer employing a trading strategy would presumably do so because it represents a lower-cost compliance option. Thus, the estimates derived from this modeling approach are likely to be conservative in this respect, with real-world compliance costs possibly being lower.

³⁴To avoid making judgments about possible future trading activity, the model simulates trading by combining all manufacturers into a single entity, so that the most cost-effective choices are made for the fleet as a whole.

shared among many vehicle model/configurations into myriad versions each optimized to a single vehicle model/configuration.

National Environmental Policy Act: In addition, NEPA requires the Secretary to issue an EIS that documents the estimated impacts of regulatory alternatives under consideration. The SEIS accompanying this NPRM documents changes in emission inventories as estimated using the CAFE Model, but also documents corresponding estimates—based on the application of other models documented in the SEIS, of impacts on the global climate, on tropospheric air quality, and on human health.

Other Aspects of Compliance: Beyond these statutory requirements applicable to DOT and/or EPA are a number of specific technical characteristics of CAFE and/or CO₂ regulations that are also relevant to the construction of this analysis. For example, EPA has defined procedures for calculating average CO₂ levels, and has revised procedures for calculating CAFE levels, to reflect manufacturers' application of "off-cycle" technologies that increase fuel economy (and reduce CO₂ emissions). Although too little information is available to account for these provisions explicitly in the same way that the agency has accounted for other technologies, the CAFE Model does include and makes use of inputs reflecting the agency's expectations regarding the extent to which manufacturers may earn such credits, along with estimates of corresponding costs. Similarly, the CAFE Model includes and makes use of inputs regarding credits EPA has elected to allow manufacturers to earn toward CO₂ levels (not CAFE) based on the use of air conditioner refrigerants with lower global warming potential (GWP), or on the application of technologies to reduce refrigerant leakage. In addition, the CAFE Model accounts for EPA "multipliers" for certain alternative fueled vehicles, based on current regulatory provisions or on alternative approaches. Although these are examples of regulatory provisions that arise from the exercise of discretion rather than specific statutory mandate, they can materially impact outcomes.

Besides the updates to the model described above, any analysis of regulatory actions that will be implemented several years in the future, and whose benefits and costs accrue over decades, requires a large number of assumptions. Over such time horizons, many, if not most, of the relevant assumptions in such an analysis are inevitably uncertain. Each successive

CAFE analysis seeks to update assumptions to reflect better the current state of the world and the best current estimates of future conditions.

A number of assumptions have been updated since the 2020 final rule for this proposal. While NHTSA would have made these updates as a matter of course, we note that the COVID-19 pandemic has been profoundly disruptive, including in ways directly material to major analytical inputs such as fuel prices, gross domestic product (GDP), vehicle production and sales, and highway travel. As discussed below, NHTSA has updated its "analysis fleet" from a model year 2017 reference to a model year 2020 reference, updated estimates of manufacturers' compliance credit "holdings," updated fuel price projections to reflect the U.S. Energy Information Administration's (EIA's) 2021 Annual Energy Outlook (AEO), updated projections of GDP and related macroeconomic measures, and updated projections of future highway travel. In addition, through Executive Order 13990, President Biden has required the formation of an Interagency Working Group (IWG) on the Social Cost of Greenhouse Gases and charged this body with updating estimates of the social costs of carbon, nitrous oxide, and methane. As discussed in the TSD, NHTSA has applied the IWG's interim guidance, which contains cost estimates (per ton of emissions) considerably greater than those applied in the analysis supporting the 2020 SAFE rule. These and other updated analytical inputs are discussed in detail in the TSD. NHTSA seeks comment on the above discussion.

B. What is NHTSA analyzing?

As in the CAFE and CO₂ rulemakings in 2010, 2012, and 2020, NHTSA is proposing to set attribute-based CAFE standards defined by a mathematical function of vehicle footprint, which has observable correlation with fuel economy. EPCA, as amended by EISA, expressly requires that CAFE standards for passenger cars and light trucks be based on one or more vehicle attributes related to fuel economy and be expressed in the form of a mathematical function.³⁵ Thus, the proposed standards (and regulatory alternatives) take the form of fuel economy targets expressed as functions of vehicle footprint (the product of vehicle wheelbase and average track width) that are separate for passenger cars and light trucks. Chapter 1.2.3 of the TSD discusses in detail NHTSA's continued

³⁵ 49 U.S.C. 32902(a)(3)(A).

reliance on footprint as the relevant attribute in this proposal.

Under the footprint-based standards, the function defines a fuel economy performance target for each unique footprint combination within a car or truck model type. Using the functions, each manufacturer thus will have a CAFE average standard for each year that is almost certainly unique to each of its fleets,³⁶ based upon the footprints and production volumes of the vehicle models produced by that manufacturer. A manufacturer will have separate footprint-based standards for cars and for trucks, consistent with 49 U.S.C.

32902(b)'s direction that NHTSA must set separate standards for cars and for trucks. The functions are mostly sloped, so that generally, larger vehicles (*i.e.*, vehicles with larger footprints) will be subject to lower mpg targets than smaller vehicles. This is because, generally speaking, smaller vehicles are more capable of achieving higher levels of fuel economy, mostly because they tend not to have to work as hard (and therefore require as much energy) to perform their driving task. Although a manufacturer's fleet average standards could be estimated throughout the model year based on the projected

production volume of its vehicle fleet (and are estimated as part of EPA's certification process), the standards with which the manufacturer must comply are determined by its final model year production figures. A manufacturer's calculation of its fleet average standards, as well as its fleets' average performance at the end of the model year, will thus be based on the production-weighted average target and performance of each model in its fleet.³⁷

For passenger cars, consistent with prior rulemakings, NHTSA is proposing to define fuel economy targets as shown in Equation III-1.

$$TARGET_{FE} = \frac{1}{MIN \left[MAX \left(c \times FOOTPRINT + d, \frac{1}{a} \right), \frac{1}{b} \right]}$$

Equation III-1 – Passenger Car Fuel Economy Footprint Target Curve

Where:

TARGET_{FE} is the fuel economy target (in mpg) applicable to a specific vehicle model type with a unique footprint combination,

a is a minimum fuel economy target (in mpg),

b is a maximum fuel economy target (in mpg),

c is the slope (in gallons per mile per square foot, or gpm, per square foot) of a line relating fuel consumption (the inverse of fuel economy) to footprint, and

d is an intercept (in gpm) of the same line.

Here, *MIN* and *MAX* are functions that take the minimum and maximum values, respectively, of the set of included

values. For example, *MIN*[40, 35] = 35 and *MAX*(40, 25) = 40, such that *MIN*[*MAX*(40, 25), 35] = 35.

For the preferred alternative, this equation is represented graphically as the curves in Figure III-2.

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³⁶ EPCA/EISA requires NHTSA and EPA to separate passenger cars into domestic and import passenger car fleets for CAFE compliance purposes (49 U.S.C. 32904(b)), whereas EPA combines all passenger cars into one fleet.

³⁷ As discussed in prior rulemakings, a manufacturer may have some vehicle models that exceed their target and some that are below their target. Compliance with a fleet average standard is determined by comparing the fleet average standard

(based on the production-weighted average of the target levels for each model) with fleet average performance (based on the production-weighted average of the performance of each model).

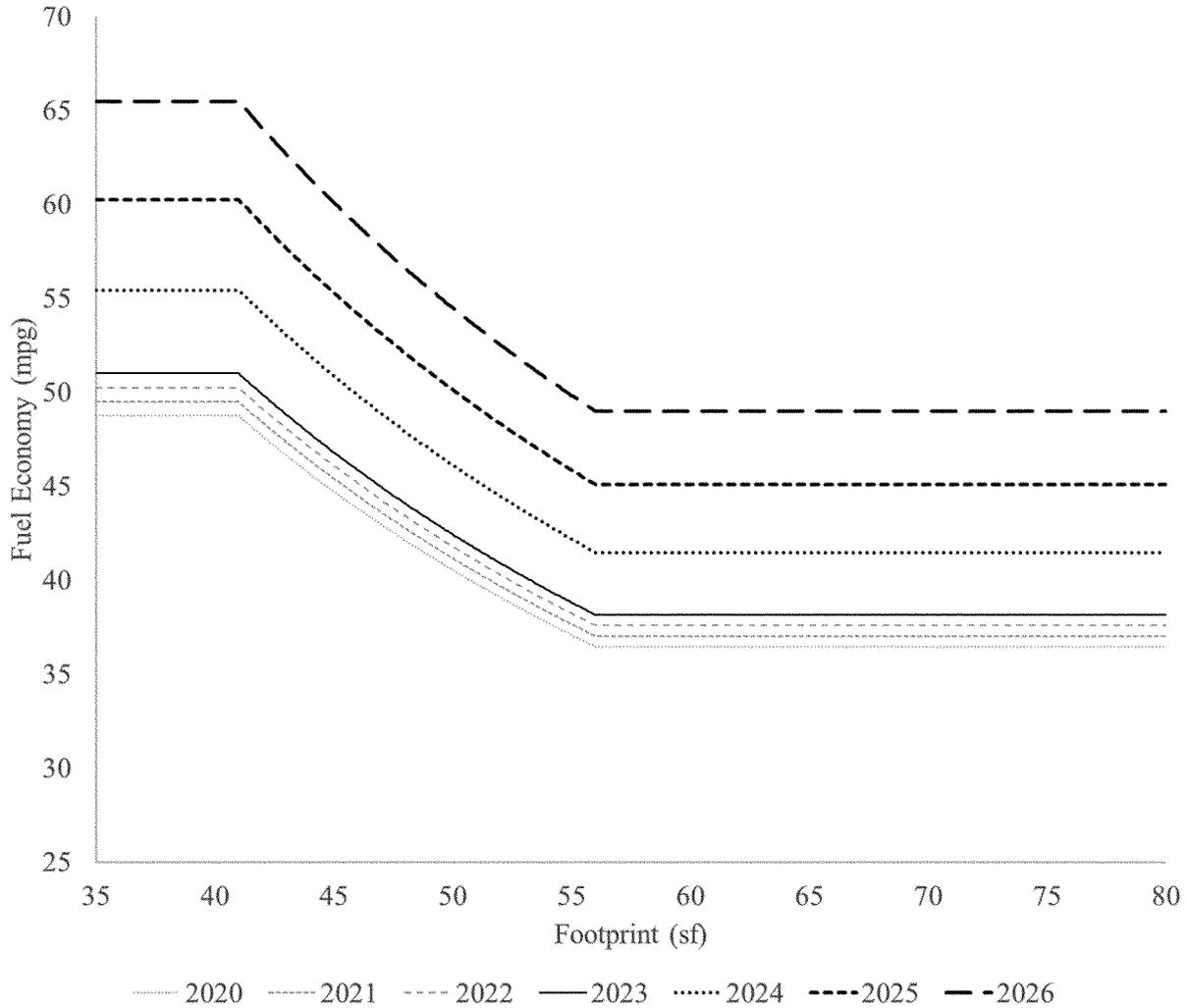


Figure III-2 – Preferred Alternative, Fuel Economy Target Curves, Passenger Cars

For light trucks, also consistent with prior rulemakings, NHTSA is proposing to define fuel economy targets as shown in Equation III-2.

$TARGET_{FE}$

$$= MAX \left(\frac{1}{MIN \left[MAX \left(c \times FOOTPRINT + d, \frac{1}{a} \right), \frac{1}{b} \right]}, \frac{1}{MIN \left[MAX \left(g \times FOOTPRINT + h, \frac{1}{e} \right), \frac{1}{f} \right]} \right)$$

Equation III-2 – Light Truck Fuel Economy Target Curve

Where:

$TARGET_{FE}$ is the fuel economy target (in mpg) applicable to a specific vehicle model type with a unique footprint combination, $a, b, c,$ and d are as for passenger cars, but taking values specific to light trucks,

e is a second minimum fuel economy target (in mpg), f is a second maximum fuel economy target (in mpg), g is the slope (in gpm per square foot) of a second line relating fuel consumption (the inverse of fuel economy) to footprint, and

h is an intercept (in gpm) of the same second line.

For the preferred alternative, this equation is represented graphically as the curves in Figure III-3.

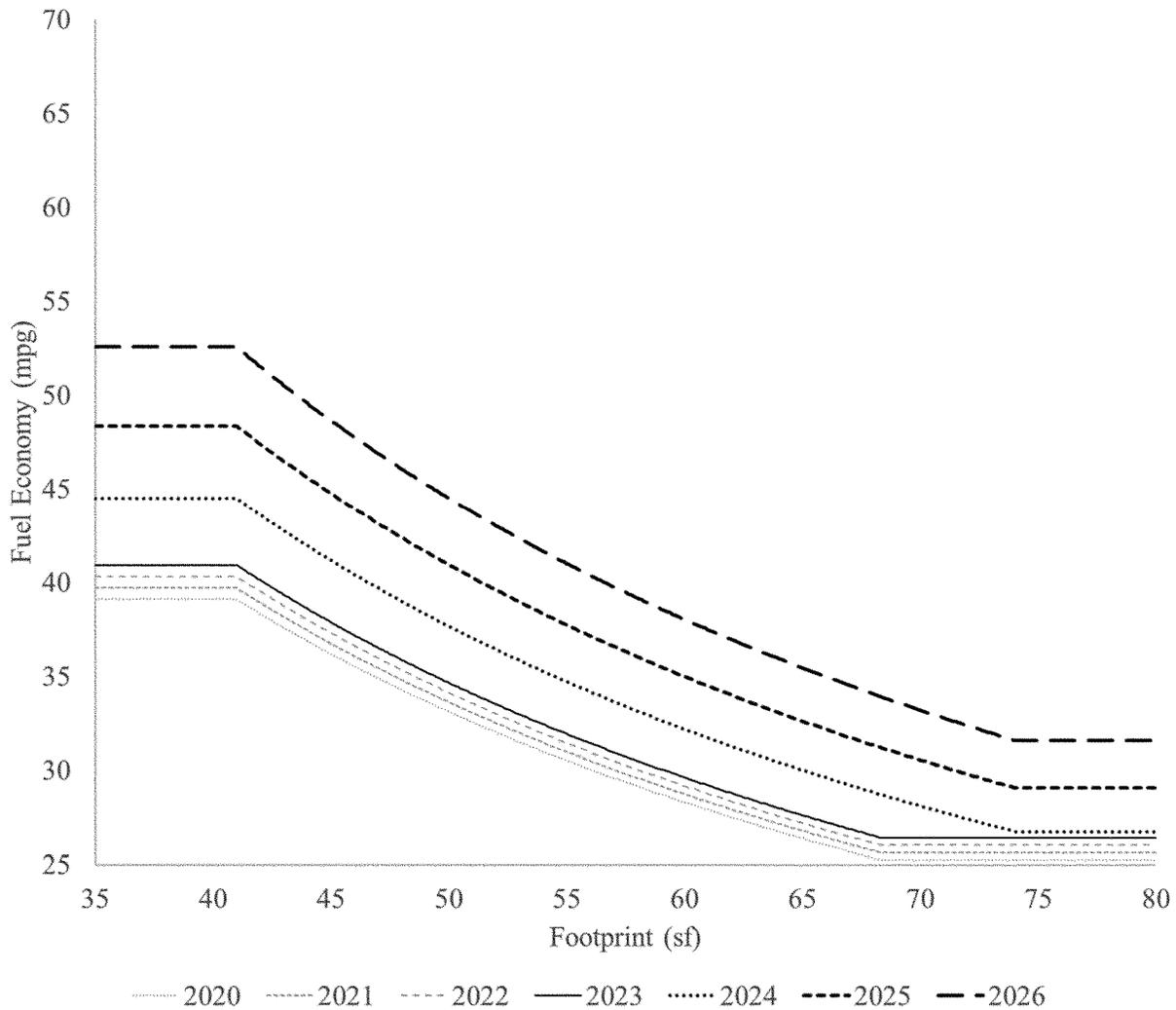


Figure III-3 – Preferred Alternative, Fuel Economy Target Curves, Light Trucks

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Although the general model of the target function equation is the same for each vehicle category (passenger cars and light trucks) and each model year, the parameters of the function equation differ for cars and trucks. The actual parameters for both the preferred alternative and the other regulatory alternatives are presented in Section IV.B of this preamble.

As has been the case since NHTSA began establishing attribute-based standards, no vehicle need meet the specific applicable fuel economy target, because compliance with CAFE

standards is determined based on corporate average fuel economy. In this respect, CAFE standards are unlike, for example, Federal Motor Vehicle Safety Standards (FMVSS) and certain vehicle criteria pollutant emissions standards where each car must meet the requirements. CAFE standards apply to the average fuel economy levels achieved by manufacturers' entire fleets of vehicles produced for sale in the U.S. Safety standards apply on a vehicle-by-vehicle basis, such that every single vehicle produced for sale in the U.S. must, on its own, comply with minimum FMVSS. When first

mandating CAFE standards in the 1970s, Congress specified a more flexible averaging-based approach that allows some vehicles to "under comply" (*i.e.*, fall short of the overall flat standard, or fall short of their target under attribute-based standards) as long as a manufacturer's overall fleet is in compliance.

The required CAFE level applicable to a given fleet in a given model year is determined by calculating the production-weighted harmonic average of fuel economy targets applicable to specific vehicle model configurations in the fleet, as shown in Equation III-3.

$$CAFE_{required} = \frac{\sum_i PRODUCTION_i}{\sum_i \frac{PRODUCTION_i}{TARGET_{FE,i}}}$$

Equation III-3 – Calculation for Required CAFE Level

Where:

$CAFE_{required}$ is the CAFE level the fleet is required to achieve,

i refers to specific vehicle model/configurations in the fleet,

$PRODUCTION_i$ is the number of model configuration i produced for sale in the U.S., and

$TARGET_{FE,i}$ is the fuel economy target (as defined above) for model configuration i .

Chapter 1 of the TSD describes the use of attribute-based standards, generally, and explains the specific decision, in past rules and for the current rule, to continue to use vehicle footprint as the attribute over which to vary stringency. That chapter also discusses the policy in selecting the specific mathematical function; the methodologies used to develop the current attribute-based standards; and methodologies previously used to reconsider the mathematical function for CAFE standards. NHTSA refers readers to the TSD for a full discussion of these topics.

While Chapter 1 of the TSD explains why the proposed standards for MYs 2024–2026 continue to be footprint-based, the question has arisen periodically of whether NHTSA should instead consider multi-attribute standards, such as those that also depend on weight, torque, power, towing capability, and/or off-road capability. To date, every time NHTSA has considered options for which attribute(s) to select, the agency has concluded that a properly-designed footprint-based approach provides the best means of achieving the basic policy goals (*i.e.*, by increasing the likelihood of improved fuel economy across the entire fleet of vehicles; by reducing disparities between manufacturers' compliance burdens; and by reducing incentives for manufacturers to respond to standards in ways that could compromise overall highway safety) involved in applying an attribute-based standard. At the same time, footprint-based standards need also to be structured in a way that furthers the energy and environmental policy goals of EPCA without creating inappropriate incentives to increase vehicle size in ways that could increase fuel consumption or compromise safety. That said, as NHTSA moves forward

with the CAFE program, and continues to refine our understanding of the light-duty vehicle market and trends in vehicle and highway safety, NHTSA will also continue to revisit whether other approaches (or other ways of applying the same basic approaches) could foreseeably provide better means of achieving policy goals.

For example, in the 2021 NAS Report, the committee recommended that if Congress does not act to remove the prohibition at 49 U.S.C. 32902(h) on considering the fuel economy of dedicated alternative fuel vehicles (like BEVs) in determining maximum feasible CAFE standards, then NHTSA should account for the fuel economy benefits of ZEVs by “setting the standard as a function of a second attribute in addition to footprint—for example, the expected market share of ZEVs in the total U.S. fleet of new light-duty vehicles—such that the standards increase as the share of ZEVs in the total U.S. fleet increases.”³⁸ DOE seconded this suggestion in its comments during interagency review of this proposal. Chapter 1 of the TSD contains an examination of this suggestion, and NHTSA seeks comment on whether and how NHTSA might consider adding electrification as an attribute on which to base CAFE standards.

Changes in the market that have occurred since NHTSA last examined the appropriateness of the footprint curves have been, for the most part, consistent with the trends that the agency identified in 2018. For the most part, the fleet has continued to grow somewhat in vehicle size, as vehicle manufacturers have continued over the past several years to reduce their offerings of smaller footprint vehicles and increase their sales of larger footprint vehicles and continue to sell many small to mid-size crossovers and SUVs, some of which are classified as passenger cars and some of which are

light trucks. Although this trend has had the effect of reducing the achieved fuel economy of the fleet (and thus increasing its carbon dioxide emissions) as compared to if vehicles had instead remained the same size or gotten smaller, NHTSA does not believe that there have been sufficiently major changes in the relationship between footprint and fuel economy over the last three years to warrant a detailed re-examination of that relationship as part of this proposal. Moreover, changes to the footprint curves can significantly affect manufacturers' ability to comply. Given the available lead time between now and the beginning of MY 2024, NHTSA believes it is unlikely any potential benefit of changing the shape of the footprint curves (when we are already proposing to change standard stringency) would outweigh the costs of doing so.

NHTSA seeks comment on the choice of footprint as the attribute on which the proposed standards are based, and particularly seeks comment on the 2021 NAS report recommendation described above. If commenters wish to provide comments on possible changes to the attribute(s) on which fuel economy standards should be based, including approaches for considering vehicle electrification in ways that would further a zero emissions fleet as discussed in Chapter 1 of the TSD, NHTSA would appreciate commenters including a discussion of the timeframe in which those changes should be made—for example, whether and how much lead time would be preferable for making such changes, particularly recognizing the available lead time for MY 2024. NHTSA also seeks comment on whether, to the extent that vehicle upsizing trends and fuel economy curves are causally related instead of correlated, it is the curve shape versus the choice of footprint that creates this relationship (or, alternatively, whether the relationship if any derives from vehicle classification). Again, if commenters wish to provide comments on possible changes to the curve shapes, NHTSA would appreciate commenters including a discussion of the timeframe in which those changes should be made.

NHTSA seeks comment on the discussion above and in the TSD.

³⁸ National Academies of Sciences, Engineering, and Medicine, 2021. *Assessment of Technologies for Improving Fuel Economy of Light-Duty Vehicles—2025–2035*, Washington, DC: The National Academies Press (hereafter, “2021 NAS Report”), at Summary Recommendation 5. Available at <https://www.nationalacademies.org/our-work/assessment-of-technologies-for-improving-fuel-economy-of-light-duty-vehicles-phase-3> and for hard-copy review at DOT headquarters.

C. What inputs does the compliance analysis require?

The CAFE Model applies various technologies to different vehicle models in each manufacturer's product line to simulate how each manufacturer might make progress toward compliance with the specified standard. Subject to a variety of user-controlled constraints, the model applies technologies based on their relative cost-effectiveness, as determined by several input assumptions regarding the cost and effectiveness of each technology, the cost of compliance (determined by the change in CAFE or CO₂ credits, CAFE-related civil penalties, or value of CO₂ credits, depending on the compliance program being evaluated), and the value of avoided fuel expenses. For a given manufacturer, the compliance simulation algorithm applies technologies either until the manufacturer runs out of cost-effective technologies,³⁹ until the manufacturer exhausts all available technologies, or, if the manufacturer is assumed to be willing to pay civil penalties or acquire credits from another manufacturer, until paying civil penalties or purchasing credits becomes more cost-effective than increasing vehicle fuel economy. At this stage, the system assigns an incurred technology cost and updated fuel economy to each vehicle model, as well as any civil penalties incurred/credits purchased by each manufacturer. This compliance simulation process is repeated for each model year included in the study period (through model year 2050 in this analysis).

At the conclusion of the compliance simulation for a given regulatory scenario the system transitions between compliance simulation and effects calculations. This is the point where the system produces a full representation of the registered light-duty vehicle population in the United States. The CAFE Model then uses this fleet to generate estimates of the following (for each model year and calendar year included in the analysis): Lifetime travel, fuel consumption, carbon dioxide and criteria pollutant emissions, the magnitude of various economic externalities related to vehicular travel (e.g., congestion and noise), and energy consumption (e.g., the economic costs of short-term increases in petroleum prices, or social damages associated

³⁹ Generally, the model considers a technology cost-effective if it pays for itself in fuel savings within 30 months. Depending on the settings applied, the model can continue to apply technologies that are *not* cost-effective rather than choosing other compliance options; if it does so, it will apply those additional technologies in order of cost-effectiveness (i.e., most cost-effective first).

with GHG emissions). The system then uses these estimates to measure the benefits and costs associated with each regulatory alternative (relative to the no-action alternative).

To perform this analysis, the CAFE Model uses millions of data points contained in several input files that have been populated by engineers, economists, and safety and environmental program analysts at both NHTSA and the DOT's Volpe National Transportation Systems Center (Volpe). In addition, some of the input data comes from modeling and simulation analysis performed by experts at Argonne National Laboratory using their Autonomie full vehicle simulation model and BatPaC battery cost model. Other inputs are derived from other models, such as the U.S. Energy Information Administration's (EIA's) National Energy Modeling System (NEMS), Argonne's "GREET" fuel-cycle emissions analysis model, and U.S. EPA's "MOVES" vehicle emissions analysis model. As NHTSA and Volpe are both organizations within DOT, we use DOT throughout these sections to refer to the collaborative work performed for this analysis.

This section and Section III.D describe the inputs that the compliance simulation requires, including an in-depth discussion of the technologies used in the analysis, how they are defined in the CAFE Model, how they are characterized on vehicles that already exist in the market, how they can be applied to realistically simulate manufacturer's decisions, their effectiveness, and their cost. The inputs and analyses for the effects calculations, including economic, safety, and environmental effects, are discussed later in Sections III.C through III.H. NHTSA seeks comment on the following discussion.

1. Overview of Inputs to the Analysis

As discussed above, the current analysis involves estimating four major swaths of effects. First, the analysis estimates how the application of various combinations of technologies could impact vehicles' costs and fuel economy levels (and CO₂ emission rates). Second, the analysis estimates how vehicle manufacturers might respond to standards by adding fuel-saving technologies to new vehicles. Third, the analysis estimates how changes in new vehicles might impact vehicle sales and operation. Finally, the analysis estimates how the combination of these changes might impact national-scale energy consumption, emissions, highway safety, and public health.

There are several CAFE Model input files important to the discussion these first two steps, and these input files are discussed in detail later in this section and in Section III.D. The Market Data file contains the detailed description of the vehicle models and model configurations each manufacturer produces for sale in the U.S. The file also contains a range of other inputs that, though not specific to individual vehicle models, may be specific to individual manufacturers. The Technologies file identifies about six dozen technologies to be included in the analysis, indicates when and how widely each technology can be applied to specific types of vehicles, provides most of the inputs involved in estimating what costs will be incurred, and provides some of the inputs involved in estimating impacts on vehicle fuel consumption and weight.

The CAFE Model also makes use of databases of estimates of fuel consumption impacts and, as applicable, battery costs for different combinations of fuel saving technologies.⁴⁰ These databases are termed the FE1 and FE2 Adjustments databases (the main database and the database specific to plug-in hybrid electric vehicles, applicable to those vehicles' operation on electricity) and the Battery Costs database. DOT developed these databases using a large set of full vehicle and accompanying battery cost model simulations developed by Argonne National Laboratory. The Argonne simulation outputs, battery costs, and other reference materials are also discussed in the following sections.⁴¹

The following discussion in this section and in Section III.D expands on the inputs used in the compliance analysis. Further detail is included in Chapters 2 and 3 of the TSD accompanying this proposal, and all input values relevant to the compliance analysis can be seen in the Market Data, Technologies, fuel consumption and battery cost database files, and Argonne

⁴⁰ To be used as files provided separately from the model and loaded every time the model is executed, these databases are prohibitively large, spanning more than a million records and more than half a gigabyte. To conserve memory and speed model operation, DOT has integrated the databases into the CAFE Model executable file. When the model is run, however, the databases are extracted and placed in an accessible location on the user's disk drive.

⁴¹ The Argonne workbooks included in the docket for this proposal include ten databases that contain the outputs of the Autonomie full vehicle simulations, two summary workbooks of assumptions used for the full vehicle simulations, a data dictionary, and the lookup tables for battery costs generated using the BatPaC battery cost model.

summary files included in the docket for this proposal. As previously mentioned, other model input files underlie the effects analysis, and these are discussed in detail in Sections III.C through III.H. NHTSA seeks comment on the above discussion.

2. The Market Data File

The Market Data file contains the detailed description of the vehicle models and model configurations each manufacturer produces for sale in the U.S. This snapshot of the recent light duty vehicle market, termed the analysis fleet, or baseline fleet, is the starting point for the evaluation of different stringency levels for future fuel economy standards. The analysis fleet provides a reference from which to project how manufacturers could apply additional technologies to vehicles to cost-effectively improve vehicle fuel economy, in response to regulatory action and market conditions.⁴² For this analysis, the MY 2020 light duty fleet was selected as the baseline for further evaluation of the effects of different fuel economy standards. The Market Data file also contains a range of other inputs that, though not specific to individual vehicle models, may be specific to individual manufacturers.

The Market Data file is an Excel spreadsheet that contains five worksheets. Three worksheets, the Vehicles worksheet, Engines worksheet, and Transmissions worksheet, characterize the baseline fleet for this analysis. The three worksheets contain a characterization of every vehicle sold in MY 2020 and their relevant technology content, including the engines and transmissions that a manufacturer uses in its vehicle platforms and how those technologies are shared across platforms. In addition, the Vehicles worksheet includes

baseline economic and safety inputs linked to each vehicle that allow the CAFE Model to estimate economic and safety impacts resulting from any simulated compliance pathway. The remaining two worksheets, the Manufacturers worksheet and Credits and Adjustments worksheet, include baseline compliance positions for each manufacturer, including each manufacturer's starting CAFE credit banks and whether the manufacturer is willing to pay civil penalties for noncompliance with CAFE standards, among other inputs.

New inputs have been added for this analysis in the Vehicles worksheet and Manufacturers worksheet. The new inputs indicate which vehicles a manufacturer may reasonably be expected to convert to a zero emissions vehicle (ZEV) at first redesign opportunity, to comply with several States' ZEV program provisions. The new inputs also indicate if a manufacturer has entered into an agreement with California to achieve more stringent CO₂ emissions reductions targets than those promulgated in the 2020 final rule.

The following sections discuss how we built the Market Data file, including characterizing vehicles sold in MY 2020 and their technology content, and baseline safety, economic, and manufacturer compliance positions. A detailed discussion of the Market Data file development process is in TSD Chapter 2.2. NHTSA seeks comment on the below discussion and the agency's approach to developing the Market Data file for this proposal.

(a) Characterizing Vehicles and Their Technology Content

The Market Data file integrates information from many sources, including manufacturer compliance submissions, publicly available information, and confidential business information. At times, DOT must populate inputs using analyst judgment, either because information is still incomplete or confidential, or because

the information does not yet exist.⁴³ For this analysis DOT uses mid-model year 2020 compliance data as the basis of the analysis fleet. The compliance data is supplemented for each vehicle nameplate with manufacturer specification sheets, usually from the manufacturer media website, or from online marketing brochures.⁴⁴ For additional information about how specification sheets inform MY 2020 vehicle technology assignments, see the technology specific assignments sections in Section III.D.

DOT uses the mid-model year 2020 compliance data to create a row on the Vehicles worksheet in the Market Data file for each vehicle (or vehicle variant⁴⁵) that lists a certification fuel economy, sales volume, regulatory class, and footprint. DOT identifies which combination of modeled technologies reasonably represents the fuel saving technologies already on each vehicle, and assigns those technologies to each vehicle, either on the Vehicles worksheet, the Engines worksheet, or the Transmissions worksheet. The fuel saving technologies considered in this analysis are listed in Table III-1.

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⁴³ Forward looking refresh/redesign cycles are one example of when analyst judgement is necessary.

⁴⁴ The catalogue of reference specification sheets (broken down by manufacturer, by nameplate) used to populate information in the market data file is available in the docket.

⁴⁵ The market data file often includes a few rows for vehicles that may have identical certification fuel economies, regulatory classes, and footprints (with compliance sales volumes divided out among rows), because other pieces of information used in the CAFE Model may be dissimilar. For instance, in the reference materials used to create the Market Data file, for a nameplate curb weight may vary by trim level (with premium trim levels often weighing more on account of additional equipment on the vehicle), or a manufacturer may provide consumers the option to purchase a larger fuel tank size for their vehicle. These pieces of information may not impact the observed compliance position directly, but curb weight (in relation to other vehicle attributes) is important to assess mass reduction technology already used on the vehicle, and fuel tank size is directly relevant to saving time at the gas pump, which the CAFE Model uses when calculating the value of avoided time spent refueling.

⁴² The CAFE Model does not generate compliance paths a manufacturer should, must, or will deploy. It is intended as a tool to demonstrate a compliance pathway a manufacturer *could* choose. It is almost certain all manufacturers will make compliance choices differing from those projected by the CAFE Model.

Table III-1 – Fuel Saving Technologies that the CAFE Model May Apply

Technology Name	Abbreviation	Market Data File Worksheet	Technology Group
Electric Power Steering	EPS	Vehicles	Additional technologies
Improved Accessory Devices	IACC	Vehicles	Additional technologies
Start-Stop system	12VSS	Vehicles	Electrification
Belt Integrated Starter Generator	BISG	Vehicles	Electrification
Strong Hybrid Electric Vehicle, Parallel	SHEVP2	Vehicles	Electrification
Strong Hybrid Electric Vehicle, Power Split with Atkinson Engine	SHEVPS	Vehicles	Electrification
Strong Hybrid Electric Vehicle, Parallel with HCR0 Engine (Alternative path for Turbo Engine Vehicles)	P2HCR0	Vehicles	Electrification
Strong Hybrid Electric Vehicle, Parallel with HCR1 Engine (Alternative path for Turbo Engine Vehicles)	P2HCR1	Vehicles	Electrification
Strong Hybrid Electric Vehicle, Parallel with HCR1D Engine (Alternative path for Turbo Engine Vehicles)	P2HCR1D	Vehicles	Electrification

Technology Name	Abbreviation	Market Data File Worksheet	Technology Group
Strong Hybrid Electric Vehicle, Parallel with HCR2 Engine (Alternative path for Turbo Engine Vehicles)	P2HCR2	Vehicles	Electrification
Plug-in Hybrid Vehicle with Atkinson Engine and 20 miles of electric range	PHEV20	Vehicles	Electrification
Plug-in Hybrid Vehicle with Atkinson Engine and 50 miles of electric range	PHEV50	Vehicles	Electrification
Plug-in Hybrid Vehicle with TURBO1 Engine and 20 miles of electric range	PHEV20T	Vehicles	Electrification
Plug-in Hybrid Vehicle with TURBO1 Engine and 50 miles of electric range	PHEV50T	Vehicles	Electrification
Plug-in Hybrid Vehicle with Atkinson Engine and 20 miles of electric range (Alternative path for Turbo Engine Vehicles)	PHEV20H	Vehicles	Electrification
Plug-in Hybrid Vehicle with Atkinson Engine and 50 miles of electric range (Alternative path for Turbo Engine Vehicles)	PHEV50H	Vehicles	Electrification
Battery Electric Vehicle with 200 miles of range	BEV200	Vehicles	Electrification
Battery Electric Vehicle with 300 miles of range	BEV300	Vehicles	Electrification
Battery Electric Vehicle with 400 miles of range	BEV400	Vehicles	Electrification
Battery Electric Vehicle with 500 miles of range	BEV500	Vehicles	Electrification
Fuel Cell Vehicle	FCV	Vehicles	Electrification
Low Drag Brakes	LDB	Vehicles	Additional technologies
Secondary Axle Disconnect	SAX	Vehicles	Additional technologies
Baseline Tire Rolling Resistance	ROLL0	Vehicles	Rolling Resistance
Tire Rolling Resistance, 10% Improvement	ROLL10	Vehicles	Rolling Resistance
Tire Rolling Resistance, 20% Improvement	ROLL20	Vehicles	Rolling Resistance
Baseline Aerodynamic Drag Technology	AERO0	Vehicles	Aerodynamic Drag
Aerodynamic Drag, 5% Drag Coefficient Reduction	AERO5	Vehicles	Aerodynamic Drag
Aerodynamic Drag, 10% Drag Coefficient Reduction	AERO10	Vehicles	Aerodynamic Drag
Aerodynamic Drag, 15% Drag Coefficient Reduction	AERO15	Vehicles	Aerodynamic Drag
Aerodynamic Drag, 20% Drag Coefficient Reduction	AERO20	Vehicles	Aerodynamic Drag
Baseline Mass Reduction Technology	MR0	Vehicles	Mass Reduction
Mass Reduction – 5.0% of Glider	MR1	Vehicles	Mass Reduction
Mass Reduction – 7.5% of Glider	MR2	Vehicles	Mass Reduction
Mass Reduction – 10.0% of Glider	MR3	Vehicles	Mass Reduction
Mass Reduction – 15.0% of Glider	MR4	Vehicles	Mass Reduction
Mass Reduction – 20.0% of Glider	MR5	Vehicles	Mass Reduction

Technology Name	Abbreviation	Market Data File Worksheet	Technology Group
Mass Reduction – 28.2% of Glider	MR6	Vehicles	Mass Reduction
Single Overhead Cam	SOHC	Engines	Basic Engines
Dual Overhead Cam	DOHC	Engines	Basic Engines
Engine Friction Reduction	EFR	Engines	Engine Improvements
Variable Valve Timing	VVT	Engines	Basic Engines
Variable Valve Lift	VVL	Engines	Basic Engines
Stoichiometric Gasoline Direct Injection	SGDI	Engines	Basic Engines
Cylinder Deactivation	DEAC	Engines	Basic Engines
Turbocharged Engine	TURBO1	Engines	Advanced Engines
Advanced Turbocharged Engine	TURBO2	Engines	Advanced Engines
Turbocharged Engine with Cooled Exhaust Gas Recirculation	CEGR1	Engines	Advanced Engines
Advanced Cylinder Deactivation	ADEAC	Engines	Advanced Engines
High Compression Ratio Engine (Atkinson Cycle)	HCR0	Engines	Advanced Engines
Advanced High Compression Ratio Engine (Atkinson Cycle)	HCR1	Engines	Advanced Engines
Advanced High Compression Ratio Engine (Atkinson Cycle) with Cylinder Deactivation	HCR1D	Engines	Advanced Engines
EPA, 2016 Vintage Characterization High Compression Ratio Engine (Atkinson Cycle), with Cylinder Deactivation	HCR2	Engines	Advanced Engines
Variable Compression Ratio Engine	VCR	Engines	Advanced Engines
Variable Turbo Geometry Engine	VTG	Engines	Advanced Engines
Variable Turbo Geometry Engine with eBooster	VTGE	Engines	Advanced Engines
Turbocharged Engine with Cylinder Deactivation	TURBOD	Engines	Advanced Engines
Turbocharged Engine with Advanced Cylinder Deactivation	TURBOAD	Engines	Advanced Engines
Advanced Diesel Engine	ADSL	Engines	Advanced Engines
Advanced Diesel Engine with Improvements	DSLII	Engines	Advanced Engines
Advanced Diesel Engine with Improvements and Advanced Cylinder Deactivation	DSLIIAD	Engines	Advanced Engines
Compressed Natural Gas Engine	CNG	Engines	Advanced Engines

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For additional information on the characterization of these technologies (including the cost, prevalence in the 2020 fleet, effectiveness estimates, and considerations for their adoption) see the appropriate technology section in Section III.D or TSD Chapter 3.

DOT also assigns each vehicle a technology class. The CAFE Model uses the technology class (and engine class, discussed below) in the Market Data file

to reference the most relevant technology costs for each vehicle, and fuel saving technology combinations. We assign each vehicle in the fleet a technology class using a two-step algorithm that takes into account key characteristics of vehicles in the fleet compared to the baseline characteristics

of each technology class.⁴⁶ As discussed further in Section III.C.4.b), there are ten technology classes used in the CAFE analysis that span five vehicle types and two performance variants. The

⁴⁶ Baseline 0 to 60 mph accelerations times are assumed for each technology class as part of the Autonomie full vehicle simulations. DOT calculates class baseline curb weights and footprints by averaging the curb weights and footprints of vehicles within each technology class as assigned in previous analyses.

technology class algorithm and assignment process is discussed in more detail in TSD Chapter 2.4.2.

We also assign each vehicle an engine technology class so that the CAFE Model can reference the powertrain costs in the Technologies file that most reasonably align with the observed vehicle. DOT assigns engine technology classes for all vehicles, including electric vehicles. If an electric powertrain replaces and internal combustion engine, the electric motor specifications may be different (and hence costs may be different) depending on the capabilities of the internal combustion engine it is replacing, and the costs in the technologies file (on the engine tab) account for the power output and capability of the gasoline or electric drivetrain.

Parts sharing helps manufacturers achieve economies of scale, deploy capital efficiently, and make the most of shared research and development expenses, while still presenting a wide array of consumer choices to the market. The CAFE Model simulates part sharing by implementing shared engines, shared transmissions, and shared mass reduction platforms. Vehicles sharing a part (as recognized in the CAFE Model), will adopt fuel saving technologies affecting that part together. To account for parts sharing across products, vehicle model/configurations that share engines are assigned the same engine code,⁴⁷ vehicle model/configurations that share transmissions have the same transmission code, and vehicles that adopt mass reduction technologies together share the same platform. For more information about engine codes, transmission codes, and mass reduction platforms see TSD Chapter 3.

Manufacturers often introduce fuel saving technologies at a major redesign of their product or adopt technologies at minor refreshes in between major product redesigns. To support the CAFE Model accounting for new fuel saving technology introduction as it relates to product lifecycle, the Market Data file includes a projection of redesign and refresh years for each vehicle. DOT projects future redesign years and refresh years based on the historical cadence of that vehicle's product lifecycle. For new nameplates, DOT considers the manufacturer's treatment

of product lifecycles for past products in similar market segments. When considering year-by-year analysis of standards, the sizing of redesign and refresh intervals will affect projected compliance pathways and how quickly manufacturers can respond to standards. TSD Chapter 2.2.1.7 includes additional information about the product design cycles assumed for this proposal based on historical manufacturer product design cycles.

The Market Data file also includes information about air conditioning (A/C) and off-cycle technologies, but the information is not currently broken out at a row level, vehicle by vehicle.⁴⁸ Instead, historical data (and forecast projections, which are used for analysis regardless of regulatory scenario) are listed by manufacturer, by fleet on the Credits and Adjustments worksheet of the Market Data file. Section III.D.8 shows model inputs specifying estimated adjustments (all in grams/mile) for improvements to air conditioner efficiency and other off-cycle energy consumption, and for reduced leakage of air conditioner refrigerants with high global warming potential (GWP). DOT estimated future values based on an expectation that manufacturers already relying heavily on these adjustments would continue to do so, and that other manufacturers would, over time, also approach the limits on adjustments allowed for such improvements.

(b) Characterizing Baseline Safety, Economic, and Compliance Positions

In addition to characterizing vehicles and their technology content, the Market Data file contains a range of other inputs that, though not specific to individual vehicle models, may be specific to individual manufacturers, or that characterize baseline safety or economic information.

First, the CAFE Model considers the potential safety effect of mass reduction technologies and crash compatibility of different vehicle types. Mass reduction technologies lower the vehicle's curb weight, which may improve crash compatibility and safety, or not, depending on the type of vehicle. DOT assigns each vehicle in the Market Data file a safety class that best aligns with the mass-size-safety analysis. This

analysis is discussed in more detail in Section III.H of this proposal and TSD Chapter 7.

The CAFE Model also includes procedures to consider the direct labor impacts of manufacturer's response to CAFE regulations, considering the assembly location of vehicles, engines, and transmissions, the percent U.S. content (that reflects percent U.S. and Canada content),⁴⁹ and the dealership employment associated with new vehicle sales. The Market Data file therefore includes baseline labor information, by vehicle. Sales volumes also influence total estimated direct labor projections in the analysis.

We hold the percent U.S. content constant for each vehicle row for the duration of the analysis. In practice, this may not be the case. Changes to trade policy and tariff policy may affect percent U.S. content in the future. Also, some technologies may be more or less likely to be produced in the U.S., and if that is the case, their adoption could affect future U.S. content. NHTSA does not have data at this time to support varying the percent U.S. content.

We also hold the labor hours projected in the Market Data file per unit transacted at dealerships, per unit produced for final assembly, per unit produced for engine assembly, and per unit produced for transmission assembly constant for the duration of the analysis, and project that the origin of these activities to remain unchanged. In practice, it is reasonable to expect that plants could move locations, or engine and transmission technologies are replaced by another fuel saving technology (like electric motors and fixed gear boxes) that could require a meaningfully different amount of assembly labor hours. NHTSA does not have data at this time to support varying labor hours projected in the Market Data file, but we will continue to explore methods to estimate the direct labor impacts of manufacturer's responses to CAFE standards in future analyses.

As observed from Table III-2, manufacturers employ U.S. labor with varying intensity. In many cases, vehicles certifying in the light truck (LT) regulatory class have a larger percent U.S. content than vehicles certifying in the passenger car (PC) regulatory class.

⁴⁷ Engines (or transmissions) may not be exactly identical, as specifications or vehicle integration features may be different. However, the architectures are similar enough that it is likely the powertrain systems share research and development (R&D), tooling, and production resources in a meaningful way.

⁴⁸ Regulatory provisions regarding off-cycle technologies are new, and manufacturers have only recently begun including related detailed information in compliance reporting data. For this analysis, though, such information was not sufficiently complete to support a detailed representation of the application of off-cycle

technology to specific vehicle model/configurations in the MY 2020 fleet.

⁴⁹ Percent U.S. content was informed by the 2020 Part 583 American Automobile Labeling Act Reports, appearing on NHTSA's website.

Table III-2 – Sales Weighted Percent U.S. Content by Manufacturer, by Regulatory Class

Manufacturer	PC	LT	Total MY 2020 Sales Weighted Percent U.S. Content	Portion of Vehicles Assembled in the U.S.	Portion of Engines Assembled in the U.S.	Portion of Transmissions Assembled in the U.S.
BMW	7.1%	29.3%	15.4%	42.4%	0.0%	0.0%
Daimler	19.1%	36.2%	28.1%	41.2%	39.8%	0.0%
Fiat Chrysler Automobiles (FCA)	47.7%	52.9%	52.2%	68.0%	41.3%	45.7%
Ford	35.2%	47.5%	44.2%	83.4%	32.9%	88.5%
General Motors (GM)	39.8%	47.0%	44.7%	68.3%	69.8%	86.1%
Honda	55.8%	61.7%	58.3%	74.9%	85.9%	58.6%
Hyundai Kia-H	21.8%	0.0%	19.4%	46.0%	46.0%	34.3%
Hyundai Kia-K	12.8%	33.3%	20.7%	38.4%	17.2%	37.8%
JLR	2.6%	6.3%	6.2%	0.0%	0.0%	31.7%
Mazda	1.1%	1.1%	1.1%	0.0%	0.0%	0.0%
Mitsubishi	0.0%	0.3%	0.2%	0.0%	0.0%	0.0%
Nissan	29.0%	32.6%	30.1%	49.9%	47.5%	0.0%
Subaru	35.5%	22.9%	25.6%	53.2%	0.0%	0.0%
Tesla ⁵⁰	50.6%	50.0%	50.6%	100.0%	100.0%	100.0%
Toyota	35.2%	42.7%	38.7%	42.4%	46.0%	19.4%
Volvo	10.2%	1.1%	3.4%	12.4%	0.0%	0.0%
VWA	10.3%	8.8%	9.4%	13.5%	0.0%	0.0%
TOTAL	32.4%	41.2%	37.4%	57.1%	44.1%	44.1%

Next, manufacturers may over-comply with CAFE standards and bank so-called over compliance credits. As discussed further in Section III.C.7, manufacturers may use these credits later, sell them to other manufacturers, or let them expire. The CAFE Model does not explicitly trade credits between and among manufacturers, but staff have adjusted starting credit banks in the Market Data file to reflect trades that are likely to happen when the simulation begins (in MY 2020). Considering information manufacturers have reported regarding compliance credits, and considering recent manufacturers' compliance

positions, DOT estimates manufacturers' potential use of compliance credits in earlier MYs. This aligns to an extent that represents how manufacturers could deplete their credit banks rather than producing high volume vehicles with fuel saving technologies in earlier MYs. This also avoids the unrealistic application of technologies for manufacturers in early analysis years that typically rely on credits. For a complete discussion about how this data is collected and assigned in the Market Data file, see TSD Chapter 2.2.2.3.

The Market Data file also includes assumptions about a vehicle manufacturer's preferences towards civil penalty payments. EPCA requires that if a manufacturer does not achieve compliance with a CAFE standard in a

given model year and cannot apply credits sufficient to cover the compliance shortfall, the manufacturer must pay civil penalties (*i.e.*, fines) to the Federal Government. If inputs indicate that a manufacturer treats civil penalty payment as an economic choice (*i.e.*, one to be taken if doing so would be economically preferable to applying further technology toward compliance), the CAFE Model, when evaluating the manufacturer's response to CAFE standards in a given model year, will apply fuel-saving technology only up to the point beyond which doing so would be more expensive (after subtracting the value of avoided fuel outlays) than paying civil penalties.

For this analysis, DOT exercises the CAFE Model with inputs treating all manufacturers as treating civil penalty

⁵⁰ Tesla does not have internal combustion engines, or multi-speed transmissions, even though they are identified as producing engine and transmission systems in the United States in the Market Data file.

payment as an economic choice through model year 2023. While DOT expects that only manufacturers with some history of paying civil penalties would actually treat civil penalty payment as an acceptable option, the CAFE Model does not currently simulate compliance credit trading between manufacturers, and DOT expects that this treatment of civil penalty payment will serve as a reasonable proxy for compliance credit purchases some manufacturers might actually make through model year 2023. These input assumptions for model years through 2023 reduce the potential that the model will overestimate technology application in the model years leading up to those for which the agency is proposing new standards. As in past CAFE rulemaking analyses (except that supporting the 2020 final rule), DOT has treated manufacturers with some history of civil penalty payment (*i.e.*, BMW, Daimler, FCA, Jaguar-Land Rover, Volvo, and Volkswagen) as continuing to treat civil penalty payment as an acceptable option beyond model year 2023, but has treated all other manufacturers as unwilling to do so beyond model year 2023.

Next, the CAFE Model uses an “effective cost” metric to evaluate options to apply specific technologies to specific engines, transmissions, and vehicle model configurations. Expressed on a \$/gallon basis, the analysis computes this metric by subtracting the estimated values of avoided fuel outlays and civil penalties from the corresponding technology costs, and then dividing the result by the quantity of avoided fuel consumption. The analysis computes the value of fuel outlays over a “payback period” representing the manufacturer’s expectation that the market will be willing to pay for some portion of fuel savings achieved through higher fuel economy. Once the model has applied enough technology to a manufacturer’s fleet to achieve compliance with CAFE standards (and CO₂ standards and ZEV mandates) in a given model year, the model will apply any further fuel economy improvements estimated to produce a negative effective cost (*i.e.*, any technology applications for which avoided fuel outlays during the payback period are larger than the corresponding technology costs). As discussed above in Section III.A and below in Section III.C, DOT anticipates that manufacturers are likely to act as if the market is willing to pay for avoided fuel outlays expected during the first 30 months of vehicle operation.

We seek comment on whether this expectation is appropriate, or whether

some other amount of time should be used. If commenters believe a different amount of time should be used for the payback assumption, it would be most helpful if commenters could define the amount of time, provide an explanation of why that amount of time is preferable, provide any data or information on which the amount of time is based, and provide any discussion of how changing this assumption would interact with other elements in the analysis.

In addition, the Market Data file includes two new sets of inputs for this analysis. In 2020, five vehicle manufacturers reached a voluntary commitment with the state of California to improve the fuel economy of their future nationwide fleets above levels required by the 2020 final rule. For this analysis, compliance with this agreement is in the baseline case for designated manufacturers. The Market Data file contains inputs indicating whether each manufacturer has committed to exceed Federal requirements per this agreement.

Finally, when considering other standards that may affect fuel economy compliance pathways, DOT includes projected zero emissions vehicles (ZEV) that would be required for manufacturers to meet standards in California and Section 177 States, per the waiver granted under the Clean Air Act. To support the inclusion of the ZEV program in the analysis, DOT identifies specific vehicle model/configurations that could adopt BEV technology in response to the ZEV program, independent of CAFE standards, at the first redesign opportunity. These ZEVs are identified in the Market Data file as future BEV200s, BEV300s, or BEV400s. Not all announced BEV nameplates appear in the MY 2020 Market Data file; in these cases, in consultation with CARB, DOT used the volume from a comparable vehicle in the manufacturer’s Market Data file portfolio as a proxy. The Market Data file also includes information about the portion of each manufacturer’s sales that occur in California and Section 177 states, which is helpful for determining how many ZEV credits each manufacturer will need to generate in the future to comply with the ZEV program with their own portfolio in the rulemaking timeframe. These new procedures are described in detail below and in TSD Chapter 2.3.

3. Simulating the Zero Emissions Vehicle Program

California’s Zero Emissions Vehicle (ZEV) program is one part of a program of coordinated standards that the

California Air Resources Board (CARB) has enacted to control emissions of criteria pollutants and greenhouse gas emissions from vehicles. The program began in 1990, within the low-emission vehicle (LEV) regulation,⁵¹ and has since expanded to include eleven other states.⁵² These states may be referred to as Section 177 states, in reference to Section 177 of the Clean Air Act’s grant of authority to allow these states to adopt California’s air quality standards,⁵³ but it is important to note that not all Section 177 states have adopted the ZEV program component.⁵⁴ In the following discussion of the incorporation of the ZEV program into the CAFE Model, any reference to the Section 177 states refers to those states that have adopted California’s ZEV program requirements.

To account for the ZEV program, and particularly as other states have recently adopted California’s ZEV standards, DOT includes the main provisions of the ZEV program in the CAFE Model’s analysis of compliance pathways. As explained below, incorporating the ZEV program into the model includes converting vehicles that have been identified as potential ZEV candidates into battery-electric vehicles (BEVs) at the first redesign opportunity, so that a manufacturer’s fleet meets calculated ZEV credit requirements. Since ZEV program compliance pathways happen independently from the adoption of fuel saving technology in response to increasing CAFE standards, the ZEV program is considered in the baseline of the analysis, and in all other regulatory alternatives.

Through its ZEV program, California requires that all manufacturers that sell cars within the state meet ZEV credit standards. The current credit requirements are calculated based on manufacturers’ California sales volumes. Manufacturers primarily earn ZEV credits through the production of BEVs, fuel cell vehicles (FCVs), and

⁵¹ California Air Resource Board (CARB), Zero-Emission Vehicle Program. California Air Resources Board. Accessed April 12, 2021. <https://ww2.arb.ca.gov/our-work/programs/zero-emission-vehicle-program/about>.

⁵² At the time of writing, the Section 177 states that have adopted the ZEV program are Colorado, Connecticut, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Rhode Island, Vermont, and Washington. See Vermont Department of Environmental Conservation, Zero Emission Vehicles. Accessed April 12, 2021. <https://dec.vermont.gov/air-quality/mobile-sources/zev#:~:text=To%20date%2C%2012%20states%20have,ZEVs%20over%20the%20next%20decade>.

⁵³ Section 177 of the Clean Air Act allows other states to adopt California’s air quality standards.

⁵⁴ At the time of writing, Delaware and Pennsylvania are the two states that have adopted the LEV standards, but not the ZEV portion.

transitional zero-emissions vehicles (TZEVs), which are vehicles with partial electrification, namely plug-in hybrids (PHEVs). Total credits are calculated by multiplying the credit value each ZEV receives by the vehicle's volume.

The ZEV and PHEV/TZEV credit value per vehicle is calculated based on the vehicle's range; ZEVs may earn up to 4 credits each and PHEVs with a US06 all-electric range capability of 10 mi or higher receive an additional 0.2 credits on top of the credits received based on all-electric range.⁵⁵ The maximum PHEV credit amount available per vehicle is 1.10.⁵⁶ Note however that CARB only allows intermediate-volume manufacturers to meet their ZEV credit requirements through PHEV production.⁵⁷

DOT's method for simulating the ZEV program involves several steps; first, DOT calculates an approximate ZEV credit target for each manufacturer based on the manufacturer's national sales volumes, share of sales in Section 177 states, and the CARB credit requirements. Next, DOT identifies a general pathway to compliance that involves accounting for manufacturers' potential use of ZEV overcompliance credits or other credit mechanisms, and the likelihood that manufacturers would choose to comply with the requirements with BEVs rather than PHEVs or other types of compliant vehicles, in addition to other factors. For this analysis, as discussed further below, DOT consulted with CARB to determine reasonable assumptions for this compliance pathway. Finally, DOT identifies vehicles in the MY 2020 analysis fleet that manufacturers could reasonably adapt to comply with the ZEV standards at the first opportunity for vehicle redesign, based on publicly announced product plans and other information. Each of these steps is discussed in turn, below, and a more detailed description of DOT's simulation of the ZEV program is included in TSD Chapter 2.3.

The CAFE Model is designed to present outcomes at a national scale, so the ZEV analysis considers the Section 177 states as a group as opposed to estimating each state's ZEV credit requirements individually. To capture the appropriate volumes subject to the ZEV requirement, DOT calculates each manufacturer's total market share in Section 177 states. DOT also calculates

the overall market share of ZEVs in Section 177 states, in order to estimate as closely as possible the number of predicted ZEVs we expect all manufacturers to sell in those states. These shares are then used to scale down national-level information in the CAFE Model to ensure that we represent only Section 177 states in the final calculation of ZEV credits that we project each manufacturer to earn in future years.

DOT uses model year 2019 National Vehicle Population Profile (NVPP) from IHS Markit—Polk to calculate these percentages.⁵⁸ These data include vehicle characteristics such as powertrain, fuel type, manufacturer, nameplate, and trim level, as well as the state in which each vehicle is sold, which allows staff to identify the different types of ZEVs manufacturers sell in the Section 177 state group. DOT may make use of future Polk data in updating the analysis for the final rule and may include other states that join the ZEV program after the publication of this proposal, if necessary.

We calculate sales volumes for the ZEV credit requirement based on each manufacturer's future assumed market share in Section 177 states. DOT decided to carry each manufacturer's ZEV market shares forward to future years, after examination of past market share data from model year 2016, from the 2017 version of the NVPP.⁵⁹ Comparison of these data to the 2020 version showed that manufacturers' market shares remain fairly constant in terms of geographic distribution. Therefore, we determined that it was reasonable to carry forward the recently calculated market shares to future years.

We calculate total credits required for ZEV compliance by multiplying the percentages from CARB's ZEV requirement schedule by the Section 177 state volumes. CARB's credit percentage requirement schedule for the years covered in this analysis begins at 9.5% in 2020 and ramps up in increments to 22% by 2025.⁶⁰ Note that the requirements do not currently change after 2025.⁶¹

We generate national sales volume predictions for future years using the

Compliance Report, a CAFE Model output file that includes simulated sales by manufacturer, fleet, and model year. We use a Compliance Report that corresponds to the baseline scenario of 1.5% per year increases in standards for both passenger car and light truck fleets. The resulting national sales volume predictions by manufacturer are then multiplied by each manufacturer's total market share in the Section 177 states to capture the appropriate volumes in the ZEV credits calculation. Required credits by manufacturer, per year, are determined by multiplying the Section 177 state volumes by CARB's ZEV credit percentage requirement. These required credits are subsequently added to the CAFE Model inputs as targets for manufacturer compliance with ZEV standards in the CAFE baseline.

The estimated ZEV credit requirements serve as a target for simulating ZEV compliance in the baseline. To achieve this, DOT determines a modeling philosophy for ZEV pathways, reviews various sources for information regarding upcoming ZEV programs, and inserts those programs into the analysis fleet inputs. As manufacturers can meet ZEV standards in a variety of different ways, using various technology combinations, the analysis must include certain simplifying assumptions in choosing ZEV pathways. We made these assumptions in conjunction with guidance from CARB staff. The following sections discuss the approach used to simulate a pathway to ZEV program compliance in this analysis.

First, DOT targeted 2025 compliance, as opposed to assuming manufacturers would perfectly comply with their credit requirements in each year prior to 2025. This simplifying assumption was made upon review of past history of ZEV credit transfers, existing ZEV credit banks, and redesign schedules. DOT focused on integrating ZEV technology throughout that timeline with the target of meeting 2025 obligations; thus, some manufacturers are estimated to over-comply or under-comply, depending on their individual situations, in the years 2021–2024.

Second, DOT determined that the most reasonable way to model ZEV compliance would be to allow under-compliance in certain cases and assume that some manufacturers would not meet their ZEV obligation on their own in 2025. Instead, these manufacturers were assumed to prefer to purchase credits from another manufacturer with a credit surplus. Reviews of past ZEV credit transfers between manufacturers informed the decision to make this

⁵⁵ US06 is one of the drive cycles used to test fuel economy and all-electric range, specifically for the simulation of aggressive driving. See Dynamometer Drive Schedules | Vehicle and Fuel Emissions Testing | U.S. EPA for more information, as well as Section III.C.4 and Section III.D.3.d).

⁵⁶ 13 CCR 1962.2(c)(3).

⁵⁷ 13 CCR 1962.2(c)(3).

⁵⁸ National Vehicle Population Profile (NVPP) 2020, IHS Markit—Polk. At the time of the analysis, model year 2019 data from the NVPP contained the most current estimate of market shares by manufacturer, and best represented the registered vehicle population on January 1, 2020.

⁵⁹ National Vehicle Population Profile (NVPP) 2017, IHS Markit—Polk.

⁶⁰ See 13 CCR 1962.2(b). The percentage credit requirements are as follows: 9.5% in 2020, 12% in 2021, 14.5% in 2022, 17% in 2023, 19.5% in 2024, and 22% in 2025 and onward.

⁶¹ 13 CCR 1962.2(b).

simplifying assumption.⁶² CARB advised that for these manufacturers, the CAFE Model should still project that each manufacturer meet approximately 80% of their ZEV requirements with technology included in their own portfolio. Manufacturers that were observed to have generated many ZEV credits in the past or had announced major upcoming BEV initiatives were projected to meet 100% of their ZEV requirements on their own, without purchasing ZEV credits from other manufacturers.⁶³

Third, DOT agreed that manufacturers would meet their ZEV credit requirements in 2025 though the production of BEVs. As discussed above, manufacturers may choose to build PHEVs or FCVs to earn some portion of their required ZEV credits. However, DOT projected that manufacturers would rely on BEVs to meet their credit requirements, based on reviews of press releases and industry news, as well as discussion with CARB. Since nearly all manufacturers have announced some plans to produce BEVs at a scale meaningful to future ZEV requirements, DOT agreed that this was a reasonable assumption.⁶⁴ Furthermore, as CARB only allows intermediate-volume manufacturers to meet their ZEV credit requirements through the production of PHEVs, and the volume status of these few manufacturers could change over the years, assuming BEV production for ZEV compliance is the most straightforward path.

Fourth, to account for the new BEV programs announced by some manufacturers, DOT identified vehicles in the 2020 fleet that closely matched the upcoming BEVs, by regulatory class, market segment, and redesign schedule. DOT made an effort to distribute ZEV candidate vehicles by CAFE regulatory class (light truck, passenger car), by manufacturer, in a manner consistent with the 2020 manufacturer fleet mix. Since passenger car and light truck mixes by manufacturer could change in response to the CAFE policy alternative under consideration, this effort was deemed necessary in order to avoid redistributing the fleet mix in an

unrealistic manner. However, there were some exceptions to this assumption, as some manufacturers are already closer to meeting their ZEV obligation through 2025 with BEVs currently produced, and some manufacturers underperform their compliance targets more so in one fleet than another. In these cases, DOT deviated from keeping the LT/PC mix of BEVs evenly distributed across the manufacturer's portfolio.⁶⁵

DOT then identified future ZEV programs that could plausibly contribute towards the ZEV requirements for each manufacturer by 2025. To obtain this information, DOT examined various sources, including trade press releases, industry announcements, and investor reports. In many cases, these BEV programs are in addition to programs already in production.⁶⁶ Some manufacturers have not yet released details of future electric vehicle programs at the time of writing, but have indicated goals of reaching certain percentages of electric vehicles in their portfolios by a specified year. In these cases, DOT reviewed the manufacturer's current fleet characteristics as well as the aspirational information in press releases and other news in order to make reasonable assumptions about the vehicle segment and range of those future BEVs. DOT may reassign some manufacturer's ZEV programs in the analysis fleet for the final rule based on stakeholder comments or other public information releases that occur in time for the final rule analysis.

Overall, analysts assumed that manufacturers would lean towards producing BEV300s rather than BEV200s, based on the information reviewed and an initial conversation with CARB.⁶⁷ Phase-in caps were also considered, especially for BEV200, with the understanding that the CAFE Model will always pick BEV200 before BEV300 or BEV400, until the quantity of BEV200s is exhausted. See Section III.D.3.c) for details regarding BEV phase-in caps.

BEVs, especially BEVs with smaller battery packs and less range, are less likely to meet all the performance needs of traditional pickup truck owners today. However, new markets for BEVs may emerge, potentially in the form of

electric delivery trucks and some light-duty electric truck applications in state and local government. The extent to which BEVs will be used in these and other new markets is difficult to project. DOT did identify certain trucks as upcoming BEVs for ZEV compliance, and these BEVs were expected to have higher ranges, due to the specific performance needs associated with these vehicles. Outside of the ZEV inputs described here, the CAFE Model does not handle the application of BEV technology with any special considerations as to whether the vehicle is a pickup truck or not. Comments from manufacturers are solicited on this issue.

Finally, in order to simulate manufacturers' compliance with their particular ZEV credits target, 142 rows in the analysis fleet were identified as substitutes for future ZEV programs. As discussed above, the analysis fleet summarizes the roughly 13.6 million light-duty vehicles produced and sold in the United States in the 2020 model year with more than 3,500 rows, each reflecting information for one vehicle type observed. Each row includes the vehicle's nameplate and trim level, the sales volume, engine, transmission, drive configuration, regulatory class, projected redesign schedule, and fuel saving technologies, among other attributes.

As the goal of the ZEV analysis is to simulate compliance with the ZEV program in the baseline, and the analysis fleet only contains vehicles produced during model year 2020, DOT identified existing models in the analysis fleet that shared certain characteristics with upcoming BEVs. DOT also focused on identifying substitute vehicles with redesign years similar to the future BEV's introduction year. The sales volumes of those existing models, as predicted for 2025, were then used to simulate production of the upcoming BEVs. DOT identified a combination of rows that would meet the ZEV target, could contribute productively towards CAFE program obligations (by manufacturer and by fleet), and would introduce BEVs in each manufacturer's portfolio in a way that reasonably aligned with projections and announcements. DOT tagged each of these rows with information in the Market Data file, instructing the CAFE Model to apply the specified BEV technology to the row at the first redesign year, regardless of the scenario or type of CAFE or GHG simulation.

The CAFE Model does not optimize compliance with the ZEV mandate; it relies upon the inputs described in this section in order to estimate each

⁶² See <https://ww2.arb.ca.gov/our/work/programs/advanced-clean-cars-program/zev-program-zero-emission-vehicle-credit-balances> for past credit balances and transfer information.

⁶³ The following manufacturers were assumed to meet 100% ZEV compliance: Ford, General Motors, Hyundai, Kia, Jaguar Land Rover, and Volkswagen Automotive. Tesla was also assumed to meet 100% of its required standards, but the analyst team did not need to add additional ZEV substitutes to the baseline for this manufacturer.

⁶⁴ See TSD Chapter 2.3 for a list of potential BEV programs recently announced by manufacturers.

⁶⁵ The GM light truck and passenger car distribution is one such example.

⁶⁶ Examples of BEV programs already in production include the Nissan Leaf and the Chevrolet Bolt.

⁶⁷ BEV300s are 300-mile range battery-electric vehicles. See Section III.D.3.b) for further information regarding electrification fleet assignments.

manufacturer's resulting ZEV credits. The resulting amount of ZEV credits earned by manufacturer for each model year can be found in the CAFE Model's Compliance file.

Not all ZEV-qualifying vehicles in the U.S. earn ZEV credits, as they are not all sold in states that have adopted ZEV regulations. In order to reflect this in the CAFE Model, which only estimates sales volumes at the national level, the percentages calculated for each manufacturer are used to scale down the national-level volumes. Multiplying national-level ZEV sales volumes by these percentages ensures that only the ZEVs sold in Section 177 states count towards the ZEV credit targets of each manufacturer.⁶⁸ See Section 5.8 of the CAFE Model Documentation for a detailed description of how the model applied these ZEV technologies and any changes made to the model's programming for the incorporation of the ZEV program into the baseline.

As discussed above, DOT made an effort to distribute the newly identified ZEV candidates between CAFE regulatory classes (light truck and passenger car) in a manner consistent with the proportions seen in the 2020 analysis fleet, by manufacturer. As mentioned previously, there were a few exceptions to this assumption in cases where manufacturers' regulatory class distribution of current or planned ZEV programs clearly differed from their regulatory class distribution as a whole.

In some instances, the regulatory distribution of flagged ZEV candidates leaned towards a higher portion of PCs. The reasoning behind this differs in each case, but there is an observed pattern in the 2020 analysis fleet of fewer BEVs being light trucks, especially pickups. The 2020 analysis fleet contains no BEV pickups in the light truck segment. The slow emergence of electric pickups could be linked to the specific performance needs associated with pickup trucks. However, the market for BEVs may emerge in unexpected ways that are difficult to project. Examples of this include anticipated electric delivery trucks and light-duty electric trucks used by state and local governments. Due to these considerations, DOT tagged some trucks as BEVs for ZEV, and expected that

⁶⁸The single exception to this assumption is Mazda, as Mazda has not yet produced any ZEV-qualifying vehicles at the time of writing. Thus, the percentage of ZEVs sold in Section 177 states cannot be calculated from existing data. However, Mazda has indicated its intention to produce ZEV-qualifying vehicles in the future, so DOT assumed that 100% of future ZEVs would be sold in Section 177 states for the purposes of estimating ZEV credits in the CAFE Model.

these would generally be of higher ranges.

TSD Chapter 2.3 includes more information about the process we use to simulate ZEV program compliance in this analysis.

4. Technology Effectiveness Values

The next input we use to simulate manufacturers' decision-making processes for the year-by-year application of technologies to specific vehicles are estimates of how effective each technology would be at reducing fuel consumption. For this analysis, we use full-vehicle modeling and simulation to estimate the fuel economy improvements manufacturers could make to a fleet of vehicles, considering the vehicles' technical specifications and how combinations of technologies interact. Full-vehicle modeling and simulation uses physics-based models to predict how combinations of technologies perform as a full system under defined conditions. We use full vehicle simulations performed in Autonomie, a physics-based full-vehicle modeling and simulation software developed and maintained by the U.S. Department of Energy's Argonne National Laboratory.⁶⁹

A model is a mathematical representation of a system, and simulation is the behavior of that mathematical representation over time. In this analysis, the model is a mathematical representation of an entire vehicle,⁷⁰ including its individual components such as the engine and transmission, overall vehicle characteristics such as mass and aerodynamic drag, and the environmental conditions, such as ambient temperature and barometric pressure. We simulate the model's behavior over test cycles, including the 2-cycle laboratory compliance tests (or 2-cycle tests),⁷¹ to determine how the individual components interact.

⁶⁹Islam, E. S., A. Moawad, N. Kim, R. Vijayagopal, and A. Rousseau. *A Detailed Vehicle Simulation Process to Support CAFE Standards for the MY 2024–2026 Analysis*. ANL/ESD–21/9 [hereinafter Autonomie model documentation].

⁷⁰Each full vehicle model in this analysis is composed of sub-models, which is why the full vehicle model could also be referred to as a full system model, composed of sub-system models.

⁷¹EPA's compliance test cycles are used to measure the fuel economy of a vehicle. For readers unfamiliar with this process, it is like running a car on a treadmill following a program—or more specifically, two programs. The "programs" are the "urban cycle," or Federal Test Procedure (abbreviated as "FTP"), and the "highway cycle," or Highway Fuel Economy Test (abbreviated as "HFET" or "HWFET"), and they have not changed substantively since 1975. Each cycle is a designated speed trace (of vehicle speed versus time) that all certified vehicles must follow during testing. The FTP is meant roughly to simulate stop and go city

Using full-vehicle modeling and simulation to estimate technology efficiency improvements has two primary advantages over using single or limited point estimates. An analysis using single or limited point estimates may assume that, for example, one fuel economy-improving technology with an effectiveness value of 5 percent by itself and another technology with an effectiveness value of 10 percent by itself, when applied together achieve an additive improvement of 15 percent. Single point estimates generally do not provide accurate effectiveness values because they do not capture complex relationships among technologies. Technology effectiveness often differs significantly depending on the vehicle type (e.g., sedan versus pickup truck) and the way in which the technology interacts with other technologies on the vehicle, as different technologies may provide different incremental levels of fuel economy improvement if implemented alone or in combination with other technologies. Any oversimplification of these complex interactions leads to less accurate and often overestimated effectiveness estimates.

In addition, because manufacturers often implement several fuel-saving technologies simultaneously when redesigning a vehicle, it is difficult to isolate the effect of individual technologies using laboratory measurement of production vehicles alone. Modeling and simulation offer the opportunity to isolate the effects of individual technologies by using a single or small number of baseline vehicle configurations and incrementally adding technologies to those baseline configurations. This provides a consistent reference point for the incremental effectiveness estimates for each technology and for combinations of technologies for each vehicle type. Vehicle modeling also reduces the potential for overcounting or undercounting technology effectiveness.

An important feature of this analysis is that the incremental effectiveness of each technology and combinations of technologies should be accurate and relative to a consistent baseline vehicle. For this analysis, the baseline absolute fuel economy value for each vehicle in the analysis fleet is based on CAFE compliance data for each make and model.⁷² The absolute fuel economy values of the full vehicle simulations are

driving, and the HFET is meant roughly to simulate steady flowing highway driving at about 50 mph.

⁷²See Section III.C.2 for further discussion of CAFE compliance data in the Market Data file.

used only to determine incremental effectiveness and are never used directly to assign an absolute fuel economy value to any vehicle model or configuration. For subsequent technology changes, we apply the incremental effectiveness values of one or more technologies to the baseline fuel economy value to determine the absolute fuel economy achieved for applying the technology change.

As an example, if a Ford F-150 2-wheel drive crew cab and short bed in the analysis fleet has a fuel economy value of 30 mpg for CAFE compliance, 30 mpg will be considered the reference absolute fuel economy value. A similar full vehicle model node in the Autonomie simulation may begin with an average fuel economy value of 32 mpg, and with incremental addition of a specific technology X its fuel economy improves to 35 mpg, a 9.3 percent improvement. In this example, the incremental fuel economy improvement (9.3 percent) from technology X would be applied to the F-150's 30 mpg absolute value.

We determine the incremental effectiveness of technologies as applied to the thousands of unique vehicle and technology combinations in the analysis fleet. Although, as mentioned above, full-vehicle modeling and simulation reduces the work and time required to assess the impact of moving a vehicle from one technology state to another, it would be impractical—if not impossible—to build a unique vehicle model for every individual vehicle in the analysis fleet. Therefore, as discussed in the following sections, the Autonomie analysis relies on ten vehicle technology class models that are representative of large portions of the analysis fleet vehicles. The vehicle technology classes ensure that key vehicle characteristics are reasonably represented in the full vehicle models. The next sections discuss the details of the technology effectiveness analysis input specifications and assumptions. NHTSA seeks comment on the following discussion.

(a) Full Vehicle Modeling and Simulation

As discussed above, for this analysis we use Argonne's full vehicle modeling tool, Autonomie, to build vehicle models with different technology combinations and simulate the performance of those models over regulatory test cycles. The difference in the simulated performance between full vehicle models, with differing technology combination, is used to determine effectiveness values. We consider over 50 individual

technologies as inputs to the Autonomie modeling.⁷³ These inputs consist of engine technologies, transmission technologies, powertrain electrification, lightweighting, aerodynamic improvements, and tire rolling resistance improvements. Section III.D broadly discusses each of the technology groupings definitions, inputs, and assumptions. A deeper discussion of the Autonomie modeled subsystems, and how inputs feed the sub models resulting in outputs, is contained in the Autonomie model documentation that accompanies this analysis. The 50 individual technologies, when considered with the ten vehicle technology classes, result in over 1.1 million individual vehicle technology combination models. For additional discussion on the full vehicle modeling used in this analysis see TSD Chapter 2.

While Argonne built full-vehicle models and ran simulations for many combinations of technologies, it did not simulate literally every single vehicle model/configuration in the analysis fleet. Not only would it be impractical to assemble the requisite detailed information specific to each vehicle/model configuration, much of which would likely only be provided on a confidential basis, doing so would increase the scale of the simulation effort by orders of magnitude. Instead, Argonne simulated ten different vehicle types, corresponding to the five "technology classes" generally used in CAFE analysis over the past several rulemakings, each with two performance levels and corresponding vehicle technical specifications (*e.g.*, small car, small performance car, pickup truck, performance pickup truck, etc.).

Technology classes are a means of specifying common technology input assumptions for vehicles that share similar characteristics. Because each vehicle technology class has unique characteristics, the effectiveness of technologies and combinations of technologies is different for each technology class. Conducting Autonomie simulations uniquely for each technology class provides a specific set of simulations and effectiveness data for each technology class. In this analysis the technology classes are compact cars, midsize cars, small SUVs, large SUVs, and pickup trucks. In addition, for each vehicle class there are two levels of performance attributes (for a total of 10 technology

classes). The high performance and low performance vehicles classifications allow for better diversity in estimating technology effectiveness across the fleet.

For additional discussion on the development of the vehicle technology classes used in this analysis and the attributes used to characterize each vehicle technology class, see TSD Chapter 2.4 and the Autonomie model documentation.

Before any simulation is initiated in Autonomie, Argonne must "build" a vehicle by assigning reference technologies and initial attributes to the components of the vehicle model representing each technology class. The reference technologies are baseline technologies that represent the first step on each technology pathway used in the analysis. For example, a compact car is built by assigning it a baseline engine (DOHC, VVT, port fuel injection (PFI)), a baseline transmission (AT5), a baseline level of aerodynamic improvement (AERO0), a baseline level of rolling resistance improvement (ROLL0), a baseline level of mass reduction technology (MR0), and corresponding attributes from the Argonne vehicle assumptions database like individual component weights. A baseline vehicle will have a unique starting point for the simulation and a unique set of assigned inputs and attributes, based on its technology class. Argonne collected over a hundred baseline vehicle attributes to build the baseline vehicle for each technology class. In addition, to account for the weight of different engine sizes, like 4-cylinder versus 8-cylinder or turbocharged versus naturally aspirated engines, Argonne developed a relationship curve between peak power and engine weight based on the A2Mac1 benchmarking data. Argonne uses the developed relationship to estimate mass for all engines. For additional discussion on the development and optimization of the baseline vehicle models and the baseline attributes used in this analysis see TSD Chapter 2.4 and the Autonomie model documentation.

The next step in the process is to run a powertrain sizing algorithm that ensures the built vehicle meets or exceeds defined performance metrics, including low-speed acceleration (time required to accelerate from 0–60 mph), high-speed passing acceleration (time required to accelerate from 50–80 mph), gradeability (the ability of the vehicle to maintain constant 65 miles per hour speed on a six percent upgrade), and towing capacity. Together, these performance criteria are widely used by the automotive industry as metrics to quantify vehicle performance attributes

⁷³ See Autonomie model documentation; ANL—All Assumptions_Summary_NPRM_022021.xlsx; ANL—Data Dictionary_January 2021.xlsx.

that consumers observe and that are important for vehicle utility and customer satisfaction.

As with conventional vehicle models, electrified vehicle models were also built from the ground up. For MY 2020, the U.S. market has an expanded number of available hybrid and electric vehicle models. To capture improvements for electrified vehicles for this analysis, DOT applied a mass regression analysis process that considers electric motor weight versus electric motor power (similar to the regression analysis for internal combustion engine weights) for vehicle models that have adopted electric motors. Benchmarking data for hybrid and electric vehicles from the A2Mac1 database were analyzed to develop a regression curve of electric motor peak power versus electric motor weight.⁷⁴

We maintain performance neutrality in the full vehicle simulations by resizing engines, electric machines, and hybrid electric vehicle battery packs at specific incremental technology steps. To address product complexity and economies of scale, engine resizing is limited to specific incremental technology changes that would typically be associated with a major vehicle or engine redesign. This is intended to reflect manufacturers' comments to DOT on how they consider engine resizing and product complexity, and DOT's observations on industry product complexity. A detailed discussion on powertrain sizing can be found in TSD Chapter 2.4 and in the Autonomie model documentation.

After all vehicle class and technology combination models have been built, Autonomie simulates the vehicles' performance on test cycles to calculate the effectiveness improvement of adding fuel-economy-improving technologies to the vehicle. Simulating vehicles' performance using tests and procedures specified by Federal law and regulations minimizes the potential variation in determining technology effectiveness.

For vehicles with conventional powertrains and micro hybrids, Autonomie simulates the vehicles per EPA 2-cycle test procedures and guidelines.⁷⁵ For mild and full hybrid electric vehicles and FCVs, Autonomie simulates the vehicles using the same EPA 2-cycle test procedure and guidelines, and the drive cycles are repeated until the initial and final state of charge are within a SAE J1711 tolerance. For PHEVs, Autonomie simulates vehicles per similar

procedures and guidelines as prescribed in SAE J1711.⁷⁶ For BEVs Autonomie simulates vehicles per similar procedures and guidelines as prescribed in SAE J1634.⁷⁷

(b) Performance Neutrality

The purpose of the CAFE analysis is to examine the impact of technology application that can improve fuel economy. When the fuel economy-improving technology is applied, often the manufacturer must choose how the technology will affect the vehicle. The advantages of the new technology can either be completely applied to improving fuel economy or be used to increase vehicle performance while maintaining the existing fuel economy, or some mix of the two effects. Historically, vehicle performance has improved over the years as more technology is applied to the fleet. The average horsepower is the highest that it has ever been; all vehicle types have improved horsepower by at least 42 percent compared to the 1978 model year, and pickup trucks have improved by 48 percent.⁷⁸ Fuel economy has also improved, but the horsepower and acceleration trends show that not 100 percent of technological improvements have been applied to fuel savings. While future trends are uncertain, the past trends suggest vehicle performance is unlikely to *decrease*, as it seems reasonable to assume that customers will, at a minimum, demand vehicles that offer the same utility as today's fleet.

For this rulemaking analysis, DOT analyzed technology pathways manufacturers could use for compliance that attempt to maintain vehicle attributes, utility, and performance. Using this approach allows DOT to assess the costs and benefits of potential standards under a scenario where consumers continue to get the similar vehicle attributes and features, other than changes in fuel economy. The purpose of constraining vehicle attributes is to simplify the analysis and reduce variance in other attributes that consumers may value across the analyzed regulatory alternatives. This allows for a streamlined accounting of costs and benefits by not requiring the

⁷⁶ PHEV testing is broken into several phases based on SAE J1711: Charge-sustaining on the city cycle and HWFET cycle, and charge-depleting on the city and HWFET cycles.

⁷⁷ SAE J1634. "Battery Electric Vehicle Energy Consumption and Range Test Procedure." July 12, 2017.

⁷⁸ "The 2020 EPA Automotive Trends Report, Greenhouse Gas Emissions, Fuel Economy, and Technology since 1975," EPA-420-R-21-003, January 2021 [hereinafter 2020 EPA Automotive Trends Report].

values of other vehicle attributes that trade off with fuel economy.

To confirm minimal differences in performance metrics across regulatory alternatives, DOT analyzed the sales-weighted average 0–60 mph acceleration performance of the entire simulated vehicle fleet for MYs 2020 and 2029. The analysis compared performance under the baseline standards and preferred alternative. This analysis identified that the analysis fleet under no action standards in MY 2029 had a 0.77 percent worse 0–60 mph acceleration time than under the preferred alternative, indicating there is minimal difference in performance between the alternatives. This assessment shows that for this analysis, the performance difference is minimal across regulatory alternatives and across the simulated model years, which allows for fair, direct comparison among the alternatives. Further details about this assessment can be found in TSD Chapter 2.4.5.

(c) Implementation in the CAFE Model

The CAFE Model uses two elements of information from the large amount of data generated by the Autonomie simulation runs: Battery costs, and fuel consumption on the city and highway cycles. DOT combines the fuel economy information from the two cycles to produce a composite fuel economy for each vehicle, and for each fuel used in dual fuel vehicles. The fuel economy information for each simulation run is converted into a single value for use in the CAFE Model.

In addition to the technologies in the Autonomie simulation, the CAFE Model also incorporated a handful of technologies not explicitly simulated in Autonomie. These technologies' performance either could not be captured on the 2-cycle test, or there was no robust data usable as an input for full-vehicle modeling and simulation. The specific technologies are discussed in the individual technology sections below and in TSD Chapter 3. To calculate fuel economy improvements attributable to these additional technologies, estimates of fuel consumption improvement factors were developed and scale multiplicatively when applied together. See TSD Chapter 3 for a complete discussion on how these factors were developed. The Autonomie-simulated results and additional technologies are combined, forming a single dataset used by the CAFE Model.

Each line in the CAFE Model dataset represents a unique combination of technologies. DOT organizes the records using a unique technology state vector,

⁷⁴ See Autonomie model documentation, Chapter 5.2.10 Electric Machines System Weight.

⁷⁵ 40 CFR part 600.

or technology key (tech key), that describes the technology content associated with each unique record. The modeled 2-cycle fuel economy (miles per gallon) of each combination is converted into fuel consumption (gallons per mile) and then normalized relative to a baseline tech key. The improvement factors used by the model are a given combination's fuel consumption improvement relative to the baseline tech key in its technology class.

The tech key format was developed by recognizing that most of the technology pathways are unrelated and are only logically linked to designate the direction in which technologies are allowed to progress. As a result, it is possible to condense the paths into groups based on the specific technology. These groups are used to define the technology vector, or tech key. The following technology groups defined the tech key: Engine cam configuration (CONFIG), VVT engine technology (VVT), VVL engine technology (VVL), SGDI engine technology (SGDI), DEAC engine technology (DEAC), non-basic engine technologies (ADVENG), transmission technologies (TRANS), electrification and hybridization (ELEC), low rolling resistance tires (ROLL), aerodynamic improvements (AERO), mass reduction levels (MR), EFR engine technology (EFR), electric accessory improvement technologies (ELECACC), LDB technology (LDB), and SAX technology (SAX). This summarizes to a tech key with the following fields: CONFIG; VVT; VVL; SGDI; DEAC; ADVENG; TRANS; ELEC; ROLL; AERO; MR; EFR; ELECACC; LDB; SAX. It should be noted that some of the fields may be blank for some tech key combinations. These fields will be left visible for the examples below, but blank fields may be omitted from tech keys shown elsewhere in the documentation.

As an example, a technology state vector describing a vehicle with a SOHC engine, variable valve timing (only), a 6-speed automatic transmission, a belt-integrated starter generator, rolling resistance (level 1), aerodynamic improvements (level 2), mass reduction (level 1), electric power steering, and low drag brakes, would be specified as "SOHC; VVT; ; ; ; AT6; BISG; ROLL10; AERO20; MR1; ; EPS; LDB ; ." ⁷⁹

⁷⁹In the example tech key, the series of semicolons between VVT and AT6 correspond to the engine technologies which are not included as part of the combination, while the gap between MR1 and EPS corresponds to EFR and the omitted technology after LDB is SAX. The extra semicolons for omitted technologies are preserved in this

Once a vehicle is assigned (or mapped) to an appropriate tech key, adding a new technology to the vehicle simply represents progress from a previous tech key to a new tech key. The previous tech key refers to the technologies that are currently in use on a vehicle. The new tech key is determined, in the simulation, by adding a new technology to the combination represented by the previous state vector while simultaneously removing any technologies that are superseded by the newly added one.

For example, start with a vehicle with the tech key: SOHC; VVT; AT6; BISG; ROLL10; AERO20; MR1; EPS; LDB. Assume the simulation is evaluating PHEV20 as a candidate technology for application on this vehicle. The new tech key for this vehicle is computed by removing SOHC, VVT, AT6, and BISG technologies from the previous state vector,⁸⁰ and adding PHEV20, resulting a tech key that looks like this: PHEV20; ROLL10; AERO20; MR1; EPS; LDB.

From here, the simulation obtains a fuel economy improvement factor for the new combination of technologies and applies that factor to the fuel economy of a vehicle in the analysis fleet. The resulting improvement is applied to the original compliance fuel economy value for a discrete vehicle in the MY 2020 analysis fleet.

5. Defining Technology Adoption in the Rulemaking Timeframe

As discussed in Section III.C.2, starting with a fixed analysis fleet (for this analysis, the model year 2020 fleet indicated in manufacturers' early CAFE compliance data), the CAFE Model estimates ways each manufacturer could potentially apply specific fuel-saving technologies to specific vehicle model/configurations in response to, among other things (such as fuel prices), CAFE standards, CO₂ standards, commitments some manufacturers have made to CARB's "Framework Agreement", and ZEV mandates imposed by California and several other States. The CAFE Model follows a year-by-year approach to simulating manufacturers' potential decisions to apply technology, accounting for multiyear planning within the context of estimated schedules for future vehicle redesigns and refreshes during which significant technology changes may most practicably be implemented.

example for clarity and emphasis and will not be included in future examples.

⁸⁰For more discussion of how the CAFE Model handles technology supersession, see S4.5 of the CAFE Model Documentation.

The modeled technology adoption for each manufacturer under each regulatory alternative depends on this representation of multiyear planning, and on a range of other factors represented by other model characteristics and inputs, such as the logical progression of technologies defined by the model's technology pathways; the technologies already present in the analysis fleet; inputs directing the model to "skip" specific technologies for specific vehicle model/configurations in the analysis fleet (e.g., because secondary axle disconnect cannot be applied to 2-wheel-drive vehicles, and because manufacturers already heavily invested in engine turbocharging and downsizing are unlikely to abandon this approach in favor of using high compression ratios); inputs defining the sharing of engines, transmissions, and vehicle platforms in the analysis fleet; the model's logical approach to preserving this sharing; inputs defining each regulatory alternative's specific requirements; inputs defining expected future fuel prices, annual mileage accumulation, and valuation of avoided fuel consumption; and inputs defining the estimated efficacy and future cost (accounting for projected future "learning" effects) of included technologies; inputs controlling the maximum pace the simulation is to "phase in" each technology; and inputs further defining the availability of each technology to specific technology classes.

Two of these inputs—the "phase-in cap" and the "phase-in start year"—apply to the manufacturer's entire estimated production and, for each technology, define a share of production in each model year that, once exceeded, will stop the model from further applying that technology to that manufacturer's fleet in that model year. The influence of these inputs varies with regulatory stringency and other model inputs. For example, setting the inputs to allow immediate 100% penetration of a technology will not guarantee any application of the technology if stringency increases are low and the technology is not at all cost effective. Also, even if these are set to allow only very slow adoption of a technology, other model aspects and inputs may nevertheless force more rapid application than these inputs, alone, would suggest (e.g., because an engine technology propagates quickly due to sharing across multiple vehicles, or because BEV application must increase quickly in response to ZEV requirements). For this analysis, nearly

all of these inputs are set at levels that do not limit the simulation at all.

As discussed below, for the most advanced engines (advanced cylinder deactivation, variable compression ratio, variable turbocharger geometry, and turbocharging with cylinder deactivation), DOT has specified phase-in caps and phase-in start years that limit the pace at which the analysis shows the technology being adopted in the rulemaking timeframe. For example, this analysis applies a 34% phase-in cap and MY 2019 phase-in start year for advanced cylinder deactivation (ADEAC), meaning that in MY 2021 (using a MY 2020 fleet, the analysis begins simulating further technology application in MY 2021), the model will stop adding ADEAC to a manufacturer's MY 2021 fleet once ADEAC reaches more than 68% penetration, because $34\% \times (2021 - 2019) = 34\% \times 2 = 68\%$.

This analysis also applies phase-in caps and corresponding start years to prevent the simulation from showing inconceivable rates of applying battery-electric vehicles (BEVs), such as showing that a manufacturer producing very few BEVs in MY 2020 could plausibly replace every product with a 300- or 400-mile BEV by MY 2025. Also, as discussed in Section III.D.4, this analysis applies phase-in caps and corresponding start years intended to ensure that the simulation's plausible application of the highest included levels of mass reduction (20% and 28.2% reductions of vehicle "glider" weight) do not, for example, outpace plausible supply of raw materials and development of entirely new manufacturing facilities.

These model logical structures and inputs act together to produce estimates of ways each manufacturer could potentially shift to new fuel-saving technologies over time, reflecting some measure of protection against rates of change not reflected in, for example, technology cost inputs. This does not mean that every modeled solution would necessarily be economically practicable. Using technology adoption features like phase-in caps and phase-in start years is one mechanism that can be used so that the analysis better represents the potential costs and benefits of technology application in the rulemaking timeframe.

6. Technology Costs

DOT estimates present and future costs for fuel-saving technologies taking into consideration the type of vehicle, or type of engine if technology costs vary by application. These cost estimates are based on three main inputs. First, direct manufacturing costs (DMCs), or the

component and labor costs of producing and assembling the physical parts and systems, are estimated assuming high volume production. DMCs generally do not include the indirect costs of tools, capital equipment, financing costs, engineering, sales, administrative support or return on investment. DOT accounts for these indirect costs via a scalar markup of direct manufacturing costs (the retail price equivalent, or RPE). Finally, costs for technologies may change over time as industry streamlines design and manufacturing processes. To reflect this, DOT estimates potential cost improvements with learning effects (LE). The retail cost of equipment in any future year is estimated to be equal to the product of the DMC, RPE, and LE. Considering the retail cost of equipment, instead of merely direct manufacturing costs, is important to account for the real-world price effects of a technology, as well as market realities. Absent a Government mandate, motor vehicle manufacturers will not undertake expensive development and production efforts to implement technologies without realistic prospects of consumers being willing to pay enough for such technology to allow for the manufacturers to recover their investment.

(a) Direct Manufacturing Costs

Direct manufacturing costs (DMCs) are the component and assembly costs of the physical parts and systems that make up a complete vehicle. The analysis used agency-sponsored tear-down studies of vehicles and parts to estimate the DMCs of individual technologies, in addition to independent tear-down studies, other publications, and confidential business information. In the simplest cases, the agency-sponsored studies produced results that confirmed third-party industry estimates and aligned with confidential information provided by manufacturers and suppliers. In cases with a large difference between the tear-down study results and credible independent sources, DOT scrutinized the study assumptions, and sometimes revised or updated the analysis accordingly.

Due to the variety of technologies and their applications, and the cost and time required to conduct detailed tear-down analyses, the agency did not sponsor teardown studies for every technology. In addition, some fuel-saving technologies were considered that are pre-production or are sold in very small pilot volumes. For those technologies, DOT could not conduct a tear-down study to assess costs because the

product is not yet in the marketplace for evaluation. In these cases, DOT relied upon third-party estimates and confidential information from suppliers and manufacturers; however, there are some common pitfalls with relying on confidential business information to estimate costs. The agency and the source may have had incongruent or incompatible definitions of "baseline." The source may have provided DMCs at a date many years in the future, and assumed very high production volumes, important caveats to consider for agency analysis. In addition, a source, under no contractual obligation to DOT, may provide incomplete and/or misleading information. In other cases, intellectual property considerations and strategic business partnerships may have contributed to a manufacturer's cost information and could be difficult to account for in the CAFE Model as not all manufacturers may have access to proprietary technologies at stated costs. The agency carefully evaluates new information in light of these common pitfalls, especially regarding emerging technologies.

While costs for fuel-saving technologies reflect the best estimates available today, technology cost estimates will likely change in the future as technologies are deployed and as production is expanded. For emerging technologies, DOT uses the best information available at the time of the analysis and will continue to update cost assumptions for any future analysis. The discussion of each category of technologies in Section III.D (e.g., engines, transmissions, electrification) and corresponding TSD Chapter 3 summarizes the specific cost estimates DOT applied for this analysis.

(b) Indirect Costs (Retail Price Equivalent)

As discussed above, direct costs represent the cost associated with acquiring raw materials, fabricating parts, and assembling vehicles with the various technologies manufacturers are expected to use to meet future CAFE standards. They include materials, labor, and variable energy costs required to produce and assemble the vehicle. However, they do not include overhead costs required to develop and produce the vehicle, costs incurred by manufacturers or dealers to sell vehicles, or the profit manufacturers and dealers make from their investments. All of these items contribute to the price consumers ultimately pay for the vehicle. These components of retail prices are illustrated in Table III-3 below.

Table III-3 – Retail Price Components

Direct Costs	
Manufacturing Cost	Cost of materials, labor, and variable energy needed for production
Indirect Costs	
Production Overhead	
Warranty	Cost of providing product warranty
Research and Development	Cost of developing and engineering the product
Depreciation and amortization	Depreciation and amortization of manufacturing facilities and equipment
Maintenance, repair, operations	Cost of maintaining and operating manufacturing facilities and equipment
Corporate Overhead	
General and Administrative	Salaries of nonmanufacturing labor, operations of corporate offices, etc.
Retirement	Cost of pensions for nonmanufacturing labor
Health Care	Cost of health care for nonmanufacturing labor
Selling Costs	
Transportation	Cost of transporting manufactured goods
Marketing	Manufacturer costs of advertising manufactured goods
Dealer Costs	
Dealer selling expense	Dealer selling and advertising expense
Dealer profit	Net Income to dealers from sales of new vehicles
Net income	Net income to manufacturers from production and sales of new vehicles

To estimate the impact of higher vehicle prices on consumers, both direct and indirect costs must be considered. To estimate total consumer costs, DOT multiplies direct manufacturing costs by an indirect cost factor to represent the average price for fuel-saving technologies at retail.

Historically, the method most commonly used to estimate indirect costs of producing a motor vehicle has been the retail price equivalent (RPE). The RPE markup factor is based on an examination of historical financial data contained in 10-K reports filed by manufacturers with the Securities and Exchange Commission (SEC). It represents the ratio between the retail price of motor vehicles and the direct

costs of all activities that manufacturers engage in.

Figure III-4 indicates that for more than three decades, the retail price of motor vehicles has been, on average, roughly 50 percent above the direct cost expenditures of manufacturers. This ratio has been remarkably consistent, averaging roughly 1.5 with minor variations from year to year over this period. At no point has the RPE markup exceeded 1.6 or fallen below 1.4.⁸¹ During this time frame, the average annual increase in real direct costs was 2.5 percent, and the average annual increase in real indirect costs was also 2.5 percent. Figure III-4 illustrates the historical relationship between retail prices and direct manufacturing costs.⁸²

An RPE of 1.5 does not imply that manufacturers automatically mark up each vehicle by exactly 50 percent. Rather, it means that, over time, the competitive marketplace has resulted in pricing structures that average out to this relationship across the entire industry. Prices for any individual model may be marked up at a higher or lower rate depending on market demand. The consumer who buys a popular vehicle may, in effect, subsidize the installation of a new technology in a less marketable vehicle. But, on average, over time and across the vehicle fleet, the retail price paid by consumers has risen by about \$1.50 for each dollar of direct costs incurred by manufacturers.

⁸¹ Based on data from 1972–1997 and 2007. Data were not available for intervening years, but results for 2007 seem to indicate no significant change in the historical trend.

⁸² Rogozhin, A., Gallaher, M., & McManus, W., 2009, Automobile Industry Retail Price Equivalent

and Indirect Cost Multipliers. Report by RTI International to Office of Transportation Air Quality. U.S. Environmental Protection Agency, RTI Project Number 0211577.002.004, February, Research Triangle Park, NC.

Spinney, B.C., Faigin, B., Bowie, N., & St. Kratzke, 1999, Advanced Air Bag Systems Cost, Weight, and Lead Time analysis Summary Report, Contract NO. DTNH22–96–0–12003, Task Orders—001, 003, and 005. Washington, DC, U.S. Department of Transportation.

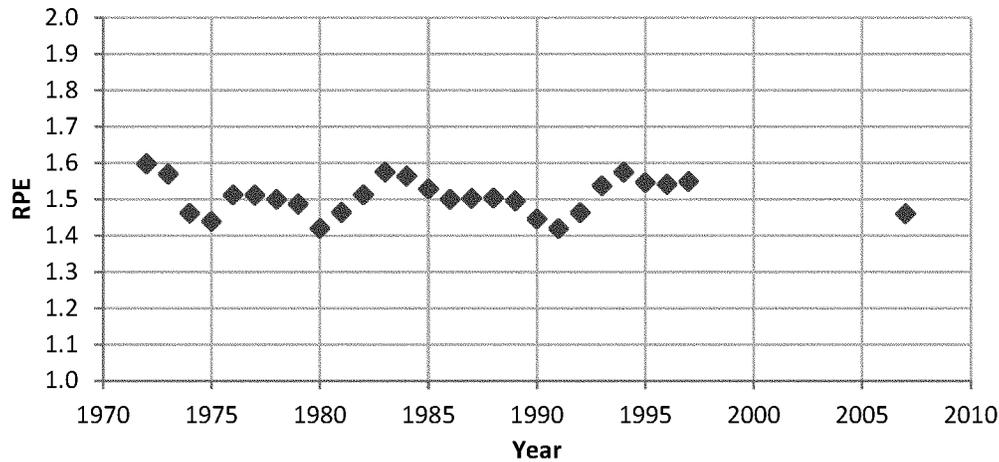


Figure III-4 – Historical Data for Retail Price Equivalent (RPE), 1972-1997 and 2007

It is also important to note that direct costs associated with any specific technology will change over time as some combination of learning and resource price changes occurs. Resource costs, such as the price of steel, can fluctuate over time and can experience real long-term trends in either direction, depending on supply and demand. However, the normal learning process generally reduces direct production costs as manufacturers refine production techniques and seek out less costly parts and materials for increasing production volumes. By contrast, this learning process does not generally influence indirect costs. The implied RPE for any given technology would thus be expected to grow over time as direct costs decline relative to indirect costs. The RPE for any given year is

based on direct costs of technologies at different stages in their learning cycles, and that may have different implied RPEs than they did in previous years. The RPE averages 1.5 across the lifetime of technologies of all ages, with a lower average in earlier years of a technology's life, and, because of learning effects on direct costs, a higher average in later years.

The RPE has been used in all NHTSA safety and most previous CAFE rulemakings to estimate costs. In 2011, the National Academy of Sciences recommended RPEs of 1.5 for suppliers and 2.0 for in-house production be used to estimate total costs.⁸³ The Alliance of Automobile Manufacturers also advocates these values as appropriate markup factors for estimating costs of technology changes.⁸⁴ In their 2015

report, the National Academy of Sciences recommend 1.5 as an overall RPE markup.⁸⁵ An RPE of 2.0 has also been adopted by a coalition of environmental and research groups (Northeast States Center for a Clean Air Future (NESCCAF), International Council on Clean Transportation (ICCT), Southwest Research Institute, and TIAX-LLC) in a report on reducing heavy truck emissions, and 2.0 is recommended by the U.S. Department of Energy for estimating the cost of hybrid-electric and automotive fuel cell costs (see Vyas et al. (2000) in Table III-4 below). Table III-4 below also lists other estimates of the RPE. Note that all RPE estimates vary between 1.4 and 2.0, with most in the 1.4 to 1.7 range.

Table III-4—Alternate Estimates of the RPE⁸⁶

⁸³ Effectiveness and Impact of Corporate Average Fuel Economy Standards, Washington, DC—The National Academies Press; NRC, 2011.

⁸⁴ Communication from Chris Nevers (Alliance) to Christopher Lieske (EPA) and James Tamm (NHTSA), <http://www.regulations.gov> Docket ID Nos. NHTSA-2018-0067; EPA-HQ-OAR-2018-0283, p.143.

⁸⁵ National Research Council 2015. Cost, Effectiveness, and Deployment of Fuel Economy Technologies for Light Duty Vehicles. Washington, DC: The National Academies Press. <https://doi.org/10.17226/21744> [hereinafter 2015 NAS report].

⁸⁶ Duleep, K.G. 2008 *Analysis of Technology Cost and Retail Price*. Presentation to Committee on

Assessment of Technologies for Improving Light Duty Vehicle Fuel Economy, January 25, Detroit, MI; Jack Faucett Associates, September 4, 1985. Update of EPA's Motor Vehicle Emission Control Equipment Retail Price Equivalent (RPE) Calculation Formula. Chevy Chase, MD—Jack Faucett Associates; McKinsey & Company, October 2003. Preface to the Auto Sector Cases. *New Horizons—Multinational Company Investment in Developing Economies*, San Francisco, CA.; NRC (National Research Council), 2002. Effectiveness and Impact of Corporate Average Fuel Economy Standards, Washington, DC—The National Academies Press; NRC, 2011. Assessment of Fuel Economy Technologies for Light Duty Vehicles.

Washington, DC—The National Academies Press; Cost, Effectiveness, and Deployment of Fuel Economy Technologies in Light Duty Vehicles. Washington, DC—The National Academies Press, 2015; Sierra Research, Inc., November 21, 2007, Study of Industry-Average Mark-Up Factors used to Estimate Changes in Retail Price Equivalent (RPE) for Automotive Fuel Economy and Emissions Control Systems, Sacramento, CA—Sierra Research, Inc.; Vyas, A. Santini, D., & Cuenca, R. 2000. Comparison of Indirect Cost Multipliers for Vehicle Manufacturing. Center for Transportation Research, Argonne National Laboratory, April. Argonne, Ill.

Table III-4 – Alternate Estimates of the RPE⁸⁶

Author and Year	Value, Comments
Jack Faucett Associates for EPA, 1985	1.26 initial value, later corrected to 1.7+ by Sierra research
Vyas et al., 2000	1.5 for outsourced, 2.0 for original equipment manufacturer (OEM), electric, and hybrid vehicles
NRC, 2002	1.4 (corrected to > by Duleep)
McKinsey and Company, 2003	1.7 based on European study
CARB, 2004	1.4 (derived using the JFA initial 1.26 value, not the corrected 1.7+ value)
Sierra Research for AAA, 2007	2.0 or >, based on Chrysler data
Duleep, 2008	1.4, 1.56, 1.7 based on integration complexity
NRC, NAS 2011	1.5 for Tier 1 supplier, 2.0 for OEM
NRC, NAS 2015	1.5 for OEM

The RPE has thus enjoyed widespread use and acceptance by a variety of governmental, academic, and industry organizations.

In past rulemakings, a second type of indirect cost multiplier has also been examined. Known as the “Indirect Cost Multiplier” (ICM) approach, ICMs were first examined alongside the RPE approach in the 2010 rulemaking regarding standards for MYs 2012–2016 (75 FR 25324, May 7, 2010). Both methods have been examined in subsequent rulemakings.

Consistent with the 2020 final rule, we continue to employ the RPE approach to account for indirect manufacturing costs. The RPE accounts for indirect costs like engineering, sales, and administrative support, as well as other overhead costs, business expenses, warranty costs, and return on capital considerations. A detailed discussion of indirect cost methods and the basis for our use of the RPE to reflect these costs is available in the Final Regulatory Impact Analysis (FRIA) for the 2020 final rule.⁸⁷

(c) Stranded Capital Costs

The idea behind stranded capital is that manufacturers amortize research, development, and tooling expenses over many years, especially for engines and transmissions. The traditional production life-cycles for transmissions and engines have been a decade or longer. If a manufacturer launches or updates a product with fuel-saving technology, and then later replaces that technology with an unrelated or different fuel-saving technology before the equipment and research and

development investments have been fully paid off, there will be unrecouped, or stranded, capital costs. Quantifying stranded capital costs accounts for such lost investments.

As DOT has observed previously, manufacturers may be shifting their investment strategies in ways that may alter how stranded capital could be considered. For example, some suppliers sell similar transmissions to multiple manufacturers. Such arrangements allow manufacturers to share in capital expenditures or amortize expenses more quickly. Manufacturers share parts on vehicles around the globe, achieving greater scale and greatly affecting tooling strategies and costs.

As a proxy for stranded capital in recent CAFE analyses, the CAFE Model has accounted for platform and engine sharing and includes redesign and refresh cycles for significant and less significant vehicle updates. This analysis continues to rely on the CAFE Model’s explicit year-by-year accounting for estimated refresh and redesign cycles, and shared vehicle platforms and engines, to moderate the cadence of technology adoption and thereby limit the implied occurrence of stranded capital and the need to account for it explicitly. In addition, confining some manufacturers to specific advanced technology pathways through technology adoption features acts as a proxy to indirectly account for stranded capital. Adoption features specific to each technology, if applied on a manufacturer-by-manufacturer basis, are discussed in each technology section. The agency will monitor these trends to assess the role of stranded capital moving forward.

(d) Cost Learning

Manufacturers make improvements to production processes over time, which often result in lower costs. “Cost learning” reflects the effect of experience and volume on the cost of production, which generally results in better utilization of resources, leading to higher and more efficient production. As manufacturers gain experience through production, they refine production techniques, raw material and component sources, and assembly methods to maximize efficiency and reduce production costs. Typically, a representation of this cost learning, or learning curves, reflects initial learning rates that are relatively high, followed by slower learning as additional improvements are made and production efficiency peaks. This eventually produces an asymptotic shape to the learning curve, as small percent decreases are applied to gradually declining cost levels. These learning curve estimates are applied to various technologies that are used to meet CAFE standards.

We estimate cost learning by considering methods established by T.P. Wright and later expanded upon by J.R. Crawford.^{88 89} Wright, examining aircraft production, found that every doubling of cumulative production of airplanes resulted in decreasing labor hours at a fixed percentage. This fixed percentage is commonly referred to as the progress rate or progress ratio, where a lower rate implies faster learning as cumulative

⁸⁸ Wright, T.P., Factors Affecting the Cost of Airplanes. *Journal of Aeronautical Sciences*, Vol. 3 (1936), at 124–25. Available at <http://www.uvm.edu/pdodds/research/papers/others/1936/wright1936a.pdf>.

⁸⁹ Crawford, J.R., *Learning Curve, Ship Curve, Ratios, Related Data*, Burbank, California-Lockheed Aircraft Corporation (1944).

⁸⁷ Final Regulatory Impact Analysis, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Year 2021–2026 Passenger Cars and Light Trucks, USDOT, EPA, March 2020, at 354–76.

production increases. J.R. Crawford expanded upon Wright’s learning curve theory to develop a single unit cost model, that estimates the cost of the *n*th unit produced given the following information is known: (1) Cost to produce the first unit; (2) cumulative production of *n* units; and (3) the progress ratio.

As pictured in Figure III–5, Wright’s learning curve shows the first unit is produced at a cost of \$1,000. Initially cost per unit falls rapidly for each successive unit produced. However, as production continues, cost falls more gradually at a decreasing rate. For each doubling of cumulative production at any level, cost per unit declines 20

percent, so that 80 percent of cost is retained. The CAFE Model uses the basic approach by Wright, where cost reduction is estimated by applying a fixed percentage to the projected cumulative production of a given fuel economy technology.

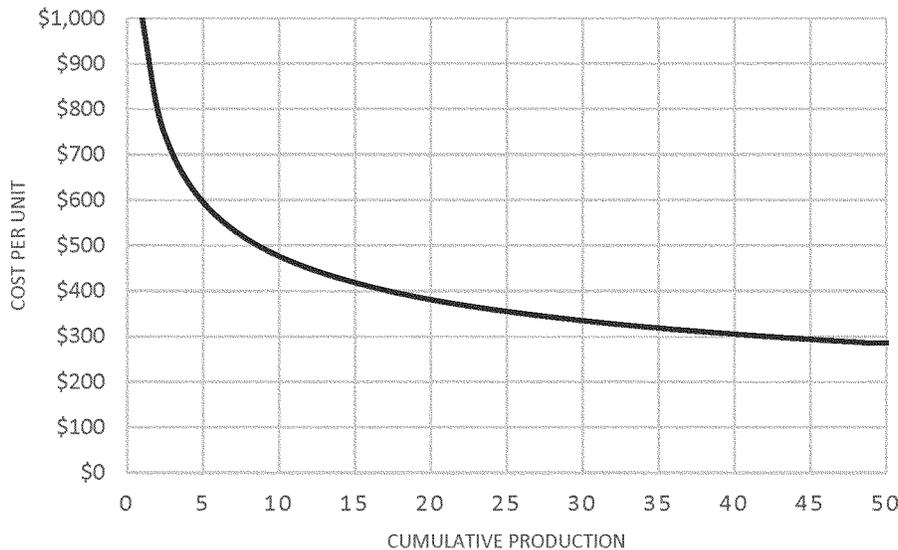


Figure III-5 – Wright’s Learning Curve (Progress Ratio = 0.8)

The analysis accounts for learning effects with model year-based cost learning forecasts for each technology that reduces direct manufacturing costs over time. We evaluate the historical use of technologies, and reviews industry forecasts to estimate future volumes to develop the model year-based technology cost learning curves.

The following section discusses the development of model year-based cost learning forecasts for this analysis, including how the approach has evolved from the 2012 rulemaking for MY 2017–2025 vehicles, and how the progress ratios were developed for different technologies considered in the analysis. Finally, we discuss how these learning effects are applied in the CAFE Model.

(1) Time Versus Volume-Based Learning

For the 2012 joint CAFE and GHG rulemaking, DOT developed learning curves as a function of vehicle model year.⁹⁰ Although the concept of this methodology is derived from Wright’s cumulative production volume-based learning curve, its application for CAFE technologies was more of a function of time. More than a dozen learning curve schedules were developed, varying

between fast and slow learning, and assigned to each technology corresponding to its level of complexity and maturity. The schedules were applied to the base year of direct manufacturing cost and incorporate a percentage of cost reduction by model year, declining at a decreasing rate through the technology’s production life. Some newer technologies experience 20 percent cost reductions for introductory model years, while mature or less complex technologies experience 0–3 percent cost reductions over a few years.

In their 2015 report to Congress, the National Academy of Sciences (NAS) recommended NHTSA should “continue to conduct and review empirical evidence for the cost reductions that occur in the automobile industry with volume, especially for large-volume technologies that will be relied on to meet the CAFE/GHG standards.”⁹¹

In response, we incorporated statically projected cumulative volume production data of fuel economy-

improving technologies, representing an improvement over the previously used time-based method. Dynamic projections of cumulative production are not feasible with current CAFE Model capabilities, so one set of projected cumulative production data for most vehicle technologies was developed for the purpose of determining cost impact. We obtained historical cumulative production data for many technologies produced and/or sold in the U.S. to establish a starting point for learning schedules. Groups of similar technologies or technologies of similar complexity may share identical learning schedules.

The slope of the learning curve, which determines the rate at which cost reductions occur, has been estimated using research from an extensive literature review and automotive cost tear-down reports (see below). The slope of the learning curve is derived from the progress ratio of manufacturing automotive and other mobile source technologies.

(2) Deriving the Progress Ratio Used in This Analysis

Learning curves vary among different types of manufactured products. Progress ratios can range from 70 to 100

⁹⁰ 77 FR 62624 (Oct. 15, 2012).

⁹¹ National Research Council 2015. Cost, Effectiveness, and Deployment of Fuel Economy Technologies for Light-Duty Vehicles. Washington, DC: The National Academies Press. <https://doi.org/10.17226/21744>.

percent, where 100 percent indicates no learning can be achieved.⁹² Learning effects tend to be greatest in operations where workers often touch the product, while effects are less substantial in operations consisting of more automated processes. As automotive manufacturing plant processes become increasingly automated, a progress ratio towards the higher end would seem more suitable. We incorporated findings from automotive cost-teardown studies with EPA's 2015 literature review of learning-related studies to estimate a progress ratio used to determine learning schedules of fuel economy-improving technologies.

EPA's literature review examined and summarized 20 studies related to

learning in manufacturing industries and mobile source manufacturing.⁹³ The studies focused on many industries, including motor vehicles, ships, aviation, semiconductors, and environmental energy. Based on several criteria, EPA selected five studies providing quantitative analysis from the mobile source sector (progress ratio estimates from each study are summarized in Table III-5, below). Further, those studies expand on Wright's learning curve function by using cumulative output as a predictor variable, and unit cost as the response variable. As a result, EPA determined a best estimate of 84 percent as the progress ratio in mobile source industries. However, of those five

studies, EPA at the time placed less weight on the Epple et al. (1991) study, because of a disruption in learning due to incomplete knowledge transfer from the first shift to introduction of a second shift at a North American truck plant. While learning may have decelerated immediately after adding a second shift, we note that unit costs continued to fall as the organization gained experience operating with both shifts. We recognize that disruptions are an essential part of the learning process and should not, in and of themselves, be discredited. For this reason, the analysis uses a re-estimated average progress ratio of 85 percent from those five studies (equally weighted).

Table III-5 – Progress Ratios from EPA's Literature Review

Author (Publication Date)	Industry	Progress Ratio (Cumulative Output Approach)
Argote et al. (1997) ⁹⁴	Trucks	85%
Benkard (2000) ⁹⁵	Aircraft (commercial)	82%
Epple et al. (1991) ⁹⁶	Trucks	90%
Epple et al. (1996) ⁹⁷	Trucks	85%
Levitt et al. (2013) ⁹⁸	Automobiles	82%

In addition to EPA's literature review, this progress ratio estimate was informed based on findings from automotive cost-teardown studies. NHTSA routinely performs evaluations of costs of previously issued Federal Motor Vehicle Safety Standards (FMVSS) for new motor vehicles and equipment. NHTSA engages contractors to perform detailed engineering "tear-down" analyses for representative

samples of vehicles, to estimate how much specific FMVSS add to the weight and retail price of a vehicle. As part of the effort, the agency examines cost and production volume for automotive safety technologies. In particular, we estimated costs from multiple cost tear-down studies for technologies with actual production data from the *Cost and weight added by the Federal Motor*

Vehicle Safety Standards for MY 1968–2012 passenger cars and LTVs (2017).⁹⁹

We chose five vehicle safety technologies with sufficient data to estimate progress ratios of each, because these technologies are large-volume technologies and are used by almost all vehicle manufacturers. Table III-6 includes these five technologies and yields an average progress rate of 92 percent.

⁹² Martin, J., "What is a Learning Curve?" Management and Accounting Web, University of South Florida, available at: <https://www.maaw.info/LearningCurveSummary.htm>.

⁹³ *Cost Reduction through Learning in Manufacturing Industries and in the Manufacture of Mobile Sources*, United States Environmental Protection Agency (2015). Prepared by ICF International and available at <https://19january2017snapshot.epa.gov/sites/production/files/2016-11/documents/420r16018.pdf>.

⁹⁴ Argote, L., Epple, D., Rao, R. D., & Murphy, K., *The acquisition and depreciation of knowledge in a manufacturing organization—Turnover and plant*

productivity, Working paper, Graduate School of Industrial Administration, Carnegie Mellon University (1997).

⁹⁵ Benkard, C. L., *Learning and Forgetting—The Dynamics of Aircraft Production*, *The American Economic Review*, Vol. 90(4), at 1034–54 (2000).

⁹⁶ Epple, D., Argote, L., & Devadas, R., *Organizational Learning Curves—A Method for Investigating Intra-Plant Transfer of Knowledge Acquired through Learning by Doing*, *Organization Science*, Vol. 2(1), at 58–70 (1991).

⁹⁷ Epple, D., Argote, L., & Murphy, K., *An Empirical Investigation of the Microstructure of*

Knowledge Acquisition and Transfer through Learning by Doing, *Operations Research*, Vol. 44(1), at 77–86 (1996).

⁹⁸ Levitt, S. D., List, J. A., & Syverson, C., *Toward an Understanding of Learning by Doing—Evidence from an Automobile Assembly Plant*, *Journal of Political Economy*, Vol. 121 (4), at 643–81 (2013).

⁹⁹ Simons, J. F., *Cost and weight added by the Federal Motor Vehicle Safety Standards for MY 1968–2012 Passenger Cars and LTVs* (Report No. DOT HS 812 354). Washington, DC—National Highway Traffic Safety Administration (November 2017), at 30–33.

Table III-6 – Progress Ratios Researched by NHTSA

Technology	Progress Ratio
Anti-lock Brake Systems	87%
Driver Airbags	93%
Manual 3-pt lap shoulder safety belts	96%
Adjustable Head Restraints	91%
Dual Master Cylinder	95%

For the final progress ratio used in the CAFE Model, the five progress rates from EPA's literature review and five progress rates from NHTSA's evaluation of automotive safety technologies results were averaged. This resulted in an average progress rate of approximately 89 percent. We placed equal weight on progress ratios from all 10 sources. More specifically, we placed equal weight on the *Epple et al. (1991)* study, because disruptions have more recently been recognized as an essential part in the learning process, especially in an effort to increase the rate of output.

(3) Obtaining Appropriate Baseline Years for Direct Manufacturing Costs

DOT obtained direct manufacturing costs for each fuel economy-improving technology from various sources, as discussed above. To establish a consistent basis for direct manufacturing costs in the rulemaking analysis, we adjusted each technology cost to MY 2018 dollars. For each technology, the DMC is associated with a specific model year, and sometimes a specific production volume, or cumulative production volume. The base model year is established as the MY in which direct manufacturing costs were assessed (with learning factor of 1.00). With the aforementioned data on cumulative production volume for each technology and the assumption of a 0.89 progress ratio for all automotive technologies, we can solve for an implied cost for the first unit produced. For some technologies, we used modestly different progress ratios to match detailed cost projections if available from another source (for instance, batteries for plug-in hybrids and battery electric vehicles).

This approach produces reasonable estimates for technologies already in production, and some additional steps are required to set appropriate learning rates for technologies not yet in production. Specifically, for technologies not yet in production in MY 2017, the cumulative production volume in MY 2017 is zero, because

manufacturers have not yet produced the technologies. For pre-production cost estimates in previous CAFE rulemakings, we often relied on confidential business information sources to predict future costs. Many sources for pre-production cost estimates include significant learning effects, often providing cost estimates assuming high volume production, and often for a timeframe late in the first production generation or early in the second generation of the technology. Rapid doubling and re-doubling of a low cumulative volume base with Wright's learning curves can provide unrealistic cost estimates. In addition, direct manufacturing cost projections can vary depending on the initial production volume assumed. Accordingly, we carefully examined direct costs with learning, and made adjustments to the starting point for those technologies on the learning curve to better align with the assumptions used for the initial direct cost estimate.

(4) Cost Learning Applied in the CAFE Model

For this analysis, we applied learning effects to the incremental cost over the null technology state on the applicable technology tree. After this step, we calculated year-by-year incremental costs over preceding technologies on the tech tree to create the CAFE Model inputs.¹⁰⁰ The shift from incremental cost accounting to absolute cost accounting in recent CAFE analyses made cost inputs more transparently relatable to detailed model output, and relevant to this discussion, made it easier to apply learning curves in the course of developing inputs to the CAFE Model.

We grouped certain technologies, such as advanced engines, advanced transmissions, and non-battery electric components and assigned them to the same learning schedule. While these grouped technologies differ in operating

¹⁰⁰ These costs are located in the CAFE Model Technologies file.

characteristics and design, we chose to group them based on their complexity, technology integration, and economies of scale across manufacturers. The low volume of certain advanced technologies, such as hybrid and electric technologies, poses a significant issue for suppliers and prevents them from producing components needed for advanced transmissions and other technologies at more efficient high scale production. The technology groupings consider market availability, complexity of technology integration, and production volume of the technologies that can be implemented by manufacturers and suppliers. For example, technologies like ADEAC and VCR are grouped together; these technologies were not in production or were only in limited introduction in MY 2017 and are planned to be introduced in limited production by a few manufacturers. The details of these technologies are discussed in Section III.D.

In addition, we expanded model inputs to extend the explicit simulation of technology application through MY 2050. Accordingly, we updated the learning curves for each technology group to cover MYs through 2050. For MYs 2017–2032, we expect incremental improvements in all technologies, particularly in electrification technologies because of increased production volumes, labor efficiency, improved manufacturing methods, specialization, network building, and other factors. While these and other factors contribute to continual cost learning, we believe that many fuel economy-improving technologies considered in this rule will approach a flat learning level by the early 2030s. Specifically, older and less complex internal combustion engine technologies and transmissions will reach a flat learning curve sooner when compared to electrification technologies, which have more opportunity for improvement. For batteries and non-battery electrification components, we estimated a steeper learning curve that

will gradually flatten after MY 2040. For a more detailed discussion of the electrification learning curves, see Section III.D.3.

Each technology in the CAFE Model is assigned a learning schedule developed from the methodology explained previously. For example, the following chart shows learning rates for several technologies applicable to midsize sedans, demonstrating that while we estimate that such learning effects have already been almost entirely realized for engine turbocharging (a

technology that has been in production for many years), we estimate that significant opportunities to reduce the cost of the greatest levels of mass reduction (e.g., MR5) remain, and even greater opportunities remain to reduce the cost of batteries for HEVs, PHEVs, BEVs. In fact, for certain advanced technologies, we determined that the results predicted by the standard learning curves progress ratio was not realistic, based on unusual market price and production relationships. For these

technologies, we developed specific learning estimates that may diverge from the 0.89 progress rate. As shown in Figure III-6, these technologies include: turbocharging and downsizing level 1 (TURBO1), variable turbo geometry electric (VTGE), aerodynamic drag reduction by 15 percent (AERO15), mass reduction level 5 (MR5), 20 percent improvement in low-rolling resistance tire technology (ROLL20) over the baseline, and battery integrated starter/generator (BISG).

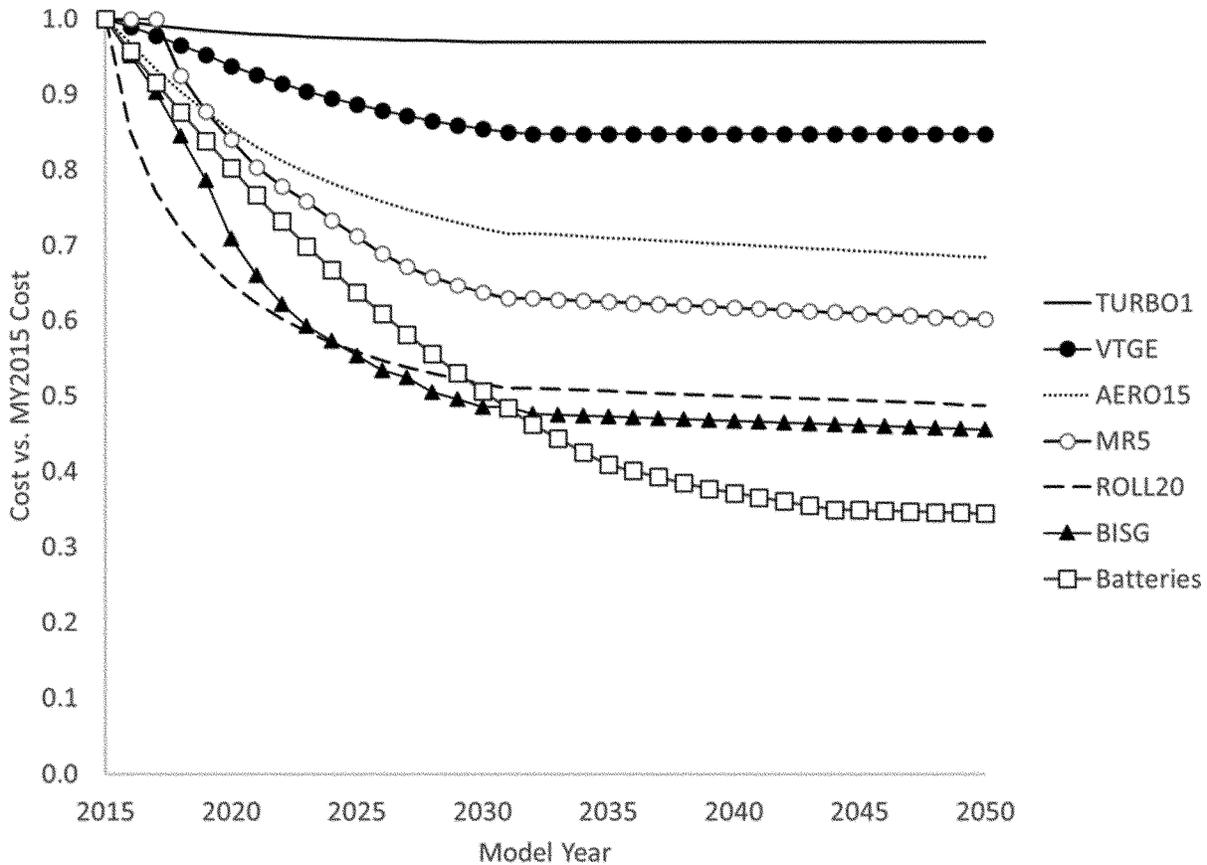


Figure III-6 – Examples of Year-by-Year Cost Learning Effects (Midsize Sedan)

(e) Cost Accounting

To facilitate specification of detailed model inputs and review of detailed model outputs, the CAFE Model continues to use absolute cost inputs relative to a known base component cost, such that the estimated cost of each technology is specified relative to a common reference point for the relevant technology pathway. For example, the cost of a 7-speed transmission is specified relative to a 5-speed transmission, as is the cost of every other transmission technology.

Conversely, in some earlier versions of the CAFE Model, *incremental cost* inputs were estimated relative to the technology immediately preceding on the relevant technology pathway. For our 7-speed transmission example, the incremental cost would be relative to a 6-speed transmission. This change in the structure of cost inputs does not, by itself, change model results, but it does make the connection between these inputs and corresponding outputs more transparent. The CAFE Model Documentation accompanying our

analysis presents details of the structure for model cost inputs.¹⁰¹ The individual technology sections in Section III.D provide a detailed discussion of cost accounting for each technology.

7. Manufacturer’s Credit Compliance Positions

This proposed rule involves a variety of provisions regarding “credits” and other compliance flexibilities. Some regulatory provisions allow a manufacturer to earn “credits” that will

¹⁰¹ CAFE Model Documentation, S4.7.

be counted toward a vehicle's rated CO₂ emissions level, or toward a fleet's rated average CO₂ or CAFE level, without reference to required levels for these average levels of performance. Such flexibilities effectively modify emissions and fuel economy test procedures or methods for calculating fleets' CAFE and average CO₂ levels. Other provisions (for CAFE, statutory provisions) allow manufacturers to earn credits by achieving CAFE or average CO₂ levels beyond required levels; these provisions may hence more appropriately be termed "compliance credits." We described in the 2020 final rule how the CAFE Model simulates these compliance credit provisions for both the CAFE program and for EPA's CO₂ standards.¹⁰² For this analysis, we modeled the no-action and action alternatives as a set of CAFE standards in place simultaneously with EPA baseline (*i.e.*, 2020 final) CO₂ standards, related CARB agreements with five manufacturers, and ZEV mandates in place in California and some other states. The modeling of CO₂ standards and standard-like contractual obligations includes our representation of applicable credit provisions.

EPCA has long provided that, by exceeding the CAFE standard applicable to a given fleet in a given model year, a manufacturer may earn corresponding "credits" that the same manufacturer may, within the same regulatory class, apply toward compliance in a different model year. EISA amended these provisions by providing that manufacturers may, subject to specific statutory limitations, transfer compliance credits between regulatory classes and trade compliance credits with other manufacturers. The CAA provides the EPA with broad standard-setting authority for the CO₂ program, with no specific directives regarding CO₂ standards or CO₂ compliance credits.

EPCA also specifies that NHTSA may not consider the availability of CAFE credits (for transfer, trade, or direct application) toward compliance with new standards when establishing the standards themselves.¹⁰³ Therefore, this analysis excludes model years 2024–2026 from those in which carried-forward or transferred credits can be applied for the CAFE program.

The "unconstrained" perspective acknowledges that these flexibilities exist as part of the program and, while not considered by NHTSA in setting standards, are nevertheless important to consider when attempting to estimate

the real impact of any alternative. Under the "unconstrained" perspective, credits may be earned, transferred, and applied to deficits in the CAFE program throughout the full range of model years in the analysis. The Draft Supplemental Environmental Impact Statement (SEIS) accompanying this proposed rule, like the corresponding SEIS analysis, presents "unconstrained" modeling results. Also, because the CAA provides no direction regarding consideration of any CO₂ credit provisions, this analysis includes simulation of carried-forward and transferred CO₂ credits in all model years.

The CAFE Model, therefore, does provide means to simulate manufacturers' potential application of some compliance credits, and both the analysis of CO₂ standards and the NEPA analysis of CAFE standards do make use of this aspect of the model. On the other hand, 49 U.S.C. 32902(h) prevents NHTSA from, in its standard setting analysis, considering the potential that manufacturers could use compliance credits in model years for which the agency is establishing maximum feasible CAFE standards. Further, as discussed below, we also continue to find it appropriate for the analysis largely to refrain from simulating two of the mechanisms allowing the use of compliance credits.

The CAFE Model's approach to simulating compliance decisions accounts for the potential to earn and use CAFE credits as provided by EPCA/EISA. The model similarly accumulates and applies CO₂ credits when simulating compliance with EPA's standards. Like past versions, the current CAFE Model can simulate credit carry-forward (*i.e.*, banking) between model years and transfers between the passenger car and light truck fleets but not credit carry-back (*i.e.*, borrowing) from future model years or trading between manufacturers.

While NHTSA's "unconstrained" evaluation can consider the potential to carry back compliance credits from later to earlier model years, past examples of failed attempts to carry back CAFE credits (*e.g.*, a MY 2014 carry back default leading to a civil penalty payment) underscore the riskiness of such "borrowing." Recent evidence indicates manufacturers are disinclined to take such risks, and we find it reasonable and prudent to refrain from attempting to simulate such "borrowing" in rulemaking analysis.

Like the previous version, the current CAFE Model provides a basis to specify (in model inputs) CAFE credits available from model years earlier than those being explicitly simulated. For

example, with this analysis representing model years 2020–2050 explicitly, credits earned in the model year 2015 are made available for use through the model year 2020 (given the current five-year limit on carry-forward of credits). The banked credits are specific to both the model year and fleet in which they were earned.

To increase the realism with which the model transitions between the early model years (MYs 2020–2023) and the later years that are the subject of this action, we have accounted for the potential that some manufacturers might trade credits earned prior to 2020 to other manufacturers. However, the analysis refrains from simulating the potential that manufacturers might continue to trade credits during and beyond the model years covered by this action. In 2018 and 2020, the analysis included idealized cases simulating "perfect" (*i.e.*, wholly unrestricted) trading of CO₂ compliance credits by treating all vehicles as being produced by a single manufacturer. Even for CO₂ compliance credit trading, these scenarios were not plausible, because it is exceedingly unlikely that some pairs of manufacturers would trade compliance credits. NHTSA did not include such cases for CAFE compliance credits, because EPCA provisions (such as the minimum domestic passenger car standard requirement) make such scenarios impossible. At this time, we remain concerned that any realistic simulation of such trading would require assumptions regarding which specific pairs of manufacturers might trade compliance credits, and the evidence to date makes it clear that the credit market is far from fully "open."

We also remain concerned that to set standards based on an analysis that presumes the use of program flexibilities risks making the corresponding actions mandatory. Some flexibilities—credit carry-forward (banking) and transfers between fleets in particular—involve little risk because they are internal to a manufacturer and known in advance. As discussed above, credit carry-back involves significant risk because it amounts to borrowing against future improvements, standards, and production volume and mix. Similarly, credit trading also involves significant risk, because the ability of manufacturer A to acquire credits from manufacturer B depends not just on manufacturer B actually earning the expected amount of credit, but also on manufacturer B being willing to trade with manufacturer A, and on potential interest by other manufacturers. Manufacturers' compliance plans have

¹⁰² See 85 FR 24174, 24303 (April 30, 2020).

¹⁰³ 49 U.S.C. 32902(h)(3).

already evidenced cases of compliance credit trades that were planned and subsequently aborted, reinforcing our judgment that, like credit banking, credit trading involves too much risk to be included in an analysis that informs decisions about the stringency of future standards.

As discussed in the CAFE Model Documentation, the model's default logic attempts to maximize credit carry-forward—that is, to “hold on” to credits for as long as possible. If a manufacturer needs to cover a shortfall that occurs when insufficient opportunities exist to add technology to achieve compliance with a standard, the model will apply credits. Otherwise, the manufacturer carries forward credits until they are about to expire, at which point it will use them before adding technology that is not considered cost-effective. The model attempts to use credits that will expire within the next three years as a means to smooth out technology applications over time to avoid both compliance shortfalls and high levels of over-compliance that can result in a surplus of credits. Although it remains impossible precisely to predict the manufacturer's actual earning and use of compliance credits, and this aspect of the model may benefit from future refinement as manufacturers and regulators continue to gain experience with these provisions, this approach is generally consistent with manufacturers' observed practices.

NHTSA introduced the CAFE Public Information Center (PIC) to provide public access to a range of information regarding the CAFE program,¹⁰⁴ including manufacturers' credit balances. However, there is a data lag in the information presented on the CAFE PIC that may not capture credit actions across the industry for as much as several months. Furthermore, CAFE credits that are traded between manufacturers are adjusted to preserve the gallons saved that each credit represents.¹⁰⁵ The adjustment occurs at the time of application rather than at the time the credits are traded. This means that a manufacturer who has acquired credits through trade, but has not yet applied them, may show a credit balance that is either considerably higher or lower than the real value of the credits when they are applied. For example, a manufacturer that buys 40

million credits from Tesla may show a credit balance in excess of 40 million. However, when those credits are applied, they may be worth only 1/10 as much—making that manufacturer's true credit balance closer to 4 million than 40 million (e.g., when another manufacturer uses credits acquired from Tesla, the manufacturer may only be able to offset a 1 mpg compliance shortfall, even though the credits' “face value” suggests the manufacturer could offset a 10 mpg compliance shortfall).

Specific inputs accounting for manufacturers' accumulated compliance credits are discussed in TSD Chapter 2.2.2.3.

In addition to the inclusion of these existing credit banks, the CAFE Model also updated its treatment of credits in the rulemaking analysis. EPCA requires that NHTSA set CAFE standards at maximum feasible levels for each model year without consideration of the program's credit mechanisms. However, as recent CAFE rulemakings have evaluated the effects of standards over longer time periods, the early actions taken by manufacturers required more nuanced representation. Accordingly, the CAFE Model now provides means to exclude the simulated application of CAFE compliance credits only from specific model years for which standards are being set (for this analysis, 2024–2026), while allowing CAFE credits to be applied in other model years.

In addition to more rigorous accounting of CAFE and CO₂ compliance credits, the model also accounts for air conditioning efficiency and off-cycle adjustments. NHTSA's program considers those adjustments in a manufacturer's compliance calculation starting in MY 2017, and specific estimates of each manufacturer's reliance on these adjustments are discussed above in Section III.C.2.a). Because air conditioning efficiency and off-cycle adjustments are not credits in NHTSA's program, but rather adjustments to compliance fuel economy, they may be included under either a “standard setting” or “unconstrained” analysis perspective.

The manner in which the CAFE Model treats the EPA and CAFE A/C efficiency and off-cycle credit programs is similar, but the model also accounts for A/C leakage (which is not part of NHTSA's program). When determining the compliance status of a manufacturer's fleet (in the case of EPA's program, PC and LT are the only fleet distinctions), the CAFE Model weighs future compliance actions against the presence of existing (and expiring) CO₂ credits resulting from

over-compliance with earlier years' standards, A/C efficiency credits, A/C leakage credits, and off-cycle credits.

The model currently accounts for any off-cycle adjustments associated with technologies that are included in the set of fuel-saving technologies explicitly simulated as part of this proposal (for example, start-stop systems that reduce fuel consumption during idle or active grille shutters that improve aerodynamic drag at highway speeds) and accumulates these adjustments up to the cap. As discussed further in Section III.D.8, this analysis considers that some manufacturers may apply up to 15.0 g/mi of off-cycle credit by MY 2032. We considered the potential to model the application of off-cycle technologies explicitly. However, doing so would require data regarding which vehicle models already possess these improvements as well as the cost and expected value of applying them to other models in the future. Such data are currently too limited to support explicit modeling of these technologies and adjustments.

When establishing maximum feasible fuel economy standards, NHTSA is prohibited from considering the availability of alternatively fueled vehicles,¹⁰⁶ and credit provisions related to AFVs that significantly increase their fuel economy for CAFE compliance purposes. Under the “standard setting” perspective, these technologies (pure battery electric vehicles and fuel cell vehicles¹⁰⁷) are not available in the compliance simulation to improve fuel economy. Under the “unconstrained” perspective, such as is documented in the SEIS, the CAFE Model considers these technologies in the same manner as other available technologies and may apply them if they represent cost-effective compliance pathways. However, under both perspectives, the analysis continues to include dedicated AFVs that could be produced in response to CAFE standards outside the model years for which standards are being set, or for other reasons (e.g., ZEV mandates, as accounted for in this analysis).

EPCA also provides that CAFE levels may, subject to limitations, be adjusted upward to reflect the sale of flexible fuel vehicles (FFVs). Because these adjustments ended in model year 2020, this analysis assumes no manufacturer

¹⁰⁴ CAFE Public Information Center, https://one.nhtsa.gov/cafe_pic/cafe_pic_home.htm (last visited May 11, 2021).

¹⁰⁵ CO₂ credits for EPA's program are denominated in metric tons of CO₂ rather than gram/mile compliance credits and require no adjustment when traded between manufacturers or fleets.

¹⁰⁶ 49 U.S.C. 32902(h).

¹⁰⁷ Dedicated compressed natural gas (CNG) vehicles should also be excluded in this perspective but are not considered as a compliance strategy under any perspective in this analysis.

will earn FFV credits within the modeling horizon.

Also, the CAA provides no direction regarding consideration of alternative fuels, and EPA has provided that manufacturers selling PHEVs, BEVs, and FCVs may, when calculating fleet average CO₂ levels, “count” each unit of production as more than a single unit. The CAFE Model accounts for these “multipliers.” For example, under EPA’s current regulation, when calculating the average CO₂ level achieved by its MY 2019 passenger car fleet, a manufacturer may treat each 1,000 BEVs as 2,000 BEVs. When calculating the average level required of this fleet, the manufacturer must use the actual production volume (in this example, 1,000 units). Similarly, the manufacturer must use the actual production volume when calculating compliance credit balances.

There were no natural gas vehicles in the baseline fleet, and the analysis did not apply natural gas technology due to cost effectiveness. The application of a 2.0 multiplier for natural gas vehicles for MYs 2024–2026 would have no impact on the analysis because given the state of natural gas vehicle refueling infrastructure, the cost to equip vehicles with natural gas tanks, the outlook for petroleum prices, and the outlook for battery prices, we have little basis to project more than an inconsequential response to this incentive in the foreseeable future.

D. Technology Pathways, Effectiveness, and Cost

Vehicle manufacturers meet increasingly more stringent fuel economy standards by applying increasing levels of fuel-economy-improving technologies to their vehicles. An appropriate characterization of the technologies available to manufacturers to meet fuel economy standards is, therefore, an important input required to assess the levels of standards that manufacturers can achieve. Like previous CAFE standards analyses, this proposal considers over 50 fuel-economy-improving technologies that manufacturers could apply to their MY 2020 fleet of vehicles to meet proposed levels of CAFE standards in MYs 2024–2026. The characterization of these technologies, the technology effectiveness values, and technology cost assumptions build on work performed by DOT, EPA, the National Academy of Sciences, and other Federal and state government agencies including the Department of Energy’s Argonne National Laboratory and the California Air Resources Board.

After spending approximately a decade refining the technology pathways, effectiveness, and cost assumptions used in successive CAFE Model analyses, DOT has developed guiding principles to ensure that the CAFE Model’s simulation of manufacturer compliance pathways results in impacts that we would reasonably expect to see in the real world. These guiding principles are as follows:

Even though the analysis considers over 50 individual technologies, the fuel economy improvement from any individual technology must be considered in conjunction with the other fuel-economy-improving technologies applied to the vehicle. For example, there is an obvious fuel economy benefit that results from converting a vehicle with a traditional internal combustion engine to a battery electric vehicle; however, the benefit of the electrification technology depends on the other road load reducing technologies (*i.e.*, mass reduction, aerodynamic, and rolling resistance) on the vehicle.

Technologies added in combination to a vehicle will not result in a simply additive fuel economy improvement from each individual technology. As discussed in Section III.C.4, full vehicle modeling and simulation provides the required degree of accuracy to project how different technologies will interact in the vehicle system. For example, as discussed further in Sections III.D.1 and III.D.3, a parallel hybrid architecture powertrain improves fuel economy, in part, by allowing the internal combustion engine to spend more time operating at efficient engine speed and load conditions. This reduces the advantage of adding advanced internal combustion engine technologies, which also improve fuel economy, by broadening the range of speed and load conditions for the engine to operate at high efficiency. This redundancy in fuel savings mechanism results in a reduced effectiveness improvement when the technologies are added to each other.

The effectiveness of a technology depends on the type of vehicle the technology is being applied to. For example, applying mass reduction technology results in varying effectiveness as the absolute mass reduced is a function of the starting vehicle mass, which varies across technology classes. See Section III.D.4 for more details.

The cost and effectiveness values for each technology should be reasonably representative of what can be achieved across the entire industry. Each technology model employed in the

analysis is designed to be representative of a wide range of specific technology applications used in industry. Some vehicle manufacturer’s systems may perform better and cost less than our modeled systems and some may perform worse and cost more. However, employing this approach will ensure that, on balance, the analysis captures a reasonable level of costs and benefits that would result from any manufacturer applying the technology.

The baseline for cost and effectiveness values must be identified before assuming that a cost or effectiveness value could be employed for any individual technology. For example, as discussed further in Section III.D.1.d) below, this analysis uses a set of engine map models that were developed by starting with a small number of baseline engine configurations, and then, in a very systematic and controlled process, adding specific well-defined technologies to create a new map for each unique technology combination.

The following sections discuss the engine, transmission, electrification, mass reduction, aerodynamic, tire rolling resistance, and other vehicle technologies considered in this analysis. Each section discusses how we define the technology in the CAFE Model,¹⁰⁸ how we assigned the technology to vehicles in the MY 2020 analysis fleet used as a starting point for this analysis, any adoption features applied to the technology so the analysis better represents manufacturers’ real-world decisions, the technology effectiveness values, and technology cost.

Please note that the following technology effectiveness sections provide *examples* of the *range* of effectiveness values that a technology could achieve when applied to the entire vehicle system, in conjunction with the other fuel-economy-improving technologies already on or also applied at the same time to the vehicle. To see the incremental effectiveness values for any particular vehicle moving from one technology key to a more advanced technology key, see the FE_1 and FE_2 Adjustments files that are integrated in the CAFE Model executable file. Similarly, the technology costs provided in each section are *examples* of absolute costs seen in specific model years (MYs 2020, 2025, and 2030 for most technologies), for specific vehicle classes. To see all absolute technology costs used in the analysis across all model years, see the Technologies file.

¹⁰⁸ Note, due to the diversity of definitions industry sometimes employs for technology terms, or in describing the specific application of technology, the terms defined here may differ from how the technology is defined in the industry.

NHTSA seeks comment on the following discussion.

1. Engine Paths

For this analysis, the extensive variety of light duty vehicle internal combustion (IC) engine technologies are classified into discrete engine technology paths. These paths are used to model the most representative characteristics, costs, and performance of the fuel-economy improving technologies most likely available during the rulemaking time frame, MYs 2024–2026. Due to uncertainties in the cost and capabilities of emerging technologies, some new and pre-production technologies are not part of this analysis. We did not include technologies unlikely to be feasible in the rulemaking timeframe, technologies unlikely to be compatible with U.S. fuels, or technologies for which there was not appropriate data available to allow the simulation of effectiveness

across all vehicle technology classes in this analysis.

The following sections discuss IC engine technologies considered in this analysis, general technology categories used by the CAFE Model, and how the engine technologies are assigned in the MY 2020 analysis fleet. The following sections also discuss adoption features applicable to engine technologies, engine technologies’ effectiveness when combined in a full vehicle model, and the engine technologies’ costs.

(a) Engine Modeling in the CAFE Model

DOT models IC engine technologies that manufacturers can use to improve fuel economy. Some engine technologies can be incorporated into existing engines with minor or moderate changes to the engines, but many engine technologies require an entirely new engine architecture.

We divide engine technologies into two categories, “basic engine technologies” and “advanced engine

technologies.” “Basic engine technologies” refer to technologies adaptable to an existing engine with minor or moderate changes to the engine. “Advanced engine technologies” refer to technologies that generally require significant changes or an entirely new engine architecture. The words “basic” and “advanced” are not meant to confer any information about the level of sophistication of the technology. Many advanced engine technology definitions also include some basic engine technologies, and these basic technologies are accounted for in the costs and effectiveness values of the advanced engine. Figure III–7 shows how the basic and other engines are laid out on pathways evaluated in the compliance simulation. Each engine technology is briefly described, below. It is important to note the “Basic Engine Path” shows that every engine starts with VVT and can add one, some, or all the technologies in the dotted box, as discussed in Section III.D.1.a)(1).

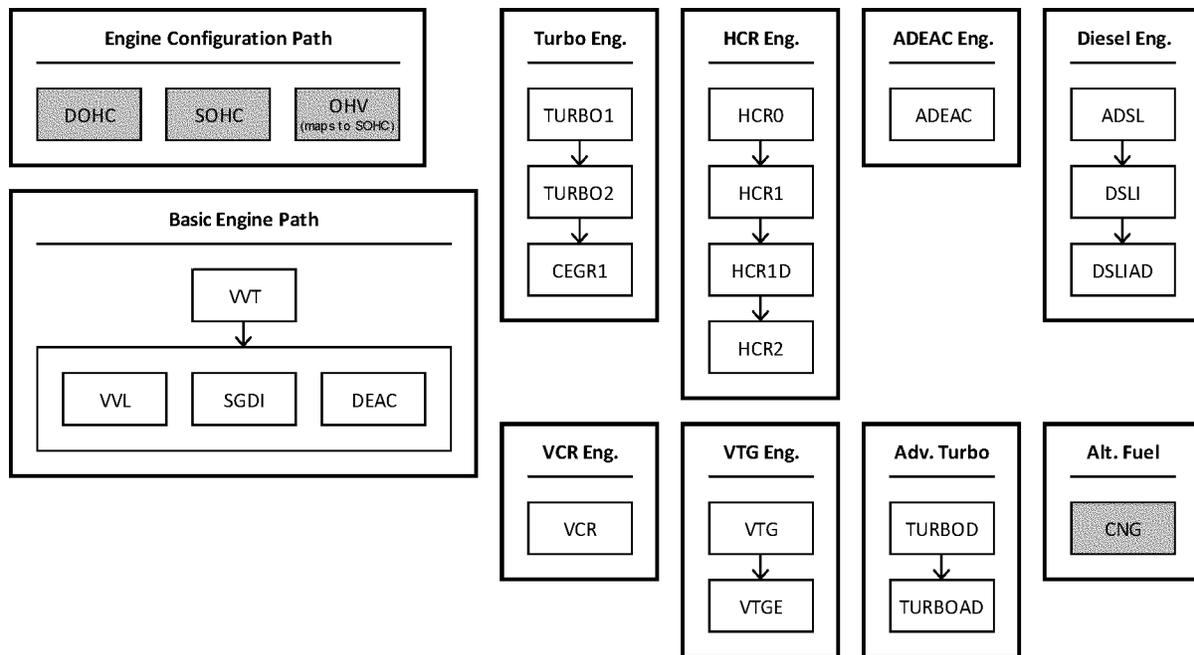


Figure III-7 – Engine Technology Paths in the CAFE Model

(1) Basic Engines

In the CAFE Model, basic engine technologies may be applied individually or in combination with other basic engine technologies. The basic engine technologies include variable valve timing (VVT), variable valve lift (VVL), stoichiometric gasoline direct injection (SGDI), and cylinder deactivation. Cylinder deactivation

includes a basic level (DEAC) and an advanced level (ADEAC). DOT applies the basic engine technologies across two engine architectures: dual over-head camshaft (DOHC) engine architecture and single over-head camshaft (SOHC) engine architecture.

VVT: Variable valve timing is a family of valve-train designs that dynamically adjusts the timing of the intake valves, exhaust valves, or both, in relation to

piston position. VVT can reduce pumping losses, provide increased engine torque and horsepower over a broad engine operating range, and allow unique operating modes, such as Atkinson cycle operation, to further enhance efficiency.¹⁰⁹ VVT is nearly universally used in the MY 2020 fleet. VVT enables more control of in-cylinder

¹⁰⁹ 2015 NAS report, at 31.

air flow for exhaust scavenging and combustion relative to fixed valve timing engines. Engine parameters such as volumetric efficiency, effective compression ratio, and internal exhaust gas recirculation (iEGR) can all be enabled and accurately controlled by a VVT system.

VVL: Variable valve lift dynamically adjusts the distance a valve travels from the valve seat. The dynamic adjustment can optimize airflow over a broad range of engine operating conditions. The technology can increase effectiveness by reducing pumping losses and by affecting the fuel and air mixture motion and combustion in-cylinder.¹¹⁰ VVL is less common in the MY 2020 fleet than VVT, but still prevalent. Some manufacturers have implemented a limited, discrete approach to VVL. The discrete approach allows only limited (e.g., two) valve lift profiles versus allowing a continuous range of lift profiles.

SGDI: Stoichiometric gasoline direct injection sprays fuel at high pressure directly into the combustion chamber, which provides cooling of the in-cylinder charge via in-cylinder fuel vaporization to improve spark knock tolerance and enable an increase in compression ratio and/or more optimal spark timing for improved efficiency.¹¹¹ SGDI is common in the MY 2020 fleet, and the technology is used in many advanced engines as well.

DEAC: Basic cylinder deactivation disables intake and exhaust valves and turns off fuel injection for the deactivated cylinders during light load operation. DEAC is characterized by a small number of discrete operating configurations.¹¹² The engine runs temporarily as though it were a smaller engine, reducing pumping losses and improving efficiency. DEAC is present in the MY 2020 baseline fleet.

ADEAC: Advanced cylinder deactivation systems, also known as rolling or dynamic cylinder deactivation systems, allow a further degree of cylinder deactivation than the base DEAC. ADEAC allows the engine to vary the percentage of cylinders deactivated and the sequence in which cylinders are deactivated, essentially providing “displacement on demand” for low load operations. A small number of vehicles have ADEAC in the MY 2020 baseline fleet.

Section III.D.1.d) contains additional information about each basic engine technology used in this analysis, including information about the engine

map models used in the full vehicle technology effectiveness modeling.

(2) Advanced Engines

DOT defines advanced engine technologies in the analysis as technologies that require significant changes in engine structure, or an entirely new engine architecture.¹¹³ The advanced engine technologies represent the application of alternate combustion cycles or changes in the application of forced induction to the engine. Each advanced engine technology has a discrete pathway for progression to improved versions of the technology, as seen above in Figure III–7. The advanced engine technology pathways include a turbocharged pathway, a high compression ratio (Atkinson) engine pathway, a variable turbo geometry (Miller Cycle) engine pathway, a variable compression ratio pathway, and a diesel engine pathway. Although the CAFE Model includes a compressed natural gas (CNG) pathway, that technology is a baseline-only technology and was not included in the analysis; currently, there are no dedicated CNG vehicles in the MY 2020 analysis fleet.

TURBO: Forced induction engines, or turbocharged downsized engines, are characterized by technology that can create greater-than-atmospheric pressure in the engine intake manifold when higher output is needed. The raised pressure results in an increased amount of airflow into the cylinder supporting combustion, increasing the specific power of the engine. Increased specific power means the engine can generate more power per unit of cylinder volume. The higher power per cylinder volume allows the overall engine volume to be reduced, while maintaining performance. The overall engine volume decrease results in an increase in fuel efficiency by reducing parasitic loads associated with larger engine volumes.¹¹⁴

Cooled exhaust gas recirculation is also part of the advanced forced induction technology path. The basic recycling of exhaust gases using VVT is called internal EGR (iEGR) and is included as part of the performance improvements provided by the VVT basic engine technology. Cooled EGR (cEGR) is a second method for diluting the incoming air that takes exhaust gases, passes them through a heat exchanger to reduce their temperature, and then mixes them with incoming air

in the intake manifold.¹¹⁵ As discussed in Section III.D.1.d), many advanced engine maps include EGR.

Five levels of turbocharged engine downsizing technologies are considered in this analysis: A ‘basic’ level of turbocharged downsized technology (TURBO1), an advanced turbocharged downsized technology (TURBO2), an advanced turbocharged downsized technology with cooled exhaust gas recirculation applied (cEGR), a turbocharged downsized technology with basic cylinder deactivation applied (TURBOD), and a turbocharged downsized technology with advanced cylinder deactivation applied (TURBOAD).

HCR: Atkinson engines, or high compression ratio engines, represent a class of engines that achieve a higher level of fuel efficiency by implementing an alternate combustion cycle.¹¹⁶ Historically, the Otto combustion cycle has been used by most gasoline-based spark ignition engines. Increased research into improving fuel economy has resulted in the development of alternate combustion cycles that allow for greater levels of thermal efficiency. One such alternative combustion cycle is the Atkinson cycle. Atkinson cycle operation is achieved by allowing the expansion stroke of the engine to overextend allowing the combustion products to achieve the lowest possible pressure before the exhaust stroke.^{117 118 119}

Descriptions of Atkinson cycle engines and Atkinson mode or Atkinson-enabled engine technologies have been used interchangeably in association with high compression ratio (HCR) engines, for past rulemaking analyses. Both technologies achieve a higher thermal efficiency than traditional Otto cycle-only engines, however, the two engine types operate differently. For purposes of this analysis, Atkinson technologies can be categorized into two groups to reduce confusion: (1) Atkinson-enabled engines and (2) Atkinson engines.

Atkinson-enabled engines, or high compression ratio engines (HCR),

¹¹⁵ 2015 NAS report, at 35.

¹¹⁶ See the 2015 NAS report, Appendix D, for a short discussion on thermodynamic engine cycles.

¹¹⁷ Otto cycle is a four-stroke cycle that has four piston movements over two engine revolutions for each cycle. First stroke: Intake or induction; second stroke: Compression; third stroke: Expansion or power stroke; and finally, fourth stroke: Exhaust.

¹¹⁸ Compression ratio is the ratio of the maximum to minimum volume in the cylinder of an internal combustion engine.

¹¹⁹ Expansion ratio is the ratio of maximum to minimum volume in the cylinder of an IC engine when the valves are closed (i.e., the piston is traveling from top to bottom to produce work).

¹¹⁰ 2015 NAS report, at 32.

¹¹¹ 2015 NAS report, at 34.

¹¹² 2015 NAS report, at 33.

¹¹³ Examples of this include but are not limited to changes in cylinder count, block geometry or combustion cycle changes.

¹¹⁴ 2015 NAS report, at 34.

dynamically swing between operating closer to an Otto cycle or an Atkinson cycle based on engine loads. During high loads the engine will use the lower-efficiency, power-dense Otto cycle mode, while at low loads the engine will use the higher-efficiency, lower power-dense Atkinson cycle mode. The hybrid combustion cycle operation is used to address the low power density issues that can limit the Atkinson-only engine and allow for a wider application of the technology.

The level of efficiency improvement experienced by a vehicle employing Atkinson cycle operation is directly related to how much of the engine's operation time is spent in Atkinson mode. Vehicles that can experience operation at a high load for long portions of their operating cycle will see little to no benefit from this technology. This limitation to performance results in manufacturers typically limiting the application of this technology to vehicles with a use profile that can take advantage of the technology's behavior.

Three HCR or Atkinson-enabled engines are available in the analysis: (1) The baseline Atkinson-enabled engine (HCR0), (2) the enhanced Atkinson enabled engine (HCR1), and finally, (3) the enhanced Atkinson enabled engine with cylinder deactivation (HCR1D).

In contrast, Atkinson engines in this analysis are defined as engines that operate full-time in the Atkinson cycle. The most common method of achieving Atkinson operation is the use of late intake valve closing. This method allows backflow from the combustion chamber into the intake manifold, reducing the dynamic compression ratio, and providing a higher expansion ratio. The higher expansion ratio improves thermal efficiency but reduces power density. The low power density generally relegates these engines to hybrid vehicle (SHEVPS) applications only in this analysis. Coupling the engines to electric motors and significantly reducing road loads can compensate for the lower power density and maintain desired performance levels for the vehicle.¹²⁰ The Toyota Prius is an example of a vehicle that uses an Atkinson engine. The 2017 Toyota Prius achieved a peak thermal efficiency of 40 percent.¹²¹

¹²⁰ Toyota. "Under the Hood of the All-new Toyota Prius." Oct. 13, 2015. Available at <https://global.toyota/en/detail/9827044>. Last accessed Nov. 22, 2019.

¹²¹ Matsuo, S., Ikeda, E., Ito, Y., and Nishiura, H., "The New Toyota Inline 4 Cylinder 1.8L ESTEC 2ZR-FXE Gasoline Engine for Hybrid Car," SAE Technical Paper 2016-01-0684, 2016, <https://doi.org/10.4271/2016-01-0684>.

NHTSA seeks comment on whether and how to consider "HCR2" in the analysis for the final rule.

VTG: The Miller cycle is another type of overexpansion combustion cycle, similar to the Atkinson cycle. The Miller cycle, however, operates in combination with a forced induction system that helps address the impacts of reduced power density during high load operating conditions. Miller cycle-enabled engines use a similar technology approach as seen in Atkinson-enabled engines to effectively create an expanded expansion stroke of the combustion cycle.

In the analysis, the baseline Miller cycle-enabled engine includes the application of a variable turbo geometry technology (VTG). The advanced Miller cycle enabled system includes the application of a 48V-based electronic boost system (VTGE). VTG technology allows the system to vary boost level based on engine operational needs. The use of a variable geometry turbocharger also supports the use of cooled exhaust gas recirculation.¹²² An electronic boost system has an electric motor added to assist a turbocharger at low engine speeds. The motor assist mitigates turbocharger lag and low boost pressure at low engine speeds. The electronic assist system can provide extra boost needed to overcome the torque deficits at low engine speeds.¹²³

VCR: Variable compression ratio (VCR) engines work by changing the length of the piston stroke of the engine to optimize the compression ratio and improve thermal efficiency over the full range of engine operating conditions. Engines using VCR technology are currently in production, but appear to be targeted primarily towards limited production, high performance applications. Nissan is the only manufacturer to use this technology in the MY 2020 baseline fleet. Few manufacturers and suppliers provided information about VCR technologies, and DOT reviewed several design concepts that could achieve a similar functional outcome. In addition to design concept differences, intellectual property ownership complicates the ability to define a VCR hardware system that could be widely adopted across the industry. Because of these issues, adoption of the VCR engine technology is limited to Nissan only.

ADSL: Diesel engines have several characteristics that result in superior fuel efficiency over traditional gasoline engines. These advantages include reduced pumping losses due to lack of

(or greatly reduced) throttling, high pressure direct injection of fuel, a more efficient combustion cycle,¹²⁴ and a very lean air/fuel mixture relative to an equivalent-performance gasoline engine.¹²⁵ However, diesel technologies require additional enablers, such as a NOx adsorption catalyst system or a urea/ammonia selective catalytic reduction system, for control of NOx emissions.

DOT considered three levels of diesel engine technology: the baseline diesel engine technology (ADSL) is based on a standard 2.2L turbocharged diesel engine; the more advanced diesel engine (DSL) starts with the ADSL system and incorporates a combination of low pressure and high pressure EGR, reduced parasitic loss, friction reduction, a highly-integrated exhaust catalyst with low temp light off temperatures, and closed loop combustion control; and finally the most advanced diesel system (DSLAD) is the DSL system with advanced cylinder deactivation technology added.

EFR: Engine friction reduction technology is a general engine improvement meant to represent future technologies that reduce the internal friction of an engine. EFR technology is not available for application until MY 2023. The future technologies do not significantly change the function or operation of the engine but reduce the energy loss due to the rotational or rubbing friction experienced in the bearings or cylinder during normal operation. These technologies can include improved surface coatings, lower-tension piston rings, roller cam followers, optimal thermal management and piston surface treatments, improved bearing design, reduced inertial loads, improved materials, or improved geometry.

(b) Engine Analysis Fleet Assignments

As a first step in assigning baseline levels of engine technologies in the analysis fleet, DOT used data for each manufacturer to determine which platforms shared engines. Within each manufacturer's fleet, DOT assigned unique identification designations (engine codes) based on configuration, technologies applied, displacement, compression ratio, and power output. DOT used power output to distinguish between engines that might have the same displacement and configuration

¹²⁴ Diesel cycle is also a four-stroke cycle like the Otto Cycle, except in the intake stroke no fuel is injected and fuel is injected late in the compression stroke at higher pressure and temperature.

¹²⁵ See the 2015 NAS report, Appendix D, for a short discussion on thermodynamic engine cycles.

¹²² 2015 NAS report, at 116.

¹²³ 2015 NAS report, at 62.

but significantly different horsepower ratings.

The CAFE Model identifies leaders and followers for a manufacturer’s vehicles that use the same engine, indicated by sharing the same engine code. The model automatically determines which engines are leaders by using the highest sales volume row of the highest sales volume nameplate that is assigned an engine code. This leader-follower relationship allows the CAFE Model simulation to maintain engine sharing as more technology is applied to engines.

DOT accurately represents each engine using engine technologies and engine technology classes. The first step is to assign engine technologies to each engine code. Technology assignment is based on the identified characteristics of the engine being modeled, and based on technologies assigned, the engine will be aligned with an engine map model that most closely corresponds.

The engine technology classes are a second identifier used to accurately account for engine costs. The engine technology class is formatted as number of cylinders followed by the letter C,

number of banks followed by the letter B, and an engine head configuration designator, which is _SOHC for single overhead cam, _ohv for overhead valve, or blank for dual overhead cam. As an example, one variant of the GMC Acadia has a naturally aspirated DOHC inline 4-cylinder engine, so DOT assigned the vehicle to the ‘4C1B’ engine technology class and assigned the technology VVT and SGDI. Table III–7 shows examples of observed engines with their corresponding assigned engine technologies as well as engine technology classes.

Table III-7 – Examples of Observed Engines and Their Corresponding Engine Technology Class and Technology Assignments

Vehicle	Engine Observed	Engine Technology Class Assigned	Engine Technology Assigned
GMC Acadia	Naturally Aspirated DOHC Inline 4 cylinder	4C1B	VVT, SGDI
VW Arteon	Turbocharged DOHC Inline 4 cylinder	6C2B	TURBO1
Bentley Bentayga	Turbocharged DOHC W12 w/ cylinder deactivation	16C4B	TURBOD
Honda Passport	Naturally Aspirated SOHC V6	6C2B_SOHC	VVT, VVL, SGDI, DEAC
Honda Civic	Turbocharged DOHC Inline 4 cylinder	4C1B	TURBO1
Cadillac CT5	Turbocharged DOHC V6 w/ cylinder deactivation	8C2B	TURBOD
Ford Escape	Turbocharged DOHC Inline 3 cylinder	4C1B_L	TURBO1
Chevrolet Silverado	Naturally Aspirated OHV V8 w/ skip fire	8C2B_ohv	ADEAC

The cost tables for a given engine class include downsizing (to an engine architecture with fewer cylinders) when turbocharging technology is applied, and therefore, the turbocharged engines observed in the 2020 fleet (that have already been downsized) often map to an engine class with more cylinders. For instance, an observed TURBO1 V6 engine would map to an 8C2B (V8) engine class, because the turbo costs on the 8C2B engine class worksheet assume a V6 (6C2B) engine architecture. Diesel engines map to engine technology classes that match the observed cylinder count since naturally aspirated diesel engines are not found in new light duty vehicles in the U.S. market. Similarly, as indicated above, the TURBO1 I3 in the Ford Escape maps to the 4C1B_L (I4) engine class, because the turbo costs on

the 4C1B_L engine class worksheet assume a I3 (3C1B) engine architecture. Some instances can be more complex, including low horsepower variants for 4-cylinder engines, and are shown in Table III–8.

For this analysis, we have allowed additional downsizing beyond what has been previously modeled. We allow enhanced downsizing because manufacturers have downsized low output naturally aspirated engines to turbo engines with smaller architectures than traditionally observed.^{126 127 128} To

capture this new level of turbo downsizing we created a new category of low output naturally aspirated engines, which is only applied to 4-cylinder engines in the MY 2020 fleet. These engines use the costing tabs in the Technologies file with the ‘L’ designation and are assumed to downsize to turbocharged 3-cylinder engines for costing purposes. We seek comment regarding the expected further application of this technology to larger cylinder count engines, such as 8-cylinder engines that may be turbo

¹²⁶ Richard Truett, “GM Brining 3-Cylinder back to North America.” Automotive News, December 01, 2019. <https://www.autonews.com/cars-concepts/gm-bringing-3-cylinder-back-na>.

¹²⁷ Stoklosa, Alexander, “2021 Mini Cooper Hardtop.” Car and Driver, December 2, 2014.

<https://www.caranddriver.com/reviews/a15109143/2014-mini-cooper-hardtop-manual-test-review/>.

¹²⁸ Leanse, Alex “2020 For Escape Options: Hybrid vs. 3-Cylinder EcoBoost vs. 4-Cylinder EcoBoost.” MotorTrend, Sept 24, 2019. <https://www.motortrend.com/news/2020-ford-escape-engine-options-pros-and-cons-comparison/>.

downsized to 4-cylinder engines. We would also like comment on how to define the characteristic of an engine

that may be targeted for enhanced downsizing.

Table III-8 – Examples of Engine Technology Class Assignment Logic

Observed Gasoline Engine Configuration	Observed Number of Cylinders	Horsepower	Naturally Aspirated or Turbo	Engine Technology Class Assigned
Inline	3	Any	NA	3C1B
Inline	3	Any	Turbo	4C1B_L
Inline	4	<=180	NA	4C1B_L
Inline	4	<=180	Turbo	4C1B
Boxer	4	<=180	NA	4C2B_L
Boxer	4	<=180	Turbo	4C2B
Inline	4	>180	NA	4C1B
Inline	4	>180	Turbo	6C2B
Boxer	4	>180	Turbo	6C2B
Inline	5	Any	Turbo	6C2B
W	16	Any	Turbo	16C4B

TSD Chapter 3.1.2 includes more details about baseline engine technology assignment logic, and details about the levels of engine technology penetration in the MY 2020 fleet.

(c) Engine Adoption Features

Engine adoption features are defined through a combination of (1) refresh and redesign cycles, (2) technology path logic, (3) phase-in capacity limits, and (4) SKIP logic. Figure III-7 above shows the technology paths available for engines in the CAFE Model. Engine technology development and application typically results in an engine design moving from the basic engine tree to one of the advanced engine trees. Once an engine design moves to the advanced engine tree it is not allowed to move to alternate advanced engine trees. Specific path logic, phase-in caps, and SKIP logic applied to each engine technology are discussed by engine technology, in turn.

Refresh and redesign cycles dictate when engine technology can be applied. Technologies applicable only during a platform redesign can be applied during a platform refresh if another vehicle platform that shares engine codes (uses the same engine) has already applied the technology during a redesign. For example, models of the GMC Acadia and the Cadillac XT4 use the same engine (assigned engine code 112011 in the Market Data file); if the XT4 adds a new engine technology during a redesign, then the Acadia may also add the same engine technology during the

next refresh or redesign. This allows the model to maintain engine sharing relationships while also maintaining refresh and redesign schedules.¹²⁹ For engine technologies, DOHC, OHV, VVT, and CNG engine technologies are baseline only, while all other engine technologies can only be applied at a vehicle redesign.

Basic engine technologies in the CAFE Model are represented by four technologies: VVT, VVL, SGDI, and DEAC. DOT assumes that 100% of basic engine platforms use VVT as a baseline, based on wide proliferation of the technology in the U.S. fleet. The remaining three technologies, VVL, SGDI, and DEAC, can all be applied individually or in any combination of the three. An engine can jump from the basic engines path to any other engine path except the Alternative Fuel Engine Path.

Turbo downsizing allows manufacturers to maintain vehicle performance characteristics while reducing engine displacement and cylinder count. Any basic engine can adopt one of the turbo engine technologies (TURBO1, TURBO2 and CEGR1). Vehicles that have turbocharged engines in the baseline fleet will stay on the turbo engine path to prevent unrealistic engine technology change in the short timeframe considered in the rulemaking analysis. Turbo technology is a mutually

¹²⁹ See Section III.C.2.a) for more discussion on platform refresh and redesign cycles.

exclusive technology in that it cannot be adopted for HCR, diesel, ADEAC, or CNG engines.

Non-HEV Atkinson mode engines are a collection of engines in the HCR engine pathway (HCR0, HCR1, HCR1D and HCR2). Atkinson engines excel in lower power applications for lower load conditions, such as driving around a city or steady state highway driving without large payloads, thus their adoption is more limited than some other technologies. DOT expanded the availability of HCR technology compared to the 2020 final rule because of new observed applications in the market.¹³⁰ However, there are three categories of adoption features specific to the HCR engine pathway:¹³¹

- DOT does not allow vehicles with 405 or more horsepower to adopt HCR engines due to their prescribed duty cycle being more demanding and likely not supported by the lower power density found in HCR-based engines.¹³²
- Pickup trucks and vehicles that share engines with pickup trucks are

¹³⁰ For example, the Hyundai Palisade and Kia Telluride have a 291 hp V6 HCR1 engine. The specification sheets for these vehicles are located in the docket for this action.

¹³¹ See Section III.D.1.d)(1) Engine Maps, for a discussion of why HCR2 and P2HCR2 were not used in the central analysis. "SKIP" logic was used to remove this engine technology from application, however as discussed below, we maintain HCR2 and P2HCR2 in the model architecture for sensitivity analysis and for future engine map model updates.

¹³² Heywood, John B. Internal Combustion Engine Fundamentals. McGraw-Hill Education, 2018. Chapter 5.

also excluded from receiving HCR engines; the duty cycle for these heavy vehicles, particularly when hauling cargo or towing, are likely unable to take full advantage of Atkinson cycle use, and would ultimately spend the majority of operation as an Otto cycle engine, negating the benefits of HCR technology.¹³³

- HCR engine application is also restricted for some manufacturers that are heavily performance-focused and have demonstrated a significant commitment to power dense technologies such as turbocharged downsizing.¹³⁴ NHTSA seeks comment on the appropriateness of these restrictions for the final rule.

Advanced cylinder deactivation technology (ADEAC), or dynamic cylinder deactivation (*e.g.*, Dynamic Skip Fire), can be applied to any engine with basic technology. This technology represents a naturally aspirated engine with ADEAC. Additional technology can be applied to these engines by moving to the Advanced Turbo Engine Path.

Miller cycle (VTG and VTGE) engines can be applied to any basic and turbocharged engine. VTGE technology is enabled by the use of a 48V system that presents an improvement from traditional turbocharged engines, and accordingly VTGE includes the application of a mild hybrid (BISG) system.

VCR engines can be applied to basic and turbocharged engines, but the technology is limited to Nissan and Mitsubishi.¹³⁵ VCR technology requires a complete redesign of the engine, and in the analysis fleet, only two of Nissan's models had incorporated this technology. The agency does not believe any other manufacturers will invest to develop and market this technology in their fleet in the rulemaking time frame.

Advanced turbo engines are becoming more prevalent as the technologies mature. TURBOD combines TURBO1 and DEAC technologies and represents the first advanced turbo. TURBOAD combines TURBO1 and ADEAC technologies and is the second and last level of advanced turbos. Engines from either the Turbo Engine Path or the

ADEAC Engine Path can adopt these technologies.

Any basic engine technologies (VVT, VVL, SGDI, and DEAC) can adopt ADSL and DSLI engine technologies. Any basic engine and diesel engine can adopt DSLIAD technology in this analysis; however, DOT applied a phase in cap and year for this technology at 34 percent and MY 2023, respectively. In DOT's engineering judgement, this is a rather complex and costly technology to adopt and it would take significant investment for a manufacturer to develop. For more than a decade, diesel engine technologies have been used in less than one percent of the total light-duty fleet production and have been found mostly on medium and heavy-duty vehicles.

Finally, DOT allows the CAFE Model to apply EFR to any engine technology except for DSLI and DSLIAD. DSLI and DSLIAD inherently have incorporated engine friction technologies from ADSL. In addition, friction reduction technologies that apply to gasoline engines cannot necessarily be applied to diesel engines due to the higher temperature and pressure operation in diesel engines.

(d) Engine Effectiveness Modeling

Effectiveness values used for engine technologies were simulated in two ways. The value was either calculated based on the difference in full vehicle simulation results created using the Autonomie modeling tool, or effectiveness values were determined using an alternate calculation method, including analogous improvement or fuel economy improvement factors.

(1) Engine Maps

Most effectiveness values used as inputs for the CAFE Model were determined by comparing results of full vehicle simulations using the Autonomie simulation tool. For a full discussion about how Autonomie was used, see Section III.C.4 and TSD Chapter 2.4, in addition to the Autonomie model documentation. Engine map models were the primary inputs used to simulate the effects of different engine technologies in the Autonomie full vehicle simulations.

Engine maps provide a three-dimensional representation of engine performance characteristics at each engine speed and load point across the operating range of the engine. Engine maps have the appearance of topographical maps, typically with engine speed on the horizontal axis and engine torque, power, or brake mean

effective pressure (BMEP)¹³⁶ on the vertical axis. A third engine characteristic, such as brake-specific fuel consumption (BSFC),¹³⁷ is displayed using contours overlaid across the speed and load map. The contours provide the values for the third characteristic in the regions of operation covered on the map. Other characteristics typically overlaid on an engine map include engine emissions, engine efficiency, and engine power. The engine maps developed to model the behavior of the engines used in this analysis are referred to as engine map models.

The engine map models used in this analysis are representative of technologies that are currently in production or are expected to be available in the rulemaking timeframe, MYs 2024–2026. The engine map models were developed to be representative of the performance achievable across industry for a given technology and are not intended to represent the performance of a single manufacturer's specific engine. The broadly representative performance level was targeted because the same combination of technologies produced by different manufacturers will have differences in performance, due to manufacturer-specific designs for engine hardware, control software, and emissions calibration.

Accordingly, DOT expects that the engine maps developed for this analysis will differ from engine maps for manufacturers' specific engines. However, DOT intends and expects that the incremental changes in performance modeled for this analysis, due to changes in technologies or technology combinations, will be similar to the incremental changes in performance observed in manufacturers' engines for the same changes in technologies or technology combinations.

The analysis never applies absolute BSFC levels from the engine maps to any vehicle model or configuration for the rulemaking analysis. The absolute fuel economy values from the full vehicle Autonomie simulations are used only to determine incremental effectiveness for switching from one technology to another technology. The incremental effectiveness is applied to the absolute fuel economy of vehicles in the analysis fleet, which are based on CAFE compliance data. For subsequent

¹³³ This is based on CBI conversation with manufacturers that currently employ HCR-based technology but saw no benefit when the technology was applied to truck platforms in their fleet.

¹³⁴ There are three manufacturers that met the criteria (near 100% turbo downsized fleet, and future hybrid systems are based on turbo-downsized engines) described and were excluded: BMW, Daimler, and Jaguar Land Rover.

¹³⁵ Nissan and Mitsubishi are strategic partners and members of the Renault-Nissan-Mitsubishi Alliance.

¹³⁶ Brake mean effective pressure is an engineering measure, independent of engine displacement, that indicates the actual work an engine performs.

¹³⁷ Brake-specific fuel consumption is the rate of fuel consumption divided by the power being produced.

technology changes, incremental effectiveness is applied to the absolute fuel economy level of the previous technology configuration. Therefore, for a technically sound analysis, it is most important that the differences in BSFC among the engine maps be accurate, and not the absolute values of the individual engine maps. However, achieving this can be challenging.

For this analysis, DOT used a small number of baseline engine configurations with well-defined BSFC maps, and then, in a very systematic and controlled process, added specific well-defined technologies to create a BSFC map for each unique technology combination. This could theoretically be done through engine or vehicle testing, but testing would need to be conducted on a single engine, and each configuration would require physical parts and associated engine calibrations to assess the impact of each technology configuration, which is impractical for the rulemaking analysis because of the extensive design, prototype part fabrication, development, and laboratory resources that are required to evaluate each unique configuration. Modeling is an approach used by industry to assess an array of technologies with more limited testing. Modeling offers the opportunity to isolate the effects of individual technologies by using a single or small number of baseline engine

configurations and incrementally adding technologies to those baseline configurations. This provides a consistent reference point for the BSFC maps for each technology and for combinations of technologies that enables the differences in effectiveness among technologies to be carefully identified and quantified.

The Autonomie model documentation provides a detailed discussion on how the engine map models were used as inputs to the full vehicle simulations performed using the Autonomie tool. The Autonomie model documentation contains the engine map model topographic figures, and additional engine map model data can be found in the Autonomie input files.¹³⁸

Most of the engine map models used in this analysis were developed by IAV GmbH (IAV) Engineering. IAV is one of the world's leading automotive industry engineering service partners with an over 35-year history of performing research and development for powertrain components, electronics, and vehicle design.¹³⁹ The primary outputs of IAV's work for this analysis are engine maps that model the operating characteristics of engines equipped with specific technologies.

¹³⁸ See additional Autonomie supporting materials in docket number NHTSA-2021-0053 for this proposal.

¹³⁹ IAV Automotive Engineering, <https://www.iav.com/en/>.

The generated engine maps were validated against IAV's global database of benchmarked data, engine test data, single cylinder test data, prior modeling studies, technical studies, and information presented at conferences.¹⁴⁰ The effectiveness values from the simulation results were also validated against detailed engine maps produced from the Argonne engine benchmarking programs, as well as published information from industry and academia, ensuring reasonable representation of simulated engine technologies.¹⁴¹ The engine map models used in this analysis and their specifications are shown in Table III-9.

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¹⁴⁰ Friedrich, I., Pucher, H., and Offer, T., "Automatic Model Calibration for Engine-Process Simulation with Heat-Release Prediction," SAE Technical Paper 2006-01-0655, 2006, <https://doi.org/10.4271/2006-01-0655>. Rezaei, R., Eckert, P., Seebode, J., and Behnk, K., "Zero-Dimensional Modeling of Combustion and Heat Release Rate in DI Diesel Engines," SAE Int. J. Engines 5(3):874-885, 2012, <https://doi.org/10.4271/2012-01-1065>. Multistage Supercharging for Downsizing with Reduced Compression Ratio (2015). MTZ Rene Berndt, Rene Pohlke, Christopher Severin and Matthias Diezemann IAV GmbH. Symbiosis of Energy Recovery and Downsizing (2014). September 2014 MTZ Publication Heiko Neukirchner, Torsten Semper, Daniel Luederitz and Oliver Dingel IAV GmbH.

¹⁴¹ Bottcher, L., Grigoriadis, P. "ANL-BSFC map prediction Engines 22-26." IAV (April 30, 2019). 20190430_ANL_Eng 22-26 Updated_Docket.pdf.

Table III-9 – Engine Map Models used in This Analysis

Engines	Technologies	Notes
Eng01	DOHC+VVT	Parent NA engine, Gasoline, 2.0L, 4 cyl, NA, PFI, DOHC, dual cam VVT, CR10.2
Eng02	DOHC+VVT+VVL	VVL added to Eng01
Eng03	DOHC+VVT+VVL+SGDI	SGDI added to Eng02, CR11
Eng04	DOHC+VVT+VVL+SGDI +DEAC	Cylinder deactivation added to Eng03
Eng5a	SOHC+VVT+PFI	Eng01 converted to SOHC (gasoline, 2.0L, 4cyl, NA, PFI, single cam VVT) For Reference Only
Eng5b	SOHC+VVT (level 1 Red. Friction)	Eng5a with valvetrain friction reduction (small friction reduction)
Eng6a	SOHC+VVT+VVL (level 1 Red. Friction)	Eng02 with valvetrain friction reduction (small friction reduction)
Eng7a	SOHC+VVT+VVL+SGDI (level 1 Red. Friction)	Eng03 with valvetrain friction reduction (small friction reduction), addition of VVL and SGDI
Eng8a	SOHC+VVT+VVL+SGDI +DEAC (level 1 Red. Friction)	Eng04 with valvetrain friction reduction (small friction reduction), addition of DEAC
Eng12	DOHC Turbo 1.6l 18bar	Parent Turbocharged Engine, Gasoline, 1.6L, 4 cyl, turbocharged, SGDI, DOHC, dual cam VVT, VVL Engine BMEP: 18 bar
Eng12 DEAC	DOHC Turbo 1.6l 18bar	Eng12 with DEAC applied, Engine BMEP 18bar
Eng13	DOHC Turbo 1.2l 24bar	Eng12 downsized to 1.2L, Engine BMEP 24 bar
Eng14	DOHC Turbo 1.2l 24bar + Cooled EGR	Cooled external EGR added to Eng13 Engine BMEP 24 bar
Eng17	Diesel	Diesel, 2.2L (measured on test bed)
Eng18	DOHC+VVT+SGDI	Gasoline, 2.0L, 4 cyl, NA, SGDI, DOHC, VVT
Eng19	DOHC+VVT+DEAC	Cylinder deactivation added to Eng01
Eng20	DOHC+VVT+VVL+DEAC	Cylinder deactivation added to Eng02
Eng21	DOHC+VVT+SGDI+DEAC	Cylinder deactivation added to Eng18
Eng22b	DOHC+VVT	Atkinson-enabled 2.5L DOHC, VVT, PFI, CR14
Eng24	Current SkyActiv 2.0l 93AKI	Non-HEV Atkinson mode, Gasoline, 2.0L, 4 cyl, DOHC, NA, SGDI, VVT, CR 13.1, 93 AKI
Eng25	Future SkyActiv 2.0l CEGR 93AKI+DEAC	Non-HEV Atkinson mode, Gasoline, 2.0L, 4 cyl, DOHC, NA, SGDI, VVT, cEGR, DEAC CR 14.1, 93 AKI For Reference Only
Eng26	Atkinson Cycle Engine	HEV and PHEV Atkinson Cycle Engine 1.8L
Eng23b	DOHC+VTG+VVT+VVL+SGDI I +cEGR	Miller Cycle, 2.0L DOHC, VTG, SGDI, cEGR, VVT, VVL, CR12
Eng23c	DOHC+VTG+VVT+SGDI +cEGR+Eboost	Eng23b with an 48V Electronic supercharger and battery pack
Eng26a	DOHC+VCR+VVT+SGDI +Turbo+cEGR	VVT, SGDI, Turbo, cEGR, VCR CR 9-12

analysis. The Eng24 and Eng25 engine maps are equivalent to the ATK and ATK2 models developed for the 2016 Draft Technical Assessment Report (TAR), EPA Proposed Determination, and Final Determination.¹⁴² The ATK1 engine model is based directly on the 2.0L 2014 Mazda SkyActiv-G (ATK) engine. The ATK2 represents an Atkinson engine concept based on the Mazda engine, adding cEGR, cylinder deactivation, and an increased compression ratio (14:1). In this analysis, Eng24 and Eng25 correspond to the HCR1 and HCR2 technologies.

The HCR2 engine map model application in this analysis follows the approach of the 2020 final rule.¹⁴³ The agency believes the use of HCR0, HCR1, and the new addition of HCR1D reasonably represents the application of Atkinson Cycle engine technologies within the current light-duty fleet and the anticipated applications of Atkinson Cycle technology in the MY 2024–2026 timeframe.

We are currently developing an updated family of HCR engine map models that will include cEGR, cylinder deactivation and a combination thereof. The new engine map models will closely align with the baseline assumptions used in the other IAV-based HCR engine map models used for the agency's analysis. The updated

engine map models will likely not be available for the final rule associated with this proposal because of engine map model testing and validation requirements but will be available for future CAFE analyses. We believe the timing for including the new engine map models is reasonable, because a manufacturer that could apply this technology in response to CAFE standards is likely not do so before MY 2026, as the application of this technology will require an engine redesign. We also believe this is reasonable given manufacturer's statements that there are diminishing returns to additional conventional engine technology improvements considering vehicle electrification commitments.

NHTSA seeks comment on whether and how to change our engine maps for HCR2 in the analysis for the final rule.

(2) Analogous Engine Effectiveness Improvements and Fuel Economy Improvement Factors

For some technologies, the effectiveness for applying an incremental engine technology was determined by using the effectiveness values for applying the same engine technology to a reasonably similar base engine. An example of this can be seen in the determination of the application

of SGDI to the baseline SOHC engine. Currently there is no engine map model for the SOHC+VVT+SGDI engine configuration. To create the effectiveness data required as an input to the CAFE Model, first, a pairwise comparison between technology configurations that included the DOHC+VVT engine (Eng1) and the DOHC+VVT+SGDI (Eng18) engine was conducted. Then, the results of that comparison were used to generate a data set of emulated performance values for adding the SGDI technology to the SOHC+VVT engine (Eng5b) systems.

The pairwise comparison is performed by finding the difference in fuel consumption performance between every technology configuration using the analogous base technology (*e.g.*, Eng1) and every technology configuration that only changes to the analogous technology (*e.g.*, Eng18). The individual changes in performance between all the technology configurations are then added to the same technology configurations that use the new base technology (*e.g.*, Eng5b) to create a new set of performance values for the new technology (*e.g.*, SOHC+VVT+SGDI). Table III–10 shows the engine technologies where analogous effectiveness values were used.

Table III-10 – Engine Technology Performance Values Determined by Analogous Effectiveness Values

Analogous Baseline	Analogous Technology	New Base Technology	New Technology
Eng1 DOHC+VVT	Eng18 DOHC+VVT+SGDI	Eng5b SOHC+VVT	SOHC+VVT+SGDI
Eng1 DOHC+VVT	Eng19 SOHC+VVT+DEAC	Eng5b SOHC+VVT	SOHC+VVT+DEAC
Eng1 DOHC+VVT	Eng20 DOHC+VVT+VVL+ DEAC	Eng5b SOHC+VVT	SOHC+VVT+VVL+ DEAC
Eng1 DOHC+VVT	Eng21 DOHC+VVT+SGDI+DE AC	Eng5b SOHC+VVT	SOHC+VVT+SGDI+ DEAC
Eng12 (TURBO1)	Eng12DEAC (TURBOD)	Eng24 (HCR1)	HCR1D

DOT also developed a static fuel efficiency improvement factor to simulate applying an engine technology for some technologies where there was

either no appropriate analogous technology or there were not enough data to create a full engine map model. The improvement factors were generally

developed based on literature review or confidential business information (CBI) provided by stakeholders. Table III–11 provides a summary of the technology

¹⁴² Ellies, B., Schenk, C., and Dekraker, P., "Benchmarking and Hardware-in-the-Loop Operation of a 2014 MAZDA SkyActiv 2.0L 13:1

Compression Ratio Engine," SAE Technical Paper 2016-01-1007, 2016, doi:10.4271/2016-01-1007.

¹⁴³ 85 FR 24425–27 (April 30, 2020).

Table III-11 – Engine Technologies Modeled Using Efficiency Improvement Factors

Baseline Technology	Fuel Efficiency Improvement Factor	New Technology
DEAC	3% for ≤ 4 Cylinders 6% for > 4 Cylinders	ADEAC
TURBOD	1.5% for ≤ 4 Cylinders 3% for > 4 Cylinders	TURBOAD
ADSL	12.8%	DSL
DSL	4.5% for small and medium non-performance cars and SUVs, and small performance cars; 7.5% for all other technology classes	DSLAD
All Engine Technologies	1.39%	EFR

(3) Engine Effectiveness Values

The effectiveness values for the engine technologies, for all ten vehicle technology classes, are shown in Figure III-8. Each of the effectiveness values shown is representative of the improvements seen for upgrading only the listed engine technology for a given

combination of other technologies. In other words, the range of effectiveness values seen for each specific technology (e.g., TURBO1) represents the addition of the TURBO1 technology to every technology combination that could select the addition of TURBO1. See Table III-12 for several specific examples. It must be emphasized, the

change in fuel consumption values between entire technology keys is used,¹⁵⁴ and not the individual technology effectiveness values. Using the change between whole technology keys captures the complementary or non-complementary interactions among technologies.

Table III-12 – Example of Effectiveness Calculations Shown in Figure III-8*

Tech	Vehicle Tech Class	Initial Technology Key	Fuel Consumption		Effectiveness (%)
			Initial (gal/mile)	New (gal/mile)	
TURBO1	Medium Car	DOHC;VVT;;;;;AT8L2;SS12V; ROLL10;AERO5;MR2	0.0282	0.0248	12.15
TURBO1	Medium Car	DOHC;VVT;;;;;AT8L2;CONV; ROLL10;AERO5;MR2	0.0292	0.0254	13.13
TURBO1	Medium Car	DOHC;VVT;;;;;AT8L2;BISG; ROLL10;AERO5;MR2	0.0275	0.0237	13.80
TURBO1	Medium Car	DOHC;VVT;;;;;AT6;SS12V; ROLL10;AERO5;MR2	0.0312	0.0269	13.80

*The ‘Tech’ is added to the ‘Initial Technology Key’ replacing the existing engine technology, resulting in the new fuel consumption value. The percent effectiveness is found by determining the percent improved fuel consumption of the new value versus the initial value.¹⁵⁵

Some of the advanced engine technologies have values that indicate seemingly low effectiveness. Investigation of these values shows the low effectiveness was a result of applying the advanced engines to existing SHEVP2 architectures. This effect is expected and illustrates the importance of using the full vehicle

modeling to capture interactions between technologies and capture instances of both complimentary technologies and non-complimentary technologies. In this instance, the SHEVP2 powertrain improves fuel economy, in part, by allowing the engine to spend more time operating at efficient engine speed and load

conditions. This reduces the advantage of adding advanced engine technologies, which also improve fuel economy, by broadening the range of speed and load conditions for the engine to operate at high efficiency. This redundancy in fuel savings mechanism results in a lower effectiveness when the technologies are added to each other.

¹⁵⁴ Technology key is the unique collection of technologies that constitutes a specific vehicle, see Section III.C.4.c).

¹⁵⁵ The full data set we used to generate this example can be found in the FE_1 Improvements file.

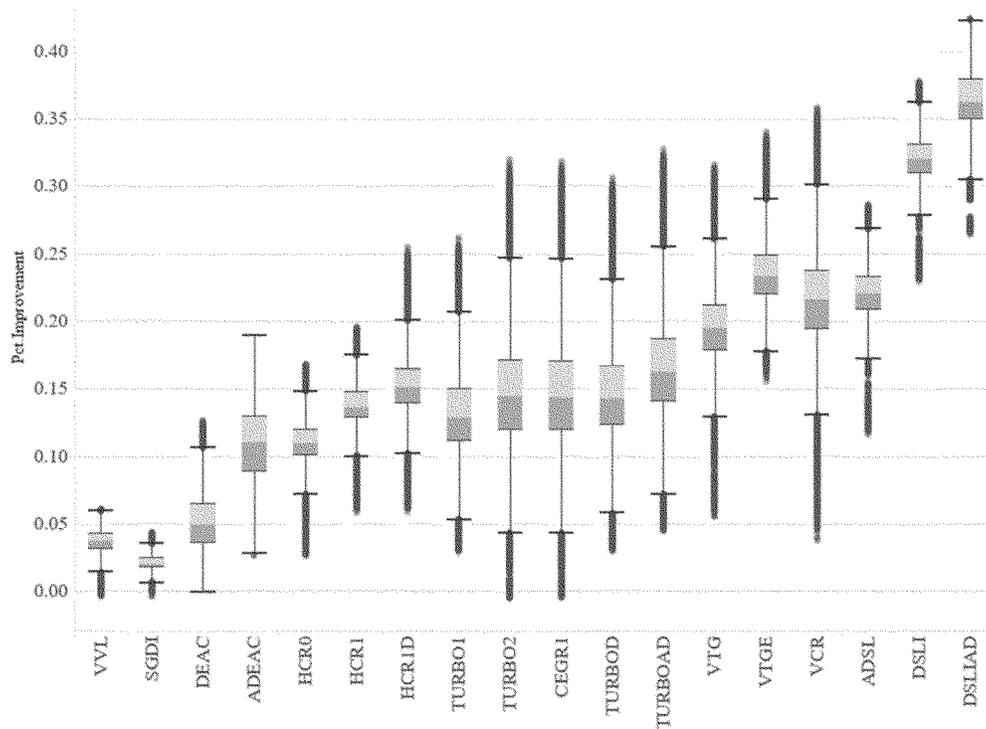


Figure III-8 – Engine Technologies Effectiveness Values for all Vehicle Technology Classes¹⁵⁶

(e) Engine Costs

The CAFE Model considers both cost and effectiveness in selecting any technology changes. We have allocated considerable resources to sponsoring research to determine direct manufacturing costs (DMCs) for fuel saving technologies. As discussed in detail in TSD Chapter 3.1.5, the engine costs used in this analysis build on estimates from the 2015 NAS report, agency-funded teardown studies, and work performed by non-government organizations.¹⁵⁷

Absolute costs of the engine technology are used in this analysis

instead of relative costs, which were used prior to the 2020 final rule. The absolute costs are used to ensure the full cost of the IC engine is removed when electrification technologies are applied specifically for the transition to BEVs. This analysis models the cost of adoption of BEV technology by first removing the costs associated with IC powertrain systems, then applying the BEV systems costs. Relative costs can still be determined through comparison of the absolute costs for the initial technology combination and the new technology combination.

As discussed in detail in TSD Chapter 3.1.5, engine costs are assigned based on

the number of cylinders in the engine and whether the engine is naturally aspirated or turbocharged and downsized. Table III-13 below shows an example of absolute costs for engine technologies in 2018\$. The example costs are shown for a straight 4-cylinder DOHC engine and V-6-cylinder DOHC engine. The table shows costs declining across successive years due to the learning rate applied to each engine technology. For a full list of all absolute engine costs used in the analysis across all model years, see the Technologies file.

¹⁵⁶ The box shows the inner quartile range (IQR) of the effectiveness values and whiskers extend out 1.5 × IQR. The dots outside this range show effectiveness values outside those thresholds. The

data used to create this figure can be found in the FE_1 Improvements file.

¹⁵⁷ FEV prepared several cost analysis studies for EPA on subjects ranging from advanced 8-speed transmissions to belt alternator starters or start/stop

systems. NHTSA contracted Electricore, EDAG, and Southwest Research for teardown studies evaluating mass reduction and transmissions. The 2015 NAS report also evaluated technology costs developed based on these teardown studies.

Table III-13 – Examples of Absolute Costs for Engine Technologies in 2018\$ for a Straight 4-Cylinder DOHC Engine and a V-6-Cylinder DOHC Engine for Select Model Years

Technology	4C1B Costs (2018\$)			6C2B Costs (2018\$)		
	MY 2020	MY 2025	MY 2030	MY 2020	MY 2025	MY 2030
EFR	66.61	63.97	57.83	99.92	95.96	86.74
VVT	5,205.13	5,201.71	5,199.02	6,059.15	6,052.31	6,046.93
VVL	5,402.62	5,393.28	5,385.95	6,298.29	6,284.28	6,273.28
SGDI	5,435.72	5,425.38	5,417.27	6,347.93	6,332.43	6,320.26
DEAC	5,268.59	5,263.27	5,259.08	6,040.39	6,034.11	6,029.18
TURBO1	6,228.96	6,179.91	6,152.15	7,073.58	7,020.02	6,989.71
TURBO2	6,807.16	6,644.50	6,538.33	7,673.21	7,498.58	7,384.60
CEGR1	7,221.06	7,019.17	6,887.39	8,087.11	7,873.26	7,733.67
ADEAC	6,292.36	6,217.71	6,174.57	7,633.14	7,521.16	7,456.45
HCR0	5,819.86	5,803.73	5,801.18	6,953.63	6,928.79	6,924.86
HCR1	5,863.02	5,833.12	5,825.45	6,996.80	6,958.18	6,949.13
HCR1D	6,040.68	6,005.45	5,993.60	7,206.43	7,161.53	7,147.55
VCR	7,370.02	7,208.71	7,124.07	8,214.65	8,048.82	7,961.63
VTG	7,592.44	7,380.16	7,241.61	8,457.91	8,234.25	8,088.26
VTGE	8,892.07	8,403.54	8,097.54	9,757.54	9,257.62	8,944.19
TURBOD	6,406.61	6,352.24	6,320.30	7,251.23	7,192.35	7,157.85
TURBOAD	6,971.41	6,861.47	6,801.38	7,816.03	7,701.57	7,638.93
ADSL	9,726.31	9,459.91	9,362.48	11,384.74	11,065.55	10,948.81
DSLI	10,226.67	9,931.51	9,823.56	12,036.41	11,679.77	11,549.33
DSLAD	10,791.47	10,440.74	10,304.64	12,883.61	12,443.61	12,270.94
CNG	11,822.52	11,612.31	11,471.76	12,676.54	12,462.91	12,319.67

2. Transmission Paths

For this analysis, DOT classified all light duty vehicle transmission technologies into discrete transmission technology paths. These paths are used to model the most representative characteristics, costs, and performance of the fuel-economy improving transmissions most likely available during the rulemaking time frame, MYs 2024–2026.

The following sections discuss how transmission technologies considered in this analysis are defined, the general technology categories used by the CAFE Model, and the transmission technologies' relative effectiveness and costs. The following sections also provide an overview of how the transmission technologies were assigned to the MY 2020 fleet, as well as the adoption features applicable to the transmission technologies.

(a) Transmission Modeling in the CAFE Model

DOT modeled two major categories of transmissions for this analysis: Automatic and manual. Automatic transmissions are characterized by automatically selecting and shifting between transmission gears for the driver during vehicle operation. Automatic transmissions are further subdivided into four subcategories: Traditional automatic transmissions (AT), dual clutch transmissions (DCT), continuously variable transmissions (CVT), and direct drive transmissions (DD).

ATs and CVTs also employ different levels of high efficiency gearbox (HEG) technology. HEG improvements for transmissions represent incremental advancement in technology that improve efficiency, such as reduced friction seals, bearings and clutches, super finishing of gearbox parts, and improved lubrication. These advancements are all aimed at reducing

frictional and other parasitic loads in transmissions to improve efficiency. DOT considered three levels of HEG improvements in this analysis, based on 2015 recommendations by the National Academy of Sciences and CBI data.¹⁵⁸ HEG efficiency improvements are applied to ATs and CVTs, as those transmissions inherently have higher friction and parasitic loads related to hydraulic control systems and greater component complexity, compared to MTs and DCTs. HEG technology improvements are noted in the transmission technology pathways by increasing “levels” of a transmission technology; for example, the baseline 8-speed automatic transmission is termed “AT8”, while an AT8 with level 2 HEG technology is “AT8L2” and an AT8 with level 3 HEG technology is “AT8L3.”

AT: Conventional planetary gear automatic transmissions are the most

¹⁵⁸ 2015 NAS report, at 191.

popular transmission.¹⁵⁹ ATs typically contain three or four planetary gear sets that provide the various gear ratios. Gear ratios are selected by activating solenoids which engage or release multiple clutches and brakes as needed. ATs are packaged with torque converters, which provide a fluid coupling between the engine and the driveline and provide a significant increase in launch torque. When transmitting torque through this fluid coupling, energy is lost due to the churning fluid. These losses can be eliminated by engaging the torque converter clutch to directly connect the engine and transmission (“lockup”). For the Draft TAR and 2020 final rule, EPA and DOT surveyed automatic transmissions in the market to assess trends in gear count and purported fuel economy improvements.¹⁶⁰ Based on that survey, and also EPA’s more recent 2019 and 2020 Automotive Trends Reports,¹⁶¹ DOT concluded that modeling ATs with a range of 5 to 10 gears, with three levels of HEG technology for this analysis was reasonable.

CVT: Conventional continuously variable transmissions consist of two cone-shaped pulleys, connected with a belt or chain. Moving the pulley halves allows the belt to ride inward or outward radially on each pulley, effectively changing the speed ratio between the pulleys. This ratio change is smooth and continuous, unlike the step changes of other transmission varieties.¹⁶² DOT modeled two types of CVT systems in the analysis, the baseline CVT and a CVT with HEG technology applied.

DCT: Dual clutch transmissions, like automatic transmissions, automate shift and launch functions. DCTs use separate clutches for even-numbered and odd-numbered gears, allowing the next gear needed to be pre-selected, resulting in faster shifting. The use of multiple clutches in place of a torque converter results in lower parasitic losses than ATs.¹⁶³ Because of a history of limited appeal,¹⁶⁴ DOT constrains application of additional DCT technology to vehicles already using DCT technology, and only models two types of DCTs in the analysis.

MT: Manual transmissions are transmissions that require direct control by the driver to operate the clutch and shift between gears. In a manual transmission, gear pairs along an output shaft and parallel layshaft are always engaged. Gears are selected via a shift lever, operated by the driver. The lever operates synchronizers, which speed match the output shaft and the selected gear before engaging the gear with the shaft. During shifting operations (and during idle), a clutch between the engine and transmission is disengaged to decouple engine output from the transmission. Automakers today offer a minimal selection of new vehicles with manual transmissions.¹⁶⁶ As a result of reduced market presence, DOT only included three variants of manual transmissions in the analysis.

The transmission model paths used in this analysis are shown in Figure III–9. Baseline-only technologies (MT5, AT5, AT7L2, AT9L2, and CVT) are grayed and can only be assigned as initial vehicle transmission configurations. Further details about transmission path modeling can be found in TSD Chapter 3.2.

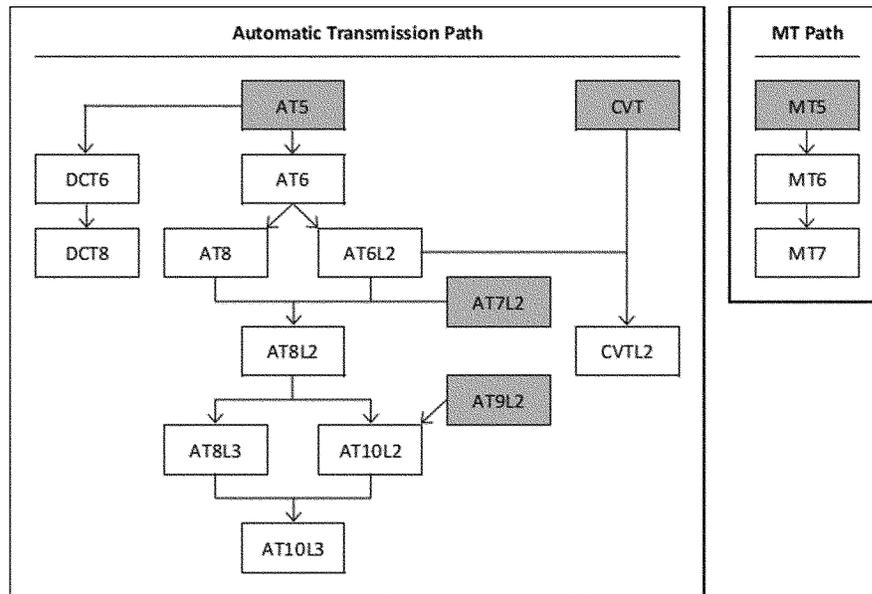


Figure III-9 – CAFE Model Pathways for Transmission Technologies

¹⁵⁹ 2020 EPA Automotive Trends Report, at 57–61.

¹⁶⁰ Draft TAR at 5–50, 5–51; Final Regulatory Impact Analysis accompanying the 2020 final rule, at 549.

¹⁶¹ The 2019 EPA Automotive Trends Report, EPA–420–R–20–006, at 59 (March 2020), <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100YVFS.pdf> [hereinafter 2019 EPA Automotive Trends Report], at 57.

¹⁶² 2015 NAS report, at 171.

¹⁶³ 2015 NAS report, at 170.

¹⁶⁴ 2020 EPA Automotive Trends Report, at 57.

¹⁶⁵ National Academies of Sciences, Engineering, and Medicine 2021. Assessment of Technologies for Improving Light-Duty Vehicle Fuel Economy 2025–2035. Washington, DC: The National Academies Press. <https://doi.org/10.17226/26092>, at 4–56 [hereinafter 2021 NAS report].

¹⁶⁶ 2020 EPA Automotive Trends Report, at 61.

(b) Transmission Analysis Fleet Assignments

The wide variety of transmissions on the market are classified into discrete transmission technology paths for this analysis. These paths are used to model the most representative characteristics, costs, and performance of the fuel economy-improving technologies most likely available during the rulemaking time frame.

For the 2020 analysis fleet, DOT gathered data on transmissions from manufacturer mid-model year CAFE compliance submissions and publicly available manufacturer specification sheets. These data were used to assign transmissions in the analysis fleet and determine which platforms shared transmissions.

Transmission type, number of gears, and high-efficiency gearbox (HEG) level are all specified for the baseline fleet assignment. The number of gears in the assignments for automatic and manual transmissions usually match the number of gears listed by the data sources, with some exceptions. Four-speed transmissions were not modeled in Autonomie for this analysis due to their rarity and low likelihood of being used in the future, so DOT assigned 2020 vehicles with an AT4 or MT4 to an AT5 or MT5 baseline, respectively. Some dual-clutch transmissions were also an exception; dual-clutch transmissions with seven gears were assigned to DCT6.

For automatic and continuously variable transmissions, the identification of the most appropriate transmission path required additional steps; this is because high-efficiency gearboxes are considered in the analysis but identifying HEG level from specification sheets alone was not always straightforward. DOT conducted a review of the age of the transmission design, relative performance versus previous designs, and technologies incorporated and used the information obtained to assign an HEG level. No automatic transmissions in the MY 2020 analysis fleet were determined to be at HEG Level 3. In addition, no six-speed automatic transmissions were assigned HEG Level 2. However, DOT found all 7-speed, all 9-speed, all 10-speed, and some 8-speed automatic transmissions to be advanced transmissions operating at HEG Level 2 equivalence. Eight-speed automatic transmissions developed after MY 2017 are assigned HEG Level 2. All other transmissions are assigned to their respective transmission's baseline level. The baseline (HEG level 1) technologies available include AT6, AT8, and CVT.

DOT assigned any vehicle in the analysis fleet with a hybrid or electric

powertrain a direct drive (DD) transmission. This designation is for informational purposes; if specified, the transmission will not be replaced or updated by the model.

In addition to technology type, gear count, and HEG level, transmissions are characterized in the analysis fleet by drive type and vehicle architecture. Drive types considered in the analysis include front-, rear-, all-, and four-wheel drive. The definition of drive types in the analysis does not always align with manufacturers' drive type designations; see the end of this subsection for further discussion. These characteristics, supplemented by information such as gear ratios and production locations, showed that manufacturers use transmissions that are the same or similar on multiple vehicle models. Manufacturers have told the agency they do this to control component complexity and associated costs for development, manufacturing, assembly, and service. If multiple vehicle models share technology type, gear count, drive configuration, internal gear ratios, and production location, the transmissions are treated as a single group for the analysis. Vehicles in the analysis fleet with the same transmission configuration adopt additional fuel-saving transmission technology together, as described in Section III.C.2.a).

Shared transmissions are designated and tracked in the CAFE Model input files using transmission codes. Transmission codes are six-digit numbers that are assigned to each transmission and encode information about them. This information includes the manufacturer, drive configuration, transmission type, and number of gears. TSD Chapter 3.2.2 includes more information on the transmission codes designated in the MY 2020 analysis fleet.

Different transmission codes are assigned to variants of a transmission that may have appeared to be similar based on the characteristics considered in the analysis but are not mechanically identical. DOT analysts distinguish among transmission variants by comparing their internal gear ratios and production locations. For example, several Ford nameplates carry a rear-wheel drive, 10-speed automatic transmission. These nameplates comprise a wide variety of body styles and use cases, and so DOT assigned different transmission codes to these different nameplates. Because they have different transmission codes, they are not treated as "shared" for the purposes of the analysis and have the opportunity

to adopt transmission technologies independently.

Note that when determining the drive type of a transmission, the assignment of all-wheel drive versus four-wheel drive is determined by vehicle architecture. This assignment does not necessarily match the drive type used by the manufacturer in specification sheets and marketing materials. Vehicles with a powertrain capable of providing power to all wheels and a transverse engine (front-wheel drive architecture) are assigned all-wheel drive. Vehicles with power to all four wheels and a longitudinal engine (rear-wheel drive architecture) are assigned four-wheel drive.

(c) Transmission Adoption Features

Transmission technology pathways are designed to prevent "branch hopping"—changes in transmission type that would correspond to significant changes in transmission architecture—for vehicles that are relatively advanced on a given pathway. For example, any automatic transmission with more than five gears cannot move to a dual-clutch transmission. For a more detailed discussion of path logic applied in the analysis, including technology supersession logic and technology mutual exclusivity logic, please see CAFE Model Documentation S4.5 Technology Constraints (Supersession and Mutual Exclusivity). Additionally, the CAFE Model prevents "branch hopping" to prevent stranded capital associated with moving from one transmission architecture to another. Stranded capital is discussed in Section III.C.6.

Some technologies that are modeled in the analysis are not yet in production, and therefore are not assigned in the baseline fleet. Nonetheless, these technologies, which are projected to be available in the analysis timeframe, are available for future adoption. For instance, an AT10L3 is not observed in the baseline fleet, but it is plausible that manufacturers that employ AT10L2 technology may improve the efficiency of those AT10L2s in the rulemaking timeframe.

The following sections discuss specific adoption features applied to each type of transmission technology.

When electrification technologies are adopted, the transmissions associated with those technologies will supersede the existing transmission on a vehicle. The transmission technology is superseded if P2 hybrids, plug-in hybrids, or battery electric vehicle technologies are applied. For more information, see Section III.D.3.c).

The automatic transmission path precludes adoption of other transmission types once a platform progresses past an AT6. This restriction is used to avoid the significant level of stranded capital loss that could result from adopting a completely different transmission type shortly after adopting an advanced transmission, which would occur if a different transmission type were adopted after AT6 in the rulemaking timeframe.

Vehicles that did not start out with AT7L2 or AT9L2 transmissions cannot adopt those technologies in the model. The agency observed that MY 2017 vehicles with those technologies were primarily luxury performance vehicles and concluded that other vehicles would likely not adopt those technologies. DOT concluded that this was also a reasonable assumption for the MY 2020 analysis fleet because vehicles that have moved to more advanced automatic transmissions have overwhelmingly moved to 8-speed and 10-speed transmissions.¹⁶⁷

CVT adoption is limited by technology path logic. CVTs cannot be adopted by vehicles that do not originate with a CVT or by vehicles with multispeed transmissions beyond AT6 in the baseline fleet. Vehicles with multispeed transmissions greater than AT6 demonstrate increased ability to operate the engine at a highly efficient speed and load. Once on the CVT path, the platform is only allowed to apply improved CVT technologies. The analysis restricts the application of CVT technology on larger vehicles because of the higher torque (load) demands of those vehicles and CVT torque limitations based on durability constraints. Additionally, this restriction is used to avoid the significant level of stranded capital.

The analysis allows vehicles in the baseline fleet that have DCTs to apply an improved DCT and allows vehicles with an AT5 to consider DCTs.

Drivability and durability issues with some DCTs have resulted in a low relative adoption rate over the last decade; this is also broadly consistent with manufacturers' technology choices.¹⁶⁸

Manual transmissions can only move to more advanced manual transmissions for this analysis, because other transmission types do not provide a similar driver experience (utility). Manual transmissions cannot adopt AT, CVT, or DCT technologies under any circumstance. Other transmissions cannot move to MT because manual transmissions lack automatic shifting associated with the other transmission types (utility) and in recognition of the low customer demand for manual transmissions.¹⁶⁹

(d) Transmission Effectiveness Modeling

For this analysis, DOT used the Autonomie full vehicle simulation tool to model the interaction between transmissions and the full vehicle system to improve fuel economy, and how changes to the transmission subsystem influence the performance of the full vehicle system. The full vehicle simulation approach clearly defines the contribution of individual transmission technologies and separates those contributions from other technologies in the full vehicle system. The modeling approach follows the recommendations of the National Academy of Sciences in its 2015 light duty vehicle fuel economy technology report to use full vehicle modeling supported by application of collected improvements at the sub-model level.¹⁷⁰ See TSD Chapter 3.2.4 for more details on transmission modeling inputs and results.

The only technology effectiveness results that were not directly calculated using the Autonomie simulation results were for the AT6L2. DOT determined that the model for this specific technology was inconsistent with the

other transmission models and overpredicted effectiveness results. Evaluation of the AT6L2 transmission model revealed an overestimated efficiency map was developed for the AT6L2 model. The high level of efficiency assigned to the transmission surpassed benchmarked advanced transmissions.¹⁷¹ To address the issue, DOT replaced the effectiveness values of the AT6L2 model. DOT replaced the effectiveness for the AT6L2 technology with analogous effectiveness values from the AT7L2 transmission model. For additional discussion on how analogous effectiveness values are determined please see Section III.D.1.d)(2).

The effectiveness values for the transmission technologies, for all ten vehicle technology classes, are shown in Figure III–10. Each of the effectiveness values shown is representative of the improvements seen for upgrading only the listed transmission technology for a given combination of other technologies. In other words, the range of effectiveness values seen for each specific technology, *e.g.*, AT10L3, represents the addition of the AT10L3 technology to every technology combination that could select the addition of AT10L3. It must be emphasized that the graph shows the change in fuel consumption values between entire technology keys,¹⁷² and not the individual technology effectiveness values. Using the change between whole technology keys captures the complementary or non-complementary interactions among technologies. In the graph, the box shows the inner quartile range (IQR) of the effectiveness values and whiskers extend out $1.5 \times \text{IQR}$. The dots outside of the whiskers show values for effectiveness that are outside these bounds.

¹⁷¹ Autonomie model documentation, Chapter 5.3.4. Transmission Performance Data.

¹⁷² Technology key is the unique collection of technologies that constitutes a specific vehicle, *see* Section III.C.4.c).

¹⁶⁷ 2020 EPA Automotive Trends Report, at 64, figure 4.18.

¹⁶⁸ *Ibid.*

¹⁶⁹ *Ibid.*

¹⁷⁰ 2015 NAS report, at 292.

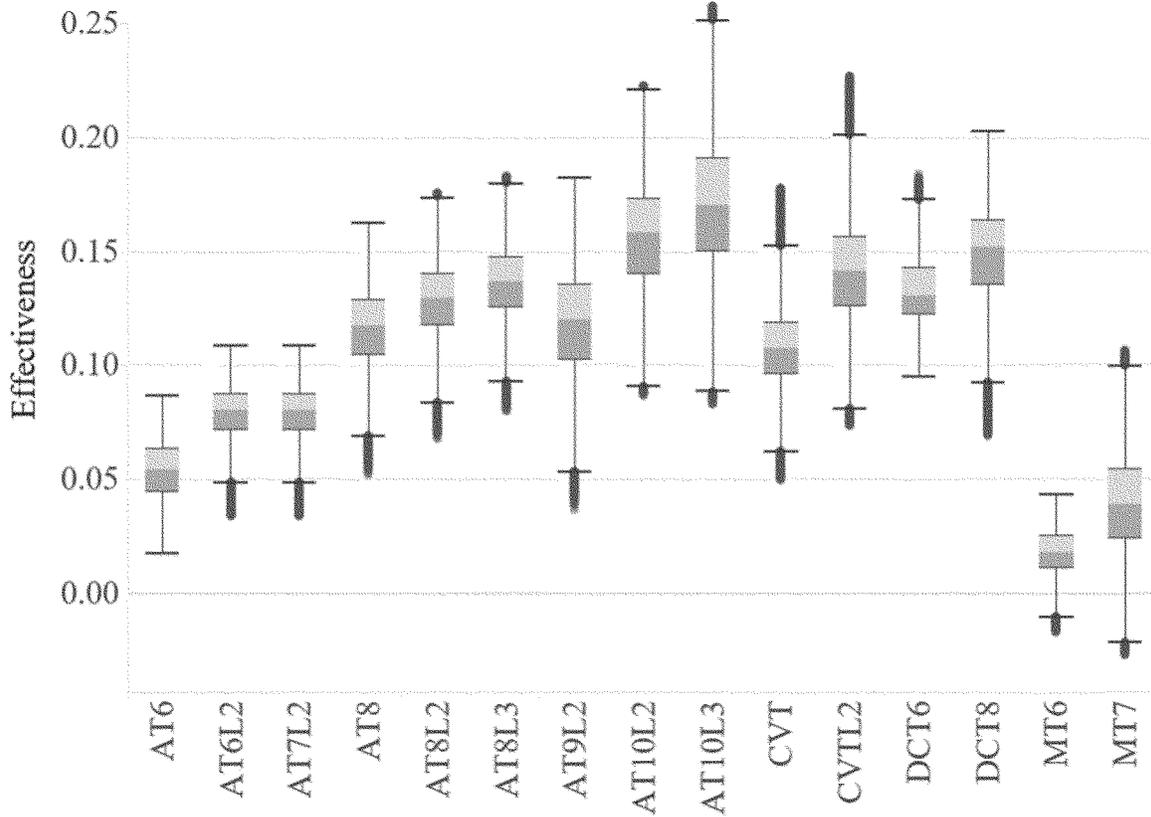


Figure III-10 – Transmission Technologies Effectiveness Values for all Vehicle Technology Classes¹⁷³

Note that the effectiveness for the MT5, AT5 and DD technologies are not shown. The DD transmission does not have a standalone effectiveness because it is only implemented as part of electrified powertrains. The MT5 and AT5 also have no effectiveness values because both technologies are baseline technologies against which all other technologies are compared.

(e) Transmission Costs

This analysis uses transmission costs drawn from several sources, including the 2015 NAS report and NAS-cited studies. TSD Chapter 3.2.5 provides a detailed description of the cost sources used for each transmission technology. Table III-14 shows an example of absolute costs for transmission technologies in 2018\$ across select

model years, which demonstrates how cost learning is applied to the transmission technologies over time. Note, because transmission hardware is often shared across vehicle classes, transmission costs are the same for all vehicle classes. For a full list of all absolute transmission costs used in the analysis across all model years, see the Technologies file.

¹⁷³ The data used to create this figure can be found in the FE_1 Improvements file.

Table III-14 – Examples of Absolute Costs for Transmission Technologies in 2018\$ for Select Model Years

Technology	MY 2020	MY 2025	MY 2030
MT5	1,563.97	1,563.97	1,563.97
MT6	1,928.41	1,917.08	1,910.70
MT7	2,226.75	2,100.64	2,034.88
AT5	2,085.30	2,085.30	2,085.30
AT6	2,063.19	2,063.19	2,063.19
AT6L2	2,331.44	2,303.65	2,293.25
AT7L2	2,298.63	2,276.53	2,268.26
AT8	2,195.36	2,195.18	2,195.15
AT8L2	2,442.32	2,405.33	2,391.49
AT8L3	2,649.15	2,590.74	2,568.89
AT9L2	2,546.03	2,498.29	2,480.43
AT10L2	2,546.03	2,498.29	2,480.43
AT10L3	2,753.44	2,684.21	2,658.31
DCT6	2,115.89	2,115.84	2,115.84
DCT8	2,653.91	2,653.15	2,653.02
CVT	2,332.83	2,322.63	2,315.25
CVTL2	2,518.80	2,500.94	2,488.02

3. Electrification Paths

The electric paths include a large set of technologies that share the common element of using electrical power for certain vehicle functions that were traditionally powered mechanically by engine power. Electrification technologies thus can range from electrification of specific accessories (for example, electric power steering to reduce engine loads by eliminating parasitic losses) to electrification of the entire powertrain (as in the case of a battery electric vehicle).

The following subsections discuss how each electrification technology is defined in the CAFE Model and the electrification pathways down which a vehicle can travel in the compliance simulation. The subsections also discuss how the agency assigned electrified vehicle technologies to vehicles in the MY 2020 analysis fleet, any limitations on electrification technology adoption, and the specific effectiveness and cost

assumptions used in the Autonomie and CAFE Model analysis.

(a) Electrification Modeling in the CAFE Model

The CAFE Model defines the technology pathway for each type of electrification grouping in a logical progression. Whenever the CAFE Model converts a vehicle model to one of the available electrified systems, both effectiveness and costs are updated according to the specific components' modeling algorithms. Additionally, all technologies on the different electrification paths are mutually exclusive and are evaluated in parallel. For example, the model may evaluate PHEV20 technology prior to having to apply 12-volt stop-start (SS12V) or strong hybrid technology. The specific set of algorithms and rules are discussed further in the sections below, and more detailed discussions are included in the CAFE Model Documentation. The

specifications for each electrification technology used in the analysis is discussed below.

The technologies that are included on the three vehicle-level paths pertaining to the electrification and electric improvements defined within the modeling system are illustrated in Figure III-11. As shown in the Electrification path, the baseline-only CONV technology is grayed out. This technology is used to denote whether a vehicle comes in with a conventional powertrain (*i.e.*, a vehicle that does not include any level of hybridization) and to allow the model to properly map to the Autonomie vehicle simulation database results. If multiple branches converge on a single technology, the subset of technologies that will be disabled from further adoption is extended only up the point of convergence.

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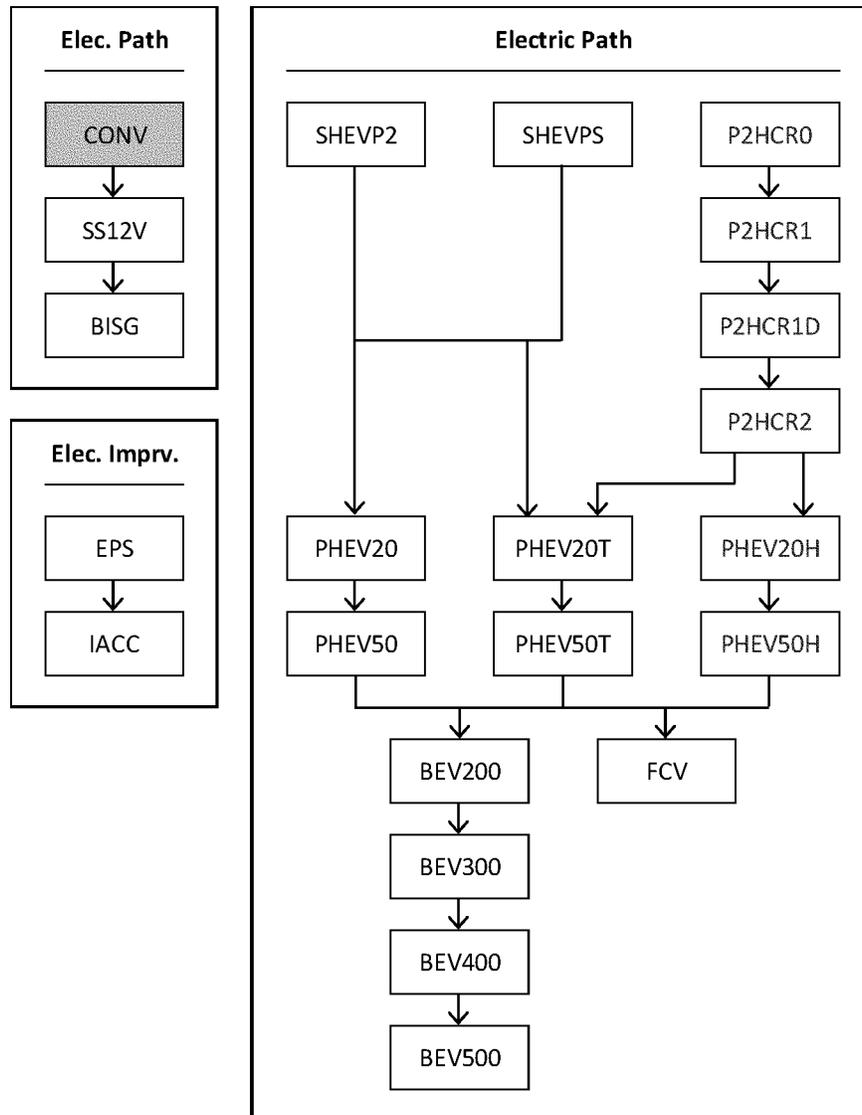


Figure III-11 – Electrification Paths in the CAFE Model

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SS12V: 12-volt stop-start (SS12V), sometimes referred to as start-stop, idle-stop, or a 12-volt micro hybrid system, is the most basic hybrid system that facilitates idle-stop capability. In this system, the integrated starter generator is coupled to the internal combustion (IC) engine. When the vehicle comes to an idle-stop the IC engine completely shuts off, and, with the help of the 12-volt battery, the engine cranks and starts again in response to throttle to move the vehicle, application or release of the brake pedal to move the vehicle. The 12-volt battery used for the start-stop system is an improved unit compared to a traditional 12-volt battery, and is capable of higher power, increased life cycle, and capable of minimizing voltage drop on restart. This technology is beneficial to reduce fuel consumption

and emissions when the vehicle frequently stops, such as in city driving conditions or in stop and go traffic. 12VSS can be applied to all vehicle technology classes.

BISG: The belt integrated starter generator, sometimes referred to as a mild hybrid system or P0 hybrid, provides idle-stop capability and uses a higher voltage battery with increased energy capacity over conventional automotive batteries. These higher voltages allow the use of a smaller, more powerful and efficient electric motor/generator which replaces the standard alternator. In BISG systems, the motor/generator is coupled to the engine via belt (similar to a standard alternator). In addition, these motor/generators can assist vehicle braking and recover braking energy while the vehicle slows down (regenerative braking) and in turn

can propel the vehicle at the beginning of launch, allowing the engine to be restarted later. Some limited electric assist is also provided during acceleration to improve engine efficiency. Like the micro hybrids, BISG can be applied to all vehicles in the analysis except for Engine 26a (VCR). We assume all mild hybrids are 48-volt systems with engine belt-driven motor/generators.

SHEVP2/SHEVPS: A strong hybrid vehicle is a vehicle that combines two or more propulsion systems, where one uses gasoline (or diesel), and the other captures energy from the vehicle during deceleration or braking, or from the engine and stores that energy for later used by the vehicle. This analysis evaluated the following strong hybrid systems: Hybrids with “P2” parallel

drivetrain architectures (SHEVP2),¹⁷⁴ and hybrids with power-split architectures (SHEVPS). Both types provide start-stop or idle-stop functionality, regenerative braking capability, and vehicle launch assist. A SHEVPS has a higher potential for fuel economy improvement than a SHEVP2, although its cost is also higher and engine power density is lower.¹⁷⁵

P2 parallel hybrids (SHEVP2) are a type of hybrid vehicle that use a transmission-integrated electric motor placed between the engine and a gearbox or CVT, with a clutch that allows decoupling of the motor/transmission from the engine. Although similar to the configuration of the crank mounted integrated starter generator (CISG) system discussed previously, a P2 hybrid is typically equipped with a larger electric motor and battery in comparison to the CISG. Disengaging the clutch allows all-electric operation and more efficient brake-energy recovery. Engaging the clutch allows coupling of the engine and electric motor and, when combined with a transmission, reduces gear-train losses relative to power-split or 2-mode hybrid systems. P2 hybrid systems typically rely on the internal combustion engine to deliver high, sustained power levels.

Electric-only mode is used when power demands are low or moderate.

An important feature of the SHEVP2 system is that it can be applied in conjunction with most engine technologies. Accordingly, once a vehicle is converted to a SHEVP2 powertrain in the compliance simulation, the CAFE Model allows the vehicle to adopt the conventional engine technology that is most cost effective, regardless of relative location of the existing engine on the engine technology path. For example, a vehicle in the MY 2020 analysis fleet that starts with a TURBO2 engine could adopt a TURBO1 engine with the SHEVP2 system, if that TURBO1 engine allows the vehicle to meet fuel economy standards more cost effectively.

The power-split hybrid (SHEVPS) is a hybrid electric drive system that replaces the traditional transmission with a single planetary gear set (the power-split device) and a motor/generator. This motor/generator uses the engine either to charge the battery or to supply additional power to the drive motor. A second, more powerful motor/generator is connected to the vehicle's final drive and always turns with the wheels. The planetary gear splits engine power between the first motor/generator and the drive motor either to charge the

battery or to supply power to the wheels. During vehicle launch, or when the battery state of charge (SOC) is high, the engine is turned off and the electric motor propels the vehicle.¹⁷⁶ During normal driving, the engine output is used both to propel the vehicle and to generate electricity. The electricity generated can be stored in the battery and/or used to drive the electric motor. During heavy acceleration, both the engine and electric motor (by consuming battery energy) work together to propel the vehicle. When braking, the electric motor acts as a generator to convert the kinetic energy of the vehicle into electricity to charge the battery.

Table III–15 below shows the configuration of conventional engines and transmissions used with strong hybrids for this analysis. The SHEVPS powertrain configuration was paired with a planetary transmission (eCVT) and Atkinson engine (Eng26). This configuration was designed to maximize efficiency at the cost of reduced towing capability and real-world acceleration performance.¹⁷⁷ In contrast, the SHEVP2 powertrains were paired with an advanced 8-speed automatic transmissions (AT8L2) and could be paired with most conventional engines.¹⁷⁸

Table III-15 – Configuration of Strong Hybrid Architectures with Transmissions and Engines

CAFE Model Technologies	Transmission Options	Engine Options (PC/SUV)	Engine Options (LT)
SHEVPS	Planetary - eCVT	Eng 26 - Atkinson	N/A
SHEVP2 ¹⁷⁹	AT8L2	All Engines except for VTGE and VCR	All Engines except for VTGE and VCR

PHEV: Plug-in hybrid electric vehicles are hybrid electric vehicles with the means to charge their battery packs from an outside source of electricity (usually the electric grid). These vehicles have larger battery packs with more energy storage and a greater capability to be discharged than other non-plug-in

hybrid electric vehicles. PHEVs also generally use a control system that allows the battery pack to be substantially depleted under electric-only or blended mechanical/electric operation and batteries that can be cycled in charge-sustaining operation at a lower state of charge than non-plug-in

hybrid electric vehicles. These vehicles generally have a greater all-electric range than typical strong HEVs. Depending on how these vehicles are operated, they can use electricity exclusively, operate like a conventional hybrid, or operate in some combination of these two modes.

¹⁷⁴ Depending on the location of electric machine (motor with or without inverter), the parallel hybrid technologies are classified as P0-motor located at the primary side of the engine, P1-motor located at the flywheel side of the engine, P2-motor located between engine and transmission, P3-motor located at the transmission output, and P4-motor located on the axle.

¹⁷⁵ Kapadia, J., Kok, D., Jennings, M., Kuang, M. et al., "Powersplit or Parallel—Selecting the Right Hybrid Architecture," SAE Int. J. Alt. Power. 6(1):2017, doi:10.4271/2017-01-1154.

¹⁷⁶ Autonomie model documentation, Chapter 4.13.2.

¹⁷⁷ Kapadia, J., D, Kok, M, Jennings, M, Kuang, B, Masterson, R, Isaacs, A, Dona. 2017. Powersplit or Parallel—Selecting the Right Hybrid Architecture.

SAE International Journal of Alternative Powertrains 6 (1): 68–76. <https://doi.org/10.4271/2017-01-1154>.

¹⁷⁸ We did not model SHEVP2s with VTGE (Eng23c) and VCR (Eng26a).

¹⁷⁹ Engine 01, 02, 03, 04, 5b, 6a, 7a, 8a, 12, 12-DEAC, 13, 14, 17, 18, 19, 20, 21, 22b, 23b, 24, 24-Deac. See Section III.D.1 for these engine specifications.

There are four PHEV architectures included in this analysis that reflect combinations of two levels of all-electric range (AER) and two engine types. DOT selected 20 miles AER and 50 miles AER to reasonably span the various AER in the market, and their effectiveness and cost. DOT selected an Atkinson engine and a turbocharged downsized engine to span the variety of engines in the market.

PHEV20/PHEV20H and PHEV50/PHEV50H are essentially a SHEVPS with a larger battery and the ability to drive with the engine turned off. In the CAFE Model, the designation for “H” in PHEVxH could represent another type of engine configuration, but for this analysis DOT used the same

effectiveness values as PHEV20 and PHEV50 to represent PHEV20H and PHEV50H, respectively. The PHEV20/PHEV20H represents a “blended-type” plug-in hybrid, which can operate in all-electric (engine off) mode only at light loads and low speeds, and must blend electric motor and engine power together to propel the vehicle at medium or high loads and speeds. The PHEV50/PHEV50H represents an extended range electric vehicle (EREV), which can travel in all-electric mode even at higher speeds and loads. Further discussion of engine sizing, batteries, and motors for these PHEVs is discussed in Section III.D.3.d).

PHEV20T and PHEV50T are 20 mile and 50 mile AER vehicles based on the

SHEVPS engine architecture. The PHEV versions of these architectures include larger batteries and motors to meet performance in charge sustaining mode at higher speeds and loads as well as similar performance and range in all electric mode in city driving, at higher speeds and loads. For this analysis, the CAFE Model considers these PHEVs to have an advanced 8-speed automatic transmission (AT8L2) and TURBO1 (Eng12) in the powertrain configuration. Further discussion of engine sizing, batteries, and motors for these PHEVs is discussed in Section III.D.3.d).

Table III–16 shows the different PHEV configurations used in this analysis.

Table III-16 – Configuration of Plug-in Hybrid Architectures with Transmissions and Engines

CAFE Model Technologies	Transmission Options	Engine Options (PC/SUV)	Engine Options (LT)
PHEV20/PHEV20H	Planetary - eCVT	Eng 26 – Atkinson Engine	N/A
PHEV20T	AT8L2	Eng 12 - TURBO1	Eng 12 - TURBO1
PHEV50/PHEV50H	Planetary - eCVT	Eng 26 - Atkinson	N/A
PHEV50T	AT8L2	Eng 12 - TURBO1	Eng 12 - TURBO1

BEV: Battery electric vehicles are equipped with all-electric drive systems powered by energy-optimized batteries charged primarily by electricity from the grid. BEVs do not have a combustion engine or traditional transmission. Instead, BEVs rely on all electric powertrains, with an advanced transmission packaged with the powertrain. The range of battery electric vehicles vary by vehicle and battery pack size.

DOT simulated BEVs with ranges of 200, 300, 400, and 500 miles in the CAFE Model. BEV range is measured pursuant to EPA test procedures and guidance.¹⁸⁰ The CAFE Model assumes that BEVs transmissions are unique to each vehicle (*i.e.*, the transmissions are not shared by any other vehicle) and

that no further improvements are available.

A key note about the BEVs offered in this analysis is that the CAFE Model does not account for vehicle range when considering additional BEV technology adoption. That is, the CAFE Model does not have an incentive to build BEV300, 400, and 500s, because the BEV200 is just as efficient as those vehicles and counts the same toward compliance, but at a significantly lower cost because of the smaller battery. While manufacturers have been building 200-mile range BEVs, those vehicles have generally been passenger cars. Manufacturers have told DOT that greater range is important for meeting the needs of broader range of consumers and to increase consumer demand. More recently, there has been a trend towards manufacturers building higher range BEVs in the market, and manufacturers building CUV/SUV and pickup truck BEVs. To simulate the potential relationship of BEV range to consumer demand, DOT has included several

adoption features for BEVs. These are discussed further in Section III.D.3.c).

Fuel cell electric vehicle (FCEV): Fuel cell electric vehicles are equipped with an all-electric drivetrain, but unlike BEVs, FCEVs do not solely rely on batteries; rather, electricity to run the FCEV electric motor is mainly generated by an onboard fuel cell system. FCEV architectures are similar to series hybrids,¹⁸¹ but with the engine and generator replaced by a fuel cell. Commercially available FCEVs consume hydrogen to generate electricity for the fuel cell system, with most automakers using high pressure gaseous hydrogen storage tanks. FCEVs are currently produced in limited numbers and are available in limited geographic areas where hydrogen refueling stations are accessible. For reference, in MY 2020, only four FCV models were offered for

¹⁸⁰ BEV electric ranges are determined per EPA guidance Document. “EPA Test Procedure for Electric Vehicles and Plug-in Hybrids.” <https://fuel-economy.gov/feg/pdfs/EPA%20test%20procedure%20for%20EVs-PHEVs-11-14-2017.pdf>. November 14, 2017. Last Accessed May 3, 2021.

¹⁸¹ Series hybrid architecture is a strong hybrid that has the engine, electric motor and transmission in series. The engine in a series hybrid drives a generator that charges the battery.

sale, and since 2014 only 9,975 FCVs have been sold.^{182 183}

For this analysis, the CAFE Model simulates a FCEV with a range of 320 miles. Any type of powertrain could adopt a FCEV powertrain; however, to account for limited market penetration and unlikely increased adoption in the rulemaking timeframe, technology phase in caps were used to control how many FCEVs a manufacturer could build. The details of this concept are further discussed in Section III.D.3.c).

(b) Electrification Analysis Fleet Assignments

DOT identified electrification technologies present in the baseline fleet and used these as the starting point for the regulatory analysis. These assignments were based on manufacturer-submitted CAFE compliance information, publicly available technical specifications, marketing brochures, articles from

reputable media outlets, and data from Wards Intelligence.¹⁸⁴

Table III–17 gives the baseline fleet penetration rates of electrification technologies eligible to be assigned in the baseline fleet. Over half the fleet had some level of electrification, with the vast majority of these being micro hybrids. BEVs represented less than 2% of MY 2020 baseline fleet; BEV300 was the most common BEV technology, while no BEV500s were observed.

Table III-17 – Penetration Rate of Electrification Technologies in the MY 2020 Fleet

Electrification Technology	Sales Volume with this Technology	Penetration Rate in 2020 Baseline Fleet
None	5,791,220	42.61%
SS12V	6,837,257	50.30%
BISG	258,629	1.90%
SHEVP2	6,409	0.05%
SHEVPS	378,523	2.78%
PHEV20	46,393	0.34%
PHEV20T	18,943	0.14%
PHEV50	2,392	0.02%
PHEV50T	18	0.0001%
BEV200	72,123	0.53%
BEV300	145,900	1.07%
BEV400	34,000	0.25%
BEV500	0	0%
FCV	744	0.005%

Micro and mild hybrids refer to the presence of SS12V and BISG, respectively. The data sources discussed above were used to identify the presence of these technologies on vehicles in the fleet. Vehicles were assigned one of these technologies only if its presence could be confirmed with manufacturer brochures or technical specifications.

Strong hybrid technologies included SHEVPS and SHEVP2. Note that P2HCR0, P2HCR1, P2HCR1D, and P2HCR2 are not assigned in the fleet and are only available to be applied by the model. When possible, manufacturer specifications were used to identify the strong hybrid architecture type. In the absence of more sophisticated information, hybrid architecture was

determined by number of motors. Hybrids with one electric motor were assigned P2, and those with two were assigned power-split (PS). DOT seeks comment on additional ways the agency could perform initial hybrid assignments based on publicly available information.

Plug-in hybrid technologies PHEV20/20T and PHEV50/50T are assigned in the baseline fleet. PHEV20H and PHEV50H are not assigned in the fleet and are only available to be applied by the model. Vehicles with an electric-only range of 40 miles or less were assigned PHEV20; those with a range above 40 miles were assigned PHEV50. They were respectively assigned PHEV20T/50T if the engine was turbocharged (*i.e.*, if it would qualify for

one of technologies on the turbo engine technology pathway). DOT also had to calculate baseline fuel economy values for PHEV technologies as part of the PHEV analysis fleet assignments; that process is described in detail in TSD Chapter 3.3.2.

Fuel cell and battery electric vehicle technologies included BEV200/300/400/500 and FCV. Vehicles with all-electric powertrains that used hydrogen fuel were assigned FCV. The BEV technologies were assigned to vehicles based on range thresholds that best account for vehicles' existing range capabilities while allowing room for the model to potentially apply more advanced electrification technologies.

¹⁸² Argonne National Laboratory, "Light Duty Electric Drive Vehicles Monthly Sales Update." Energy Systems Division, <https://www.anl.gov/es/light-duty-electric-drive-vehicles-monthly-sales-updates>. Last Accessed May 4, 2021.

¹⁸³ See the MY 2020 Market Data file. The four vehicles are the Honda Clarity, Hyundai Nexo and Nexo Blue, and Toyota Mirai.

¹⁸⁴ "U.S. Car and Light Truck Specifications and Prices, '20 Model Year." *Wards Intelligence*, 3 Aug. 2020, wardsintelligence.informa.com/WI964244/US-Car-and-Light-Truck-Specifications-and-Prices-20-Model-Year.

For more detail about the electrification analysis fleet assignment process, see TSD Chapter 3.3.2.

(c) Electrification Adoption Features

Multiple types of adoption features applied to the electrification technologies. The hybrid/electric technology path logic dictated how vehicles could adopt different levels of electrification technology. Broadly speaking, more advanced levels of hybridization or electrification superseded all prior levels, with certain technologies within each level being mutually exclusive. The analysis modeled (from least to most electrified) micro hybrids, mild hybrids, strong hybrids, plug-in hybrids, and fully electric vehicles.

As discussed further below, SKIP logic—restrictions on the adoption of certain technologies—applied to plug-in (PHEV) and strong hybrid vehicles (SHEV). Some technologies on these pathways were “skipped” if a vehicle was high performance, required high towing capabilities as a pickup truck, or belonged to certain manufacturers who have demonstrated that their future product plans will more than likely not include the technology. The specific criteria for SKIP logic for each applicable electrification technology will be expanded on later in this section.

This section also discusses the supersession of engines and transmissions on vehicles that adopt SHEV or PHEV powertrains. To manage the complexity of the analysis, these types of hybrid powertrains were modeled with several specific engines and transmissions, rather than in multiple configurations. Therefore, the cost and effectiveness values SHEV and PHEV technologies take into account these specific engines and transmissions.

Finally, phase-in caps limited the adoption rates of battery electric (BEV) and fuel cell vehicles (FCV). These phase-in caps were set by DOT, taking into account current market share, scalability, and reasonable consumer adoption rates of each technology. TSD Chapter 3.3.3 discusses the electrification phase-in caps and the reasoning behind them in detail.

The only adoption feature applicable to micro and mild hybrid technologies was path logic. The pathway consists of a linear progression starting with a conventional powertrain with no electrification at all, which is superseded by SS12V, which in turn is

superseded by BISG. Vehicles could only adopt micro and mild hybrid technology if the vehicle did not already have a more advanced level of electrification.

The adoption features applied to strong hybrid technologies included path logic, powertrain substitution, and vehicle class restrictions. Per the defined technology pathways, SHEVPS, SHEVP2, and the P2HCR technologies were considered mutually exclusive. In other words, when the model applies one of these technologies, the others are immediately disabled from future application. However, all vehicles on the strong hybrid pathways could still advance to one or more of the plug-in hybrid technologies.

When the model applied any strong hybrid technology to a vehicle, the transmission technology on the vehicle was superseded. Regardless of the transmission originally present, P2 hybrids adopt an 8-speed automatic transmission (AT8L2), and PS hybrids adopt a continuously variable transmission (eCVT).

When the model applies the SHEVP2 technology, the model can consider various engine options to pair with the SHEVP2 architecture according to existing engine path constraints, taking into account relative cost effectiveness. For SHEVPS technology, the existing engine was replaced with Eng26, a full Atkinson cycle engine.

SKIP logic was also used to constrain adoption for SHEVPS, P2HCR0, P2HCR1, and P2HCR1D. No SKIP logic applied to SHEVP2; P2HCR2 was restricted from all vehicles in the 2020 fleet, as discussed further in Section III.D.1.d)(1). These technologies were “skipped” for vehicles with engines¹⁸⁵ that met one of the following conditions:

- The engine belonged to an excluded manufacturer;¹⁸⁶
- The engine belonged to a pickup truck (*i.e.*, the engine was on a vehicle assigned the “pickup” body style);
- The engine’s peak horsepower was more than 405 HP; or if
- The engine was on a non-pickup vehicle but was shared with a pickup.

The reasons for these conditions are similar to those for the SKIP logic applied to HCR engine technologies, discussed in more detail above. In the real world, pickups and performance vehicles with certain powertrain configurations cannot adopt the technologies listed above and maintain vehicle performance without redesigning the entire powertrain. SKIP

logic was put in place to prevent the model from pursuing compliance pathways that are ultimately unrealistic.

PHEV technologies superseded the micro, mild, and strong hybrids, and could only be replaced by full electric technologies. Plug-in hybrid technology paths were also mutually exclusive, with the PHEV20 technologies able to progress to the PHEV50 technologies.

The engine and transmission technologies on a vehicle were superseded when PHEV technologies were applied to a vehicle. For all plug-in technologies, the model applied an AT8L2 transmission. For PHEV20/50 and PHEV20H/50H, the vehicle received a full Atkinson cycle engine, Eng26. For PHEV20T/50T, the vehicle received a TURBO1 engine, Eng12.

SKIP logic applied to PHEV20/20H and PHEV50/50H under the same four conditions listed for the strong hybrid technologies in the previous section, for the same reasons previously discussed.

For the analysis, the adoption of BEVs and FCEVs was limited by both path logic and phase in caps. BEV200/300/400/500 and FCEV were applied as end-of-path technologies that superseded previous levels of electrification.

The main adoption feature applicable to BEVs and FCEVs is phase-in caps, which are defined in the CAFE Model input files as percentages that represent the maximum rate of increase in penetration rate for a given technology. They are accompanied by a phase-in start year, which determines the first year the phase-in cap applies. Together, the phase-in cap and start year determine the maximum penetration rate for a given technology in a given year; the maximum penetration rate equals the phase-in cap times the number of years elapsed since the phase-in start year. Note that phase-in caps *do not* inherently dictate how much a technology is applied by the model. Rather, they represent how much of the fleet *could* have a given technology by a given year. Because BEV200 costs less and has higher effectiveness values than other advanced electrification technologies,¹⁸⁷ the model will have vehicles adopt it first, until it is restricted by the phase-in cap.

Table III–18 shows the phase-in caps, phase-in year, and maximum penetration rate through 2050 for BEV and FCEV technologies. For comparison, the actual penetration rate of each technology in the 2020 baseline fleet is also listed in the fourth column from the left.

¹⁸⁵ This refers to the engine assigned to the vehicle in the 2020 baseline fleet.

¹⁸⁶ Excluded manufacturers included BMW, Daimler, and Jaguar Land Rover.

¹⁸⁷ This is because BEV200 uses fewer batteries and weighs less than BEVs with greater ranges.

Table III-18 – Phase-In Caps for Fuel Cell and Battery Electric Vehicle Technologies

Technology Name	Phase-In Cap	Phase-In Start Year	Actual Penetration Rate in 2020 (Baseline Fleet)	Maximum Penetration Rate in 2020	Maximum Penetration Rate in 2025	Maximum Penetration Rate in 2030	Maximum Penetration Rate in 2035	Maximum Penetration Rate in 2040	Maximum Penetration Rate in 2045	Maximum Penetration Rate in 2050
BEV200	0.09%	1998	0.53%	1.98%	2.43%	2.88%	3.33%	3.78%	4.23%	4.68%
BEV300	0.70%	2009	1.07%	7.70%	11.20%	14.70%	18.20%	21.70%	25.20%	28.70%
BEV400	1.25%	2016	0.25%	5.00%	11.25%	17.50%	23.75%	30.00%	36.25%	42.50%
BEV500	4.25%	2021	-	-	17.00%	38.25%	59.50%	80.75%	102.00%	123.25%
FCV	0.018%	2016	0.005%	0.072%	0.162%	0.252%	0.342%	0.432%	0.522%	0.612%

The BEV200 phase-in cap was informed by manufacturers’ tendency to move away from low-range vehicle offerings, in part because of consumer hesitancy to adopt this technology. The advertised range on most electric vehicles does not reflect extreme cold and hot real-world driving conditions, affecting the utility of already low-range vehicles.¹⁸⁸ Many manufacturers have told DOT that the portion of consumers willing to accept a vehicle with less than 300 miles of electric range is extremely small, and many manufacturers do not plan to offer vehicles with less than 300 miles of electric range. For example, in February 2021, Tesla, the U.S.’ highest-selling BEV manufacturer, discontinued the Standard Range Model Y because its range did not meet the company’s “standard of excellence.”¹⁸⁹ Tesla does sell long-range versions of many of its vehicles.

Furthermore, the average BEV range has steadily increased over the past decade,¹⁹⁰ perhaps in part as batteries become more cost effective. EPA observed in its 2020 Automotive Trends Report that “the average range of new EVs has climbed substantially. In model year 2019 the average new EV is projected to have a 252-mile range, or

about three and a half times the range of an average EV in 2011. This difference is largely attributable to higher production of new EVs with much longer ranges.”¹⁹¹ The maximum growth rate for BEV200 in the model was set accordingly low to less than 0.1% per year. While this rate is significantly lower than that of the other BEV technologies, the BEV200 phase-in cap allows the penetration rate of low-range BEVs to grow by a multiple of what is currently observed in the market.

For BEV300, 400, and 500, phase-in caps are largely a reflection of the challenges facing the scalability of BEV manufacturing, and implementing BEV technology on many vehicle configurations, including larger vehicles. In the short term, the penetration of BEVs is largely limited by battery availability.¹⁹² For example, Tesla has struggled to scale production of new cells for its vehicles, and it remains a bottleneck in the company’s production capability.¹⁹³ The Director of Energy and Environmental Research at Toyota acknowledged in March 2021 that BEV adoption faces many challenges beyond battery availability, including “the cost of batteries, the need for national infrastructure, long recharging times, limited driving range

and the need for consumer behavioral change.”¹⁹⁴ Incorporating battery packs that provide greater amounts of electric range into vehicles also poses its own engineering challenges. Heavy batteries and large packs may be difficult to integrate for many vehicle configurations. Pickup trucks and large SUVs in particular require higher levels of energy as the number of passengers and/or payload increases, for towing and other high-torque applications. DOT selected the BEV400 and 500 phase-in caps to reflect these concerns.

The phase-in cap for FCEVs was assigned based on existing market share as well as historical trends in FCEV production. FCEV production share in the past five years has been extremely low, and DOT set the phase-in cap accordingly.¹⁹⁵ As with BEV200, however, the phase-in cap still allows for the market share of FCVs to grow several times over.

(d) Electrification Effectiveness Modeling

For this analysis, DOT considers a range of electrification technologies which, when modeled, result in varying levels of effectiveness at reducing fuel consumption. As discussed above, the modeled electrification technologies include micro hybrids, mild hybrids, two different strong hybrids, two different plug-in hybrids with two separate all electric ranges, full electric vehicles and FCEVs. Each electrification technology consists of many complex sub-systems with unique component

¹⁸⁸ AAA. “AAA Electric Vehicle Range Testing.” February 2019. <https://www.aaa.com/AAA/common/AAR/files/AAA-Electric-Vehicle-Range-Testing-Report.pdf>.

¹⁸⁹ Baldwin, Roberto. “Tesla Model Y Standard Range Discontinued; CEO Musk Tweets Explanation.” Car and Driver, 30 Apr. 2021, www.caranddriver.com/news/a35602581/elon-musk-model-y-discontinued-explanation/. Accessed May 20, 2020.

¹⁹⁰ 2020 EPA Automotive Trends Report, at 53, figure 4.14.

¹⁹¹ 2020 EPA Automotive Trends Report, at 53.

¹⁹² See, e.g., Cohen, Ariel. “Manufacturers Are Struggling To Supply Electric Vehicles With Batteries.” Forbes, Forbes Magazine, 25 March 2020, www.forbes.com/sites/arielcohen/2020/03/25/manufacturers-are-struggling-to-supply-electric-vehicles-with-batteries. Accessed May 20, 2021.

¹⁹³ Hyatt, Kyle. “Tesla Will Build an Electric Van Eventually, Elon Musk Says.” Roadshow, CNET, 28 Jan. 2021, www.cnet.com/roadshow/news/tesla-electric-van-elon-musk/. Accessed May 20, 2021.

¹⁹⁴ <https://www.energy.senate.gov/services/files/E2EA0E4F-BAD9-452D-99CC-35BC204DE6F0>.

¹⁹⁵ 2020 EPA Automotive Trends Report, at 52, figure 4.13.

characteristics and operational modes. As discussed further below, the systems that contribute to the effectiveness of an electrified powertrain in the analysis include the vehicle's battery, electric motors, power electronics, and accessory loads. Procedures for modeling each of these sub-systems are broadly discussed below, in Section III.C.4, and the Autonomie model documentation.

Argonne used data from their Advanced Mobility Technology Laboratory (AMTL) to develop Autonomie's electrified powertrain models. The modeled powertrains are not intended to represent any specific manufacturer's architecture but are intended to act as surrogates predicting representative levels of effectiveness for each electrification technology.

Autonomie determines the effectiveness of each electrified powertrain type by modeling the basic components, or building blocks, for each powertrain, and then combining the components modularly to determine the overall efficiency of the entire powertrain. The basic building blocks that comprise an electrified powertrain in the analysis include the battery, electric motors, power electronics, and accessory loads. Autonomie identifies components for each electrified powertrain type, and then interlinks those components to create a powertrain architecture. Autonomie then models each electrified powertrain architecture and provides an effectiveness value for each architecture. For example, Autonomie determines a BEV's overall efficiency by considering the efficiencies of the battery, the electric traction drive system (the electric machine and power electronics) and

mechanical power transmission devices. Or, for a SHEVP2, Autonomie combines a very similar set of components to model the electric portion of the hybrid powertrain, and then also includes the combustion engine and related power for transmission components. See TSD Chapter 3.3.4 for a complete discussion of electrification component modeling.

As discussed earlier in Section III.C.4, Autonomie applies different powertrain sizing algorithms depending on the type of vehicle considered because different types of vehicles not only contain different powertrain components to be optimized, but they must also operate in different driving modes. While the conventional powertrain sizing algorithm must consider only the power of the engine, the more complex algorithm for electrified powertrains must simultaneously consider multiple factors, which could include the engine power, electric machine power, battery power, and battery capacity. Also, while the resizing algorithm for all vehicles must satisfy the same performance criteria, the algorithm for some electric powertrains must also allow those electrified vehicles to operate in certain driving cycles, like the US06 cycle, without assistance of the combustion engine, and ensure the electric motor/generator and battery can handle the vehicle's regenerative braking power, all-electric mode operation, and intended range of travel.

To establish the effectiveness of the technology packages, Autonomie simulates the vehicles' performance on compliance test cycles, as discussed in Section III.C.4.¹⁹⁶¹⁹⁷¹⁹⁸ The range of

¹⁹⁶ See U.S. EPA, "How Vehicles are Tested." https://www.fueleconomy.gov/feg/how_tested.shtml. Last accessed May 6, 2021.

effectiveness for the electrification technologies in this analysis is a result of the interactions between the components listed above and how the modeled vehicle operates on its respective test cycle. This range of values will result in some modeled effectiveness values being close to real-world measured values, and some modeled values that will depart from measured values, depending on the level of similarity between the modeled hardware configuration and the real-world hardware and software configurations. This modeling approach comports with the National Academy of Science 2015 recommendation to use full vehicle modeling supported by application of lumped improvements at the sub-model level.¹⁹⁹ The approach allows the isolation of technology effects in the analysis supporting an accurate assessment.

The range of effectiveness values for the electrification technologies, for all ten vehicle technology classes, is shown in Figure III-12. In the graph, the box shows the inner quartile range (IQR) of the effectiveness values and whiskers extend out 1.5 x IQR. The dots outside of the whiskers show values outside these bounds.

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¹⁹⁷ See Autonomie model documentation, Chapter 6: Test Procedures and Energy Consumption Calculations.

¹⁹⁸ EPA Guidance Letter. "EPA Test Procedures for Electric Vehicles and Plug-in Hybrids." Nov. 14, 2017. <https://www.fueleconomy.gov/feg/pdfs/EPA%20test%20procedure%20for%20EVs-PHEVs-11-14-2017.pdf>. Last accessed May 6, 2021.

¹⁹⁹ 2015 NAS report, at 292.

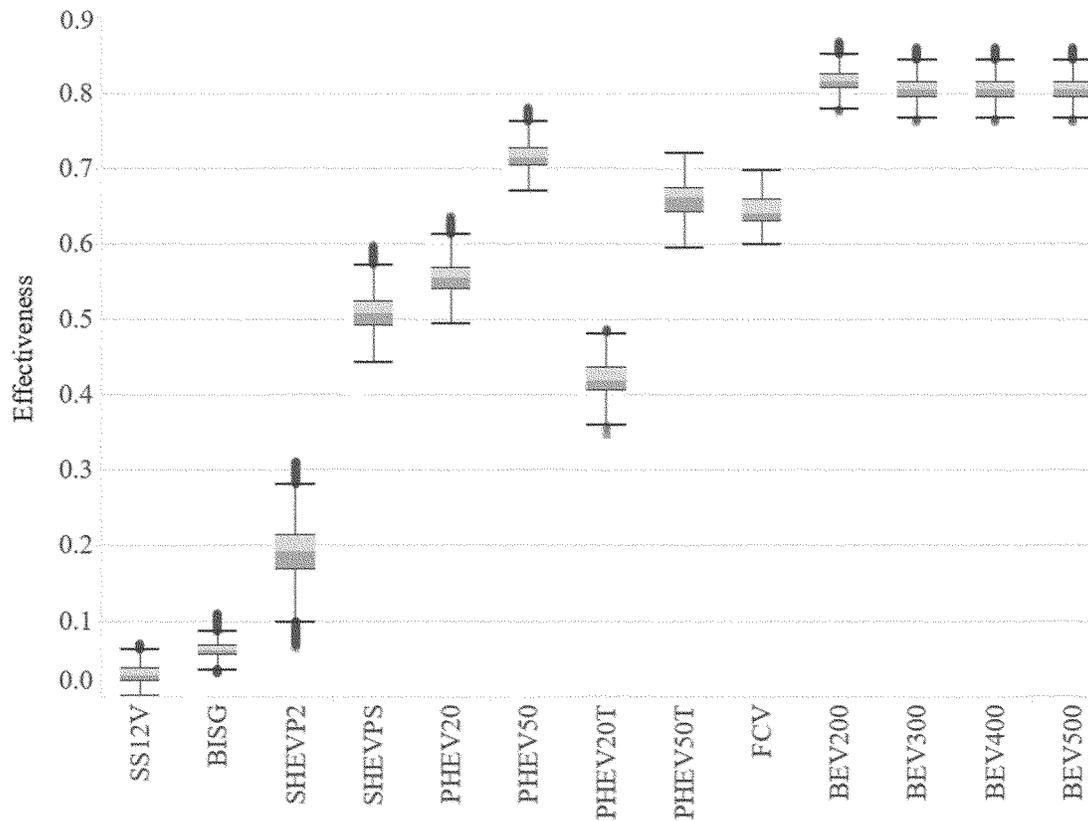


Figure III-12 – Electrification Technology Effectiveness Values for All the Vehicle Technology Classes²⁰⁰

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(e) Electrification Costs

The total cost to electrify a vehicle in this analysis is based on the battery the vehicle requires, the non-battery electrification component costs the vehicle requires, and the traditional powertrain components that must be added or removed from the vehicle to build the electrified powertrain.

We worked collaboratively with the experts at Argonne National Laboratory to generate battery costs using BatPaC, which is a model designed to calculate the cost of a vehicle battery for a specified battery power, energy, and type. Argonne used BatPaC v4.0 (October 2020 release) to create lookup tables for battery cost and mass that the Autonomie simulations referenced when a vehicle received an electrified powertrain. The BatPaC battery cost estimates are generated for a base year, in this case for MY 2020. Accordingly, our BatPaC inputs characterized the state of the market in MY 2020 and employed a widely utilized cell

chemistry (NMC622),²⁰¹ average estimated battery pack production volume per plant (25,000), and a plant efficiency or plant cell yield value of 95%.

For two specific electrified vehicle applications, BEV400 and BEV500, we did not use BatPaC to generate battery pack costs. Rather, we scaled the BatPaC-generated BEV300 costs to match the range of BEV400 and BEV500 vehicles to compute a direct manufacturing cost for those vehicles' batteries. We initially examined using BatPaC to model the cost and weight of BEV400 and BEV500 packs, however, initial values from the model could not

be validated and were based on assumptions for smaller sized battery packs. The initial results provided cost and weight estimates for BEV400 battery packs out of alignment with current examples of BEV400s in the market, and there are currently no examples of BEV500 battery packs in the market against which to validate the pack results.

Finally, to reflect how we expect batteries could fall in cost over the timeframe considered in the analysis, we applied a learning rate to the direct manufacturing cost. Broadly, the learning rate applied in this analysis reflects middle-of-the-road year-over-year improvements until MY 2032, and then the learning rates incrementally become shallower as battery technology is expected to mature in MY 2033 and beyond. Applying learning curves to the battery pack DMC in subsequent analysis years lowers the cost such that the cost of a battery pack in any future model year could be representative of the cost to manufacture a battery pack, regardless of potentially diverse parameters such as cell chemistry, cell format, or production volume.

²⁰⁰ The data used to create this figure can be found in the FE_1 Adjustments file.

²⁰¹ Autonomie model documentation, Chapter 5.9. Argonne surveyed A2Mac1 and TBS teardown reports for electrified vehicle batteries and of the five fully electrified vehicles surveyed, four of those vehicles used NMC622 and one used NMC532. See also Georg Bieker, A Global Comparison of the Life-Cycle Greenhouse Gas Emissions of Combustion Engine and Electric Passenger Cars, International Council on Clean Transportation (July 2021), https://theicct.org/sites/default/files/publications/Global-LCA-passenger-cars-jul2021_0.pdf ("For cars registered in 2021, the GHG emission factors of the battery production are based on the most common battery chemistry, NMC622-graphite batteries. . . ."); 2021 NAS report, at 5-92 (" . . . NMC622 is the most common cathode chemistry in 2019. . . .").

TSD Chapter 3.3.5.1 includes more detail about the process we used to develop battery costs for this analysis. In addition, all BatPaC-generated direct manufacturing costs for all technology keys can be found in the CAFE Model's Battery Costs file, and the Argonne BatPaC Assumptions file includes the assumptions used to generate the costs,

and pack costs, pack mass, cell capacity, \$/kW at the pack level, and W/kg at the pack level for all vehicle classes.

Table III-19 and Table III-20 show an example of our battery pack direct manufacturing costs per kilowatt hour for BEV300s for all vehicle classes for the base year, MY 2020. The tables shown here demonstrate how the cost

per kWh varies with the size of the battery pack. While the overall cost of a battery pack will go up for larger kWh battery packs, the cost per kWh goes down. The amortization of costs for components required in all battery packs across a larger number of cells results in this reduced cost per kWh.

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Table III-19 – BEV300 Battery Pack Direct Manufacturing Costs per Kilowatt/Hour for Compact - Medium Car Classes in MY 2020

BEV300		Energy, kWh					
		30.0	50.0	70.0	90.0	120.0	
\$/kWh at Pack Level (Total Energy)	Power, kW	20.0	\$244	\$186	\$160	\$145	\$131
		40.0	\$245	\$187	\$161	\$145	\$132
		60.0	\$246	\$188	\$161	\$146	\$132
		80.0	\$248	\$188	\$162	\$146	\$132
		100.0	\$249	\$189	\$162	\$146	\$132
		120.0	\$250	\$190	\$163	\$147	\$133
		140.0	\$251	\$190	\$163	\$147	\$133
		160.0	\$252	\$191	\$164	\$147	\$133
		180.0	\$254	\$192	\$164	\$148	\$134
		200.0	\$255	\$193	\$165	\$148	\$134
		240.0	\$258	\$194	\$166	\$149	\$134
		280.0	\$261	\$196	\$167	\$150	\$135
		320.0	\$267	\$197	\$168	\$151	\$136
		400.0	\$280	\$201	\$170	\$152	\$137

Table III-20 – BEV300 Battery Pack Direct Manufacturing Costs per Kilowatt/Hour for SUV and Pickup Classes in MY 2020

BEV300		Energy, kWh							
		30.0	50.0	70.0	90.0	120.0	140.0	160.0	
\$/kWh at Pack Level (Total Energy)	Power, kW	20.0	\$252	\$191	\$164	\$148	\$133	\$127	\$122
		40.0	\$253	\$192	\$164	\$148	\$133	\$127	\$122
		60.0	\$254	\$193	\$165	\$148	\$134	\$127	\$122
		80.0	\$255	\$193	\$165	\$149	\$134	\$127	\$122
		100.0	\$257	\$194	\$166	\$149	\$134	\$128	\$122
		120.0	\$258	\$194	\$166	\$149	\$134	\$128	\$123
		140.0	\$259	\$195	\$167	\$150	\$135	\$128	\$123
		160.0	\$260	\$196	\$167	\$150	\$135	\$128	\$123
		180.0	\$261	\$196	\$167	\$151	\$135	\$129	\$123
		200.0	\$262	\$197	\$168	\$151	\$135	\$129	\$123
		240.0	\$265	\$198	\$169	\$152	\$136	\$129	\$124
		280.0	\$268	\$200	\$170	\$152	\$136	\$130	\$124
		320.0	\$273	\$201	\$171	\$153	\$137	\$130	\$125
		400.0	\$286	\$204	\$173	\$155	\$138	\$131	\$125

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A range of parameters can ultimately influence battery pack manufacturing costs, including other vehicle improvements (e.g., mass reduction technology, aerodynamic improvements, or tire rolling resistance improvements all affect the size and energy of a battery required to propel a vehicle where all else is equal), and the availability of materials required to manufacture the battery.²⁰² Or, if manufacturers adopt more electrification technology than projected in this analysis, increases in battery pack production volume will likely lower actual battery pack costs.

Like the 2020 final rule, we compared our battery pack costs in future years to battery pack costs from other sources that may or may not account for some of these additional parameters, including varying potential future battery chemistry and learning rates. As

discussed in TSD Chapter 3.3.5.1.4, our battery pack costs in 2025 and 2030 fell fairly well in the middle of other sources’ cost projections, with Bloomberg New Energy Finance (BNEF) projections presenting the highest year-over-year cost reductions,²⁰⁴ and MIT’s Insights into Future Mobility report providing an upper bound of potential future costs.²⁰⁵ ICCT presented a similar comparison of costs from several sources in its 2019 working paper, Update on Electric Vehicle Costs in the United States through 2030, and predicted battery pack costs in 2025 and 2030 would drop to approximately \$104/kWh and \$72/kWh, respectively,²⁰⁶ which put their projections slightly higher than BNEF’s 2019 projections. BNEF’s more recent 2020 Electric Vehicle Outlook projected average pack cost to fall below \$100/kWh by 2024,²⁰⁷ while the 2021 NAS

report projected that pack costs are projected to reach \$90–115 kWh by 2025.²⁰⁸

That our projected costs seem to fall between several projections gives us some confidence that the costs in this NPRM could reasonably represent future battery pack costs across the industry during the rulemaking time frame. That said, we recognize that battery technology is currently under intensive development, and that characteristics such as cost and capability are rapidly changing. These advances are reflected in recent aggressive projections, like those from ICCT, BNEF, and the 2021 NAS report. As a result, we would like to seek comments, supported by data elements as outlined below, on these characteristics.

We seek comment on the input assumptions used to generate battery pack costs in BatPaC and the BatPaC-generated direct manufacturing costs for the base year (MY 2020). If commenters believe that different input assumptions should be used for battery chemistry,²⁰⁹

²⁰² The cost of raw material also has a meaningful influence on the future cost of the battery pack. As the production volume goes up, the demand for battery critical raw materials also goes up, which has an offsetting impact on the efficiency gains achieved through economies of scale, improved plant efficiency, and advanced battery cell chemistries. We do not consider future battery raw material price fluctuations for this analysis, however that may be an area for further exploration in future analyses.

²⁰³ See, e.g., Jacky Wong, EV Batteries: The Next Victim of High Commodity Prices?, The Wall Street Journal (July 22, 2021), <https://www.wsj.com/articles/ev-batteries-the-next-victim-of-high-commodity-prices-11626950276>.

²⁰⁴ See Logan Goldie-Scott, A Behind the Scenes Take on Lithium-ion Battery Prices, Bloomberg New Energy Finance (March 5, 2019), <https://about.bnef.com/blog/behind-scenes-take-lithium-ion-battery-prices/>.

²⁰⁵ MIT Energy Initiative. 2019. *Insights into Future Mobility*. Cambridge, MA: MIT Energy Initiative. Available at <http://energy.mit.edu/insightsintofuturemobility>.

²⁰⁶ Nic Lutsey and Michael Nicholas, Update on electric vehicle costs in the United States through 2030, ICCT (April 2, 2019), available at <https://theicct.org/publications/update-US-2030-electric-vehicle-cost>.

²⁰⁷ Bloomberg New Energy Finance (BNEF), “Electric Vehicle Outlook 2020,” <https://>

about.bnef.com/electric-vehicle-outlook/, last accessed July 29, 2021.

²⁰⁸ 2021 NAS report, at 5–121. The 2021 NAS report assumed a 7 percent cost reduction per year from 2018 through 2030.

²⁰⁹ Note that stakeholders had commented to the 2020 final rule that batteries using NMC811 chemistry had either recently come into the market or was imminently coming into the market, and therefore DOT should have selected NMC811 as the

plant manufacturing volume, or plant efficiency in MY 2020, they should provide data or other information validating such assumptions. In addition, commenters should explain how these assumptions reasonably represent applications across the industry in MY 2020. This is important to align with our guiding principles to ensure that the CAFE Model's simulation of manufacturer compliance pathways results in impacts that we would reasonably expect to see in the real world. As discussed above, each technology model employed in the analysis is designed to be representative of a wide range of specific technology applications used in industry. Some vehicle manufacturer's systems may perform better and cost less than our modeled systems and some may perform worse and cost more. However, employing this approach will ensure that, on balance, the analysis captures a reasonable level of costs and benefits that would result from any manufacturer applying the technology. In this case, vehicle and battery manufacturers use different chemistries, cell types, and production processes to manufacture electric vehicle battery packs. Any proposed alternative costs for base year direct manufacturing costs should be able to represent the range of costs across the industry in MY 2020 based on different manufacturers using different approaches.

We also seek comment on the scaling used to generate direct manufacturing costs for BEV400 and BEV500 technologies. If commenters have additional data or information on the relationship between cost and weight for heavier battery packs used for these higher-range BEV applications, particularly in light truck vehicle segments, that would be helpful as well.

In addition, we seek comment on the learning rates applied to the battery pack costs and on the battery pack costs in future years. Recognizing that any battery pack cost projections for future

appropriate chemistry for modeling battery pack costs. Similar to the other technologies considered in this analysis, DOT endeavors to use technology that is a reasonable representation of what the industry could achieve in the model year or years under consideration, in this case the base DMC year of 2020, as discussed above. At the time of this current analysis, the referenced A2Mac1 teardown reports and other reports provided the best available information about the range of battery chemistry actually employed in the industry. At the time of writing, DOT still has not found examples of NMC811 in commercial application across the industry in a way that DOT believes selecting NMC811 would have represented industry average performance in MY 2020. As discussed in TSD Chapter 3.3.5.1.4, DOT did analyze the potential future cost of NMC811 in the composite learning curve generated to ensure the battery learning curve projections are reasonable.

years from our analysis or external analyses will involve assumptions that may or may not come to pass, it would be most helpful if commenters thoroughly explained the basis for any recommended learning rates, including references to publicly available data or models (and if such models are peer reviewed) where appropriate. Similarly, it would be helpful for commenters to note where external analyses may or may not take into account certain parameters in their battery pack cost projections, and whether we should attempt to incorporate those parameters in our analysis. For example, as discussed above, our analysis does not consider raw material price fluctuations; however, the price of battery pack raw materials will put a lower bound on NMC-based battery prices.²¹⁰

It would also be helpful if commenters explained how learning rates or future cost projections could represent the state of battery technology across the industry. Like other technologies considered in this analysis, some battery and vehicle manufacturers have more experience manufacturing electric vehicle battery packs, and some have less, meaning that different manufacturers will be at different places along the learning curve in future years. Note also that comments should specify whether their referenced costs, either for MY 2020 or for future years, are for the battery cell or the battery pack.

Ensuring our learning rates encompass these diverse parameters will ensure that the analysis best predicts the costs and benefits associated with future standards. We will incorporate any new information received to the extent possible for the final rule and future analyses.

Recognizing again that battery technology is a rapidly evolving field and there are a range of external analyses that project battery pack costs declining at different rates across the next decade, as discussed above and further in the TSD, we performed four sensitivity studies around battery pack costs that are described in PRIA Chapter 7.2.2.5. The sensitivity studies examined the impacts of increasing and decreasing the direct cost of batteries and battery learning costs by 20 percent from central analysis levels, based on our survey of external analyses' battery pack cost projections that fell generally within +/- 20% of our central analysis costs. We found that changing the battery direct manufacturing costs in

²¹⁰ See, e.g., MIT Energy Initiative. 2019. *Insights into Future Mobility*. Cambridge, MA: MIT Energy Initiative. Available at <http://energy.mit.edu/insightsintofuturemobility>, at 78–9.

MY 2020 without changing the learning rate did not produce meaningfully different outcomes for electric vehicle technology penetration in later years, although it resulted in the lowest technology costs. Keeping the same direct manufacturing costs and using a steeper battery learning rate produced slightly higher technology costs, compared to the sensitivity results that changed battery pack direct manufacturing cost and kept learning rate the same.

We seek comment on these conclusions, their implications for any potential updates to battery pack costs for the final rule, and any other external analyses that the agency should consider when validating future battery pack cost projections.

Next, each vehicle powertrain type also receives different non-battery electrification components. When researching costs for different non-battery electrification components, DOT found that different reports vary in components considered and cost breakdown. This is not surprising, as vehicle manufacturers use different non-battery electrification components in different vehicle's systems, or even in the same vehicle type, depending the application.²¹¹ DOT developed costs for the major non-battery electrification components on a dollar per kilowatt hour basis using the costs presented in two reports. DOT used a \$/kW cost metric for non-battery components to align with the normalized costs for a system's peak power rating as presented in U.S. DRIVE's Electrical and Electronics Technical Team (EETT) Roadmap report.²¹² This approach captures components in some manufacturer's systems, but not all systems; however, DOT believes this is a reasonable metric and approach to use for this analysis given the differences in non-battery electrification component systems. This approach allows us to scale the cost of non-battery electrification components based on the requirements of the system. We also relied on a teardown study of a MY 2016 Chevrolet Bolt for non-battery component costs that were not explicitly estimated in the EETT Roadmap report.²¹³

²¹¹ For example, the MY 2020 Nissan Leaf does not have an active cooling system whereas Chevy Bolt uses an active cooling system.

²¹² U.S. DRIVE, Electrical and Electronics Technical Team Roadmap (Oct. 2017), available at <https://www.energy.gov/sites/prod/files/2017/11/f39/EETT%20Roadmap%2010-27-17.pdf>.

²¹³ Hummel et al., UBS Evidence Lab Electric Car Teardown—Disruption Ahead?, UBS (May 18, 2017), <https://neo.ubs.com/shared/d1wkuDIIEYpJf/>.

To develop the learning curves for non-battery electrification components, DOT used cost information from Argonne’s 2016 Assessment of Vehicle Sizing, Energy Consumption, and Cost through Large-Scale Simulation of Advanced Vehicle Technologies report.²¹⁴ The report provided estimated cost projections from the 2010 lab year to the 2045 lab year for individual vehicle components.²¹⁵ DOT considered the component costs used in electrified vehicles, and determined the learning curve by evaluating the year

over year cost change for those components. Argonne recently published a 2020 version of the same report that included high and low cost estimates for many of the same components, that also included a learning rate.²¹⁷ DOT’s learning estimates generated using the 2016 report fall fairly well in the middle of these two ranges, and therefore staff decided that continuing to apply the learning curve estimates based on the 2016 report was reasonable. There are many sources that DOT staff could have

picked to develop learning curves for non-battery electrification component costs, however given the uncertainty surrounding extrapolating costs out to MY 2050, DOT believes these learning curves provide a reasonable estimate.

Table III–21 shows an example of how the non-battery electrification component costs are computed for the Medium Car and Medium SUV non-performance vehicle classes.

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Table III-21 – Example Non-Battery Components for Medium Car and SUV Non-Performance Classes

Electric Powertrain	Traction Motor calculated using Peak Power (kW)	Motor-Generator calculated using Continuous Power (kW)	Total Cost of ETDS (Motor and Inverter)	DC to DC Converter	On-board Charger	Power Distribution Cables	Total DMC of Electrical Components	Total Electrification RPE	DMC of CVT or AT8L2	RPE Cost of CVT or AT8L2	Total Electrification Cost (DMC)	Total Electrification Cost (RPE) - from Technologies file
Medium Car – Non-Performance												
SHEVP2	28.01	0	\$516	\$184	\$0	\$460	\$1,160	\$1,566.37	\$1,655	\$2,473	\$2,815	\$4,006
PHEV20T	38.95	0	\$717	\$184	\$174	\$460	\$1,536	\$2,027.04	\$1,655	\$2,473	\$3,191	\$4,457
PHEV50T	95.21	0	\$1,753	\$184	\$174	\$460	\$2,572	\$3,394.53	\$1,655	\$2,473	\$4,227	\$5,817
SHEVPS	72.62	37.61	\$2,030	\$184	\$0	\$460	\$2,674	\$3,570.16	\$1,686	\$2,518	\$4,360	\$6,088
PHEV20	74.66	38.92	\$2,091	\$184	\$174	\$460	\$2,910	\$3,841.04	\$1,686	\$2,518	\$4,596	\$6,345
Medium SUV – Non-Performance												
SHEVP2	29.14	0	\$537	\$184	\$0	\$460	\$1,181	\$1,594.46	\$1,655	\$2,473	\$2,836	\$4,034
PHEV20T	43.32	0	\$798	\$184	\$174	\$460	\$1,616	\$2,133.26	\$1,655	\$2,473	\$3,271	\$4,563
PHEV50T	110.72	0	\$2,039	\$184	\$174	\$460	\$2,857	\$3,771.52	\$1,655	\$2,473	\$4,512	\$6,194
SHEVPS	79.32	41.74	\$2,229	\$184	\$0	\$460	\$2,874	\$3,836.40	\$1,686	\$2,518	\$4,559	\$6,355
PHEV20	81.81	43.01	\$2,298	\$184	\$174	\$460	\$3,117	\$4,114.25	\$1,686	\$2,518	\$4,803	\$6,618

²¹⁴ Moawad, Ayman, Kim, Namdoo, Shidore, Neeraj, and Rousseau, Aymeric. Assessment of Vehicle Sizing, Energy Consumption and Cost Through Large Scale Simulation of Advanced Vehicle Technologies (ANL/ESD–15/28). United States (2016). Available at <https://www.autonomie.net/pdfs/Report%20ANL%20ESD-1528%20-%20Assessment%20of%20Vehicle%20Sizing,%20Energy%20Consumption%20and%20Cost%20through%20Large%20Scale%20Simulation%20of%20>

[Advanced%20Vehicle%20Technologies%20-%201603.pdf](https://www.autonomie.net/pdfs/Report%20ANL%20ESD-1528%20-%20Assessment%20of%20Vehicle%20Sizing,%20Energy%20Consumption%20and%20Cost%20through%20Large%20Scale%20Simulation%20of%20).

²¹⁵ ANL/ESD–15/28 at 116.

²¹⁶ DOE’s lab year equates to five years after a model year, e.g., DOE’s 2010 lab year equates to MY 2015.

²¹⁷ Islam, E., Kim, N., Moawad, A., Rousseau, A. “Energy Consumption and Cost Reduction of Future Light-Duty Vehicles through Advanced Vehicle Technologies: A Modeling Simulation Study

Through 2050”, Report to the U.S. Department of Energy, Contract ANL/ESD–19/10, June 2020 <https://www.autonomie.net/pdfs/ANL%20-%20Islam%20-%202020%20-%20Energy%20Consumption%20and%20Cost%20Reduction%20of%20Future%20Light-Duty%20Vehicles%20through%20Advanced%20Vehicle%20Technologies%20A%20Modeling%20Simulation%20Study%20Through%202050.pdf>.

TSD Chapter 3.3.5.2 contains more information about the non-battery electrification components relevant to each specific electrification technology and the sources used to develop these costs. We seek comment on these costs, the appropriateness of the sources used to develop these costs, and the \$/kW

metric used to size specific non-battery electrification components. In addition, we seek comment on the learning rate applied to non-battery electrification components.

Finally, the cost of electrifying a vehicle depends on the other powertrain components that must be added or

removed from a vehicle with the addition of the electrification technology. Table III–22 below provides a breakdown of each electrification component included for each electrification technology type, as well as where to find the costs in each CAFE Model input file.

Table III–22 – Breakdown of the Electrification Costs by Electrification Technology Type

Electrification Technology Type	Technologies File Vehicle Tabs	Technologies File Engine Tabs	Battery Cost File
Micro Hybrid	Motor/generator	-N/A	Battery Pack
Mild Hybrid	Motor/generator, DC/DC converter, other components	-N/A	Battery Pack
P2 Strong Hybrid	DC/DC converter, on-board charger, high voltage cables, e-motor, AT8L2 transmission, and power electronics	IC engine*	Battery Pack
PS Strong Hybrid	DC/DC converter, on-board charger, high voltage cables, e-motor, CVTL2 transmission, and power electronics	IC engine	Battery Pack
Plug-in Hybrid (PHEV 20T/50T)	DC/DC converter, on-board charger, high voltage cables, e-motor, AT8L2 transmission, and power electronics	IC engine	Battery Pack
Plug-in Hybrid (PHEV 20/50 and 20H/50H)	DC/DC converter, on-board charger, high voltage cables, e-motor, CVTL2 transmission, and power electronics	IC engine	Battery Pack
BEVs	DC/DC converter, on-board charger, high voltage cables, e-motor	ETD System	Battery Pack
FCEVs	Fuel cell system, e-motor, H ₂ Tank, transmission, and power electronics	-N/A	N/A

*The engine cost for a P2 Hybrid is based on engine technology that is used in the conventional powertrain.

As shown in Table III–22, DOT used the cost of the CVTL2 as a proxy for the cost of an eCVT used in PS hybrid vehicles. In its recent 2021 report, the NAS estimated the cost of eCVTs to be lower than DOT’s cost estimate for CVTL2.²¹⁸ DOT is investigating the cost assumptions used for the PS hybrid transmission and may update those costs for the final rule depending on

information submitted by stakeholders or other research. DOT seeks comment on the appropriateness of the cost estimate for eCVTs in the 2021 NAS report, or any other data that could be made public on the costs of eCVTs.

The following example in Table III–23 shows how the costs are computed for a vehicle that progresses from a lower level to a higher level of electrified powertrain. The table shows the

components that are removed and the components that are added as a GMC Acadia progresses from a MY 2024 vehicle with only SS12V electrification technology to a BEV300 in MY 2025. The total cost in MY 2025 is a net cost addition to the vehicle. The same methodology could be used for any other technology advancement in the electric technology tree path.²¹⁹

²¹⁸ A detailed cost comparison between our costs and the 2021 NAS report costs is discussed in TSD Chapter 3.3.5.3.3.

²¹⁹ Please note that in this calculation the CAFE Model accounts for the air conditioning and off-cycle technologies (g/mile) applied to each vehicle model. The cost for the AC/OC adjustments are

located in the CAFE Model Scenarios file. The air conditioning and off-cycle cost values are discussed further in TSD Chapter 3.8.

Table III-23 – Technology Cost Change for GMC Acadia Example

	Technology Removed	Technology Added	MY 2025 Cost of Technology (2018\$)	MY 2025 Overall Technology Cost (2018\$)
MY 2024				888.7
Removed Technologies	Engine (DOHC)		(5830.76)	(5482.2)
	VVT		(221.54)	(5703.74)
	SGDI		(501.67)	(6205.41)
	DEAC		(203.35)	(6408.76)
	Transmission (AT9L2)		(2498.29)	(8907.05)
	EPS		(117.28)	(9024.33)
	SS12V		(247.43)	(9271.76)
	SS12V battery		(308.44)	(9580.2)
	AERO0		(0)	(9580.2)
Added Technologies		BEV300 - ETDS	3581.65	(5998.55)
		IACC	146.68	(5851.87)
		Non-battery components	1137.67	(4714.2)
		Battery Pack Cost	17955.29	13241.09
		AERO20	248.9	13489.99
	Total Air Conditioning/Off-Cycle (AC/OC) Adjustments ²¹⁹	72.71	13562.7	
MY 2025				13562.7

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TSD Chapter 3.3.5.3 includes more details about how the costs associated with the internal combustion engine, transmission, electric machine(s), non-battery electrification components, and battery pack for each electrified technology type are combined to create a full electrification system cost.

4. Mass Reduction

Mass reduction is a relatively cost-effective means of improving fuel economy, and vehicle manufacturers are expected to apply various mass reduction technologies to meet fuel economy standards. Reducing vehicle mass can be accomplished through several different techniques, such as modifying and optimizing vehicle component and system designs, part consolidation, and adopting lighter weight materials (advanced high strength steel, aluminum, magnesium, and plastics including carbon fiber reinforced plastics).

The cost for mass reduction depends on the type and amount of materials used, the manufacturing and assembly processes required, and the degree to which changes to plants and new manufacturing and assembly equipment

is needed. In addition, manufacturers may develop expertise and invest in certain mass reduction strategies that may affect the approaches for mass reduction they consider and the associated costs. Manufacturers may also consider vehicle attributes like noise-vibration-harshness (NVH), ride quality, handling, crash safety and various acceleration metrics when considering how to implement any mass reduction strategy. These are considered to be aspects of performance, and for this analysis any identified pathways to compliance are intended to maintain performance neutrality. Therefore, mass reduction via elimination of, for example, luxury items such as climate control, or interior vanity mirrors, leather padding, etc., is not considered in the mass reduction pathways for this analysis.

The automotive industry uses different metrics to measure vehicle weight. Some commonly used measurements are vehicle curb weight,²²⁰ gross vehicle weight

²²⁰ This is the weight of the vehicle with all fluids and components but without the drivers, passengers, and cargo.

(GVW),²²¹ gross vehicle weight rating (GVWR),²²² gross combined weight (GCVW),²²³ and equivalent test weight (ETW),²²⁴ among others. The vehicle curb weight is the most commonly used measurement when comparing vehicles. A vehicle’s curb weight is the weight of the vehicle including fluids, but without a driver, passengers, and cargo. A vehicle’s glider weight, which is vehicle curb weight minus the powertrain weight, is used to track the potential opportunities for weight reduction not including the powertrain. A glider’s subsystems may consist of the vehicle body, chassis, interior, steering,

²²¹ This weight includes all cargo, extra added equipment, and passengers aboard.

²²² This is the maximum total weight of the vehicle, passengers, and cargo to avoid damaging the vehicle or compromising safety.

²²³ This weight includes the vehicle and a trailer attached to the vehicle, if used.

²²⁴ For the EPA two-cycle regulatory test on a dynamometer, an additional weight of 300 lbs is added to the vehicle curb weight. This additional 300 lbs represents the weight of the driver, passenger, and luggage. Depending on the final test weight of the vehicle (vehicle curb weight plus 300 lbs), a test weight category is identified using the table published by EPA according to 40 CFR 1066.805. This test weight category is called “Equivalent Test Weight” (ETW).

electrical accessory, brake, and wheels systems. The percentage of weight assigned to the glider will remain constant for any given rule but may change overall. For example, as electric powertrains including motors, batteries, inverters, etc. become a greater percent of the fleet, glider weight percentage will change compared to earlier fleets with higher dominance of internal combustion engine (ICE) powertrains.

For this analysis, DOT considered six levels of mass reduction technology that include increasing amounts of advanced materials and mass reduction techniques applied to the glider. The mass change associated with powertrain changes is accounted for separately. The following sections discuss the assumptions for the six mass reduction technology levels, the process used to assign initial analysis fleet mass reduction assignments, the effectiveness

for applying mass reduction technology, and mass reduction costs.

(a) Mass Reduction in the CAFE Model

The CAFE Model considers six levels of mass reduction technologies that manufacturers could use to comply with CAFE standards. The magnitude of mass reduction in percent for each of these levels is shown in Table III–24 for mass reductions for light trucks, passenger cars and for gliders.

Table III-24 – Mass Reduction Technology Level and Associated Glider and Curb Mass Reduction

MR Level	Percent Glider Weight	Percent Vehicle Curb Weight (Passenger Cars)	Percent Vehicle Curb Weight (Light Trucks)
MR0	0%	0.00%	0.00%
MR1	5%	3.55%	3.55%
MR2	7.5%	5.33%	5.33%
MR3	10%	7.10%	7.10%
MR4	15%	10.65%	10.65%
MR5	20%	14.20%	14.20%
MR6	28%	20.00%	20.00%

For this analysis, DOT considers mass reduction opportunities from the glider subsystems of a vehicle first, and then consider associated opportunities to downsize the powertrain, which are accounted for separately.²²⁵ As explained below, in the Autonomie simulations, the glider system includes both primary and secondary systems from which a percentage of mass is reduced for different glider weight reduction levels; specifically, the glider includes the body, chassis, interior, electrical accessories, steering, brakes and wheels. In this analysis, DOT assumed the glider share is 71% of vehicle curb weight. The Autonomie model sizes the powertrain based on the glider weight and the mass of some of the powertrain components in an iterative process. The mass of the powertrain depends on the powertrain size. Therefore, the weight of the glider impacts the weight of the powertrain.²²⁶

²²⁵ When the mass of the vehicle is reduced by an appropriate amount, the engine may be downsized to maintain performance. See Section III.C.4 for more details.

²²⁶ Since powertrains are sized based on the glider weight for the analysis, glider weight reduction beyond a threshold amount during a redesign will lead to re-sizing of the powertrain. For the analysis, the glider was used as a base for the application of any type of powertrain. A conventional powertrain consists of an engine, transmission, exhaust system, fuel tank, radiator and associated components. A hybrid powertrain also includes a battery pack, electric motor(s),

generator, high voltage wiring harness, high voltage connectors, inverter, battery management system(s), battery pack thermal system, and electric motor thermal system.

DOT uses glider weight to apply non-powertrain mass reduction technology in the CAFE Model and use Autonomie simulations to determine the size of the powertrain and corresponding powertrain weight for the respective glider weight. The combination of glider weight (after mass reduction) and re-sized powertrain weight equal the vehicle curb weight. While there are a range of specific mass reduction technologies that may be applied to vehicles to achieve each of the six mass reduction levels, there are some general trends that are helpful to illustrate some of the more widely used approaches. Typically, MR0 reflects vehicles with widespread use of mild steel structures and body panels, and very little or no use of high strength steel or aluminum. MR0 reflects materials applied to average vehicles in the MY 2008 timeframe. MR1–MR3 can be achieved with a steel body structure. In going from MR1 to MR3, expect that mild steel to be replaced by high strength and then advanced high strength steels. In going from MR3 to MR4 aluminum is required. This will start at using aluminum closure panels and then to get to MR4 the vehicle's primary structure will need to be mostly

made from aluminum. In the vast majority of cases, carbon fiber technology is necessary to reach MR5, perhaps with a mix of some aluminum. MR6 can really only be attained in anything resembling a passenger car by make nearly every structural component from carbon fiber. This means the body structure and closure panels like hoods and door skins are wholly made from carbon fiber. There may be some use of aluminum in the suspension. TSD Chapter 3.4 includes more discussion of the challenges involved with adopting large amounts of carbon fiber in the vehicle fleet in the coming years.

As discussed further below, the cost studies used to generate the cost curves assume mass can be reduced in levels that require different materials and different components to be utilized, in a specific order. DOT's mass reduction levels are loosely based on what materials and components that would be required to be used for each percent of mass reduction, based on the conclusions of those studies.

(b) Mass Reduction Analysis Fleet Assignments

To assign baseline mass reduction levels (MR0 through MR6) for vehicles in the MY 2020 analysis fleet, DOT used previously developed regression models to estimate curb weight for each vehicle based on observable vehicle attributes.

DOT used these models to establish a baseline (MRO) curb weight for each vehicle, and then determined the existing mass reduction technology level by finding the difference between the vehicles actual curb weight to the estimated regression-based value, and comparing the difference to the values in Table III–24. DOT originally developed the mass reduction regression models using MY 2015 fleet data; for this analysis, DOT used MY 2016 and 2017 analysis fleet data to update the models.

DOT believes the regression methodology is a technically sound approach for estimating mass reduction levels in the analysis fleet. For a detailed discussion about the regression development and use please see TSD Chapter 3.4.2.

Manufacturers generally apply mass reduction technology at a vehicle platform level (*i.e.*, using the same components across multiple vehicle models that share a common platform) to leverage economies of scale and to manage component and manufacturing complexity, so conducting the regression analysis at the platform level leads to more accurate estimates for the real-world vehicle platform mass reduction levels. The platform approach also addresses the impact of potential weight variations that might exist for specific vehicle models, as all the individual vehicle models are aggregated into the platform group, and are effectively averaged using sales weighting, which minimizes the impact of any outlier vehicle configurations.

(c) Mass Reduction Adoption Features

Given the degree of commonality among the vehicle models built on a single platform, manufacturers do not have complete freedom to apply unique technologies to each vehicle that shares the platform. While some technologies (*e.g.*, low rolling resistance tires) are very nearly “bolt-on” technologies, others involve substantial changes to the structure and design of the vehicle, and therefore affect all vehicle models that share a platform. In most cases, mass reduction technologies are applied to platform level components and therefore the same design and components are used on all vehicle models that share the platform.

Each vehicle in the analysis fleet is associated with a specific platform. Similar to the application of engine and transmission technologies, the CAFE Model defines a platform “leader” as the vehicle variant of a given platform that has the highest level of observed mass reduction present in the analysis fleet. If there is a tie, the CAFE Model

begins mass reduction technology on the vehicle with the highest sales volume in model year 2020. If there remains a tie, the model begins by choosing the vehicle with the highest manufacturer suggested retail price (MSRP) in MY 2020. As the model applies technologies, it effectively levels up all variants on a platform to the highest level of mass reduction technology on the platform. For example, if the platform leader model is already at MR3 in MY 2020, and a “follower” platform model starts at MRO in MY 2020, the follower platform model will get MR3 at its next redesign, assuming no further mass reduction technology is applied to the leader model before the follower models next redesign.

In addition to the platform-sharing logic employed in the model, DOT applied phase-in caps for MR5 and MR6 (15 percent and 20 percent reduction of a vehicle’s curb weight, respectively), based on the current state of mass reduction technology. As discussed above, for nearly every type of vehicle, with the exception of the smallest sports cars, a manufacturer’s strategy to achieve mass reduction consistent with MR5 and MR6 will require extensive use of carbon fiber technologies in the vehicles’ primary structures. For example, one way of using carbon fiber technology to achieve MR6 is to develop a carbon fiber monocoque structure. A monocoque structure is one where the outer most skins support the primary loads of the vehicle. For example, they do not have separate non-load bearing aero surfaces. All of the vehicle’s primary loads are supported by the monocoque. In the most structurally efficient automotive versions, the monocoque is made from multiple well-consolidated plies of carbon fiber infused with resin. Such structures can require low hundreds of pounds of carbon fiber for most passenger vehicles. Add to this another roughly equivalent mass of petroleum-derived resins and even at aspirational prices for dry carbon fiber of \$10–20 per pound it is easy to see how direct materials alone can easily climb into the five-figure dollar range per vehicle.

High CAFE stringency levels will push the CAFE Model to select compliance pathways that include these higher levels of mass reduction for vehicles produced in the mid and high hundreds of thousands of vehicles per year. DOT assumes, based on material costs and availability, that achieving MR6 levels of mass reduction will cost tens of thousands of dollars per car. Therefore, application of such technology to high volume vehicles is

unrealistic today and will, with certainty, remain so for the next several years.

The CAFE Model applies technologies to vehicles that provide a cost-effective pathway to compliance. In some cases, the direct manufacturing cost, indirect costs, and applied learning factor do not capture all the considerations that make a technology more or less costly for manufacturers to apply in the real world. For example, there are direct labor, R&D overhead, manufacturing overhead, and amortized tooling costs that will likely be higher for carbon fiber production than current automotive steel production, due to fiber handling complexities. In addition, R&D overhead will also increase because of the knowledge base for composite materials in automotive applications is simply not as deep as it is for steel and aluminum. Indeed, the intrinsic anisotropic mechanical properties of composite materials compared to the isotropic properties of metals complicates the design process. Added testing of these novel anisotropic structures and their associated costs will be necessary for decades. Adding up all these contributing costs, the price tag for a passenger car or truck monocoque would likely be multiple tens of thousands of dollars per vehicle. This would be significantly more expensive than transitioning to hybrid or fully electric powertrains and potentially less effective at achieving CAFE compliance.

In addition, the CAFE Model does not currently enable direct accounting for the stranded capital associated with a transition away from stamped sheet metal construction to molded composite materials construction. For decades, or in some cases half-centuries, car manufacturers have invested billions of dollars in capital for equipment that supports the industry’s sheet metal forming paradigm. A paradigm change to tooling and equipment developed to support molding carbon fiber panels and monocoque chassis structures would leave that capital stranded in equipment that would be rendered obsolete. Doing this is possible, but the financial ramifications are not currently reflected in the CAFE Model for MR5 and MR6 compliance pathways.

Financial matters aside, carbon fiber technology and how it is best used to produce lightweight primary automotive structures is far from mature. In fact, no car company knows for sure the best way to use carbon fiber to make a passenger car’s primary structure. Using this technology in passenger cars is far more complex than using it in racing cars where passenger egress, longevity, corrosion protection, crash protection,

etc. are lower on the list of priorities for the design team. BMW may be the manufacturer most able accurately opine on the viability of carbon fiber technology for primary structure on high-volume passenger cars, and even it decided to use a mixed materials solution for their next generation of EVs (the iX and i4) after the i3, thus eschewing a wholly carbon fiber monocoque structure.

Another factor limiting the application of carbon fiber technology to mass volume passenger vehicles is indeed the availability of dry carbon fibers. There is high global demand from a variety of industries for a limited supply of carbon fibers. Aerospace, military/defense, and industrial applications demand most of the carbon fiber currently produced. Today, only roughly 10% of the global dry fiber supply goes to the automotive industry, which translates to the global supply base only being able to support approximately 70k cars.²²⁷

To account for these cost and production considerations, including the limited global supply of dry carbon fiber, DOT applied phase-in caps that limited the number of vehicles that can achieve MR5 and M6 levels of mass reduction in the CAFE Model. DOT applied a phase-in cap for MR5 level technology so that 75 percent of the vehicle fleet starting in 2020 could employ the technology, and the technology could be applied to 100 percent of the fleet by MY 2022. DOT also applied a phase-in cap for MR6 technology so that five percent of the vehicle fleet starting in MY 2020 could employ the technology, and the technology could be applied to 10 percent of the fleet by MY 2025.

To develop these phase-in caps, DOT chose a 40,000 unit thresholds for both MR5 and MR6 technology (80,000 units total), because it roughly reflects the number of BMW i3 cars produced per year worldwide.²²⁸ As discussed above, the BMW i3 is the only high-volume vehicle currently produced with a primary structure mostly made from carbon fiber (except the skateboard, which is aluminum). Because mass

reduction is applied at the platform level (meaning that every car of a given platform would receive the technology, not just special low volume versions of that platform), only platforms representing 40,000 vehicles or less are eligible to apply MR5 and MR6 toward CAFE compliance. Platforms representing high volume sales, like a Chevrolet Traverse, for example, where hundreds of thousands are sold per year, are therefore blocked from access to MR5 and MR6 technology. There are no phase in caps for mass reduction levels MR1, MR2, MR3, or MR4.

In addition to determining that the caps were reasonable based on current global carbon fiber production, DOT determined that the MR5 phase-in cap is consistent with the DOT lightweighting study that found that a 15 percent curb weight reduction for the fleet is possible within the rulemaking timeframe.²²⁹

These phase-in caps appropriately function as a proxy for the cost and complexity currently required (and that likely will continue to be required until manufacturing processes evolve) to produce carbon fiber components. Again, MR6 technology in this analysis reflects the use of a significant share of carbon fiber content, as seen through the BMW i3 and Alfa Romeo 4c as discussed above.

Given the uncertainty and fluid nature of knowledge around higher levels of mass reduction technology, DOT welcomes comments on how to most cost effectively use carbon fiber technology in high-volume passenger cars. Financial implementation estimates for this technology are equally as welcome.

(d) Mass Reduction Effectiveness Modeling

As discussed in Section III.C.4, Argonne developed a database of vehicle attributes and characteristics for each vehicle technology class that included over 100 different attributes. Some examples from these 100 attributes include frontal area, drag coefficient, fuel tank weight, transmission housing weight, transmission clutch weight, hybrid vehicle components, and weights for components that comprise engines and electric machines, tire rolling resistance, transmission gear ratios, and final drive ratio. Argonne used these attributes to “build” each vehicle that it used for the effectiveness modeling and simulation.

Important for precisely estimating the effectiveness of different levels of mass reduction is an accurate list of initial component weights that make up each vehicle subsystem, from which Autonomie considered potential mass reduction opportunities.

As stated above, glider weight, or the vehicle curb weight minus the powertrain weight, is used to determine the potential opportunities for weight reduction irrespective of the type of powertrain.²³⁰ This is because weight reduction can vary depending on the type of powertrain. For example, an 8-speed transmission may weigh more than a 6-speed transmission, and a basic engine without variable valve timing may weigh more than an advanced engine with variable valve timing. Autonomie simulations account for the weight of the powertrain system inherently as part of the analysis, and the powertrain mass accounting is separate from the application and accounting for mass reduction technology levels that are applied to the glider in the simulations. Similarly, Autonomie also accounts for battery and motor mass used in hybrid and electric vehicles separately. This secondary mass reduction is discussed further below.

Accordingly, in the Autonomie simulations, mass reduction technology is simulated as a percentage of mass removed from the specific subsystems that make up the glider, as defined for that set of simulations (including the non-powertrain secondary mass systems such as the brake system). For the purposes of determining a reasonable percentage for the glider, DOT in consultation with Argonne examined glider weight data available in the A2Mac1 database,²³¹ in addition to the NHTSA MY 2014 Chevrolet Silverado lightweighting study (discussed further below). Based on these studies, DOT assumed that the glider weight comprised 71 percent of the vehicle curb weight. TSD Chapter 3.4.4 includes a detailed breakdown of the components that DOT considered to arrive at the conclusion that a glider, on average, represents 71% of a vehicle’s curb weight.

Any mass reduction due to powertrain improvements is accounted for separately from glider mass reduction. Autonomie considers several components for powertrain mass reduction, including engine downsizing,

²²⁷ J. Sloan, “Carbon Fiber Suppliers Gear up for Next Generation Growth,” *compositesworld.com*, February 11, 2020.

²²⁸ However, even this number is optimistic because only a small fraction of i3 cars are sold in the U.S. market, and combining MR5 and MR6 allocations equates to 80k vehicles, not 40k. Regardless, if the auto industry ever seriously committed to using carbon fiber in mainstream high-volume vehicles, competition with the other industries would rapidly result in a dramatic increase in price for dry fiber. This would further stymie the deployment of this technology in the automotive industry.

²²⁹ Singh, Harry. (2012, August). Mass Reduction for Light-Duty Vehicles for Model Years 2017–2025. (Report No. DOT HS 811 666). Program Reference: DOT Contract DTNH22–11–C–00193. Contract Prime: Electricore, Inc, at 356, Figure 397.

²³⁰ Depending on the powertrain combination, the total curb weight of the vehicle includes glider, engine, transmission and/or battery pack and motor(s).

²³¹ A2Mac1: Automotive Benchmarking, <https://a2mac1.com>.

and transmission, fuel tank, exhaust systems, and cooling system lightweighting.

The 2015 NAS report suggested an engine downsizing opportunity exists when the glider mass is lightweighted by at least 10%. The 2015 NAS report also suggested that 10% lightweighting of the glider mass alone would boost fuel economy by 3% and any engine downsizing following the 10% glider mass reduction would provide an additional 3% increase in fuel economy.²³² The 2011 Honda Accord and 2014 Chevrolet Silverado lightweighting studies applied engine downsizing (for some vehicle types but not all) when the glider weight was reduced by 10 percent. Accordingly, this analysis limited engine resizing to several specific incremental technology steps as in the 2018 CAFE NPRM (83 FR 42986, Aug. 24, 2018) and 2020 final rule; important for this discussion, engines in the analysis were only resized when mass reduction of 10% or greater was applied to the glider mass, or when one powertrain architecture was replaced with another architecture.

Specifically, we allow engine resizing upon adoption of 7.1%, 10.7%, 14.2%, and 20% curb weight reduction, but not at 3.6% and 5.3%.²³³ Resizing is also allowed upon changes in powertrain type or the inheritance of a powertrain from another vehicle in the same platform. The increments of these higher levels of mass reduction, or complete powertrain changes, more appropriately match the typical engine displacement increments that are available in a manufacturer's engine portfolio.

Argonne performed a regression analysis of engine peak power versus weight for a previous analysis based on attribute data taken from the A2Mac1 benchmarking database, to account for the difference in weight for different engine types. For example, to account for weight of different engine sizes like

4-cylinder versus 8-cylinder, Argonne developed a relationship curve between peak power and engine weight based on the A2Mac1 benchmarking data. We use this relationship to estimate mass for all engine types regardless of technology type (e.g., variable valve lift and direct injection). DOT applied weight associated with changes in engine technology by using this linear relationship between engine power and engine weight from the A2Mac1 benchmarking database. When a vehicle in the analysis fleet with an 8-cylinder engine adopted a more fuel-efficient 6-cylinder engine, the total vehicle weight would reflect the updated engine weight with two less cylinders based on the peak power versus engine weight relationship.

When Autonomie selects a powertrain combination for a lightweighted glider, the engine and transmission are selected such that there is no degradation in the performance of the vehicle relative to the baseline vehicle. The resulting curb weight is a combination of the lightweighted glider with the resized and potentially new engine and transmission. This methodology also helps in accurately accounting for the cost of the glider and cost of the engine and transmission in the CAFE Model.

Secondary mass reduction is possible from some of the components in the glider after mass reduction has been incorporated in primary subsystems (body, chassis, and interior). Similarly, engine downsizing and powertrain secondary mass reduction is possible after certain level of mass reduction is incorporated in the glider. For the analysis, the agencies include both primary mass reduction, and when there is sufficient primary mass reduction, additional secondary mass reduction. The Autonomie simulations account for the aggregate of both primary and secondary glider mass reduction, and separately for powertrain mass.

Note that secondary mass reduction is integrated into the mass reduction cost curves. Specifically, the NHTSA studies, upon which the cost curves depend, first generated costs for lightweighting the vehicle body, chassis, interior, and other primary components, and then calculated costs for lightweighting secondary components. Accordingly, the cost curves reflect that, for example, secondary mass reduction

for the brake system is only applied after there has been sufficient primary mass reduction to allow the smaller brake system to provide safe braking performance and to maintain mechanical functionality.

DOT enhanced the accuracy of estimated engine weights by creating two curves to represent separately naturally aspirated engine designs and turbocharged engine designs.²³⁴ This achieves two benefits. First, small naturally aspirated 4-cylinder engines that adopted turbocharging technology reflected the increased weight of associated components like ducting, clamps, the turbocharger itself, a charged air cooler, wiring, fasteners, and a modified exhaust manifold. Second, larger cylinder count engines like naturally aspirated 8-cylinder and 6-cylinder engines that adopted turbocharging and downsized technologies would have lower weight due to having fewer engine cylinders. For this analysis, a naturally aspirated 8-cylinder engine that adopts turbocharging technology and is downsized to a 6-cylinder turbocharged engine appropriately reflects the added weight of the turbocharging components, and the lower weight of fewer cylinders.

The range of effectiveness values for the mass reduction technologies, for all ten vehicle technology classes are shown in Figure III–13. In the graph, the box shows the inner quartile range (IQR) of the effectiveness values and whiskers extend out $1.5 \times$ IQR. The dots outside of the whiskers show a few values outside these ranges. As discussed earlier, Autonomie simulates all possible combinations of technologies for fuel consumption improvements. For a few technology combinations mass reduction has minimal impact on effectiveness on the regulatory 2-cycle test. For example, if an engine is operating in an efficient region of the fuel map on the 2-cycle test further reduction of mass may have smaller improvement on the regulatory cycles. Figure III–13 shows the range improvements based on the full range of other technology combinations considered in the analysis.

²³² National Research Council. 2015. Cost, Effectiveness, and Deployment of Fuel Economy Technologies for Light-Duty Vehicles. Washington, DC—The National Academies Press. <https://doi.org/10.17226/21744>.

²³³ These curb weight reductions equate to the following levels of mass reduction as defined in the analysis: MR3, MR4, MR5 and MR6, but not MR1 and MR2; additional discussion of engine resizing for mass reduction can be found in Section III.C.4 and TSD Chapter 2.4.

²³⁴ See Autonomie model documentation, Chapter 5.2.9. Engine Weight Determination.

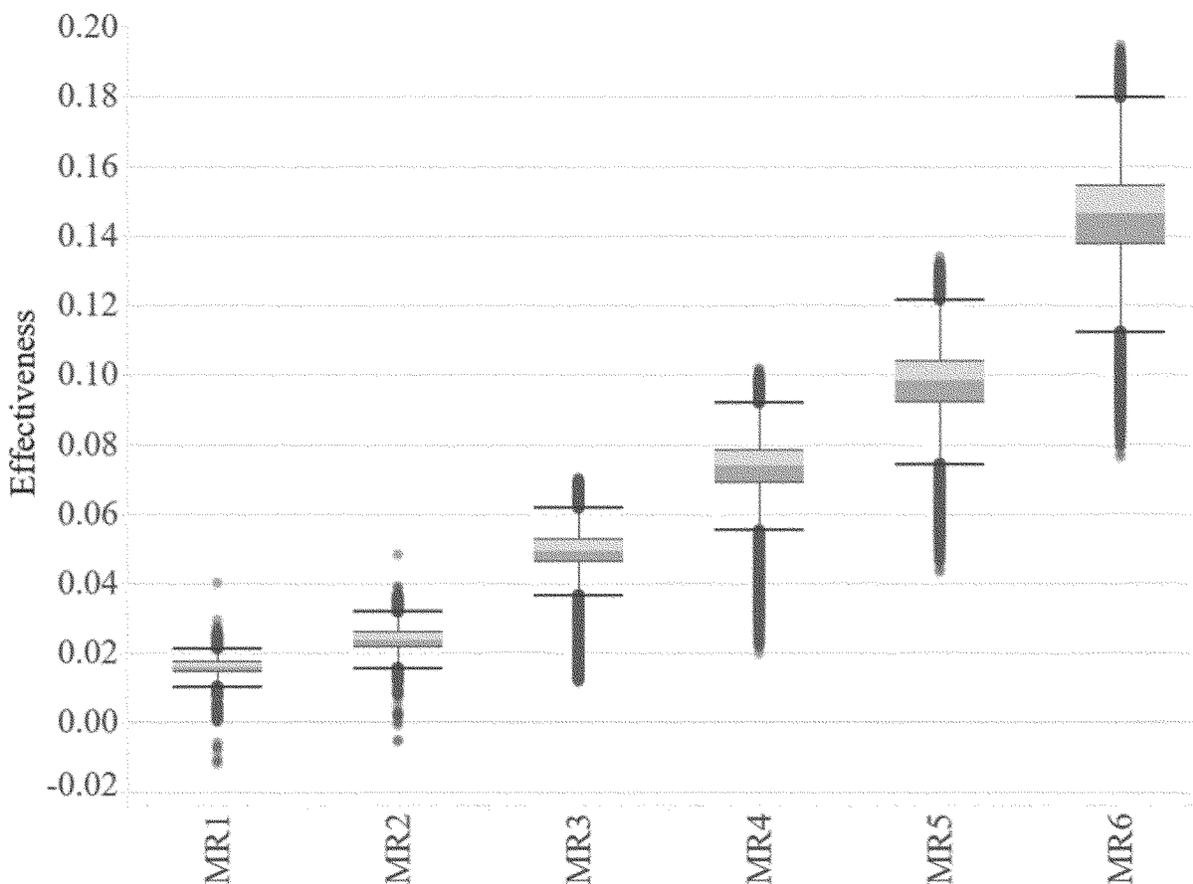


Figure III-13 – Mass Reduction Technologies Effectiveness Values for all the Vehicle Technology Classes

(e) Mass Reduction Costs

The CAFE Model analysis handles mass reduction technology costs differently than all other technology costs. Mass reduction costs are calculated as an average cost per pound over the baseline (MR0) for a vehicle's glider weight. While the definitions of glider may vary, DOT referenced the same dollar per pound of curb weight to develop costs for different glider definitions. In translating these values, DOT took care to track units (\$/kg vs. \$/lb) and the reference for percentage improvements (glider vs. curb weight).

DOT calculated the cost of mass reduction on a glider weight basis so that the weight of each powertrain configuration could be directly and separately accounted for. This approach provides the true cost of mass reduction without conflating the mass change and costs associated with downsizing a powertrain or adding additional advanced powertrain technologies. Hence, the mass reduction costs in this proposal reflect the cost of mass reduction in the glider and do not

include the mass reduction associated with engine downsizing. The mass reduction and costs associated with engine downsizing are accounted for separately.

A second reason for using glider share instead of curb weight is that it affects the absolute amount of curb weight reduction applied, and therefore cost per pound for the mass reduction changes with the change in the glider share. The cost for removing 20 percent of the glider weight when the glider represents 75 percent of a vehicle's curb weight is not the same as the cost for removing 20 percent of the glider weight when the glider represents 50 percent of the vehicle's curb weight. For example, the glider share of 79 percent of a 3,000-pound curb weight vehicle is 2,370 lbs, while the glider share of 50 percent of a 3,000-pound curb weight vehicle is 1,500 lbs, and the glider share of 71 percent of a 3,000-pound curb weight vehicle is 2,130 lbs. The mass change associated with 20 percent mass reduction is 474 lbs for 79 percent glider share ($= [3,000 \text{ lbs} \times 79\% \times 20\%]$), 300 lbs for 50 percent glider share ($= [3,000$

$\text{lbs} \times 50\% \times 20\%]$, and 426 lbs for 71 percent glider share ($= [3,000 \text{ lbs} \times 71\% \times 20\%]$). The mass reduction cost studies that DOT relied on to develop mass reduction costs for this analysis show that the cost for mass reduction varies with the amount of mass reduction. Therefore, for a fixed glider mass reduction percentage, different glider share assumptions will have different costs.

DOT considered several sources to develop the mass reduction technology cost curves. Several mass reduction studies have used either a mid-size passenger car or a full-size pickup truck as an exemplar vehicle to demonstrate the technical and cost feasibility of mass reduction. While the findings of these studies may not apply directly to different vehicle classes, the cost estimates derived for the mass reduction technologies identified in these studies can be useful for formulating general estimates of costs. As discussed further below, the mass reduction cost curves developed for this analysis are based on two lightweighting studies, and DOT also updated the curves based on more

recent studies to better account for the cost of carbon fiber needed for the highest levels of mass reduction technology. The two studies used for MR1 through MR4 costs included the teardown of a MY 2011 Honda Accord and a MY 2014 Chevrolet Silverado pickup truck, and the carbon fiber costs required for MR5 and MR6 were updated based on the 2021 NAS report.²³⁵

Both teardown studies are structured to derive the estimated cost for each of the mass reduction technology levels. DOT relied on the results of those studies because they considered an extensive range of material types, material gauge, and component redesign while taking into account real world constraints such as manufacturing and assembly methods and complexity, platform-sharing, and maintaining vehicle utility, functionality and attributes, including safety, performance, payload capacity, towing capacity, handling, NVH, and other characteristics. In addition, DOT determined that the baseline vehicles and mass reduction technologies assessed in the studies are still reasonably representative of the technologies that may be applied to vehicles in the MY 2020 analysis fleet to achieve up to MR4 level mass reduction in the rulemaking timeframe. DOT adjusted the cost estimates derived from the two studies to reflect the assumption that a vehicle’s glider

weight consisted of 71% of the vehicle’s curb weight, and mass reduction as it pertains to achieving MR0–MR6 levels would only come from the glider.

As discussed above, achieving the highest levels of mass reduction often necessitates extensive use of advanced materials like higher grades of aluminum, magnesium, or carbon fiber. For the 2020 final rule, DOT provided a survey of information available regarding carbon fiber costs compared to the costs DOT presented in the final rule based on the Honda Accord and Chevrolet Silverado teardown studies. In the Honda Accord study, the estimated cost of carbon fiber was \$5.37/kg, and the cost of carbon fiber used in the Chevy Silverado study was \$15.50/kg. The \$15.50 estimate closely matched the cost estimates from a BMW i3 teardown analysis,²³⁶ the cost figures provided by Oak Ridge National Laboratory for a study from the IACMI Composites Institute,²³⁷ and from a Ducker Worldwide presentation at the CAR Management Briefing Seminar.²³⁸

For this analysis, DOT relied on the cost estimates for carbon fiber construction that the National Academies detailed in the 2021 Assessment of Technologies for Improving Fuel Economy of Light-Duty Vehicles—Phase 3 recently completed by the National Academies.²³⁹ The study indicates that the sum of direct materials costs plus manufacturing costs for carbon fiber composite automotive

components is \$25.97 per pound in high volume production. In order to use this cost in the CAFE Model it must be put in terms of dollars per pound saved. Using an average vehicle curb weight of 4000 lbs, a 71% glider share and the percent mass savings associated with MR5 and MR6, it is possible to calculate the number of pounds to be removed to attain MR5 and MR6. Also taken from the NAS study is the assertion that carbon fiber substitution for steel in an automotive component results in a 50% mass reduction. Combining all this together, carbon fiber technology offers weight savings at \$24.60 per pound saved. This dollar per pound savings figure must also be converted to a retail price equivalent (RPE) to account for various commercial costs associated with all automotive components. This is accomplished by multiplying \$24.60 by the factor 1.5. This brings the cost per pound saved for using carbon fiber to \$36.90 per pound saved.²⁴⁰ The analysis uses this cost for achieving MR5 and MR6.

Table III–25 and Table III–26 show the cost values (in dollars per pound) used in the CAFE Model with MR1–4 costs based on the cost curves developed from the MY 2011 Honda Accord and MY 2014 Chevrolet Silverado studies, and the updated MR5 and MR6 values that account for the updated carbon fiber costs from the 2021 NAS report. Both tables assume a 71% glider share.

Table III-25 – Mass Reduction Costs for MY 2020 in CAFE Model for Small Car, Small Car Performance, Medium Car, Medium Car Performance, Small SUV, Small SUV Performance

	Percentage Reduction in Glider Weight	Percentage Reduction in Curb Weight	Cost of Mass Reduction (\$/lbs)
MR0	0.00%	0.00%	0.00
MR1	5.00%	3.55%	0.46
MR2	7.50%	5.33%	0.86
MR3	10.00%	7.10%	1.22
MR4	15.00%	10.65%	1.59
MR5	20.00%	14.20%	36.90
MR6	28.00%	20%	36.90

²³⁵ This analysis applied the cost estimates per pound derived from passenger cars to all passenger car segments, and the cost estimates per pound derived from full-size pickup trucks to all light-duty truck and SUV segments. The cost estimates per pound for carbon fiber (MR5 and MR6) were the same for all segments.

²³⁶ Singh, Harry, FSV Body Structure Comparison with 2014 BMW i3, Munro and Associates for World Auto Steel (June 3, 2015).

²³⁷ IACMI Baseline Cost and Energy Metrics (March 2017), available at <https://iacmi.org/wp-content/uploads/2017/12/IACMI-Baseline-Cost-and-Energy-Metrics-March-2017.pdf>.

²³⁸ Ducker Worldwide, The Road Ahead—Automotive Materials (2016), <https://societyofautomotiveanalysts.wildapricot.org/resources/Pictures/SAA%20Sumit%20slides%20for%20Abey%20Abraham%20of%20Ducker.pdf>.

²³⁹ 2021 NAS report, at 7–242–3.

²⁴⁰ See MR5 and MR6 CFRP Cost Increase Calculator.xlsx in the docket for this action.

There is a dramatic increase in cost going from MR4 to MR5 and MR6 for all classes of vehicles. However, while the increase in cost going from MR4 to MR5 and MR6 is dramatic, the MY 2011 Honda Accord study, the MY 2014 Chevrolet Silverado study, and the 2021 NAS report all included a steep increase to achieve the highest levels of mass

reduction technology. As noted above, DOT seeks comment on any additional information about the costs of achieving the highest levels of mass reduction technology, including from publicly available sources or data that could be made publicly available.

Table III–27 provides an example of mass reduction costs in 2018\$ over

select model years for the medium car and pickup truck technology classes as a dollar per pound value. The table shows how the \$/lb value for each mass reduction level decreases over time because of cost learning. For a full list of the \$/lb mass reduction costs used in the analysis across all model years, see the Technologies file.

Table III-27 – Examples of the \$/lb Mass Reduction Costs in 2018\$ for Medium Car and Pickup Truck Vehicle Classes

Technology	Medium Car Costs (2018\$)/lbs			Pickup Costs (2018\$)/lbs		
	MY 2020	MY 2025	MY 2030	MY 2020	MY 2025	MY 2030
MR0	0.00	0.00	0.00	0.00	0.00	0.00
MR1	0.46	0.42	0.39	0.30	0.27	0.25
MR2	0.86	0.78	0.73	0.70	0.63	0.59
MR3	1.22	1.11	1.03	1.25	1.13	1.06
MR4	1.59	1.34	1.21	1.70	1.44	1.30
MR5	36.90	31.44	26.93	36.90	31.44	26.93
MR6	36.90	31.44	26.93	36.90	31.44	26.93

5. Aerodynamics

The energy required to overcome aerodynamic drag accounts for a significant portion of the energy consumed by a vehicle and can become the dominant factor for a vehicle's energy consumption at high speeds. Reducing aerodynamic drag can, therefore, be an effective way to reduce fuel consumption and emissions.

Aerodynamic drag is proportional to the frontal area (A) of the vehicle and coefficient of drag (C_d), such that aerodynamic performance is often expressed as the product of the two values, C_dA , which is also known as the drag area of a vehicle. The coefficient of drag (C_d) is a dimensionless value that essentially represents the aerodynamic efficiency of the vehicle shape. The frontal area (A) is the cross-sectional area of the vehicle as viewed from the front. It acts with the coefficient of drag as a sort of scaling factor, representing the relative size of the vehicle shape that the coefficient of drag describes. The force imposed by aerodynamic drag increases with the square of vehicle velocity, accounting for the largest contribution to road loads at higher speeds.

Aerodynamic drag reduction can be achieved via two approaches, either by reducing the drag coefficient or

reducing vehicle frontal area, with two different categories of technologies, passive and active aerodynamic technologies. Passive aerodynamics refers to aerodynamic attributes that are inherent to the shape and size of the vehicle, including any components of a fixed nature. Active aerodynamics refers to technologies that variably deploy in response to driving conditions. These include technologies such as active grille shutters, active air dams, and active ride height adjustment. It is important to note that manufacturers may employ both passive and active aerodynamic technologies to achieve aerodynamic drag values.

The greatest opportunity for improving aerodynamic performance is during a vehicle redesign cycle when significant changes to the shape and size of the vehicle can be made. Incremental improvements may also be achieved during mid-cycle vehicle refresh using restyled exterior components and add-on devices. Some examples of potential technologies applied during mid-cycle refresh are restyled front and rear fascia, modified front air dams and rear valances, addition of rear deck lips and underbody panels, and low-drag exterior mirrors. While manufacturers may nudge the frontal area of the vehicle during redesigns, large changes in frontal area are typically not possible

without impacting the utility and interior space of the vehicle. Similarly, manufacturers may improve C_d by changing the frontal shape of the vehicle or lowering the height of the vehicle, among other approaches, but the form drag of certain body styles and airflow needs for engine cooling often limit how much C_d may be improved.

The following sections discuss the four levels of aerodynamic improvements considered in the CAFE Model, how the agency assigned baseline aerodynamic technology levels to vehicles in the MY 2020 fleet, the effectiveness improvements for the addition of aerodynamic technologies to vehicles, and the costs for adding that aerodynamic technology.

(a) Aerodynamic Technologies in the CAFE Model

DOT bins aerodynamic improvements into four levels—5%, 10%, 15% and 20% aerodynamic drag improvement values over a baseline computed for each vehicle body style—which correspond to AERO5, AERO10, AERO15, and AERO20, respectively.

The aerodynamic improvements technology pathway consists of a linear progression, with each level superseding all previous levels, as seen in Figure III–14.

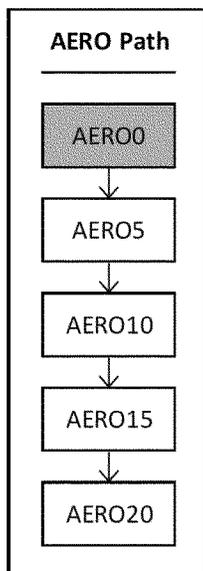


Figure III-14 – Technology Pathway for Levels of Aerodynamic Drag Reduction

While the four levels of aerodynamic improvements are technology-agnostic, DOT built a pathway to compliance for each level based on aerodynamic data from a National Research Council (NRC) of Canada-sponsored wind tunnel testing program. The program included an extensive review of production vehicles utilizing these technologies, and industry comments.^{241 242} Again, these technology combinations are intended to show a *potential* way for a manufacturer to achieve each aerodynamic improvement level; however, in the real world,

manufacturers may implement different combinations of aerodynamic technologies to achieve a percentage improvement over their baseline vehicles.

Table III-28 and Table III-29 show the aerodynamic technologies that could be used to achieve 5%, 10%, 15% and 20% improvements in passenger cars, SUVs, and pickup trucks. As discussed further in Section III.D.5.c, AERO20 cannot be applied to pickup trucks in the model, which is why there is no pathway to AERO20 shown in Table III-29. While some aerodynamic

improvement technologies can be applied across vehicle classes, like active grille shutters (used in the 2015 Chevrolet Colorado),²⁴³ DOT determined that there are limitations that make it infeasible for vehicles with some body styles to achieve a 20% reduction in the coefficient of drag from their baseline. This technology path is an example of how a manufacturer *could* reach each AERO level, but they would not necessarily be *required* to use the technologies.

²⁴¹ Larose, G., Belluz, L., Whittal, I., Belzile, M. et al., "Evaluation of the Aerodynamics of Drag Reduction Technologies for Light-duty Vehicles—a Comprehensive Wind Tunnel Study," SAE Int. J. Passeng. Cars—Mech. Syst. 9(2):772–784, 2016, <https://doi.org/10.4271/2016-01-1613>.

²⁴² Larose, Guy & Belluz, Leanna & Whittal, Ian & Belzile, Marc & Klomp, Ryan & Schmitt, Andreas. (2016). Evaluation of the Aerodynamics of Drag Reduction Technologies for Light-duty Vehicles—a Comprehensive Wind Tunnel Study. SAE International Journal of Passenger Cars—Mechanical Systems. 9. 10.4271/2016-01-1613.

²⁴³ Chevrolet Product Information, available at https://media.chevrolet.com/content/media/us/en/chevrolet/vehicles/colorado/2015/_jcr_content/iconrow/textfile/file.res/15-PG-Chevrolet-Colorado-082218.pdf.

Table III-28 – Combinations of Technologies That Could Achieve Aerodynamic Improvements Used in the Current Analyses for Passenger Cars and SUVs

Aero Improvement Level	Components	Effectiveness (%)
AERO5	Front Styling	2.0%
	Roof Line raised at forward of B-pillar	0.5%
	Faster A pillar rake angle	0.5%
	Shorter C pillar	1.0%
	Low drag wheels	1.0%
AERO10	Rear Spoiler	1.0%
	Wheel Deflector / Air outlet inside wheel housing	1.0%
	Bumper Lip	1.0%
	Rear Diffuser	2.0%
AERO15	Underbody Cover Incl. Rear axle cladding)	3.0%
	Lowering ride height by 10mm	2.0%
AERO20	Active Grill Shutters	3.0%
	Extend Air dam	2.0%

Table III-29 – Combinations of Technologies That Could Achieve Aerodynamic Improvements Used in the Current Analyses for Pickup Trucks

Aero Improvement Level	Components	Effectiveness (%)
AERO5	Whole Body Styling (Shape Optimization)	1.5%
	Faster A pillar rake angle	0.5%
	Rear Spoiler	1.0%
	Wheel Deflector / Air outlet inside wheel housing	1.0%
	Bumper Lip	1.0%
AERO10	Rear Diffuser	2.0%
	Underbody Cover Incl. Rear axle cladding)	3.0%
AERO15	Active Grill Shutters	3.0%
	Extend Air dam	2.0%

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As discussed further in Section III.D.8, this analysis assumes manufacturers apply off-cycle technology at rates defined in the Market Data file. While the AERO levels in the analysis are technology-agnostic, achieving AERO20 improvements does assume the use of active grille shutters, which is an off-cycle technology.

(b) Aerodynamics Analysis Fleet Assignments

DOT uses a relative performance approach to assign an initial level of aerodynamic drag reduction technology

to each vehicle. Each AERO level represents a percent reduction in a vehicle's aerodynamic drag coefficient (C_d) from a baseline value for its body style. For a vehicle to achieve AERO5, the C_d must be at least 5% below the baseline for the body style; for AERO10, 10% below the baseline, and so on. Baseline aerodynamic assignment is therefore a three step process: Each vehicle in the fleet is assigned a body style, the average drag coefficient is calculated for each body style, and the drag coefficient for each vehicle model

is compared to the average for the body style.

Every vehicle in the fleet is assigned a body style; available body styles included convertible, coupe, sedan, hatchback, wagon, SUV, pickup, minivan, and van. These assignments do not necessarily match the body styles used by manufacturers for marketing purposes. Instead, they are assigned based on analyst judgement, taking into account how a vehicle's AERO and vehicle technology class assignments are affected. Different body styles offer different utility and have varying levels

of baseline form drag. In addition, frontal area is a major factor in aerodynamic forces, and the frontal area varies by vehicle. This analysis considers both frontal area and body style as utility factors affecting aerodynamic forces; therefore, the analysis assumes all reduction in aerodynamic drag forces come from improvement in the drag coefficient.

Average drag coefficients for each body style were computed using the MY 2015 drag coefficients published by manufacturers, which were used as the baseline values in the analysis. DOT harmonizes the Autonomie simulation baselines with the analysis fleet assignment baselines to the fullest extent possible.²⁴⁴

The drag coefficients used for each vehicle in the MY 2020 analysis fleet are sourced from manufacturer specification sheets, when possible. However, drag coefficients for the MY 2020 vehicles were not consistently reported publicly. If no drag coefficient was reported, analyst judgment is sometimes used to assign an AERO level. If no level was manually assigned, the drag coefficient obtained from manufacturers to build the MY 2016 fleet,²⁴⁵ was used, if available. The MY 2016 drag coefficient values may not accurately reflect the current technology content of newer vehicles but are, in many cases, the most recent data available.

(c) Aerodynamics Adoption Features

As already discussed, DOT engineers use a relative performance approach to assign current aerodynamic technology (AERO) level to a vehicle. For some body styles with different utility, such as pickup trucks, SUVs and minivans, frontal area can vary, and this can affect the overall aerodynamic drag forces. In order to maintain vehicle utility and functionality related to passenger space and cargo space, we assume all technologies that improve aerodynamic drag forces do so by reducing C_d while maintaining frontal area.

Technology pathway logic for levels of aerodynamic improvement consists of a linear progression, with each level superseding all previous ones. Technology paths for AERO are illustrated in Figure III–14.

The highest levels of AERO are not considered for certain body styles. In

these cases, this means that AERO20, and sometimes AERO15, can neither be assigned in the baseline fleet nor adopted by the model. For these body styles, there are no commercial examples of drag coefficients that demonstrate the required AERO15 or AERO20 improvement over baseline levels. DOT also deemed the most advanced levels of aerodynamic drag simulated as not technically practicable given the form drag of the body style and costed technology, especially given the need to maintain vehicle functionality and utility, such as interior volume, cargo area, and ground clearance. In short, DOT ‘skipped’ AERO15 for minivan body styles, and ‘skipped’ AERO20 for convertible, minivan, pickup, and wagon body styles.

DOT also does not allow application of AERO15 and AERO20 technology to vehicles with more than 780 horsepower. There are two main types of vehicles that informed this threshold: performance internal combustion engine (ICE) vehicles and high-power battery electric vehicles (BEVs). In the case of the former, the agency recognizes that manufacturers tune aerodynamic features on these vehicles to provide desirable downforce at high speeds and to provide sufficient cooling for the powertrain, rather than reducing drag, resulting in middling drag coefficients despite advanced aerodynamic features. Therefore, manufacturers may have limited ability to improve aerodynamic drag coefficients for high performance vehicles with internal combustion engines without reducing horsepower. The baseline fleet includes 1,655 units of sales volume with limited application of aerodynamic technologies because of ICE vehicle performance.²⁴⁶

In the case of high-power battery electric vehicles, the 780-horsepower threshold is set above the highest peak system horsepower present on a BEV in the 2020 fleet. BEVs have different aerodynamic behavior and considerations than ICE vehicles, allowing for features such as flat underbodies that significantly reduce drag.²⁴⁷ BEVs are therefore more likely to achieve higher AERO levels, so the horsepower threshold is set high enough that it does not restrict AERO15 and AERO20 application. Note that the

CAFE Model does not force high levels of AERO adoption; rather, higher AERO levels are usually adopted organically by BEVs because significant drag reduction allows for smaller batteries and, by extension, cost savings. BEVs represent 252,023 units of sales volume in the baseline fleet.²⁴⁸

(d) Aerodynamics Effectiveness Modeling

To determine aerodynamic effectiveness, the CAFE Model and Autonomie used individually assigned road load technologies for each vehicle to appropriately assign initial road load levels and appropriately capture benefits of subsequent individual road load improving technologies.

The current analysis included four levels of aerodynamic improvements, AERO5, AERO10, AERO15, and AERO20, representing 5, 10, 15, and 20 percent reduction in drag coefficient (C_d), respectively. DOT assumed that aerodynamic drag reduction could only come from reduction in C_d and not from reduction of frontal area, to maintain vehicle functionality and utility, such as passenger space, ingress/egress ergonomics, and cargo space.

The effectiveness values for the aerodynamic improvement levels relative to AERO0, for all ten vehicle technology classes, are shown in Figure III–15. Each of the effectiveness values shown is representative of the improvements seen for upgrading only the listed aerodynamic technology level for a given combination of other technologies. In other words, the range of effectiveness values seen for each specific technology (*e.g.*, AERO 15) represents the addition of AERO15 technology (relative to AERO0 level) for every technology combination that could select the addition of AERO15. It must be emphasized that the change in fuel consumption values between entire technology keys is used,²⁴⁹ and not the individual technology effectiveness values. Using the change between whole technology keys captures the complementary or non-complementary interactions among technologies. The box shows the inner quartile range (IQR) of the effectiveness values and whiskers extend out 1.5 x IQR. The dots outside the whiskers show effectiveness values outside those thresholds.

²⁴⁴ See TSD Chapter 2.4.1 for a table of vehicle attributes used to build the Autonomie baseline vehicle models. That table includes a drag coefficient for each vehicle class.

²⁴⁵ See 83 FR 42986 (Aug. 24, 2018). The MY 2016 fleet was built to support the 2018 NPRM.

²⁴⁶ Market Data file.

²⁴⁷ 2020 EPA Automotive Trends Report, at 227.

²⁴⁸ Market Data file.

²⁴⁹ Technology key is the unique collection of technologies that constitutes a specific vehicle, see TSD Chapter 2.4.7 for more detail.

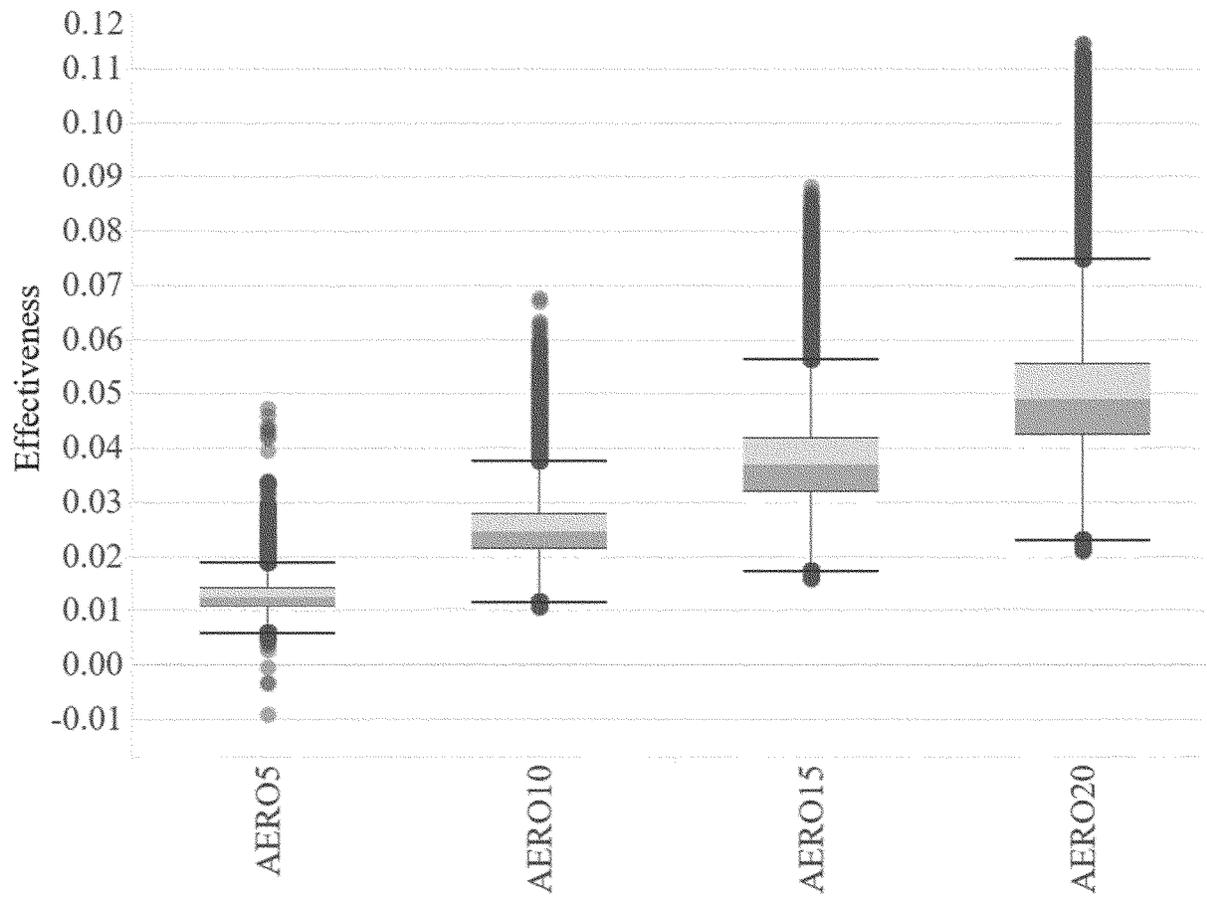


Figure III-15 – AERO Technology Effectiveness²⁵⁰

(e) Aerodynamics Costs

This analysis uses the AERO technology costs established in the 2020 final rule that are based on confidential business information submitted by the automotive industry in advance of the 2018 NPRM,²⁵¹ and on DOT's assessment of manufacturing costs for specific aerodynamic technologies.²⁵² DOT received no additional comments

from stakeholders regarding the costs established in the 2018 NPRM, and continued to use the established costs for the 2020 final rule and this analysis.

Table III-30 shows examples of costs for AERO technologies as applied to the medium car and pickup truck vehicle classes in select model years. The cost to achieve AERO5 is relatively low, as most of the improvements can be made through body styling changes. The cost

to achieve AERO10 is higher than AERO5, due to the addition of several passive aerodynamic technologies, and the cost to achieve AERO15 and AERO20 is higher than AERO10 due to use of both passive and active aerodynamic technologies. For a full list of all absolute aerodynamic technology costs used in the analysis across all model years see the Technologies file.

²⁵⁰ The data used to create this figure can be found in the FE_1 Improvements file.

²⁵¹ See the PRIA accompanying the 2018 NPRM, Chapter 6.3.10.1.2.1.2 for a discussion of these cost estimates.

²⁵² See the FRIA accompanying the 2020 final rule, Chapter VI.C.5.e.

Table III-30 – Examples of Costs for Aerodynamic Reduction Technologies in 2018\$ for Medium Cars and Pickup Trucks for Select Model Years

Technology	Medium Car Costs (2018\$)			Pickup Costs (2018\$)		
	MY 2020	MY 2025	MY 2030	MY 2020	MY 2025	MY 2030
AERO0	0.00	0.00	0.00	0.00	0.00	0.00
AERO5	53.96	48.70	45.73	53.96	48.70	45.73
AERO10	110.32	99.56	93.49	110.32	99.56	93.49
AERO15	155.88	140.68	132.10	275.80	248.90	233.72
AERO20	275.80	248.90	233.72	-	-	-

6. Tire Rolling Resistance

Tire rolling resistance is a road load force that arises primarily from the energy dissipated by elastic deformation of the tires as they roll. Tire design characteristics (for example, materials, construction, and tread design) have a strong influence on the amount and type of deformation and the energy it dissipates. Designers can select these characteristics to minimize rolling resistance. However, these characteristics may also influence other performance attributes, such as durability, wet and dry traction, handling, and ride comfort.

Lower-rolling-resistance tires have characteristics that reduce frictional losses associated with the energy dissipated mainly in the deformation of the tires under load, thereby improving fuel economy. Low rolling resistance tires are increasingly specified by OEMs in new vehicles and are also increasingly available from aftermarket tire vendors. They commonly include attributes such as higher inflation pressure, material changes, tire construction optimized for lower hysteresis, geometry changes (e.g.,

reduced aspect ratios), and reduced sidewall and tread deflection. These changes are commonly accompanied by additional changes to vehicle suspension tuning and/or suspension design to mitigate any potential impact on other performance attributes of the vehicle.

DOT continues to assess the potential impact of tire rolling resistance changes on vehicle safety. DOT has been following the industry developments and trends in application of rolling resistance technologies to light duty vehicles. As stated in the National Academies Press (NAP) special report on Tires and Passenger Vehicle Fuel Economy,²⁵³ national crash data does not provide data about tire structural failures specifically related to tire rolling resistance, because the rolling resistance of a tire at a crash scene cannot be determined. However, other metrics like brake performance compliance test data are helpful to show trends like that stopping distance has

²⁵³ Tires and Passenger Vehicle Fuel Economy: Informing Consumers, Improving Performance—Special Report 286 (2006), available at <https://www.nap.edu/read/11620/chapter/6>.

not changed in the last ten years,²⁵⁴ during which time many manufacturers have installed low rolling resistance tires in their fleet—meaning that manufacturers were successful in improving rolling resistance while maintaining stopping distances through tire design, tire materials, and/or braking system improvements. In addition, NHTSA has addressed other tire-related issues through rulemaking,²⁵⁵ and continues to research tire problems such as blowouts, flat tires, tire or wheel deficiency, tire or wheel failure, and tire degradation.²⁵⁶ However, there are currently no data connecting low rolling resistance tires to accident or fatality rates.

²⁵⁴ See, e.g., NHTSA Office of Vehicle Safety Compliance, Compliance Database, <https://one.nhtsa.gov/cars/problems/comply/index.cfm>.

²⁵⁵ 49 CFR 571.138, Tire pressure monitoring systems.

²⁵⁶ Tire-Related Factors in the Pre-Crash Phase, DOT HS 811 617 (April 2012), available at <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/811617>.

NHTSA conducted tire rolling resistance tests and wet grip index tests on original equipment tires installed on new vehicles. The tests showed that there is no degradation in wet grip index values (no degradation in traction) for tires with improved rolling resistance technology. With better tire design, tire compound formulations and improved tread design, tire manufacturers have tools to balance stopping distance and reduced rolling resistance. Tire manufacturers can use “higher performance materials in the tread compound, more silica as reinforcing fillers and advanced tread design features” to mitigate issues related to stopping distance.²⁵⁷

The following sections discuss levels of tire rolling resistance technology considered in the CAFE Model, how the technology was assigned in the analysis fleet, adoption features specified to maintain performance, effectiveness, and cost.

(a) Tire Rolling Resistance in the CAFE Model

DOT continues to consider two levels of improvement for low rolling resistance tires in the analysis: The first level of low rolling resistance tires considered reduced rolling resistance 10 percent from an industry-average baseline rolling resistance coefficient (RRC) value, while the second level reduced rolling resistance 20 percent from the baseline.²⁵⁸

DOT selected the industry-average RRC baseline of 0.009 based on a CONTROLTEC study prepared for the California Air Resources Board,²⁵⁹ in addition to confidential business information submitted by manufacturers prior to the 2018 NPRM analysis. The average RRC from the CONTROLTEC study, which surveyed 1,358 vehicle models, was 0.009.²⁶⁰ CONTROLTEC also compared the findings of their survey with values provided by Rubber Manufacturers Association (renamed as USTMA–U.S. Tire Manufacturers Association) for original equipment

²⁵⁷ Jesse Snyder, A big fuel saver: Easy-rolling tires (but watch braking) (July 21, 2008), <https://www.autonews.com/article/20080721/OEM01/307219960/a-big-fuel-saver-easy-rolling-tires-but-watch-braking>. Last visited December 3, 2019.

²⁵⁸ To achieve ROLL10, the tire rolling resistance must be at least 10 percent better than baseline (.0081 or better). To achieve ROLL20, the tire rolling resistance must be at least 20 percent better than baseline (.0072 or better).

²⁵⁹ Technical Analysis of Vehicle Load Reduction by CONTROLTEC for California Air Resources Board (April 29, 2015).

²⁶⁰ The RRC values used in this study were a combination of manufacturer information, estimates from coast down tests for some vehicles, and application of tire RRC values across other vehicles on the same platform.

tires. The average RRC from the data provided by RMA was 0.0092,²⁶¹ compared to average of 0.009 from CONTROLTEC.

In past agency actions, commenters have argued that based on available data on current vehicle models and the likely possibility that there would be additional tire improvements over the next decade, DOT should consider ROLL30 technology, or a 30 percent reduction of tire rolling resistance over the baseline.²⁶²

As stated in the Joint TSD for the MY 2017–2025 final rule (77 FR 62624, Oct. 15, 2012) and 2020 final rule, tire technologies that enable rolling resistance improvements of 10 and 20 percent have been in existence for many years.²⁶³ Achieving improvements of up to 20 percent involves optimizing and integrating multiple technologies, with a primary contributor being the adoption of a silica tread technology. Tire suppliers have indicated that additional innovations are necessary to achieve the next level of low rolling resistance technology on a commercial basis, such as improvements in material to retain tire pressure, tread design to manage both stopping distance and wet traction, and development of carbon black material for low rolling resistance without the use of silica to reduce cost and weight.²⁶⁴

The agency believes that the tire industry is in the process of moving automotive manufacturers towards higher levels of rolling resistance technology in the vehicle fleet. Importantly, as shown below, the MY 2020 fleet does include a higher percentage of vehicles with ROLL20 technology than the MY 2017 fleet. However, DOT believes that at this time, the emerging tire technologies that would achieve 30 percent improvement in rolling resistance, like changing tire profile, stiffening tire walls, or adopting improved tires along with active chassis control,²⁶⁵ among other technologies, will not be available for widespread commercial adoption in the fleet during the rulemaking timeframe. As a result, the agency continues to not to incorporate 30 percent reduction in rolling resistance technology. DOT will consider adding an advanced level of

²⁶¹ Technical Analysis of Vehicle Load Reduction by CONTROLTEC for California Air Resources Board (April 29, 2015) at page 40.

²⁶² NHTSA–2018–0067–11985.

²⁶³ EPA–420–R–12–901, at page 3–210.

²⁶⁴ 2011 NAS report, at 103.

²⁶⁵ Mohammad Mehdi Davari, Rolling resistance and energy loss in tyres (May 20, 2015), available at https://www.sveafordon.com/media/42060/SVEA-Presentation_Davari_public.pdf. Last visited December 30, 2019.

tire rolling resistance technology to future analyses, and invites comment on any updated information on manufacturers’ capabilities to add tires with higher levels of rolling resistance to their vehicles, and consumers’ willingness to accept these tires on their vehicles.

(b) Tire Rolling Resistance Analysis Fleet Assignments

Tire rolling resistance is not a part of tire manufacturers’ publicly released specifications and thus it is difficult to assign this technology to the analysis fleet. Manufacturers also often offer multiple wheel and tire packages for the same nameplates, further increasing the complexity of this assignment. DOT employed an approach consistent with previous rulemaking in assigning this technology. DOT relied on previously submitted rolling resistance values that were supplied by manufacturers in the process of building older fleets and bolstered it with agency-sponsored tire rolling testing by Smithers.²⁶⁶

DOT carried over rolling resistance assignments for nameplates where manufacturers had submitted data on the vehicles’ rolling resistance values, even if the vehicle was redesigned. If Smithers data was available, DOT replaced any older or missing values with that updated data. Those vehicles for which no information was available from either previous manufacturer submission or Smithers data were assigned to ROLL0. All vehicles under the same nameplate were assigned the same rolling resistance technology level even if manufacturers do outfit different trim levels with different wheels and tires.

The MY 2020 analysis fleet includes the following breakdown of rolling resistance technology: 44% at ROLL0, 20% at ROLL10, and 36% at ROLL20, which shows that the majority of the fleet has now adopted some form of improved rolling resistance technology. The majority of the change from the MY 2017 analysis fleet has been in implementing ROLL20 technology. There is likely more proliferation of rolling resistance technology, but we would need further information from manufacturers in order to account for it. DOT invites comment from manufacturers on whether these rolling

²⁶⁶ See memo to Docket No. NHTSA–2021–0053, Evaluation of Rolling Resistance and Wet Grip Performance of OEM Stock Tires Obtained from NCAP Crash Tested Vehicles Phase One and Two. NHTSA used tire rolling resistance coefficient values from this project to assign baseline tire rolling resistance technology in the MY 2020 analysis fleet and is therefore providing the draft project appendices for public review and comment.

resistance values are still applicable, or any updated rolling resistance values that could be incorporated in a publicly available analysis fleet. If manufacturers submit updated information on baseline rolling resistance assignments DOT may update those assignments for the final rule.

(c) Tire Rolling Resistance Adoption Features

Rolling resistance technology can be adopted with either a vehicle refresh or redesign. In some cases, low rolling resistance tires can affect traction, which may adversely impact acceleration, braking, and handling characteristics for some high-performance vehicles. Similar to past rulemakings, the agency recognizes that to maintain performance, braking, and handling functionality, some high-performance vehicles would not adopt low rolling resistance tire technology. For cars and SUVs with more than 405 horsepower (hp), the agency restricted the application of ROLL20. For cars and SUVs with more than 500 hp, the agency restricted the application of any additional rolling resistance technology (ROLL10 or ROLL20). The agency developed these cutoffs based on a review of confidential business

information and the distribution of rolling resistance values in the fleet.

(d) Tire Rolling Resistance Effectiveness Modeling

As discussed above, the baseline rolling resistance value from which rolling resistance improvements are measured is 0.009, based on a thorough review of confidential business information submitted by industry, and a review of other literature. To achieve ROLL10, the tire rolling resistance must be at least 10 percent better than baseline (.0081 or better). To achieve ROLL20, the tire rolling resistance must be at least 20 percent better than baseline (.0072 or better).

DOT determined effectiveness values for rolling resistance technology adoption using Autonomie modeling. Figure III-16 below shows the range of effectiveness values used for adding tire rolling resistance technology to a vehicle in this analysis. The graph shows the change in fuel consumption values between entire technology keys,²⁶⁷ and not the individual technology effectiveness values. Using the change between whole technology

²⁶⁷ Technology key is the unique collection of technologies that constitutes a specific vehicle, *see* TSD Chapter 2.4.7 for more information.

keys captures the complementary or non-complementary interactions among technologies. In the graph, the box shows the interquartile range (IQR) of the effectiveness values and whiskers extend out 1.5 x IQR. The dots outside of the whiskers show values for effectiveness that are outside these bounds.

The data points with the highest effectiveness values are almost all exclusively BEV and FCV technology combinations for medium sized nonperformance cars. The effectiveness for these vehicles, when the low rolling resistance technology is applied, is amplified by a complementary effect, where the lower rolling resistance reduces road load and allows a smaller battery pack to be used (and still meet range requirements). The smaller battery pack reduces the overall weight of the vehicle, further reducing road load, and improving fuel efficiency. This complimentary effect is experience by all the vehicle technology classes, but the strongest effect is on the midsized vehicle non-performance classes and is only captured in the analysis through the use of full vehicle simulations, demonstrating the full interactions of the technologies.

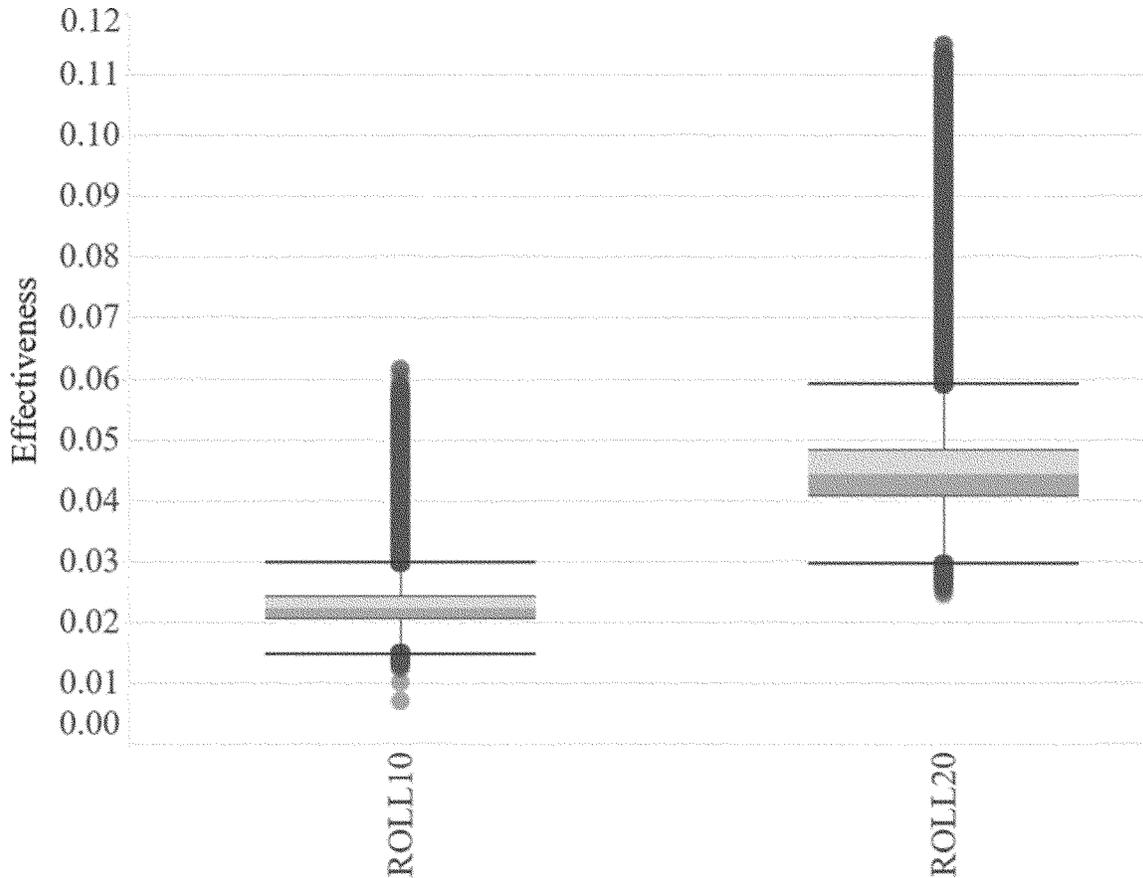


Figure III-16 – ROLL Technology Effectiveness

(e) Tire Rolling Resistance Costs

DOT continues to use the same DMC values for ROLL technology that were used for the 2020 final rule which are based on NHTSA’s MY 2011 CAFE final

rule (74 FR 14196, March 30, 2009) and the 2006 NAS/NRC report.²⁶⁸ Table III-31 shows the different levels of tire rolling resistance technology cost for all vehicle classes across select model

years, which shows how the learning rate for ROLL technologies impacts the cost. For all ROLL absolute technology costs used in the analysis across all model years see the Technologies file.

Table III-31 – Examples of Costs for Rolling Resistance Reduction Technologies in 2018\$ for Select Model Years

Technology	MY 2020	MY 2025	MY 2030
ROLL0	0.00	0.00	0.00
ROLL10	7.13	6.52	6.16
ROLL20	51.18	44.04	40.70

7. Other Vehicle Technologies

Four other vehicle technologies were included in the analysis—electric power steering (EPS), improved accessory devices (IACC), low drag brakes (LDB), and secondary axle disconnect (SAX). The effectiveness of these technologies was applied directly in the CAFE Model with unique effectiveness values for

each technology and for each technology class, rather than using Autonomie effectiveness estimates. This methodology was used in these four cases because the effectiveness of these technologies varies little with combinations of other technologies. Also, applying these technologies directly in the CAFE Model significantly

reduces the number of Autonomie simulations that are needed.

(a) Electric Power Steering

Electric power steering reduces fuel consumption by reducing load on the engine. Specifically, it reduces or eliminates the parasitic losses associated with engine-driven power

²⁶⁸ “Tires and Passenger Vehicle Fuel Economy,” Transportation Research Board Special Report 286,

National Research Council of the National

Academies, 2006, Docket No. EPA-HQ-OAR-2009-0472-0146.

steering pumps, which pump hydraulic fluid continuously through the steering actuation system even when no steering input is present. By selectively powering the electric assist only when steering input is applied, the power consumption of the system is reduced in comparison to the traditional “always-on” hydraulic steering system. Power steering may be electrified on light duty vehicles with standard 12V electrical systems and is also an enabler for vehicle electrification because it provides power steering when the engine is off (or when no combustion engine is present).

Power steering systems can be electrified in two ways. Manufacturers may choose to eliminate the hydraulic portion of the steering system and provide electric-only power steering (EPS) driven by an independent electric motor, or they may choose to move the

hydraulic pump from a belt-driven configuration to a stand-alone electrically driven hydraulic pump. The latter system is commonly referred to as electro-hydraulic power steering (EHPS). As discussed in the rulemakings, manufacturers have informed DOT that full EPS systems are being developed for all types of light-duty vehicles, including large trucks.

DOT described in past rulemakings that, like low drag brakes, EPS can be difficult to observe and assign to the analysis fleet, however, it is found more frequently in publicly available information than low drag brakes. Based on comments received during the 2020 rulemaking, the agency increased EPS application rate to nearly 90 percent for the 2020 final rule. The agency is maintaining this level of EPS fleet penetration for this analysis, recognizing that some specialized,

unique vehicle types or configurations still implement hydraulically actuated power steering systems for the baseline fleet model year.

The effectiveness of both EPS and EHPS is derived from the decoupling of the pump from the crankshaft and is considered to be practically the same for both. Thus, a single effectiveness value is used for both EPS and EHPS. As indicated in the following table, the effectiveness of EPS and EHPS varies based on the vehicle technology class it is being applied to. This variance is a direct result of vehicle size and the amount of energy required to turn the vehicle’s two front wheels about their vertical axis. More simply put, more energy is required for vehicles that weigh more and, typically, have larger tire contact patches.

Table III-32 – Fuel Consumption Improvement Values for Electric Power Steering

Tech Class	EPS
SmallCar	1.50%
SmallCarPerf	
MedCar	1.30%
MedCarPerf	
SmallSUV	1.20%
SmallSUVPerf	
MedSUV	1.00%
MedSUVPerf	
Pickup	0.80%
PickupHT	

(b) Improved Accessories

Engine accessories typically include the alternator, coolant pump, cooling fan, and oil pump, and are traditionally mechanically driven via belts, gears, or directly by other rotating engine components such as camshafts or the crankshaft. These can be replaced with improved accessories (IACC), which may include high efficiency alternators, electrically driven (*i.e.*, on-demand) coolant pumps, electric cooling fans, variable geometry oil pumps, and a mild regeneration strategy. Replacing lower-efficiency and/or mechanically-driven components with these improved accessories results in a reduction in fuel consumption, as the improved accessories can conserve energy by being turned on/off “on demand” in some cases, driven at partial load as needed, or by operating more efficiently.

For example, electric coolant pumps and electric powertrain cooling fans

provide better control of engine cooling. Flow from an electric coolant pump can be varied, and the cooling fan can be shut off during engine warm-up or cold ambient temperature conditions, reducing warm-up time, fuel enrichment requirements, and, ultimately reducing parasitic losses.

IACC technology is difficult to observe and therefore there is uncertainty in assigning it to the analysis fleet. As in the past, DOT relies on industry-provided information and comments to assess the level of IACC technology applied in the fleet. DOT believes there continues to be opportunity for further implementation of IACC. The MY 2020 analysis fleet has an IACC fleet penetration of approximately eight percent compared to the six percent value in the MY 2017 analysis fleet used for the 2020 final rule analysis.

The agency believes improved accessories may be incorporated in coordination with powertrain related changes occurring at either a vehicle refresh or vehicle redesign. This coordination with powertrain changes enables related design and tooling changes to be implemented and systems development, functionality and durability testing to be conducted in a single product change program to efficiently manage resources and costs.

This analysis carries forward work on the effectiveness of IACC systems conducted in the Draft TAR and EPA Proposed Determination that is originally founded in the 2002 NAS Report²⁶⁹ and confidential manufacturer data. This work involved gathering information by monitoring

²⁶⁹ National Research Council 2002. *Effectiveness and Impact of Corporate Average Fuel Economy (CAFE) Standards*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/10172>.

press reports, holding meetings with suppliers and OEMs, and attending industry technical conferences. The resulting effectiveness estimates we use are shown below. As indicated in the following table, the effectiveness of IACC is simulated with differing values

based on the vehicle technology class it is being applied to. This variance, like EPS, is a direct result of vehicle size and the amount of energy required perform the work necessary for the vehicle to operate as expected. This variance is related to the amount energy generated

by the alternator, the size of the coolant pump to the cool the necessary systems, the size of the cooling fan required, among other characteristics and it directed related to a vehicle size and mass.

Table III-33 – Fuel Consumption Improvement Values for Improved Accessories

Tech Class	IACC
SmallCar	1.85%
SmallCarPerf	
MedCar	2.36%
MedCarPerf	
SmallSUV	1.74%
SmallSUVPerf	
MedSUV	2.34%
MedSUVPerf	
Pickup	2.15%
PickupHT	

(c) Low Drag Brakes

Since 2009, for the MY 2011 CAFE final rule, DOT has defined low drag brakes (LDB) as brakes that reduce the sliding friction of disc brake pads on rotors when the brakes are not engaged because the brake pads are pulled away from the rotating disc either by mechanical or electric methods.²⁷⁰ DOT estimated the effectiveness of LDB technology to be a range from 0.5–1.0 percent, based on CBI data. DOT applied a learning curve to the estimated cost for LDB, but noted that the technology was considered high volume, mature, and stable. DOT explained that confidential manufacturer comments in response to the NPRM for MY 2011 (73 FR 24352, May 2, 2008) indicated that most passenger cars have already adopted LDB technology, but ladder frame trucks have not.

DOT and EPA continued to use the same definition for LDB in the MY 2012–2016 rule (75 FR 25324, May 7, 2010), with an estimated effectiveness of up to 1 percent based on CBI data.²⁷¹ DOT only allowed LDB technology to be applied to large car, minivan, medium

and large truck, and SUV classes because the agency determined the technology was already largely utilized in most other subclasses. The 2011 NAS committee also utilized NHTSA and EPA's definition for LDB and added that most new vehicles have low-drag brakes.²⁷² The committee confirmed that the impact over conventional brakes may be about a 1 percent reduction of fuel consumption.

For the MY 2017–2025 rule, however, DOT and EPA updated the effectiveness estimate for LDB to 0.8 percent based on a 2011 Ricardo study and updated lumped-parameter model.²⁷³ The agencies considered LDB technology to be off the learning curve (*i.e.*, the DMC does not change year-over-year). The 2015 NAS report continued to use the agencies' definition for LDB and commented that the 0.8 percent effectiveness estimate is a reasonable estimate.²⁷⁴ The 2015 NAS committee did not opine on the application of LDB technology in the fleet. The agencies used the same definition, cost, and effectiveness estimates for LDB in the Draft TAR, but also noted the existence of zero drag brake systems which use

electrical actuators that allow brake pads to move farther away from the rotor.²⁷⁵ However, the agencies did not include zero drag brake technology in either compliance simulation. EPA continued with this approach in its first 2017 Final Determination that the standards through 2025 were appropriate.²⁷⁶

In the 2020 final rule, the agencies applied LDB sparingly in the MY 2017 analysis fleet using the same cost and effectiveness estimates from the 2011 Ricardo study, with approximately less than 15% of vehicles being assigned the technology. In addition, DOT noted the existence of zero drag brakes in production for some BEVs, similar to the summary in the Draft TAR, but did not opine on the existence of zero drag brakes in the fleet. Some stakeholders commented to the 2020 final rule that other vehicle technologies, including LDB, were actually overapplied in the analysis fleet.

For this action, DOT considered the conflicting statements that LDB were both universally applied in new vehicles and that the new vehicle fleet still had space to improve LDB technology. DOT determined that LDB technology as previously defined going back to the MY 2011 rule (74 FR 14196, March 30, 2009) was universally

²⁷⁰ Final Regulatory Impact Analysis, Corporate Average Fuel Economy for MY 2011 Passenger Cars and Light Trucks (March 2009), at V–135.

²⁷¹ Final Regulatory Impact Analysis, Corporate Average Fuel Economy for MY 2012–MY 2016 Passenger Cars and Light Trucks (March 2010), at 249.

²⁷² 2011 NAS report, at 104.

²⁷³ Joint Technical Support Document: Final Rulemaking for 2017–2025 Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards (August 2012), at 3–211.

²⁷⁴ 2015 NAS report, at 231.

²⁷⁵ Draft TAR, at 5–207.

²⁷⁶ EPA Proposed Determination TSD, at 2–422.

applied in the MY 2020 fleet. However, DOT determined that zero drag brakes, the next level of brake technology, was sparingly applied in the MY 2020 analysis fleet. Currently, DOT does not believe that zero drag brake systems will be available for wide scale application in the rulemaking timeframe and did not include it as a technology for this analysis. DOT will consider how to define a new level of low drag brake technology that either encompasses the definition of zero drag brakes or similar technology in future rulemakings. We invite comment on the issue, and any available data regarding use of such systems on current and forthcoming production vehicles, any available data regarding system costs and efficacy in reducing drag (*i.e.*, force at different speeds) and vehicle fuel economy levels (*i.e.*, through coastdown testing).

(d) Secondary Axle Disconnect

All-wheel drive (AWD) and four-wheel drive (4WD) vehicles provide improved traction by delivering torque to the front and rear axles, rather than just one axle. When a second axle is rotating, it tends to consume more energy because of additional losses related to lubricant churning, seal friction, bearing friction, and gear train inefficiencies.²⁷⁷ Some of these losses may be reduced by providing a secondary axle disconnect function that disconnects one of the axles when driving conditions do not call for torque to be delivered to both.

The terms AWD and 4WD are often used interchangeably, although they have also developed a colloquial distinction, and are two separate systems. The term AWD has come to be associated with light-duty passenger vehicles providing variable operation of one or both axles on ordinary roads. The term 4WD is often associated with larger truck-based vehicle platforms providing a locked driveline configuration and/or a low range gearing meant primarily for off-road use.

Many 4WD vehicles provide for a single-axle (or two-wheel) drive mode that may be manually selected by the user. In this mode, a primary axle

(usually the rear axle) will be powered, while the other axle (known as the secondary axle) is not. However, even though the secondary axle and associated driveline components are not receiving engine power, they are still connected to the non-driven wheels and will rotate when the vehicle is in motion. This unnecessary rotation consumes energy,²⁷⁸ and leads to increased fuel consumption that could be avoided if the secondary axle components were completely disconnected and not rotating.

Light-duty AWD systems are often designed to divide variably torque between the front and rear axles in normal driving to optimize traction and handling in response to driving conditions. However, even when the secondary axle is not necessary for enhanced traction or handling, in traditional AWD systems it typically remains engaged with the driveline and continues to generate losses that could be avoided if the axle was instead disconnected. The SAX technology observed in the marketplace disengages one axle (typically the rear axle) for two-wheel drive (2WD) operation but detects changes in driving conditions and automatically engages AWD mode when it is necessary. The operation in 2WD can result in reduced fuel consumption. For example, Chrysler has estimated the secondary axle disconnect feature in the Jeep Cherokee reduces friction and drag attributable to the secondary axle by 80% when in disconnect mode.²⁷⁹

Observing SAX technology on actual vehicles is very difficult. Manufacturers do not typically identify the technology on technical specifications or other widely available information. The agency employed an approach consistent with previous rulemaking in assigning this technology. Specifically, the agency assigned SAX technology based on a combination of publicly available information and previously submitted confidential information. In the analysis fleet, 38% of the vehicles that had AWD or 4WD are determined to have SAX technology. All vehicles in the analysis fleet with front-wheel drive

(FWD) or rear-wheel drive (RWD) have SAX skipped since SAX technology is a way to emulate FWD or RWD in AWD and 4WD vehicles, respectively. The agency does not allow for the application of SAX technology to FWD or RWD vehicles because they do not have a secondary driven axle to disconnect.

SAX technology can be adopted by any vehicle in the analysis fleet, including those with a HEV or BEV powertrain,²⁸⁰ which was identified as having AWD or 4WD. It does not supersede any technology or result in any other technology being excluded for future implementation for that vehicle. SAX technology can be applied during any refresh or redesign. DOT seeks comment on whether it is appropriate for SAX technology to be allowed to be applied to BEVs, or if the technology only provides benefits to ICE vehicles.

This analysis carries forward work on the effectiveness of SAX systems conducted in the Draft TAR and EPA Proposed Determination.²⁸¹ This work involved gathering information by monitoring press reports, holding meetings with suppliers and OEMs, and attending industry technical conferences. DOT does not simulate SAX effectiveness in the Autonomie modeling because, similar to LDB, IACC, and EFR, the fuel economy benefits from the technology are not fully captured on the two-cycle test. The secondary axle disconnect effectiveness values, for the most part, have been accepted as plausible based on the rulemaking record and absence of contrary comments. As such, the agency has prioritized its extensive Autonomie vehicle simulation work toward other technologies that are emerging or considered more critical for total system effectiveness. The resulting effectiveness estimates we use are shown below. The agency welcomes comment on these effectiveness values and will consider any material data providing revised, or confirmatory, values for those being used in the analysis.

²⁷⁸ Any time a drivetrain component spins it consumes some energy, primarily to overcome frictional forces.

²⁷⁹ Brooke, L. "Systems Engineering a new 4x4 benchmark", *SAE Automotive Engineering*, June 2, 2014.

²⁸⁰ The inefficiencies addressed on ICEs by SAX technology may not be similar enough, or even present, in HEVs or BEVs.

²⁸¹ Draft TAR, at 5–412; Proposed Determination TSD, at 2–422.

²⁷⁷ Pilot Systems, "AWD Component Analysis", Project Report, performed for Transport Canada, Contract T8080-

150132, May 31, 2016.

Table III-34 – Fuel Consumption Improvement Values for Secondary Axle Disconnect

Tech Class	SAX
SmallCar	1.40%
SmallCarPerf	
MedCar	1.40%
MedCarPerf	
SmallSUV	1.40%
SmallSUVPerf	
MedSUV	1.30%
MedSUVPerf	
Pickup	1.60%
PickupHT	

(e) Other Vehicle Technology Costs

The cost estimates for EPS, IACC, SAX, and LDB²⁸² rely on previous work published as part of past rulemakings with learning applied to those cost

values which is founded in the 2002 NAS report.²⁸³ The cost values are the same values that were used for the Draft TAR and 2020 final rule, updated to 2018 dollars. Table III-35 shows examples of costs for these technologies

across select model years. Note that these costs are the same for all vehicle technology classes. For all absolute EPS, IACC, LDB, and SAX technology costs across all model years, see the Technologies file.

Table III-35 – Examples of Costs for EPS, IACC, LDB, and SAX Technologies in 2018\$ for Select Model Years

Technology	MY 2020	MY 2025	MY 2030
EPS	126.53	117.28	110.90
IACC	169.70	146.67	135.17
LDB	86.42	78.35	73.12
SAX	88.69	80.34	75.15

8. Simulating Air Conditioning Efficiency and Off-Cycle Technologies

Off-cycle and air conditioning (A/C) efficiency technologies can provide fuel economy benefits in real-world vehicle operation, but those benefits cannot be fully captured by the traditional 2-cycle test procedures used to measure fuel economy.²⁸⁴ Off-cycle technologies include technologies like high efficiency alternators and high efficiency exterior lighting.²⁸⁵ A/C efficiency technologies

are technologies that reduce the operation of or the loads on the compressor, which pressurizes A/C refrigerant. The less the compressor operates or the more efficiently it operates, the less load the compressor places on the engine, resulting in better fuel efficiency.

Vehicle manufacturers have the option to generate credits for off-cycle technologies and improved A/C systems under the EPA's CO₂ program and

receive a fuel consumption improvement value (FCIV) equal to the value of the benefit not captured on the 2-cycle test under NHTSA's CAFE program. The FCIV is not a "credit" in the NHTSA CAFE program,²⁸⁶ but the FCIVs increase the reported fuel economy of a manufacturer's fleet, which is used to determine compliance. EPA applies FCIVs during determination of a fleet's final average fuel economy reported to NHTSA.²⁸⁷

²⁸² Note that because LDB technology is applied universally as a baseline technology in the MY 2020 fleet, there is functionally zero costs for this technology associated with this proposed rulemaking.

²⁸³ National Research Council 2002. *Effectiveness and Impact of Corporate Average Fuel Economy (CAFE) Standards*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/10172>.

²⁸⁴ See 49 U.S.C. 32904(c) ("The Administrator shall measure fuel economy for each model and calculate average fuel economy for a manufacturer under testing and calculation procedures prescribed by the Administrator. . . . the Administrator shall use the same procedures for passenger automobiles the Administrator used for model year 1975 (weighted 55 percent urban cycle and 45 percent highway cycle), or procedures that give comparable results.").

²⁸⁵ 40 CFR 86.1869-12(b)—Credit available for certain off-cycle technologies.

²⁸⁶ Unlike, for example, the statutory overcompliance credits prescribed in 49 U.S.C. 32903.

²⁸⁷ 49 U.S.C. 32904(c)-(e). EPCA granted EPA authority to establish fuel economy testing and calculation procedures. See Section VII for more information.

FCIVs are only calculated and applied at a fleet level for a manufacturer and are based on the volume of the manufacturer's fleet that contain qualifying technologies.²⁸⁸

There are three pathways that can be used to determine the value of A/C efficiency and off-cycle adjustments. First, manufacturers can use a predetermined list or "menu" of g/mi values that EPA established for specific off-cycle technologies.²⁸⁹ Second, manufacturers can use 5-cycle testing to demonstrate off-cycle CO₂ benefit;²⁹⁰ the additional tests allow emissions benefits to be demonstrated over some elements of real-world driving not captured by the 2-cycle compliance tests, including high speeds, rapid accelerations, hot temperatures, and cold temperatures. Third, manufacturers can seek EPA approval, through a notice and comment process, to use an alternative methodology other than the menu or 5-cycle methodology for determining the off-cycle technology improvement values.²⁹¹ For further discussion of the A/C and off-cycle compliance and application process, see Section VII.

DOT and EPA have been collecting data on the application of these technologies since implementing the A/C and off-cycle programs.^{292 293} Most manufacturers are applying A/C efficiency and off-cycle technologies; in MY 2019, 17 manufacturers employed A/C efficiency technologies and 20 manufacturers employed off-cycle

technologies, though the level of deployment varies by manufacturer.²⁹⁴

Manufacturers have only recently begun including detailed information on off-cycle and A/C efficiency technologies equipped on vehicles in compliance reporting data. For this analysis, though, such information was not sufficiently complete to support a detailed representation of the application of off-cycle technology to specific vehicle model/configurations in the MY 2020 fleet. To account for the A/C and off-cycle technologies equipped on vehicles and the potential that manufacturers will apply additional A/C and off-cycle technologies in the rulemaking timeframe, DOT specified model inputs for A/C efficiency and off-cycle fuel consumption improvement values in grams/mile for each manufacturer's fleet in each model year. DOT estimated future values based on an expectation that manufacturers already relying heavily on these adjustments would continue to do so, and that other manufacturers would, over time, also approach the limits on adjustments allowed for such improvements.

The next sections discuss how the CAFE Model simulates the effectiveness and cost for A/C efficiency and off-cycle technology adjustments.

(a) A/C and Off-Cycle Effectiveness Modeling in the CAFE Model

In this analysis, the CAFE Model applies A/C and off-cycle flexibilities to manufacturer's CAFE regulatory fleet performance in a similar way to the regulation.²⁹⁵ In the analysis and after the first MY, A/C efficiency and off-cycle FCIVs apply to each manufacturer's regulatory fleet after the CAFE Model applies conventional technologies for a given standard. That is, conventional technologies are applied to each manufacturers' vehicles in each MY to assess the 2-cycle sales weighted harmonic average CAFE rating. Then, the CAFE Model assesses the CAFE rating to use for a manufacturer's compliance value after applying the A/C efficiency and off-cycle FCIVs designated in the Market Data file. This assessment of adoption of conventional technology and the A/C efficiency and off-cycle technology occurs on a year-by-year basis in the CAFE Model. The CAFE Model attempts to apply technologies and flexibilities in a way that both minimizes cost and allows the manufacturer to meet their

standards without over or under complying.

To determine how manufacturers might adopt A/C efficiency and off-cycle technologies in the rulemaking timeframe, DOT began with data from EPA's 2020 Trends Report and CBI compliance material from manufacturers.^{296 297} DOT used manufacturer's MY 2020 A/C efficiency and off-cycle FCIVs as a starting point, and then extrapolated values in each MY until MY 2026, for light trucks to the proposed regulatory cap, for each manufacturer's fleets by regulatory class.

To determine the rate at which to extrapolate the addition of A/C and off-cycle technology adoption for each manufacturer, DOT reviewed historical A/C and off-cycle technology applications, each manufacturer's fleet composition (*i.e.*, breakdown between passenger cars (PCs) and light trucks (LTs)), availability of A/C and off-cycle technologies that manufacturers could still use, and CBI compliance data. Different manufacturers showed different levels of historical A/C efficiency and off-cycle technology adoption; therefore, different manufacturers hit the proposed regulatory caps for A/C efficiency technology for both their PC and LT fleets, and different manufacturers hit caps for off-cycle technologies in the LT regulatory class. DOT declined to extrapolate off-cycle technology adoption for PCs to the proposed regulatory cap for a few reasons. First, past EPA Trends Reports showed that many manufacturers did not adopt off-cycle technology to their passenger car fleets. Next, manufacturers limited PC offerings in MY 2020 as compared to historical trends. Last, CBI compliance data available to DOT indicated a lower adoption of menu item off-cycle technologies to PCs compared to LTs. DOT accordingly limited the application of off-cycle FCIVs to 10 g/mi for PCs but allowed LTs to apply 15 g/mi of off-cycle FCIVs. The inputs for A/C efficiency technologies were set to 5 g/mi and 7.2 g/mi for PCs and LTs, respectively. DOT allowed A/C efficiency technologies to reach the regulatory caps by MY 2024, which is the first year of standards assessed in this analysis.

DOT decided to apply the FCIVs in this way because the A/C and off-cycle

²⁹⁶ Vehicle and Engine Certification. Compliance Information for Light-Duty Gas (GHG) Standards. Compliance Information for Light-Duty Greenhouse Gas (GHG) Standards | Certification and Compliance for Vehicles and Engines | U.S. EPA. Last Accessed May 24, 2021.

²⁹⁷ 49 U.S.C. 32907.

²⁸⁸ 40 CFR 600.510–12(c).

²⁸⁹ See 40 CFR 86.1869–12(b). The TSD for the 2012 final rule for MYs 2017 and beyond provides technology examples and guidance with respect to the potential pathways to achieve the desired physical impact of a specific off-cycle technology from the menu and provides the foundation for the analysis justifying the credits provided by the menu. The expectation is that manufacturers will use the information in the TSD to design and implement off-cycle technologies that meet or exceed those expectations in order to achieve the real-world benefits of off-cycle technologies from the menu.

²⁹⁰ See 40 CFR 86.1869–12(c). EPA proposed a correction for the 5-cycle pathway in a separate technical amendments rulemaking. See 83 FR 49344 (Oct. 1, 2019). EPA is not approving credits based on the 5-cycle pathway pending the finalization of the technical amendments rule.

²⁹¹ See 40 CFR 86.1869–12(d).

²⁹² See 77 FR at 62832, 62839 (Oct. 15, 2012). EPA introduced A/C and off-cycle technology credits for the CO₂ program in the MY 2012–2016 rule and revised the program in the MY 2017–2025 rule and NHTSA adopted equivalent provisions for MYs 2017 and later in the MY 2017–2025 rule.

²⁹³ Vehicle and Engine Certification. Compliance Information for Light-Duty Gas (GHG) Standards. Compliance Information for Light-Duty Greenhouse Gas (GHG) Standards | Certification and Compliance for Vehicles and Engines | U.S. EPA. Last Accessed May 24, 2021.

²⁹⁴ See 2020 EPA Automotive Trends Report, at 91.

²⁹⁵ 49 CFR 531.6 and 49 CFR 533.6 Measurement and Calculation procedures.

technologies are generally more cost-effective than other technologies. The details of this assessment (and the calculation) are further discussed in the CAFE Model Documentation.²⁹⁸ The A/C efficiency and off-cycle adjustment schedules used in this analysis are shown in TSD Chapter 3.8 and in the Market Data file's Credits and Adjustments worksheet.

(b) A/C and Off-Cycle Costs

For this analysis, A/C and off-cycle technologies are applied independently of the decision trees using the extrapolated values shown above, so it is necessary to account for the costs of those technologies independently. Table III-36 shows the costs used for A/C and off-cycle FCIVs in this analysis. The

costs are shown in dollars per gram of CO₂ per mile (\$ per g/mile). The A/C efficiency and off-cycle technology costs are the same costs used in the EPA Proposed Determination and described in the EPA Proposed Determination TSD.²⁹⁹

To develop the off-cycle technology costs, DOT selected the 2nd generic 3 gram/mile package estimated to cost \$170 (in 2015\$) to apply in this analysis in \$ per gram/mile. DOT updated the costs used in the Proposed Determination TSD from 2015\$ to 2018\$, adjusted the costs for RPE, and applied a relatively flat learning rate. We seek comment on whether these costs are still appropriate, or whether a different \$ per gram/mile cost should be used. If commenters believe a different

\$ per gram/mile cost should be used, we request commenters provide any data or information on which any alternative costs are based. This should include a description of how the alternative costs are representative of costs across the industry, and whether the \$ per gram/mile estimate is based on a package of specific off-cycle technologies.

Similar to off-cycle technology costs, DOT used the cost estimates from EPA Proposed Determination TSD for A/C efficiency technologies that relied on the 2012 rulemaking TSD.³⁰⁰ DOT updated these costs to 2018\$ and adjusted for RPE for this analysis, and applied the same mature learning rate that DOT applied for off-cycle technologies.

Table III-36 – Estimated Costs (\$ per g/mi) for A/C and Off-Cycle Adjustments

Model Year	A/C Efficiency	A/C Leakage	Off-Cycle
2020	4.30	10.76	83.79
2025	3.89	9.72	77.47
2030	3.52	8.79	71.83

E. Consumer Responses to Manufacturer Compliance Strategies

The previous subsections in Section III have so far discussed how manufacturers might respond to changes to the standards. While the technology analysis is informative of the different compliance strategies available to manufactures, the tangible costs and benefits that accrue because of CAFE standards are dependent on how consumers respond to the decisions made by manufacturers. Many, if not most, of the benefits and costs resulting from changes to CAFE standards are private benefits that accrue to the buyers of new cars and trucks, produced in the model years under consideration. These benefits and costs largely flow from the changes to vehicle ownership and operating costs that result from improved fuel economy, and the cost of the technology required to achieve those improvements. The remaining external benefits are also derived from how consumers use—or do not use—vehicles. The next few subsections walk through how the analysis models consumer responses to changing vehicles and prices. NHTSA requests comment on the following discussion.

1. Macroeconomic and Consumer Behavior Assumptions

This proposal includes a comprehensive economic analysis of the impacts of altering the CAFE standards. Most of the effects measured are influenced by macroeconomic conditions that are exogenous to the agency's influence. For example, fuel prices are mainly determined by global demand, and yet they determine how much fuel efficiency technology manufacturers will apply to U.S.-bound vehicles, how much consumers are willing to pay for a new vehicle, the amount of travel in which all users engage, and the value of each gallon saved from higher CAFE standards. Constructing these forecasts requires robust projections of macroeconomic variables that span the timeframe of the analysis, including real U.S. Gross Domestic Product (GDP), consumer confidence, U.S. population, and real disposable personal income.

In order to ensure internal consistency within the analysis, relevant economic assumptions are derived from the same source. The analysis presented in this analysis employs forecasts developed by DOT using the U.S. Energy Information Administration's (EIA's) National

Energy Model System (NEMS). EIA is an agency within the U.S. Department of Energy (DOE) which collects, analyzes, and disseminates independent and impartial energy information to promote sound policymaking, efficient markets, and public understanding of energy and its interaction with the economy and the environment. EIA uses NEMS to produce its Annual Energy Outlook (AEO), which presents forecasts of future fuel prices, among many other energy-related variables. The analysis employs forecasts of fuel prices, real U.S. GDP, real disposable personal income, U.S. population, and fuel prices from the AEO 2021 Reference Case. The agency also uses a forecast of consumer confidence to project sales from the IHS Markit Global Insight long-term macroeconomic model. The IHS Markit Global Insight model is also used by EIA for the AOE.

While these macroeconomic assumptions are some of the most critical inputs to the analysis, they are also subject to the most uncertainty—particularly over the full lifetimes of the vehicles affected by this proposed rule. The agency uses low and high cases from the AEO as bounding cases for sensitivity analyses. The purpose of the sensitivity analyses, discussed in greater

²⁹⁸ CAFE Model Documentation, S5.

²⁹⁹ EPA PD TSD. EPA-420-R-16-021. November 2016. At 2-423-2-245. <https://nepis.epa.gov/Exe/>

[ZyPDF.cgi?Dockey=P100Q3L4.pdf](https://www.eia.gov/analysis/zy/pdf.cgi?Dockey=P100Q3L4.pdf). Last accessed May 24, 2021.

³⁰⁰ Joint NHTSA and EPA 2012 TSD, *see* Section 5.1.

detail in PRIA Chapter 6 and PRIA Chapter 7, is not to posit a more credible future state of the world than the central case assumes—we assume the central case is the most likely future state of the world—but rather to measure the degree to which important outcomes can change under different assumptions about fuel prices.

The first year simulated in this analysis is 2020, though it is based on observational data (rather than forecasts) to the greatest extent possible. The elements of the analysis that rely most heavily on the macroeconomic inputs—aggregate demand for VMT, new vehicle sales, used vehicle retirement rates—all reflect the relatively rapid climb back to pre-pandemic growth rates (in all the regulatory alternatives).

See TSD Chapter 4.1 for a more complete discussion of the macroeconomic assumptions made for the analysis.

Another key assumption that permeates throughout the analysis is how much consumers are willing to pay for fuel economy. Increased fuel efficiency offers vehicle owners significant savings; in fact, the analysis shows that fuel savings exceed the technology cost to comply with even the most stringent standards analyzed by this proposal at a 3% discount rate. It would be reasonable to assume that consumers value the full value of fuel savings as they would be better off not having to spend more of their disposable income on fuel. If consumers did value the full amount of fuel savings, fuel-efficient vehicles would functionally be *cheaper* for consumers to own when considering both purchasing and operational costs, and thus making the vehicles offered under the stricter alternatives more attractive than similar models offered in the baseline. Recent econometric research remains divided between studies that conclude has shown that consumers may value most, if not all of potential fuel savings, and those that conclude that consumers significantly undervalue expected fuel savings (NASEM, 2021, p. 11–351).^{301 302 303}

³⁰¹ There is a great deal of work attempting to test the question whether consumers are adequately informed about, and sufficiently attentive to, potential fuel savings at the time of purchase. The existing research is not conclusive and leaves many open questions. On the one hand, there is significant support for the proposition that consumers are responsive to changes in fuel costs. See, e.g., Busse et al.; Sallee, et al. On the other hand, there is also support for the proposition that many consumers do not, in fact, give full or sufficient attention to potential savings from fuel-efficient vehicles, and thus make suboptimal decisions. See Duncan et al.; Gillingham et al.

³⁰² Allcott, H. and C. Knittel, 2019. “Are Consumers Poorly Informed about Fuel Economy?

If buyers fully value the savings in fuel costs that result from higher fuel economy, manufacturers would be expected to supply the improvements that buyers demand, and vehicle demand would be expected to fully consider both future fuel cost savings consumers would realize from owning—and potentially re-selling—more fuel-efficient models and increased cost of vehicles due to technological and design changes made to increase fuel economy. If instead, consumers systematically undervalue future fuel savings, the result would be an underinvestment in fuel-saving technology. In that case, more stringent fuel economy standards would also lead manufacturers to adopt improvements in fuel economy that improve consumer welfare (e.g., Allcott et al., 2014; Heutel, 2015).

There is substantial evidence that consumers do not fully value lifetime fuel savings. Even though the average fuel economy of new vehicles reached an all-time high in MY 2020 of 25.7 MPG,³⁰⁴ this is still significantly below the fuel economy of the fleet’s most efficient vehicles that are readily available to consumers.³⁰⁵ Manufacturers have repeatedly informed the agency that consumers only value between 2 to 3 years-worth of fuel savings when making purchasing decisions. The potential for car buyers voluntarily to forego improvements in fuel economy that offer savings exceeding their initial costs is one example of what is often termed the “energy-efficiency gap.” This appearance of such a gap, between the level of energy efficiency that would minimize consumers’ overall expenses and what they actually purchase, is typically based on engineering calculations that compare the initial cost for providing higher energy efficiency to the discounted present value of the resulting savings in future energy costs. There has long been an active debate about why such a gap might arise and whether it actually exists. Economic theory predicts that economically rational individuals will purchase more energy-efficient products only if the savings in future energy costs they offer promise to offset their higher initial costs. On the other hand,

Evidence from Two Experiments”, AEJ: Economic Policy, 11(1): 1–37.

³⁰³ D. Duncan, A. Ku, A. Julian, S. Carley, S. Siddiki, N. Zirogiannis and J. Graham, 2019. “Most Consumers Don’t Buy Hybrids: Is Rational Choice a Sufficient Explanation?”, J. of Benefit-Cost Analysis, 10(1): 1–38.

³⁰⁴ See EPA 2020 Automotive Trends Report at 6, available at <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1010U68.pdf>.

³⁰⁵ *Id.* At 9.

behavioral economics has documented numerous situations in which the decision-making of consumers differs in important ways from the predictions of economic consumer model (e.g., Dellavigna, 2009).

A behavioral explanation of such ‘undervaluation’ of the savings from purchasing higher-mpg models is myopia or present bias; consumers may give undue focus to short-term costs and insufficient attention to long-term benefits.³⁰⁶ This situation could arise because they are unsure of the fuel savings that will be achieved in real-world driving, what future fuel prices will be, how long they will own a new vehicle, whether they will drive it enough to realize the promised savings. As a consequence, they may view choosing to purchase or not purchase a fuel-efficient technology as a risky bet; behavioral economics has demonstrated that faced with the decision to accept or reject a risky choice, some consumers weigh potential losses approximately twice as heavily as potential gains, significantly undervaluing the choice relative to its expected value (e.g., Kahneman and Tversky, 1979; Kahneman, 2011). In the context of a choice to pay more for a fuel-saving technology, loss aversion has been shown to have the potential to cause undervaluation of future fuel savings similar to that reported by manufacturers (Greene, 2011; Greene et al., 2013).³⁰⁷ The behavioral model holds that consumers’ decisions are affected by the context, or framing, of choices. As explained in NASEM (2021), Ch. 11.3.3, it is possible that consumers respond to changes in fuel economy regulations differently than they respond to manufacturers voluntarily offering the option to purchase fuel economy technology to new car buyers. We explain this differential more thoroughly in TSD Chapter 4.2.1.1, but here is the contextual explanation for the differential valuation. If a consumer is thinking about buying a new car and is looking at two models, one that includes voluntarily added fuel economy technology and is more expensive and another that does not, she may buy the cheaper, less fuel efficient version even if the more expensive model will save

³⁰⁶ Gillingham et al., 2021, which is an AEJ: Economic Policy paper, just published on consumer myopia in vehicle purchases; a standard reference on present bias generally is O’Donoghue and Rabin, AER: Papers and Proceedings, 2015.

³⁰⁷ Application of investment under uncertainty will yield similar results as costs may be more certain and up front while the fuel savings or benefits of the investment may be perceived as more uncertain and farther into future, thereby reducing investments in fuel saving technologies.

money in the long run. But if, instead, the consumer is faced with whether to buy a new car at all as opposed to keeping an older one, if all new cars contain technology to meet fuel economy standards, then she may view the decision differently. Will, for example, an extra \$1,000 for a new car—a \$1,000 that the consumer will more than recoup in fuel savings—deter her from buying the new car, especially when most consumers finance cars over a number of years rather than paying the \$1,000 cost up front (therefore any increase in monthly payment would be partly or entirely offset with lower fuel costs)? In addition, the fact that standards generally increase gradually over a period of years allows time for consumers and other information sources to verify that fuel savings are real and of substantial value.

Another alternative is that consumers view the increase in immediate costs associated with fuel economy technology in the context of tradeoffs they must make amongst their purchasing decisions. American households must choose how to spend their income amongst many competing goods and services, including how much to spend on a new vehicle. They may also decide to opt for another form of transportation. While a consumer may recognize and value the potential long-term value of fuel savings, they may also prefer to spend their money on other items, either in the form of other vehicle attributes—such as picking a truck with a larger flatbed or upgrading to a more luxurious trim package—or other unrelated goods and services. The same technologies that can be used to increase fuel economy can also be used to enable increased vehicle power or weight while maintaining fuel economy. While increased fuel efficiency will free up disposable income throughout the lifetime of the vehicle (and may even exceed the additional upfront costs to purchase a more expensive fuel-efficient vehicle), the value of owning a different good sooner may provide consumers even more benefit.

As explained more thoroughly in TSD Chapter 4.2.1.1, the analysis assumes that potential car and light truck buyers value only the undiscounted savings in fuel costs from purchasing a higher-mpg model they expect to realize over the first 30 months they own it. Depending on the discount rate buyers are assumed to apply, this amounts to 25–30% of the expected savings in fuel costs over its entire lifetime. These savings would offset only a fraction of the expected increase in new car and light truck prices that the agency estimates will be required for manufacturers to recover

their increased costs for making required improvements to fuel economy. The agency seeks comment on whether 30 months of undiscounted fuel savings is an appropriate measure for the analysis of consumer willingness to pay for fuel economy. The assumption also has important implications for other outcomes of the model, including for VMT, safety, and air pollution emissions projections. If NHTSA is incorrect about the undervaluation of fuel economy in the context of regulatory standards and its effect on car sales, correcting the assumption should result in improved safety outcomes and additional declines in conventional air pollutants. If commenters believe a different amount of time should be used for the payback assumption, it would be most helpful to NHTSA if commenters could define the amount of time, provide an explanation of why that amount of time is preferable, provide any data or information on which the amount of time is based, and provide any discussion of how changing this assumption would interact with other elements in the analysis.

2. Fleet Composition

The composition of the on-road fleet—and how it changes in response to CAFE standards—determines many of the costs and benefits of the proposal. For example, how much fuel the light-duty consumes is dependent on the number of new vehicles sold, older (and less efficient) vehicles retired, and how much those vehicles are driven.

Prior to the 2020 CAFE standards, all previous CAFE rulemaking analyses used static fleet forecasts that were based on a combination of manufacturer compliance data, public data sources, and proprietary forecasts (or product plans submitted by manufacturers). When simulating compliance with regulatory alternatives, those analyses projected identical sales and retirements across the alternatives, for each manufacturer down to the make/model level—where the exact same number of each model variant was assumed to be sold in a given model year under both the least stringent alternative (typically the baseline) and the most stringent alternative considered (intended to represent “maximum technology” scenarios in some cases). To the extent that an alternative matched the assumptions made in the production of the proprietary forecast, using a static fleet based upon those assumptions may have been warranted.

However, a fleet forecast is unlikely to be representative of a broad set of regulatory alternatives with significant

variation in the cost of new vehicles. A number of commenters on previous regulatory actions and peer reviewers of the CAFE Model encouraged consideration of the potential impact of fuel efficiency standards on new vehicle prices and sales, the changes to compliance strategies that those shifts could necessitate, and the downstream impact on vehicle retirement rates. In particular, the continued growth of the utility vehicle segment causes changes within some manufacturers’ fleets as sales volumes shift from one region of the footprint curve to another, or as mass is added to increase the ride height of a vehicle on a sedan platform to create a crossover utility vehicle, which exists on the same place of the footprint curve as the sedan upon which it might be based.

The analysis now dynamically simulates changes in the vehicle fleet’s size, composition, and usage as manufacturers and consumers respond to regulatory alternatives, fuel prices, and macroeconomic conditions. The analysis of fleet composition is comprised of two forces, how new vehicle sales—the flow of new vehicles into the registered population—changes in response to regulatory alternatives, and the influence of economic and regulatory factors on vehicle retirement (otherwise known as scrappage). Below are brief descriptions that of how the agency models sales and scrappage. For a full explanation, refer to TSD Chapter 4.2. Particularly given the broad uncertainty discussed in TSD Chapter 4.2, NHTSA seeks comment on the discussion below and the associated discussions in the TSD, on the internal structure of the sales and scrappage modules, and whether and how to change the sales and scrappage analyses for the final rule.

(a) Sales

For the purposes of regulatory evaluation, the relevant sales metric is the difference between alternatives rather than the absolute number of sales in any of the alternatives. As such, the sales response model currently contains three parts: A nominal forecast that provides the level of sales in the baseline (based upon macroeconomic inputs, exclusively), a price elasticity that creates sales differences relative to that baseline in each year, and a fleet share model that produces differences in the passenger car and light truck market share in each alternative. The nominal forecast does not include price and is merely a (continuous) function of several macroeconomic variables that are provided to the model as inputs. The price elasticity is also specified as an

input, but this analysis assumes a unit elastic response of -1.0 —meaning that a one percent increase in the average price of a new vehicle produces a one percent decrease in total sales. NHTSA seeks comment on this assumption. The price change on which the elasticity acts is calculated net of some portion of the future fuel savings that accrue to new vehicle buyers (2.5 years' worth, in this analysis, as discussed in the previous section).

The current baseline sales module reflects the idea that total new vehicle sales are primarily driven by conditions in the economy that are exogenous to the automobile industry. Over time, new vehicle sales have been cyclical—rising when prevailing economic conditions are positive (periods of growth) and falling during periods of economic contraction. While the kinds of changes to vehicle offerings that occur as a result of manufacturers' compliance actions exert some influence on the total volume of new vehicle sales, they are not determinative. Instead, they drive the kinds of marginal differences between regulatory alternatives that the current sales module is designed to simulate—more expensive vehicles, generally, reduce total sales but only marginally.

The first component of the sales response model is the nominal forecast, which is a function (with a small set of inputs) that determines the size of the new vehicle market in each calendar year in the analysis for the baseline. It is of some relevance that this statistical model is intended only as a means to project a baseline sales series. Past reviewers expressed concerns about the possibility of econometrically estimating an industry average price elasticity in a way that isolates the causal effect of new vehicle prices on new vehicle sales (and properly addresses the issue of endogeneity between sales and price). The nominal forecast model does not include prices and is not intended for statistical inference around the question of price response in the new vehicle market. The economic response to the pandemic has created uncertainty, particularly in the near-term, around pace at which the market for automobiles will recover—and the scale and timing of the recovery's peak—before returning to its long-term trend. DOT will continue to monitor macroeconomic data and new vehicle sales and update its baseline forecast as appropriate.

The second component of the sales response model captures how price changes affect the number of vehicles sold. The price elasticity is applied to the percentage change in average price

(in each year). The price change does not represent an increase/decrease over the last observed year, but rather the percentage change relative to the baseline for that year. In the baseline, the average price is defined as the observed new vehicle price in 2019 (the last historical year before the simulation begins) plus the average regulatory cost associated with the baseline alternative.³⁰⁸ The central analysis in this proposal simulates multiple programs simultaneously (CAFE final standards, EPA final greenhouse gas standards, ZEV, and the California Framework Agreement), and the regulatory cost includes both technology costs and civil penalties paid for non-compliance (with CAFE standards) in a model year. Because the elasticity assumes no perceived change in the quality of the product, and the vehicles produced under different regulatory scenarios have inherently different operating costs, the price metric must account for this difference. The price to which the unit elasticity is applied in this analysis represents the residual price change *between scenarios* after accounting for 2.5 years' worth of fuel savings to the new vehicle buyer.

The third and final component of the sales model is the dynamic fleet share module (DFS). Some commenters to previous rules noted that the market share of SUVs continues to grow, while conventional passenger car body-styles continue to lose market share. For instance, in the 2012 final rule, the agencies projected fleet shares based on the continuation of the baseline standards (MYs 2012–2016) and a fuel price forecast that was much higher than the realized prices since that time. As a result, that analysis assumed passenger car body-styles comprising about 70 percent of the new vehicle market by 2025, which was internally consistent. The reality, however, has been quite different. The CAFE Model includes the DFS model in an attempt to address these market realities.

The DFS distributes the total industry sales across two different body-types: “cars” and “light trucks.” While there are specific definitions of “passenger cars” and “light trucks” that determine a vehicle's regulatory class, the distinction used in this phase of the analysis is more simplistic. All body-

styles that are obviously cars—sedans, coupes, convertibles, hatchbacks, and station wagons—are defined as “cars” for the purpose of determining fleet share. Everything else—SUVs, smaller SUVs (crossovers), vans, and pickup trucks—are defined as “light trucks”—even though they may not be treated as such for compliance purposes. The DFS uses two functions from the National Energy Modeling System (NEMS) used in the 2017 AEO to independently estimate the share of passenger cars and light trucks, respectively, given average new market attributes (fuel economy, horsepower, and curb weight) for each group and current fuel prices, as well as the prior year's market share and prior year's attributes. The two independently estimated shares are then normalized to ensure that they sum to one.

These shares are applied to the total industry sales derived in the first stage of the sales response. This produces total industry volumes of car and light truck body styles. Individual model sales are then determined from there based on the following sequence: (1) Individual manufacturer shares of each body style (either car or light truck) times the total industry sales of that body style, then (2) each vehicle within a manufacturer's volume of that body-style is given the same percentage of sales as appear in the 2020 fleet. This implicitly assumes that consumer preferences for particular styles of vehicles are determined in the aggregate (at the industry level), but that manufacturers' sales shares of those body styles are consistent with MY 2020 sales. Within a given body style, a manufacturer's sales shares of individual models are also assumed to be constant over time. This approach implicitly assumes that manufacturers are currently pricing individual vehicle models within market segments in a way that maximizes their profit. Without more information about each OEM's true cost of production and operation, fixed and variables costs, and both desired and achievable profit margins on individual vehicle models, there is no basis to assume that strategic shifts within a manufacturer's portfolio will occur in response to standards.

The DFS model show passenger car styles gaining share with higher fuel prices and losing them when prices are decline. Similarly, as fuel economy increases in light truck models, which offer consumers other desirable attributes beyond fuel economy (ride height or interior volume, for example) their relative share increases. However, this approach does not suggest that consumers dislike fuel economy in passenger cars, but merely recognizes

³⁰⁸ The CAFE Model currently operates as if all costs incurred by the manufacturer as a consequence of meeting regulatory requirements, whether those are the cost of additional technology applied to vehicles in order to improve fleetwide fuel economy or civil penalties paid when fleets fail to achieve their standard, are “passed through” to buyers of new vehicles in the form of price increases.

the fact that fuel economy has diminishing returns in terms of fuel savings. As the fuel economy of light trucks increases, the tradeoff between passenger car and light truck purchases increasingly involves a consideration of other attributes. The coefficients also show a relatively stronger preference for power improvements in cars than light trucks because that is an attribute where trucks have typically outperformed cars, just as cars have outperformed trucks for fuel economy.

For years, some commenters encouraged the agency to consider vehicle attributes beyond price and fuel economy when estimating a sales response to fuel economy standards, and suggested that a more detailed representation of the new vehicle market would allow the agency to simulate strategic mix shifting responses from manufacturers and diverse attribute preferences among consumers. Doing so would have required a discrete choice model (at some level). Discrete models are highly sensitive on their inputs and typically fit well on a single year of data (a cross-section of vehicles and buyers). This approach misses relevant trends that build over time, such as rising GDP or shifting consumer sentiment toward emerging technologies and are better used for analysis as opposed to prediction. While the agency believes that these challenges provide a reasonable basis for not employing a discrete choice model in the current CAFE Model, the agency also believes these challenges are not insurmountable, and that some suitable variant of such models may yet be developed for use in future fuel economy rulemakings. The agency has not abandoned the idea and plans to continue experimenting with econometric specifications that address heterogeneous consumer preferences in the new vehicle market as they further refine the analytical tools used for regulatory analysis. The agency seeks suggestions on how to incorporate other vehicle attributes into the current analysis, or, alternatively, methods to implement a discrete choice model that can capture changing technologies and consumer trends over an extended time-period.

(b) Scrappage

New and used vehicles are substitutes. When the price of a good's substitute increases/decreases, the demand curve for that good shifts upwards/downwards and the equilibrium price and quantity supplied also increases/decreases. Thus, increasing the quality-adjusted price of new vehicles will result in an increase

in equilibrium price and quantity of used vehicles. Since, by definition, used vehicles are not being "produced" but rather "supplied" from the existing fleet, the increase in quantity must come via a reduction in their scrappage rates. Practically, when new vehicles become more expensive, demand for used vehicles increases (and they become more expensive). Because used vehicles are more valuable in such circumstances, they are scrapped at a lower rate, and just as rising new vehicle prices push marginal prospective buyers into the used vehicle market, rising used vehicle prices force marginal prospective buyers of used vehicles to acquire older vehicles or vehicles with fewer desired attributes. The effect of fuel economy standards on scrappage is partially dependent on how consumers value future fuel savings and our assumption that consumers value only the first 30 months of fuel savings.

Many competing factors influence the decision to scrap a vehicle, including the cost to maintain and operate it, the household's demand for VMT, the cost of alternative means of transportation, and the value that can be attained through reselling or scrapping the vehicle for parts. A car owner will decide to scrap a vehicle when the value of the vehicle is less than the value of the vehicle as scrap metal, plus the cost to maintain or repair the vehicle. In other words, the owner gets more value from scrapping the vehicle than continuing to drive it, or from selling it. Typically, the owner that scraps the vehicle is not the first owner.

While scrappage decisions are made at the household level, the agency is unaware of sufficient household data to sufficiently capture scrappage at that level. Instead, the agency uses aggregate data measures that capture broader market trends. Additionally, the aggregate results are consistent with the rest of the CAFE Model as the model does not attempt to model how manufacturers will price new vehicles; the model instead assumes that all regulatory costs to make a particular vehicle compliant are passed onto the purchaser who buys the vehicle. It is more likely that manufacturers will defray a portion of the increased regulatory cost across its vehicles or to other manufacturers' buyers through the sale of credits.

The most predictive element of vehicle scrappage is 'engineering scrappage.' This source of scrappage is largely determined by the age of a vehicle and the durability of a specific model year vintage, which the agency uses proprietary vehicle registration data from IHS/Polk to collect vehicle

age and durability. Other factors include fuel economy and new vehicle prices. For historical data on new vehicle transaction prices, the agency uses National Automobile Dealers Association (NADA) Data.³⁰⁹ The data consists of the average transaction price of all light-duty vehicles; since the transaction prices are not broken-down by body style, the model may miss unique trends within a particular vehicle body style. The transaction prices are the amount consumers paid for new vehicles and exclude any trade-in value credited towards the purchase. This may be particularly relevant for pickup trucks, which have experienced considerable changes in average price as luxury and high-end options entered the market over the past decade. Future models will further consider incorporating price series that consider the price trends for cars, SUVs and vans, and pickups separately. The other source of vehicle scrappage is from cyclical effects, which the model captures using forecasts of GDP and fuel prices.

Vehicle scrappage follows a roughly logistic function with age—that is, when a vintage is young, few vehicles in the cohort are scrapped, as they age, more and more of the cohort are retired and the instantaneous scrappage (the rate at which vehicles are scrapped) reaches a peak, and then scrappage declines as vehicles enter their later years as fewer and fewer of the cohort remains on the road. The analysis uses a logistic function to capture this trend of vehicle scrappage with age. The data shows that the durability of successive model years generally increases over time, or put another way, historically newer vehicles last longer than older vintages. However, this trend is not constant across all vehicle ages—the instantaneous scrappage rate of vehicles is generally lower for later vintages up to a certain age, but increases thereafter so that the final share of vehicles remaining converges to a similar share remaining for historically observed vintages.³¹⁰ The agency uses fixed effects to capture potential changes in durability across model years and to ensure that vehicles approaching the end of their life are scrapped in the analysis, the agency applies a decay function to vehicles after they reach age 30. The macroeconomic conditions variables discussed above are included

³⁰⁹ The data can be obtained from NADA. For reference, the data for MY 2020 may be found at <https://www.nada.org/nadadata/>.

³¹⁰ Examples of why durability may have changed are new automakers entering the market or general changes to manufacturing practices like switching some models from a car chassis to a truck chassis.

in the logistic model to capture cyclical effects. Finally, the change in new vehicle prices projected in the model (technology costs minus 30 months of fuel savings) are included which generates differing scrappage rates across the alternatives.

In addition to the variables included in the scrappage model, the agency considered several other variables that likely either directly or indirectly influence scrappage in the real world including, maintenance and repair costs, the value of scrapped metal, vehicle characteristics, the quantity of new vehicles purchased, higher interest rates, and unemployment. These variables were excluded from the model either because of a lack of underlying data or modeling constraints. Their exclusion from the model is not intended to diminish their importance, but rather highlights the practical constraints of modeling intricate decisions like scrappage.

3. Changes in Vehicle Miles Traveled (VMT)

In the CAFE Model, VMT is the product of average usage per vehicle in the fleet and fleet composition, which is itself a function of new vehicle sales and vehicle retirement decisions, otherwise known as scrappage. These three components—average vehicle usage, new vehicle sales, and older vehicle scrappage—jointly determine total VMT projections for each alternative. VMT directly influences many of the various effects of fuel economy standards that decision-makers consider in determining what levels of standards to set. For example, the value of fuel savings is a function of a vehicle's efficiency, miles driven, and fuel price. Similarly, factors like criteria pollutant emissions, congestion, and fatalities are direct functions of VMT.

It is the agency's perspective that the total demand for VMT should not vary excessively across alternatives. The basic travel needs for an average household are unlikely to be influenced heavily by the stringency of the CAFE standards, as the daily need for a vehicle will remain the same. That said, it is reasonable to assume that fleets with differing age distributions and inherent cost of operation will have slightly different annual VMT (even without considering VMT associated with rebound miles); however, the difference could conceivably be small. Based on the structure of the CAFE Model, the combined effect of the sales and scrappage responses would create small percentage differences in total VMT across the range of regulatory alternatives if steps are not taken to

constrain VMT. Because VMT is related to many of the costs and benefits of the program, even small magnitude differences in VMT across alternatives can have meaningful impacts on the incremental net benefit analysis. Furthermore, since decisions about alternative stringencies look at the incremental costs and benefits across alternatives, it is more important that the analysis capture the variation of VMT across alternatives than to accurately predict total VMT within a scenario.

To ensure that travel demand remains consistent across the different regulatory scenarios, the CAFE Model begins with a model of aggregate VMT developed by the Federal Highway Administration (FHWA) that is used to produce their official annual VMT forecasts. These estimates provide the aggregate VMT of all model years and body styles for any given calendar year and are same across regulatory alternatives for each year in the analysis.

Since vehicles of different ages and body styles carry different costs and benefits, to account properly for the average value of consumer and societal costs and benefits associated with vehicle usage under various CAFE alternatives, it is necessary to partition miles by age and body type. The agency created "mileage accumulation schedules" using IHS-Polk odometer data to construct mileage accumulation schedules as an initial estimate of how much a vehicle expected to drive at each age throughout its life. The agency uses simulated new vehicle sales, annual rates of retirement for used vehicles, and the mileage accumulation schedules to distribute VMT across the age distribution of registered vehicles in each calendar year to preserve the non-rebound VMT constraint.

The fuel economy rebound effect—a specific example of the well-documented energy efficiency rebound effect for energy-consuming capital goods—refers to the tendency of motor vehicles' use (as measured by VMT) to increase when their fuel economy is improved and, as a result, the cost per mile (CPM) of driving declines. Establishing more stringent CAFE standards than the baseline level will lead to comparatively higher fuel economy for new cars and light trucks, thus decreasing the amount of fuel consumed and increasing the amount of travel in which new car and truck buyers engage. The agency recognizes that the value selected for the rebound effect influences overall costs and benefits associated with the regulatory alternatives under consideration as well as the estimates of lives saved under

various regulatory alternatives, and that the rebound estimate, along with fuel prices, technology costs, and other analytical inputs, is part of the body of information that agency decision-makers have considered in determining the appropriate levels of the CAFE standards in this proposal. We also note that the rebound effect diminishes the economic and environmental benefits associated with increased fuel efficiency.

The agency conducted a review of the literature related to the fuel economy rebound effect, which is extensive and covers multiple decades and geographic regions. The totality of evidence, without categorically excluding studies on grounds that they fail to meet certain criteria, and evaluating individual studies based on their particular strengths, suggests that a plausible range for the rebound effect is 10–50 percent. The central tendency of this range appears to be at or slightly above its midpoint, which is 30 percent. Considering only those studies that the agency believes are derived from extremely robust and reliable data, employ identification strategies that are likely to prove effective at isolating the rebound effect, and apply rigorous estimation methods suggests a range of approximately 10–45 percent, with most of their estimates falling in the 15–30 percent range.

A case can also be made to support values of the rebound effect falling in the 5–15 percent range. There is empirical evidence supported by theory, that the rebound effect has been declining over time due to factors such as increasing income that affects the value of time, increasing fuel economy that makes the fuel cost of driving a smaller share of the total costs of vehicle travel, as well as diminishing impacts of increased car ownership and rates of license holding on vehicle travel. Lower rebound estimates are associated with studies that include recently published analyses using U.S. data, and to accord the most weight to research that relies on measures of vehicle use derived from odometer readings, controls for the potential endogeneity of fuel economy, and estimates the response of vehicle use to variation in fuel economy itself, rather than to fuel cost per distance driven or fuel prices. This approach suggests that the rebound effect is likely in the range from 5–15 percent and is more likely to lie toward the lower end of that range.

The agency selected a rebound magnitude of 15% for the analysis because it was well-supported by the totality of the evidence and aligned well with FHWA's estimated elasticity for

travel (14.6%). However, recognizing the uncertainty surrounding the rebound value, we also examine the sensitivity of estimated impacts to values of the rebound ranging from 10 percent to 20 percent. NHTSA seeks comment on the above discussion, and whether to consider a different value for the rebound effect for the final rule analysis.

In order to calculate total VMT *with* rebound, the CAFE Model applies the price elasticity of VMT (taken from the FHWA forecasting model) to the full change in CPM and the initial VMT schedule, but applies the (user defined) rebound parameter to the incremental percentage change in CPM between the non-rebound and full CPM calculations to the miles applied to each vehicle during the reallocation step that ensured adjusted non-rebound VMT matched the non-rebound VMT constraint.

The approach in the model is a combination of top-down (relying on the FHWA forecasting model to determine total light-duty VMT in a given calendar year), and bottom-up (where the composition and utilization of the on-road fleet determines a base level of VMT in a calendar year, which is constrained to match the FHWA model). While the agency and the model developers agree that a joint household consumer choice model—if one could be developed adequately and reliably to capture the myriad circumstances under which families and individuals make decisions relating to vehicle purchase, use, and disposal—would reflect decisions that are made at the household level, it is not obvious, or necessarily appropriate, to model the national program at that scale in order to produce meaningful results that can be used to inform policy decisions.

The most useful information for policymakers relates to national impacts of potential policy choices. No other element of the rulemaking analysis occurs at the household level, and the error associated with allocating specific vehicles to specific households over the course of three decades would easily dwarf any error associated with the estimation of these effects in aggregate. We have attempted to incorporate estimates of changes to the new and used vehicle markets at the highest practical levels of aggregation, and worked to ensure that these effects produce fleetwide VMT estimates that are consistent with the best, current projections given our economic assumptions. While future work will always continue to explore approaches to improve the realism of CAFE policy simulation, there are important differences between small-scale

econometric studies and the kind of flexibility that is required to assess the impacts of a broad range of regulatory alternatives over multiple decades. To assist with creating even more precise estimates of VMT, the agency requests comment on alternative approaches to simulate VMT demand.

See TSD Chapter 4.3 for a complete accounting of how the agency models VMT.

4. Changes to Fuel Consumption

The agency uses the fuel economy and age and body-style VMT estimates to determine changes in fuel consumption. The agency divides the expected vehicle use by the anticipated MPG to calculate the gallons consumed by each simulated vehicle, and when aggregated, the total fuel consumed in each alternative.

F. Simulating Environmental Impacts of Regulatory Alternatives

This proposal includes the adoption of electric vehicles and other fuel-saving technologies, which produce additional co-benefits. These co-benefits include reduced vehicle tailpipe emissions during operation as well as reduced upstream emissions during petroleum extraction, transportation, refining, and finally fuel transportation, storage, and distribution. This section provides an overview of how we developed input parameters for criteria pollutants, greenhouse gases, and air toxics. This section also describes how we generated estimates of how these emissions could affect human health, in particular criteria pollutants known to cause poor air quality and damage human health when inhaled.

The rule implements an emissions inventory methodology for estimating impacts. Vehicle emissions inventories are often described as three-legged stools, comprised of activity (*i.e.*, miles traveled, hours operated, or gallons of fuel burned), population (or number of vehicles), and emission factors. An emissions factor is a representative rate that attempts to relate the quantity of a pollutant released to the atmosphere per unit of activity.³¹¹

In this rulemaking, upstream emission factors are on a fuel volume basis and tailpipe emission factors are on a distance basis. Simply stated, the rule's upstream emission inventory is the product of the per-gallon emission factor and the corresponding number of gallons of gasoline or diesel consumed.

³¹¹ USEPA, Basics Information of Air Emissions Factors and Quantification, <https://www.epa.gov/air-emissions-factors-and-quantification/basic-information-air-emissions-factors-and-quantification>.

Similarly, the tailpipe emission inventory is the product of the per-mile emission factor and the appropriate miles traveled estimate. The only exceptions are that tailpipe sulfur oxides (SO_x) and carbon dioxide (CO₂) also use a per-gallon emission factor in the CAFE Model. The activity levels—both miles traveled and fuel consumption—are generated by the CAFE Model, while the emission factors have been incorporated from other Federal models.

For this rule, vehicle tailpipe (downstream) and upstream emission factors and subsequent inventories were developed independently from separate data sources. Upstream emission factors are estimated from a lifecycle emissions model developed by the U.S. Department of Energy's (DOE) Argonne National Laboratory, the Greenhouse gases, Regulated Emissions, and Energy use in Transportation (GREET) Model.³¹² Tailpipe emission factors are estimated from the regulatory highway emissions inventory model developed by the U.S. Environmental Protection Agency's (EPA) National Vehicle and Fuel Emissions Laboratory, the Motor Vehicle Emission Simulator (MOVES3). Data from GREET and MOVES3 have been utilized to update the CAFE Model for this rulemaking.

The changes in adverse health outcomes due to criteria pollutants emitted, such as differences in asthmatic episodes and hospitalizations due to respiratory or cardiovascular distress, are generally reported in incidence per ton values. Incidence values were developed using several EPA studies and recently updated from the 2020 final rule to better account for the emissions source sectors used in the CAFE Model analysis.

Chapter 5 of the TSD accompanying this proposal includes the detailed discussion of the procedures we used to simulate the environmental impact of regulatory alternatives, and the implementation of these procedures into the CAFE Model is discussed in detail in the CAFE Model Documentation. Further discussion of how the health impacts of upstream and tailpipe criteria pollutant emissions have been monetized in the analysis can be found in Section III.G.2.b)(2). The Supplemental Environmental Impact Statement accompanying this analysis also includes a detailed discussion of both criteria pollutant and GHG emissions and their impacts. NHTSA

³¹² U.S. Department of Energy, Argonne National Laboratory, Greenhouse gases, Regulated Emissions, and Energy use in Transportation (GREET) Model, Last Update: 9 Oct. 2020, <https://greet.es.anl.gov/>.

seeks comment on the following discussion.

1. Activity Levels Used To Calculate Emissions Impacts

Emission inventories in this rule vary by several key activity parameters, especially relating to the vehicle's model year and relative age. Most importantly, the CAFE Model accounts for vehicle sales, turnover, and scrappage as well as travel demands over its lifetime. Like other models, the CAFE Model includes procedures to estimate annual rates at which new vehicles are purchased, driven, and subsequently scrapped. Together, these procedures result in, for each vehicle model in each model year, estimates of the number remaining in service in each calendar year, as well as the annual mileage accumulation (*i.e.*, VMT) at each age. Inventories by model year are derived from the annual mileage accumulation rates and corresponding emission factors.

As discussed in Section III.C.2, for each vehicle model/configuration in each model year from 2020 to 2050 for upstream estimates and 2060 for tailpipe estimates, the CAFE Model estimates and records the fuel type (*e.g.*, gasoline, diesel, electricity), fuel economy, and number of units sold in the U.S. The model also makes use of an aggregated representation of vehicles sold in the U.S. during 1975–2019. The model estimates the numbers of each cohort of vehicles remaining in service in each calendar year, and the amount of driving accumulated by each such cohort in each calendar year.

The CAFE Model estimates annual vehicle-miles of travel (VMT) for each individual car and light truck model produced in each model year at each age of their lifetimes, which extend for a maximum of 40 years. Since a vehicle's age is equal to the current calendar year minus the model year in which it was originally produced, the age span of each vehicle model's lifetime corresponds to a sequence of 40 calendar years beginning in the calendar year corresponding to the model year it was produced.³¹³ These estimates reflect the gradual decline in the fraction of each car and light truck model's original model year production volume that is expected to remain in

³¹³In practice, many vehicle models bearing a given model year designation become available for sale in the preceding calendar year, and their sales can extend through the following calendar year as well. However, the CAFE Model does not attempt to distinguish between model years and calendar years; vehicles bearing a model year designation are assumed to be produced and sold in that same calendar year.

service during each year of its lifetime, as well as the well-documented decline in their typical use as they age. Using this relationship, the CAFE Model calculates fleet-wide VMT for cars and light trucks in service during each calendar year spanned in this analysis.

Based on these estimates, the model also calculates quantities of each type of fuel or energy, including gasoline, diesel, and electricity, consumed in each calendar year. By combining these with estimates of each model's fuel or energy efficiency, the model also estimates the quantity and energy content of each type of fuel consumed by cars and light trucks at each age, or viewed another way, during each calendar year of their lifetimes. As with the accounting of VMT, these estimates of annual fuel or energy consumption for each vehicle model and model year combination are combined to calculate the total volume of each type of fuel or energy consumed during each calendar year, as well as its aggregate energy content.

The procedures the CAFE Model uses to estimate annual VMT for individual car and light truck models produced during each model year over their lifetimes and to combine these into estimates of annual fleet-wide travel during each future calendar year, together with the sources of its estimates of their survival rates and average use at each age, are described in detail in Section III.E.2. The data and procedures it employs to convert these estimates of VMT to fuel and energy consumption by individual model, and to aggregate the results to calculate total consumption and energy content of each fuel type during future calendar years, are also described in detail in that same section.

The model documentation accompanying this NPRM describes these procedures in detail.³¹⁴ The quantities of travel and fuel consumption estimated for the cross section of model years and calendar years constitutes a set of "activity levels" based on which the model calculates emissions. The model does so by multiplying activity levels by emission factors. As indicated in the previous section, the resulting estimates of vehicle use (VMT), fuel consumption, and fuel energy content are combined with emission factors drawn from various sources to estimate emissions of GHGs, criteria air pollutants, and airborne toxic compounds that occur throughout the fuel supply and distribution process, as well as during

³¹⁴CAFE Model documentation is available at <https://www.nhtsa.gov/corporate-average-fuel-economy/compliance-and-effects-modeling-system>.

vehicle operation, storage, and refueling. Emission factors measure the mass of each GHG or criteria pollutant emitted per vehicle-mile of travel, gallon of fuel consumed, or unit of fuel energy content. The following sections identifies the sources of these emission factors and explains in detail how the CAFE Model applies them to its estimates of vehicle travel, fuel use, and fuel energy consumption to estimate total annual emissions of each GHG, criteria pollutant, and airborne toxic.

2. Simulating Upstream Emissions Impacts

Building on the methodology for simulating upstream emissions impacts used in prior CAFE rules, this analysis uses emissions factors developed with the U.S. Department of Energy's Greenhouse gases, Regulated Emissions, and Energy use in Transportation (GREET) Model, specifically GREET 2020.³¹⁵ The analysis includes emissions impacts estimates for regulated criteria pollutants,³¹⁶ greenhouse gases,³¹⁷ and air toxics.³¹⁸

The upstream emissions factors included in the CAFE Model input files include parameters for 2020 through 2050 in five-year intervals (*e.g.*, 2020, 2025, 2030, and so on). For gasoline and diesel fuels, each analysis year includes upstream emissions factors for the four following upstream emissions processes: Petroleum extraction, petroleum transportation, petroleum refining, and fuel transportation, storage, and distribution (TS&D). In contrast, the upstream electricity emissions factor is only a single value per analysis year. We briefly discuss the components included in each upstream emissions factor here, and a more detailed discussion is included in Chapter 5 of the TSD accompanying this proposal and the CAFE Model Documentation.

The first step in the process for calculating upstream emissions includes any emissions related to the extraction, recovery, and production of petroleum-based feedstocks, namely conventional crude oil, oil sands, and shale oils. Then, the petroleum transportation process accounts for the transport

³¹⁵U.S. Department of Energy, Argonne National Laboratory, Greenhouse gases, Regulated Emissions, and Energy use in Transportation (GREET) Model, Last Update: 9 Oct. 2020, <https://greet.es.anl.gov/>.

³¹⁶Carbon monoxide (CO), volatile organic compounds (VOCs), nitrogen oxides (NO_x), sulfur oxides (SO_x), and particulate matter with 2.5-micron (µm) diameters or less (PM_{2.5}).

³¹⁷Carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O).

³¹⁸Acetaldehyde, acrolein, benzene, butadiene, formaldehyde, diesel particulate matter with 10-micron (µm) diameters or less (PM₁₀).

processes of crude feedstocks sent for domestic refining. The petroleum refining calculations are based on the aggregation of fuel blendstock processes rather than the crude feedstock processes, like the petroleum extraction and petroleum transportation calculations. The final upstream process after refining is the transportation, storage, and distribution (TS&D) of the finished fuel product.

The upstream gasoline and diesel emissions factors are aggregated in the CAFE Model based on the share of fuel savings leading to reduced domestic oil fuel refining and the share of reduced domestic refining from domestic crude oil. The CAFE Model applies a fuel savings adjustment factor to the petroleum refining process and a combined fuel savings and reduced domestic refining adjustment to both the petroleum extraction and petroleum transportation processes for both gasoline and diesel fuels and for each pollutant. These adjustments are consistent across fuel types, analysis years, and pollutants, and are unchanged from the 2020 final rule. Additional discussion of the methodology for estimating the share of fuel savings leading to reduced domestic oil refining is located in Chapter 6.2.4.3 of the TSD. NHTSA seeks comment on the methodology used and specifically whether all of the change in refining would happen domestically, rather than the current division between domestic and non-domestic refining.

Upstream electricity emissions factors are also calculated using GREET 2020. GREET 2020 projects a national default electricity generation mix for transportation use from the latest Annual Energy Outlook (AEO) data available from the previous year. As discussed above, the CAFE Model uses a single upstream electricity factor for each analysis year.

3. Simulating Tailpipe Emissions Impacts

Tailpipe emission factors are generated using the latest regulatory model for on-road emission inventories from the U.S. Environmental Protection Agency, the Motor Vehicle Emission Simulator (MOVES3), November 2020 release. MOVES3 is a state-of-the-science, mobile-source emissions inventory model for regulatory applications.³¹⁹ New MOVES3 tailpipe emission factors have been incorporated

³¹⁹ U.S. Environmental Protection Agency, Office of Transportation and Air Quality, Motor Vehicle Emission Simulator (MOVES), Last Updated: March 2021, <https://www.epa.gov/moves/latest-version-motor-vehicle-emission-simulator-moves>.

into the CAFE parameters, and these updates supersede tailpipe data previously provided by EPA under MOVES2014 for past CAFE analyses. MOVES3 accounts for a variety of processes related to emissions impacts from vehicle use, including running exhaust, start exhaust, refueling displacement vapor loss, brakewear, and tirewear, among others.

The CAFE Model uses tailpipe emissions factors for all model years from 2020 to 2060 for criteria pollutants and air toxics. To maintain continuity in the historical inventories, only emission factors for model years 2020 and after were updated; all emission factors prior to MY 2020 were unchanged from previous CAFE rulemakings. In addition, the updated tailpipe data in the current CAFE reference case no longer account for any fuel economy improvements or changes in vehicle miles traveled from the 2020 final rule. In order to avoid double-counting effects from the previous rulemaking in the current rulemaking, the new tailpipe baseline backs out 1.5% year-over-year stringency increases in fuel economy, and 0.3% VMT increases assumed each year (20% rebound on the 1.5% improvements in stringency). Note that the MOVES3 data do not cover all the model years and ages required by the CAFE Model. MOVES only generates emissions data for vehicles made in the last 30 model years for each calendar year being run. This means emissions data for some calendar year and vehicle age combinations are missing. To remedy this, we take the last vehicle age that has emissions data and forward fill those data for the following vehicle ages. Due to incomplete available data for years prior to MY 2020, tailpipe emission factors for MY 2019 and earlier have not been modified and continue to utilize MOVES2014 data.

For tailpipe CO₂ emissions, these factors are defined based on the fraction of each fuel type's mass that represents carbon (the carbon content) along with the mass density per unit of the specific type of fuel. To obtain the emission factors associated with each fuel, the carbon content is then multiplied by the mass density of a particular fuel as well as by the ratio of the molecular weight of carbon dioxide to that of elemental carbon. This ratio, a constant value of 44/12, measures the mass of carbon dioxide that is produced by complete combustion of mass of carbon contained in each unit of fuel. The resulting value defines the emission factor attributed to CO₂ as the amount of grams of CO₂ emitted during vehicle operation from each type of fuel. This calculation is repeated for gasoline, E85, diesel, and

compressed natural gas (CNG) fuel types. In the case of CNG, the mass density and the calculated CO₂ emission factor are denoted as grams per standard cubic feet (scf), while for the remainder of fuels, these are defined as grams per gallon of the given fuel source. Since electricity and hydrogen fuel types do not cause CO₂ emissions to be emitted during vehicle operation, the carbon content, and the CO₂ emission factors for these two fuel types are assumed to be zero. The mass density, carbon content, and CO₂ emission factors for each fuel type are defined in the Parameters file.

The CAFE Model calculates CO₂ tailpipe emissions associated with vehicle operation of the surviving on-road fleet by multiplying the number of gallons (or scf for CNG) of a specific fuel consumed by the CO₂ emissions factor for the associated fuel type. More specifically, the amount of gallons or scf of a particular fuel are multiplied by the carbon content and the mass density per unit of that fuel type, and then applying the ratio of carbon dioxide emissions generated per unit of carbon consumed during the combustion process.³²⁰

4. Estimating Health Impacts From Changes in Criteria Pollutant Emissions

The CAFE Model computes select health impacts resulting from three criteria pollutants: NO_x, SO_x,³²¹ and PM_{2.5}. Out of the six criteria pollutants currently regulated, NO_x, SO_x, and PM_{2.5} are known to be emitted regularly from mobile sources and have the most adverse effects to human health. These health impacts include several different morbidity measures, as well as low and high mortality estimates, and are measured by the number of instances predicted to occur per ton of emitted pollutant.³²² The model reports total health impacts by multiplying the estimated tons of each criteria pollutant by the corresponding health incidence per ton value. The inputs that inform the calculation of the total tons of emissions resulting from criteria pollutants are discussed above. This section discusses how the health

³²⁰ Chapter 3, Section 4 of the CAFE Model Documentation provides additional description for calculation of CO₂ tailpipe emissions with the model.

³²¹ Any reference to SO_x in this section refers to the sum of sulfur dioxide (SO₂) and sulfate particulate matter (pSO₄) emissions, following the methodology of the EPA papers cited.

³²² The complete list of morbidity impacts estimated in the CAFE Model is as follows: Acute bronchitis, asthma exacerbation, cardiovascular hospital admissions, lower respiratory symptoms, minor restricted activity days, non-fatal heart attacks, respiratory emergency hospital admissions, respiratory emergency room visits, upper respiratory symptoms, and work loss days.

incidence per ton values were obtained. See Section III.G.2.b)(2) and Chapter 6.2.2 of the TSD accompanying this proposal for information regarding the monetized damages arising from these health impacts.

The SEIS that accompanies this proposal also includes a detailed discussion of the criteria pollutants and air toxics analyzed and their potential health effects. In addition, consistent with past analyses, NHTSA will perform full-scale photochemical air quality modeling and present those results in the Final SEIS associated with the final rule. That analysis will provide additional assessment of the human health impacts from changes in PM_{2.5} and ozone associated with this rule. NHTSA will also consider whether such modeling could practicably and meaningfully be included in the FRIA, noting that compliance with CAFE standards is based on the *average* performance of manufacturers' production for sale *throughout* the U.S., and that the FRIA will involve sensitivity analysis spanning a range of model inputs, many of which impact estimates of future emissions from passenger cars and light trucks. Chapter 6 of the FRIA includes a discussion of overall changes in health impacts associated with criteria pollutant changes across the different rulemaking scenarios.

In previous rulemakings, health impacts were split into two categories based on whether they arose from upstream emissions or tailpipe emissions. In the current analysis, these health incidence per ton values have been updated to reflect the differences in health impacts arising from each emission source sector, according to the latest publicly available EPA reports. Five different upstream emission source sectors (Petroleum Extraction, Petroleum Transportation, Refineries, Fuel Transportation, Storage and Distribution, and Electricity Generation) are now represented. As the health incidences for the different source sectors are all based on the emission of one ton of the same pollutants, NO_x, SO_x, and PM_{2.5}, the differences in the incidence per ton values arise from differences in the geographic distribution of the pollutants, a factor which affects the number of people impacted by the pollutants.³²³

The CAFE Model health impacts inputs are based partially on the structure of EPA's 2018 technical

support document, Estimating the Benefit per Ton of Reducing PM_{2.5} Precursors from 17 Sectors (referred to here as the 2018 EPA source apportionment TSD),³²⁴ which reported benefit per ton values for the years 2016, 2020, 2025, and 2030.³²⁵ For the years in between the source years used in the input structure, the CAFE Model applies values from the closest source year. For instance, 2020 values are applied for 2020–2022, and 2025 values are applied for 2023–2027. For further details, see the CAFE Model documentation, which contains a description of the model's computation of health impacts from criteria pollutant emissions.

Despite efforts to be as consistent as possible between the upstream emissions sectors utilized in the CAFE Model with the 2018 EPA source apportionment TSD, the need to use up-to-date sources based on newer air quality modeling updates led to the use of multiple papers. In addition to the 2018 EPA source apportionment TSD used in the 2020 final rule, DOT used additional EPA sources and conversations with EPA staff to appropriately map health incidence per ton values to the appropriate CAFE Model emissions source category.

We understand that uncertainty exists around the contribution of VOCs to PM_{2.5} formation in the modeled health impacts from the petroleum extraction sector; however, based on feedback to the 2020 final rule we believe that the updated health incidence values specific to petroleum extraction sector emissions may provide a more appropriate estimate of potential health impacts from that sector's emissions than the previous approach of applying refinery sector emissions impacts to the petroleum extraction sector. That said, we are aware of work that EPA has been doing to address concerns about the BPT estimates, and NHTSA will work further with EPA to update and synchronize approaches to the BPT estimates.

The basis for the health impacts from the petroleum extraction sector was a 2018 oil and natural gas sector paper written by EPA staff (Fann et al.), which estimated health impacts for this sector in the year 2025.³²⁶ This paper defined

the oil and gas sector's emissions not only as arising from petroleum extraction but also from transportation to refineries, while the CAFE/GREET component is composed of only petroleum extraction. After consultation with the authors of the EPA paper, it was determined that these were the best available estimates for the petroleum extraction sector, notwithstanding this difference. Specific health incidence per pollutant were not reported in the paper, so EPA staff sent BenMAP health incidence files for the oil and natural gas sector upon request. DOT staff then calculated per ton values based on these files and the tons reported in the Fann et al. paper.³²⁷ The only available health impacts corresponded to the year 2025. Rather than trying to extrapolate, these 2025 values were used for all the years in the CAFE Model structure: 2020, 2025, and 2030.³²⁸ This simplification implies an overestimate of damages in 2020 and an underestimate in 2030.³²⁹

The petroleum transportation sector and fuel TS&D sector did not correspond to any one EPA source sector in the 2018 EPA source apportionment TSD, so a weighted average of multiple different EPA sectors was used to determine the health impact per ton values for those sectors. We used a combination of different EPA mobile source sectors from two different papers, the 2018 EPA source apportionment TSD,³³⁰ and a 2019 mobile source sectors paper (Wolfe et al.)³³¹ to generate these values. The health incidence per ton values associated with the refineries sector and

2025. *Environmental science & technology*, 52(15), 8095–8103 (*hereinafter* Fann et al.).

³²⁷ Nitrate-related health incidents were divided by the total tons of NO_x projected to be emitted in 2025, sulfate-related health incidents were divided by the total tons of projected SO_x, and EC/OC (elemental carbon and organic carbon) related health incidents were divided by the total tons of projected EC/OC. Both Fann et al. and the 2018 EPA source apportionment TSD define primary PM_{2.5} as being composed of elemental carbon, organic carbon, and small amounts of crustal material. Thus, the EC/OC BenMAP file was used for the calculation of the incidents per ton attributable to PM_{2.5}.

³²⁸ These three years are used in the CAFE Model structure because it was originally based on the estimate provided in the 2018 EPA source apportionment TSD.

³²⁹ See EPA. 2018. Estimating the Benefit per Ton of Reducing PM_{2.5} Precursors from 17 Sectors. https://www.epa.gov/sites/production/files/2018-02/documents/sourceapportionmentbpttsd_2018.pdf p.9.

³³⁰ Environmental Protection Agency (EPA). 2018. Estimating the Benefit per Ton of Reducing PM_{2.5} Precursors from 17 Sectors. https://www.epa.gov/sites/production/files/2018-02/documents/sourceapportionmentbpttsd_2018.pdf.

³³¹ Wolfe et al. 2019. Monetized health benefits attributable to mobile source emissions reductions across the United States in 2025. <https://pubmed.ncbi.nlm.nih.gov/30296769/>.

³²³ See Environmental Protection Agency (EPA). 2018. Estimating the Benefit per Ton of Reducing PM_{2.5} Precursors from 17 Sectors. https://www.epa.gov/sites/production/files/2018-02/documents/sourceapportionmentbpttsd_2018.pdf.

³²⁴ Environmental Protection Agency (EPA). 2018. Estimating the Benefit per Ton of Reducing PM_{2.5} Precursors from 17 Sectors. https://www.epa.gov/sites/production/files/2018-02/documents/sourceapportionmentbpttsd_2018.pdf.

³²⁵ As the year 2016 is not included in this analysis, the 2016 values were not used.

³²⁶ Fann, N., Baker, K. R., Chan, E., Eyth, A., Macpherson, A., Miller, E., & Snyder, J. (2018). Assessing Human Health PM_{2.5} and Ozone Impacts from U.S. Oil and Natural Gas Sector Emissions in

electricity generation sector were drawn solely from the 2018 EPA source apportionment TSD.

The CAFE Model follows a similar process for computing health impacts resulting from tailpipe emissions as it does for calculating health impacts from upstream emissions. Previous rulemakings used the 2018 EPA source apportionment TSD as the source for the health incidence per ton, matching the CAFE Model tailpipe emissions inventory to the “on-road mobile sources sector” in the TSD. However, a more recent EPA paper from 2019 (Wolfe et al.)³³² computes monetized damage costs per ton values at a more disaggregated level, separating on-road mobile sources into multiple categories based on vehicle type and fuel type. Wolfe et al. did not report incidences per ton, but that information was obtained through communications with EPA staff.

The methodology for generating values for each emissions category in the CAFE Model is discussed in detail in Chapter 5 of the TSD accompanying this proposal. The Parameters file contains all of the health impact per ton of emissions values used in this proposal.

G. Simulating Economic Impacts of Regulatory Alternatives

This section describes the agency’s approach for measuring the economic costs and benefits that will result from

establishing alternative CAFE standards for future model years. The benefit and cost measures the agency uses are important considerations, because as Office of Management and Budget (OMB) Circular A–4 states, benefits and costs reported in regulatory analyses must be defined and measured consistently with economic theory, and should also reflect how alternative regulations are anticipated to change the behavior of producers and consumers from a baseline scenario.³³³ For CAFE standards, those include vehicle manufacturers, buyers of new cars and light trucks, owners of used vehicles, and suppliers of fuel, all of whose behavior is likely to respond in complex ways to the level of CAFE standards that DOT establishes for future model years.

It is important to report the benefits and costs of this proposed action in a format that conveys useful information about how those impacts are generated and also distinguishes the impacts of those economic consequences for private businesses and households from the effects on the remainder of the U.S. economy. A reporting format will accomplish this objective to the extent that it clarifies who incurs the benefits and costs of the proposed, and shows how the economy-wide or “social” benefits and costs of the proposed action are composed of its direct effects on vehicle producers, buyers, and users, plus the indirect or “external” benefits

and costs it creates for the general public.

Table III–37 and Table III–38 present the incremental economic benefits and costs of the proposed action and the alternatives (described in detail in Section IV) to increase CAFE standards for model years 2024–26 at three percent and seven percent discount rates in a format that is intended to meet these objectives. The tables include costs which are transfers between different economic actors—these will appear as both a cost and a benefit in equal amounts (to separate affected parties). Societal cost and benefit values shown elsewhere in this document do not show costs which are transfers for the sake of simplicity but report the same net societal costs and benefits. The proposed action and the alternatives would increase costs to manufacturers for adding technology necessary to enable new cars and light trucks to comply with fuel economy and emission regulations. It may also increase fine payments by manufacturers who would have achieved compliance with the less demanding baseline standards. Manufacturers are assumed to transfer these costs on to buyers by charging higher prices; although this reduces their revenues, on balance, the increase in compliance costs and higher sales revenue leaves them financially unaffected. Since the analysis assumes that manufacturers are left in the same economic position regardless of the standards, they are excluded from the tables.

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³³² Wolfe et al. 2019. Monetized health benefits attributable to mobile source emissions reductions across the United States in 2025. <https://pubmed.ncbi.nlm.nih.gov/30296769/>.

³³³ White House Office of Management and Budget, *Circular A–4: Regulatory Analysis*, September 17, 2003 (https://obamawhitehouse.archives.gov/omb/circulars_a004_a-4/), Section E.

Table III-37 – Incremental Benefits and Costs Over the Lifetimes of Total Fleet Produced Through 2029 (2018\$ Billions), 3% Percent Discount Rate, by Alternative

Alternative:	1	2	3
Private Costs			
Technology Costs to Increase Fuel Economy	34.3	67.6	100.1
Increased Maintenance and Repair Costs	-	-	-
Sacrifice in Other Vehicle Attributes	-	-	-
Consumer Surplus Loss from Reduced New Vehicle Sales	0.1	0.6	1.3
Safety Costs Internalized by Drivers	6.2	8.2	11.2
Subtotal - Incremental Private Costs	40.6	76.3	112.7
External Costs			
Congestion and Noise Costs from Rebound-Effect Driving	7.3	10.1	13.5
Safety Costs Not Internalized by Drivers	7.5	15.8	23.2
Loss in Fuel Tax Revenue	11.0	18.9	27.0
Subtotal - Incremental External Costs	25.9	44.7	63.6
Total Incremental Social Costs	66.5	121.1	176.3
Private Benefits			
Reduced Fuel Costs ³³⁴	47.9	73.0	103.8
Benefits from Additional Driving	12.3	15.3	20.8
Less Frequent Refueling	-0.5	-0.8	0.3
Subtotal - Incremental Private Benefits	59.7	87.6	124.8
External Benefits			
Reduction in Petroleum Market Externality	0.9	1.5	2.1
Reduced Climate Damages	20.3	32.0	45.6
Reduced Health Damages	1.7	0.4	0.3
Subtotal - Incremental External Benefits	22.8	33.9	48.0
Total Incremental Social Benefits	82.6	121.4	172.9
Net Incremental Social Benefits	16.1	0.3	-3.4

³³⁴ A portion of Reduced Fuel Costs represent the benefit to consumers of not having to pay taxes on avoided gasoline consumption. This amount offsets

the Loss in Fuel Tax Revenue in External Costs. For example, the \$47.9 billion in Reduced Fuel Costs

in alternative 1 represents \$11 billion of avoided fuel taxes and \$36.9 billion in gasoline savings.

Table III-38 – Incremental Benefits and Costs Over the Lifetimes of Total Fleet Produced Through 2029 (2018\$ Billions), 7% Percent Discount Rate, by Alternative

Alternative:	1	2	3
Private Costs			
Technology Costs to Increase Fuel Economy	28.1	55.0	81.4
Increased Maintenance and Repair Costs	-	-	-
Sacrifice in Other Vehicle Attributes	-	-	-
Consumer Surplus Loss from Reduced New Vehicle Sales	0.1	0.5	1.1
Safety Costs Internalized by Drivers	3.7	4.9	6.8
Subtotal - Incremental Private Costs	31.9	60.4	89.3
External Costs			
Congestion and Noise Costs from Rebound-Effect Driving	4.8	6.8	9.3
Safety Costs Not Internalized by Drivers	5.5	11.6	17.3
Loss in Fuel Tax Revenue	7.0	11.9	17.0
Subtotal - Incremental External Costs	17.3	30.3	43.5
Total Incremental Social Costs	49.3	90.7	132.8
Private Benefits			
Reduced Fuel Costs	29.7	44.9	63.7
Benefits from Additional Driving	7.5	9.3	12.7
Less Frequent Refueling	-0.4	-0.6	0.0
Subtotal - Incremental Private Benefits	36.8	53.6	76.4
External Benefits			
Reduction in Petroleum Market Externality	0.5	0.9	1.3
Reduced Climate Damages	13.3	21.0	29.9
Reduced Health Damages	0.9	0.1	-0.1
Subtotal - Incremental External Benefits	14.8	22.0	31.2
Total Incremental Social Benefits	51.6	75.6	107.6
Net Incremental Social Benefits	2.3	-15.1	-25.2

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Compared to the baseline standards, if the preferred alternative is finalized, the analysis shows that buyers of new cars and light trucks will incur higher purchasing prices and financing costs, which will lead to some buyers dropping out of the new vehicle market. Drivers of new vehicles will also experience a slight uptick in the risk of being injured in a crash because of mass reduction technologies employed to meet the increased standards. While this effect is not statistically significant, NHTSA provides these results for transparency, and to demonstrate that their inclusion does not affect NHTSA's proposed policy decision. Because of the increasing price of new vehicles, some owners may delay retiring and replacing their older vehicles with newer models. In effect, this will

transfer some driving that would have been done in newer vehicles under the baseline scenario to older models within the legacy fleet, thus increasing costs for injuries (both fatal and less severe) and property damages sustained in motor vehicle crashes. This stems from the fact that cars and light trucks have become progressively more protective in crashes over time (and also slightly less prone to certain types of crashes, such as rollovers). Thus, shifting some travel from newer to older models would increase injuries and damages sustained by drivers and passengers because they are traveling in less safe vehicles and not because it changes the risk profiles of drivers themselves. These costs are largely driven by assumptions regarding consumer valuation of fuel efficiency and an assumption that more fuel-efficient vehicles are less preferable to

consumers than their total cost to improve fuel economy. These are issues on which we seek comments.

In exchange for these costs, consumers will benefit from new cars and light trucks with better fuel economy. Drivers will experience lower costs as a consequence of new vehicles' decreased fuel consumption, and from fewer refueling stops required because of their increased driving range. They will experience mobility benefits as they use newly purchased cars and light trucks more in response to their lower operating costs. On balance, consumers of new cars and light trucks produced during the model years subject to this proposed action will experience significant economic benefits.

Table III-37 and Table III-38 also show that the changes in fuel consumption and vehicle use resulting

from this proposed action will in turn generate both benefits and costs to society writ large. These impacts are “external,” in the sense that they are by-products of decisions by private firms and individuals that alter vehicle use and fuel consumption but are experienced broadly throughout society rather than by the firms and individuals who indirectly cause them. In terms of costs, additional driving by consumers of new vehicles in response to their lower operating costs will increase the external costs associated with their contributions to traffic delays and noise levels in urban areas, and these additional costs will be experienced throughout much of the society. While most of the risk of additional driving or delaying purchasing a newer vehicle are internalized by those who make those decisions, a portion of the costs are borne by other road users. Finally, since owners of new vehicles will be consuming less fuel, they will pay less in fuel taxes.

Society will also benefit from more stringent standards. Increased fuel efficiency will reduce the amount of petroleum-based fuel consumed and refined domestically, which will decrease the emissions of carbon dioxide and other greenhouse gases that contribute to climate change, and, as a result, the U.S. (and the rest of world) will avoid some of the economic damages from future changes in the global climate. Similarly, reduced fuel production and use will decrease emissions of more localized air pollutants (or their chemical precursors), and the resulting decrease in the U.S. population’s exposure to harmful levels of these pollutants will lead to lower costs from its adverse effects on health. Decreasing consumption and imports of crude petroleum for refining lower volumes of gasoline and diesel will also accrue some benefits throughout to the U.S., in the form of potential gains of energy security as businesses and households that are dependent on fuel are subject to less sudden and sharp changes in energy prices.

On balance, Table III–37 and Table III–38 show that both consumers and society as a whole will experience net economic benefits from the proposed action. The following subsections will briefly describe the economic costs and benefits considered by the agency. For a complete discussion of the methodology employed and the results, see TSD Chapter 6 and PRIA Chapter 6, respectively. The safety implications of the proposal—including the monetary impacts—are reserved for Section III.H.

NHTSA seeks comment on the following discussion.

1. Private Costs and Benefits

(a) Costs to Consumers

(1) Technology Costs

The proposed action and the alternatives would increase costs to manufacturers for adding technology necessary to enable new cars and light trucks to comply with fuel economy and emission regulations. Manufacturers are assumed to transfer these costs on to buyers by charging higher prices. See Section III.C.6 and TSD Chapter 2.5.

(2) Consumer Sales Surplus

Buyers who would have purchased a new vehicle with the baseline standards in effect but decide not to do so in response to the changes in new vehicles’ prices due to more stringent standards in place will experience a decrease in welfare. The collective welfare loss to those “potential” new vehicle buyers is measured by the foregone consumer surplus they would have received from their purchase of a new vehicle in the baseline.

Consumer surplus is a fundamental economic concept and represents the net value (or net benefit) a good or service provides to consumers. It is measured as the difference between what a consumer is willing to pay for a good or service and the market price. OMB Circular A–4 explicitly identifies consumer surplus as a benefit that should be accounted for in cost-benefit analysis. For instance, OMB Circular A–4 states the “net reduction in total surplus (consumer plus producer) is a real cost to society,” and elsewhere elaborates that consumer surplus values be monetized “when they are significant.”³³⁵

Accounting for the portion of fuel savings that the average new vehicle buyer demands, and holding all else equal, higher average prices should depress new vehicle sales and by extension reduce consumer surplus. The inclusion of consumer surplus is not only consistent with OMB guidance, but with other parts of the regulatory analysis. For instance, we calculate the increase in consumer surplus associated with increased driving that results from the decrease in the cost per mile of operation under more stringent regulatory alternatives, as discussed in Section III.G.1.b)(3). The surpluses associated with sales and additional mobility are inextricably linked as they capture the direct costs and benefits accrued by purchasers of new vehicles.

³³⁵ OMB Circular A–4, at 37–38.

The sales surplus captures the welfare loss to consumers when they forego a new vehicle purchase in the presence of higher prices and the additional mobility measures the benefit increased mobility under lower operating expenses.

The agency estimates the loss of sales surplus based on the change in quantity of vehicles projected to be sold after adjusting for quality improvements attributable to fuel economy. For additional information about consumer sales surplus, see TSD Chapter 6.1.5.

(3) Ancillary Costs of Higher Vehicle Prices

Some costs of purchasing and owning a new or used vehicle scale with the value of the vehicle. Where fuel economy standards increase the transaction price of vehicles, they will affect both the absolute amount paid in sales tax and the average amount of financing required to purchase the vehicle. Further, where they increase the MSRP, they increase the appraised value upon which both value-related registration fees and a portion of insurance premiums are based. The analysis assumes that the transaction price is a set share of the MSRP, which allows calculation of these factors as shares of MSRP. For a detailed explanation of how the agency estimates these costs, see TSD Chapter 6.1.1.

These costs are included in the consumer per-vehicle cost-benefit analysis but are not included in the societal cost-benefit analysis because they are assumed to be transfers from consumers to governments, financial institutions, and insurance companies.

(b) Benefits to Consumers

(1) Fuel Savings

The primary benefit to consumers of increasing CAFE standards are the additional fuel savings that accrue to new vehicle owners. Fuel savings are calculated by multiplying avoided fuel consumption by fuel prices. Each vehicle of a given body style is assumed to be driven the same as all the others of a comparable age and body style in each calendar year. The ratio of that cohort’s VMT to its fuel efficiency produces an estimate of fuel consumption. The difference between fuel consumption in the baseline, and in each alternative, represents the gallons (or energy) saved. Under this assumption, our estimates of fuel consumption from increasing the fuel economy of each individual model depend only on how much its fuel economy is increased, and do not reflect whether its actual use differs from other

models of the same body type. Neither do our estimates of fuel consumption account for variation in how much vehicles of the same body type and age are driven each year, which appears to be significant (see TSD Chapter 4.3.1.2). Consumers save money on fuel expenditures at the average retail fuel price (fuel price assumptions are discussed in detail in TSD Chapter 4.1.2), which includes all taxes and represents an average across octane blends. For gasoline and diesel, the included taxes reflect both the Federal tax and a calculated average state fuel tax. Expenditures on alternative fuels (E85 and electricity, primarily) are also included in the calculation of fuel expenditures, on which fuel savings are based. And while the included taxes net out of the social benefit cost analysis (as they are a transfer), consumers value each gallon saved at retail fuel prices including any additional fees such as taxes.

See TSD Chapter 6.1.3 for additional details. In the TSD, the agency considers the possibility that several of the

assumptions made about vehicle use could lead to misstating the benefits of fuel savings. The agency notes that these assumptions are necessary to model fuel savings and likely have minimal impact to the accuracy of this analysis.

Technologies that can be used to improve fuel economy can also be used to increase other vehicle attributes, especially acceleration performance, weight, and energy-using accessories. While this is most obvious for technologies that improve the efficiency of engines and transmissions, it is also true of technologies that reduce mass, aerodynamic drag, rolling resistance or any road or accessory load. The exact nature of the potential to trade-off attributes for fuel economy varies with the technology, but at a minimum, increasing vehicle efficiency or reducing loads allows a more powerful engine to be used while achieving the same level of fuel economy. How consumers value increased fuel economy and how fuel economy regulations affect manufacturers' decisions about how to use efficiency improving technologies

can have important effects on the estimated costs, benefits, and indirect impacts of fuel economy standards.

NHTSA's preliminary regulatory impact analysis assumes that consumers will purchase, and manufacturers will supply, fuel economy technologies in the absence of fuel economy standards if the technology "pays for itself" in fuel savings over the first 30 months vehicle use. This assumption is based on statements manufacturers have made to us and to NASEM CAFE committees and has been deployed in NHTSA's prior analyses of fuel economy standards. However, classical economic concepts suggest that deploying this assumption may be problematic when the baseline standards are binding—meaning that they constrain consumers' behavior to vehicles that are more fuel efficient than they would have chosen in the absence of fuel economy standards. To demonstrate this, we introduce a standard economic model of consumer optimization subject to a budgetary constraint.³³⁶

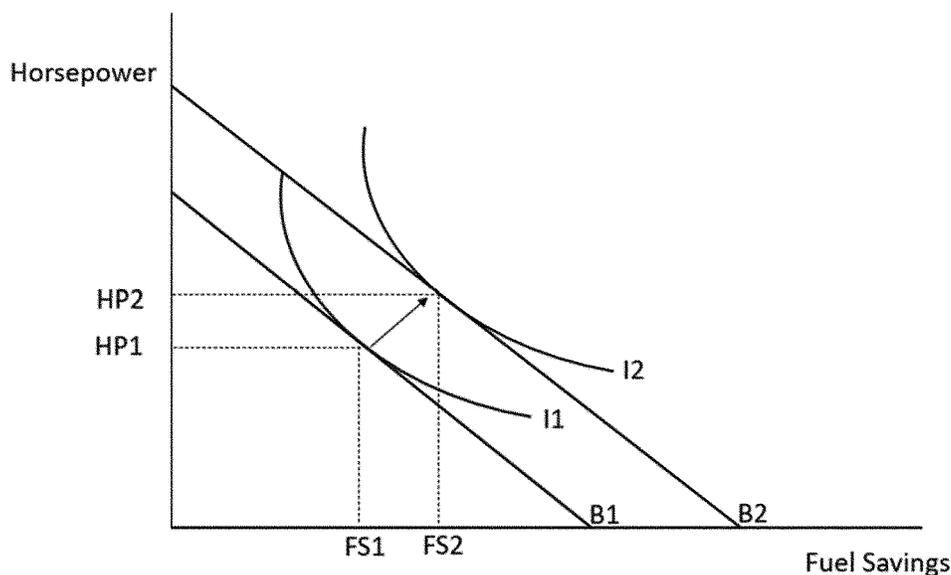


Figure III-17 – Constrained Optimization Model of Consumer Preferences Between Horsepower and Fuel Economy in the Absence of Fuel Economy Standards

Figure III-17 models consumer behavior when constrained by a budget. Line B1 represents the consumer's original budget constraint. Curve I1 is called an indifference curve, which shows each combination of horsepower, which we use here to represent a variety of attributes that could be traded-off for

increased fuel economy, and fuel savings between which a consumer is indifferent. The curvature of the indifference curve reflects the principle of diminishing marginal utility—the idea that consumers value consumption of the first unit of any product greater than subsequent units. Curve I1

represents the highest utility achievable when subject to budget constraint B1, as the consumer may select the combination of performance and fuel economy represented by point (HP1, FS1)—which is the point of tangency between I1 and B1. When new technology becomes available that

³³⁶ Note that the following section examines whether consumers are rational in their fuel

economy consumption patterns. This analysis could represent a scenario where consumers are rational,

or one in which the underweight future fuel savings in their car purchasing decisions.

makes either fuel economy or performance (or both) more affordable, the consumer's budget constraint shifts from B1 to B2, and the consumer can

now achieve the point of tangency between I2 and B2 (HP2, FS2). In this case, both fuel economy and performance are modeled as normal

goods—meaning that as they become more affordable, consumers will elect to consume more of each.

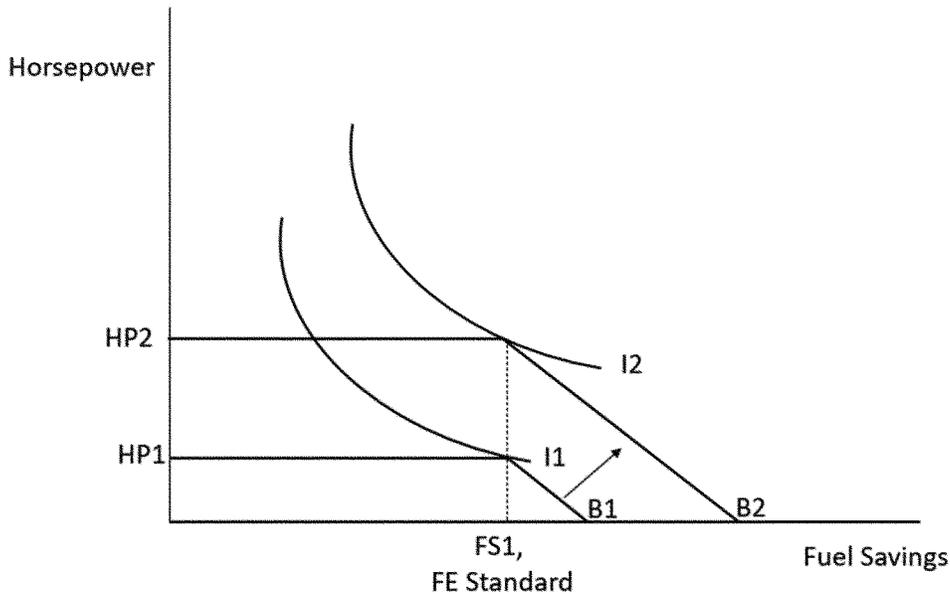


Figure III-18 – Constrained Optimization Model of Consumer Preferences Between Horsepower and Fuel Economy in the Presence of Binding Fuel Economy Standards

A different analysis is required when fuel economy standards also bind on consumer decisions. Here, minimum fuel economy standards eliminate some combinations of performance and fuel economy, creating a corner solution in the budget constraint. Figure III-18 shows this effect, as the consumer will elect the point of tangency with budget constraint B1 at the corner solution at (HP1 and FS1), which is also the minimum fuel economy standard. When new technology is introduced (or becomes cheaper) which makes fuel economy and performance more

affordable, the consumer's budget constraint shifts from B1 to B2 again, but the existing fuel economy standard is still binding, so a corner solution remains at FS1. The consumer will choose the corner combination of fuel economy and performance again, where I2 is tangent with B2, at point (FS1, HP2). *Note that the consumer has elected to improve performance from HP1 to HP2 but has not elected to improve fuel economy.*

This model implies that fuel economy standards prevent consumers from achieving their optimal bundle of fuel

economy and performance given their current preferences, creating an opportunity cost to consumers in the form of lost performance. The constrained optimization model can be slightly tweaked to show this loss to consumers. In this example, the y-axis uses the composite good M reflecting all other goods and services, including performance. This makes the interpretation of the y axis simpler, as it can be more easily translated into dollars.

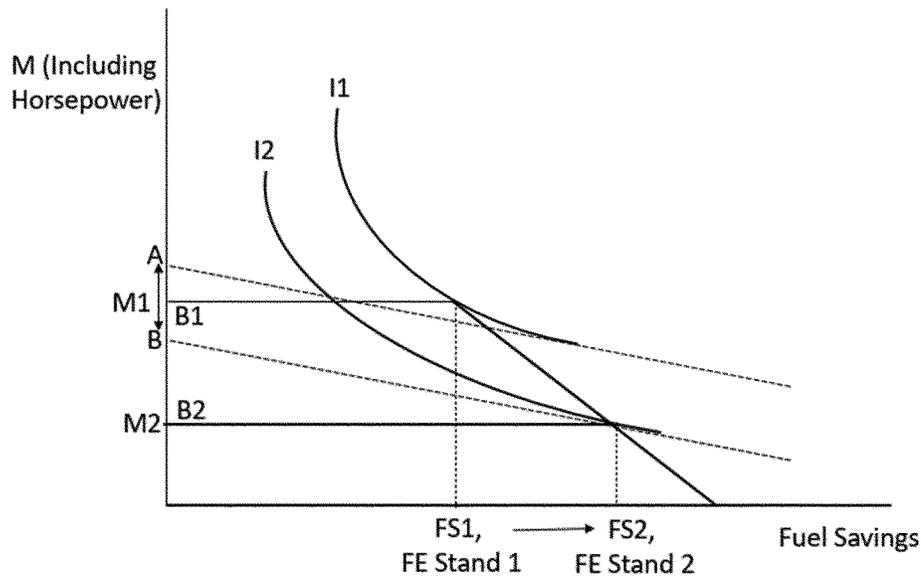


Figure III-19 – Constrained Optimization Model of Consumer Preferences Between Horsepower and Fuel Economy Showing Opportunity Cost of Fuel Economy Standards

Figure III-19 shows the effect of new binding fuel economy standards on consumer behavior. The consumer begins at point (M1, FS1) on indifference curve I1. If more stringent fuel economy standards were in place, the consumer would shift to the lower indifference curve I2—reflecting a lower level of utility—and would consume at point (M2, FS2). One concept from the economics literature for valuing the change in welfare from a change in prices or quality (or in this case fuel economy standards) is to look at the compensating variation between the

original and final equilibrium. The compensating variation is the amount of money that a consumer would need to return to their original indifference curve.³³⁷ It is found by finding the point of tangency with the new indifference curve at the new marginal rate of substitution between the two products and finding the equivalent point on the old indifference curve. Figure III-19 shows this as the distance between points A and B on the Y-axis.³³⁸

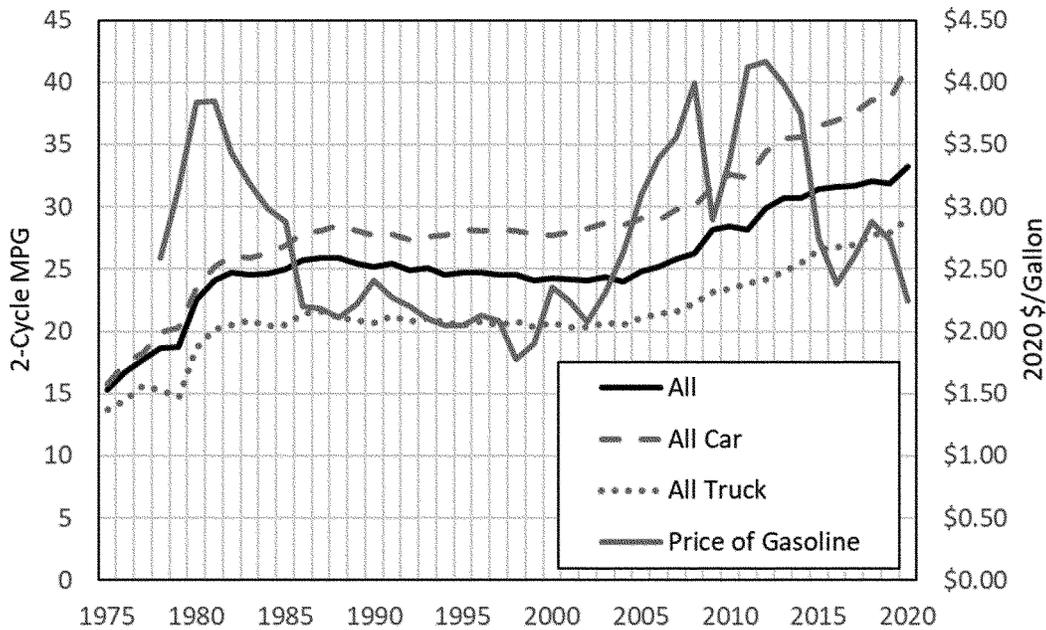
The above logic appears to explain the trends in fuel economy and vehicle performance (measured by horsepower/

pound) between 1986 and 2004, when gasoline prices fluctuated between \$2.00 and \$2.50 per gallon and new light duty vehicle fuel economy standards remained nearly constant Figure III-20. Over the same period numerous advanced technologies with the potential to increase fuel economy were adopted. However, the fuel economy of new light duty vehicles did not increase. In fact, increases in the market share of light trucks caused fuel economy to decline somewhat.

³³⁷ There is a very similar concept for valuing this opportunity cost known as the equivalent variation. NHTSA presents the compensating variation here

for simplicity but acknowledges that the equivalent variation is an equally valid approach.

³³⁸ Boardman, Greenberg, Vining, Weimer (2011). *Cost-Benefit Analysis: Concepts and Practice*. Pgs. 69–73.



Sources: EPA 2020 Automotive Trends Report; EIA Monthly Energy Review, 5/21; Federal Reserve Bank of St. Louis, CPI-U

Figure III-20 – Test Cycle Combined Fuel Economy and Gasoline Price: 1975-2020

On the other hand, from 1986–2004 the acceleration performance of light-duty vehicles increased by 45% (Figure III-21). Advances in engine technology are reflected in the steadily increasing ratio of power output to engine size, measured by displacement. Without increased fuel economy standards, all the potential of advanced technology appears to have gone into increasing performance and other attributes (for example average weight also increased by 27% from 1986–2004) and none to increasing fuel economy. Fuel economy remained nearly constant at the levels

required by the car and light truck standards, consistent with the idea the standards were a binding constraint on the fuel economy of new vehicles. The pattern for periods of price shocks and increasing standards is different, however, as can be seen in Figure III-20. In the early period up to 1986, there is almost no change in performance and vehicle weight decreased. However, in the more recent period post-2004, performance continued to increase although apparently at a slower rate than during the 1986–2004 period and vehicle weight changed very little. The

large and rapid price increases appear to have been an important factor. Even before manufacturers can respond to prices and regulations by adding fuel economy technologies to new vehicles, demand can respond by shifting towards smaller, lighter and less powerful makes and models. The period of voluntary increase in fuel economy is consistent with the constrained optimization problem presented above if fuel economy standards no longer constrained consumer behavior after the change in fuel prices.

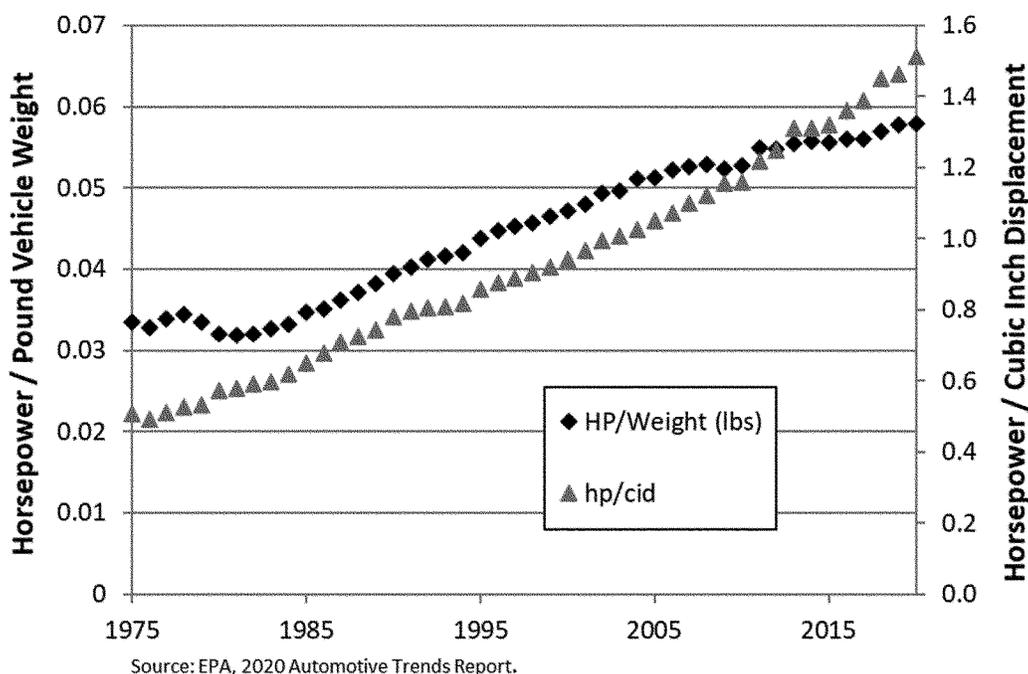


Figure III-21 – Trends in Performance and Engine Technology: 1975-2020

If this constrained optimization model is a reliable predictor of consumer behavior for some substantive portion of the new vehicle market, it would have important implications for how NHTSA models baseline consumer choices. In this case, it would mean that as technology that could improve fuel economy is added absent standards, it would be primarily geared towards enhancing performance rather than fuel economy. Depending on how consumers value future fuel savings, it might be appropriate for NHTSA to change its methods of analysis to reflect consumer preferences for performance, and to develop methods for valuing the opportunity cost to consumers for constraining them to more fuel efficient options. NHTSA seeks comment on the analysis presented in this section and its implications for the assumptions that consumers will add technologies that payback within thirty months. It also seeks comment on possible approaches to valuing the opportunity cost to consumers.

Potential Implications of Behavioral Theories for Fuel Economy Standards

In this proposed rule, the cost-effectiveness of technology-based fuel economy improvements is used to estimate fuel economy improvements by manufacturers in the No-Policy case and to estimate components of the benefits and costs of alternative increases in fuel economy standards. In the interest of insuring that our theory and methods

reflect the best current understanding of how consumers perceive the value of technology-based fuel economy improvements, we are seeking comment on our current, and possible alternative representations of how consumers value fuel economy when purchasing a new vehicle and while owning and operating it, and how manufacturers decide to implement fuel economy technologies.³³⁹ We are particularly interested in comments on our assumption that in our Alternative 0 (no change in existing standards) manufacturers will implement technologies to improve fuel economy even if existing standards do not require them to do so, provided that the first 30 months of fuel savings will be greater than or equal to the cost of the technology. We are also interested in comments concerning our use of the difference between the price consumers pay for increased fuel economy and the value of fuel savings over the first 30 month for estimating the impacts of the standards on new and used vehicle markets. Finally, we are interested in comments on when attributes that can be traded-off for increased fuel economy should be considered opportunity costs of increasing fuel economy.

³³⁹ We are making a distinction between consumers choices when presented with technology-based fuel economy improvements versus consumers' choices among various makes and models of vehicles. The latter topic is also of interest and is discussed in (see TSD, Ch. 4.2.1).

How manufacturers choose to implement technologies that can increase fuel economy depends on consumers' willingness to pay (WTP) for fuel economy and the other attributes the technologies can improve. Consumers' WTP for increasing levels of an attribute defines the consumers' demand function for that attribute. Here, we consider how consumers' WTP for increased fuel economy (WTP_{FE}) and for performance (WTP_{HP}), where FE stands for fuel economy and HP stands for "Horse Power"/performance, and the cost of technology (C) affect manufacturers' decisions about how to implement the technologies with and without fuel economy standards. For the purpose of this discussion, it is convenient to think of fuel economy in terms of its inverse, the rate of fuel consumption per mile. While miles per gallon (mpg) delivers decreasing fuel savings per mpg, decreasing fuel consumption delivers constant fuel savings per gallon per mile (gpm) reduced. Thinking in terms of gpm is appropriate because fuel economy standards are in fact defined in terms of the inverse of fuel economy, *i.e.*, gpm.

In the CAFE Model we typically assume that for a technology that can improve fuel economy, consumers are willing to pay an amount equal to the first thirty months of fuel savings (WTP_{30FE}). This is an important assumption for several reasons. The market will tend to equilibrate the ratio of consumers' WTP for fuel economy

divided by its cost to the ratio of consumers' WTP for other attributes divided by their cost. The value of the first thirty months of fuel savings is typically about one-fourth of the value of savings over the expected life of a vehicle, discounted at annual rates between 3% and 7%. Arguably, this represents an important undervaluing of technology-based fuel economy improvement relative to its true economic value. Our use of the 30-month payback assumption is based on statements manufacturers have made to us and to NASEM CAFE committees. It is also based on the fact that repeated assessments of the potential for technology to improve fuel economy have consistently found a substantial potential to cost-effectively increase fuel economy. But it is also partly based on the fact that the substantial literature that has endeavored to infer consumers' WTP for fuel economy is approximately evenly divided between studies that support severe undervaluation and those that support valuation at approximately full lifetime discounted present value (e.g., Greene et al., 2018; Helfand and Wolverton, 2011; Greene, 2010; for a more complete discussion see TSD, Ch. 6.1.6). The most recent studies based on detailed data and advanced methods of statistical inference have not resolved the issue (NASEM, 2021, Ch. 11.3).

If consumers value technology-based fuel economy improvements at only a small fraction of their lifetime present value and the market equates WTP_{30FE}/C to WTP_{HP}/C , the market will tend to oversupply performance relative to fuel economy (Allcott et al., 2014; Heutel, 2015). The WTP_{30FE} assumption also has important consequences when fuel economy standards are in effect. Alternative 0 in this proposed rule

assumes not only that the SAFE standards are in effect but that the manufacturers who agreed to the California Framework will be bound by that agreement. If those existing regulations are binding, it is likely that $WTP_{HP} > WTP_{30FE}$. (For simplicity we assume that over the range of fuel economy and performance achievable by the technology, both WTP values are constant.)³⁴⁰ This outcome would be expected in a market where consumers undervalue fuel savings in their normal car buying decisions and standards require levels of fuel economy beyond what they are willing to pay.³⁴¹ This is illustrated in Figure III–22. The initial consumer demand function for vehicles (D_0) is shifted upward by WTP_{30FE} to represent the consumer demand function for the increased fuel economy the technology could produce (D_{30FE}) and by WTP_{HP} to represent the demand function (D_{HP}) for the potential increase in performance. Because the technology has a cost (C), the manufacturers' supply function (S_0) shifts upward to $S_1 = S_0 + C$.³⁴² If the cost of the technology

³⁴⁰ Although there are diminishing returns to increased miles per gallon, in terms of fuel savings in gallons or dollars, there are not diminishing returns to reductions in fuel consumption per mile, except due to decreasing marginal utility of income. WTP_{HP} likely decreases with increasing performance, but if the changes are not too large, the assumption of constant WTP is reasonable.

³⁴¹ If there are no binding regulatory constraints and fuel economy and other vehicle attributes are normal goods, consumers will elect more of each in the event technological progress makes it possible to afford them. This simplifying assumption is consistent with a scenario where consumers' baseline vehicle choices are constrained by regulatory standards. See above for more discussion.

³⁴² The supply function for new cars is assumed to be perfectly elastic for the sake of simplicity of exposition. Note that if the cost of the technology exceeds consumers' WTP for both fuel economy and performance, the technology will not be adopted in the absence of regulations requiring it.

exceeds consumers' WTP for either the fuel economy or the performance it can deliver, the technology will not be adopted in the absence of regulations requiring it. In Figure III–22 we show the case where $C < WTP_{30FE} < WTP_{HP}$. In this case, using the technology to increase performance provides the greatest increase in sales and revenues: $Q_{HP} > Q_{30FE} > Q_0$. Since both WTP values are assumed to be approximately constant over the range of improvement the technology can provide, there is no possible combination of fuel economy and performance improvement that would produce a larger increase in sales than using the technology entirely to increase performance.³⁴³ Importantly, as long as $C < WTP_{HP}$, the actual cost of the technology does not affect the manufacturer's decision to use 100% of its potential to increase performance and 0% to increase fuel economy. The technology's payback period for the increase in fuel economy is irrelevant. If we reverse the relative WTP values (i.e., $WTP_{30FE} > WTP_{HP}$), then the manufacturer will choose to use 100% of the technology's potential to increase fuel economy and 0% to increase performance, assuming constant WTP values.³⁴⁴ This conclusion may contradict our current method, which assumes that even with increasing fuel economy standards in Alternative 0, manufacturers will adopt fuel economy technologies with $WTP_{30FE} < C$ and use them to increase fuel economy rather than performance.

³⁴³ In fact, all that is required is that over the range of increases achievable by the technology, $WTP_{HP} > WTP_{FE}$.

³⁴⁴ However, as noted above, the market will tend to equate WTP_{HP}/C to WTP_{FE}/C , so if there is sufficient variation in WTP_{HP} over the range of values achievable by the technology, some of each will be provided.

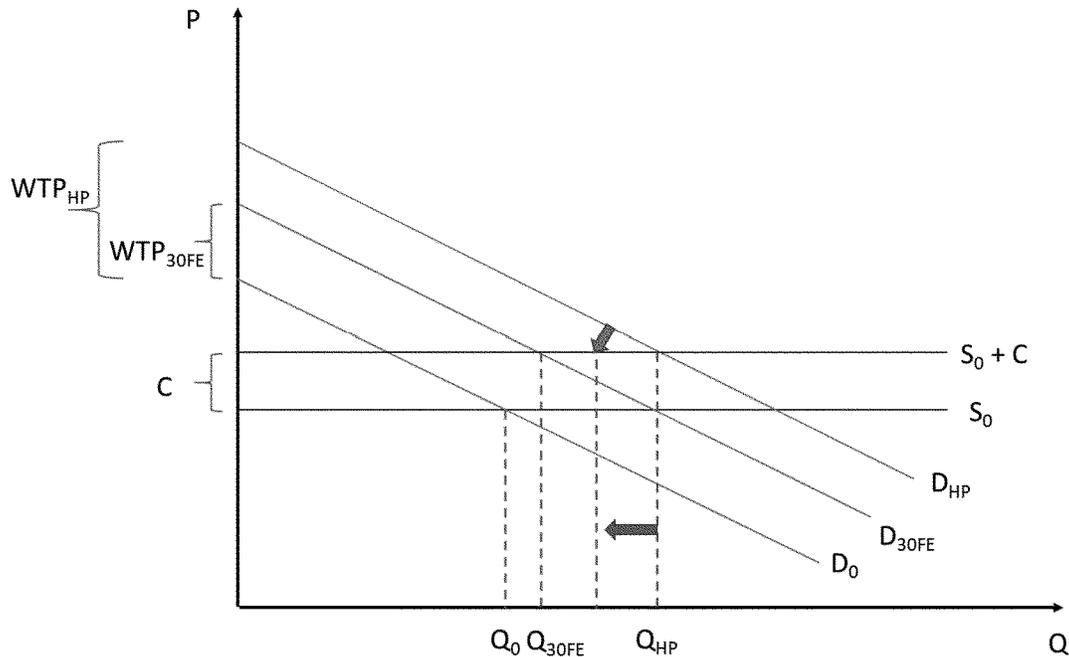


Figure III-22 – Manufacturers Decision to Adopt a Technology When $WTP_{HP} > WTP_{30FE} > C$

Because the expected present value of fuel savings is several times the 30-month value, it is quite possible that the WTP for performance lies between the lifetime present value of fuel savings and the 30-month value: $WTP_{PVFE} > WTP_{HP} > WTP_{30FE}$. This possibility is illustrated in Figure III-23, in which there are three demand functions in addition to the initial demand function, D_0 . In Figure III-23, if the consumer were willing to pay for the full present value of fuel savings, the technology would be applied 100% to increasing fuel economy, provided $C < WTP_{PVFE}$. But if standards were binding and the consumer were willing to pay for only 30 months of fuel savings, the technology would be applied 100% to increasing performance, provided $C < WTP_{HP}$. Suppose that the cost of the technology is not C , but a much smaller value, say $c < C$ and $c < WTP_{30FE}$. Assuming consumers value increased fuel economy at WTP_{30FE} , it remains the case that all the technology's potential will be applied to increasing performance because that gives the greatest increase in sales. The implication is that when there is a binding fuel economy standard, as long as $WTP_{HP} > WTP_{30FE}$, no technologies would be used to increase fuel economy in the absence of a regulatory requirement to do so. If consumers' WTP for fuel economy is WTP_{30FE} and regulatory standards are binding, $WTP_{HP} > WTP_{FE}$ seems likely.

If $WTP_{30FE} < WTP_{HP}$ (recalling that HP can represent attributes in addition to fuel economy), the above analysis of producer behavior contradicts the current operation of the CAFE Model, which assumes that manufacturers will apply technologies whose costs are less than WTP_{30FE} to improving fuel economy in the absence of regulations requiring them to do so. For the final rule, NHTSA is considering changing the assumption that in the absence of standards that require it, manufacturers will adopt technologies to improve fuel economy that have a payback period of 30 months or less, in favor of the above analysis. We are interested in receiving comments that specifically address the validity of the current and proposed approach.

As discussed in TSD Chapter 4.2.1.1, there is no consensus in the literature about how consumers value fuel economy improvements when making vehicle purchases. In this and past analyses, we have assumed that consumers value only the first 30 months of fuel savings when making vehicle purchase decisions. This value is a small fraction, approximately one fourth of the expected present value of future fuel savings over the typical life of a light-duty vehicle, assuming discount rates in the range of 3% to 7% per year. On the other hand, when estimating the societal value of fuel economy improvements, we use the full present value of discounted fuel savings

over the expected life of the vehicle because it represents a real resource savings. However, the possibility that consumers' perceptions of utility at the time of purchase (decision utility) may differ from the utility consumers experience while consuming a good and that experienced utility may be the preferable metric for policy evaluation has been raised in the economic literature (Kahneman and Sugden, 2005). In our methods, we use WTP_{30FE} to represent consumers' decision utility. Gallons saved over the life of a vehicle, valued at the current price of gasoline, and discounted to present value appears to be an appropriate measure of experienced utility. The large difference between our measure of decision utility and lifetime present value fuel savings as a measure of experienced utility has potentially important implications for how we estimate the impacts of fuel economy standards on new vehicle sales and the used vehicle market. It seems plausible that as consumers experience the fuel savings benefits of increased fuel economy, their valuation of the fuel economy increases required by regulation may adjust over time towards the full lifetime discounted present value. In addition, behavioral economic theory accepts that consumers' willingness to pay for fuel economy may change depending on the context of consumers' car purchase decisions. The implications of such possibilities are analyzed below. We are interested in

how they might affect our current methods for estimate the impacts of standards on new vehicle sales and the used vehicle market, and whether any changes to our current methods are appropriate.

The existence of fuel economy standards changes manufacturers' decision making. First, if a standard is set at a level that requires only part of the technological potential to increase fuel economy, if $C < WTP_{HP}$, and $WTP_{HP} > WTP_{30FE}$, the remainder of the technology's potential will be used to provide some increase in performance. This appears to have occurred post 2004 when the rate of improvement in performance slowed while fuel

economy improved. Assuming that consumers value fuel economy improvement at time of purchase at WTP_{30FE} , there would be a consumers' surplus cost of foregone performance equal to the cross-hatched trapezoid in Figure III-23. The foregone performance cost will be less than what it would have been if none of the technology's potential to increase fuel economy were used to increase performance. Even if the cost of the technology is less than WTP_{30FE} , the technology will be applied to improve fuel economy only up to the required level and the remainder of its potential will be used to increase performance. If the cost of applying

enough of the technology to achieve the fuel economy standard is greater than WTP_{HP} , there would be no cost of foregone performance since the cost of applying the technology to increasing fuel economy exceeds its opportunity cost when applied to increase performance.³⁴⁵ In that case, the technology cost represents the full cost of the fuel economy improvement, since that cost exceeds consumers' WTP for the performance it could produce. On the other hand, if under regulatory standards consumers valued fuel economy at WTP_{PVFE} , there would also be no opportunity cost of performance because $WTP_{PVFE} > WTP_{HP}$.

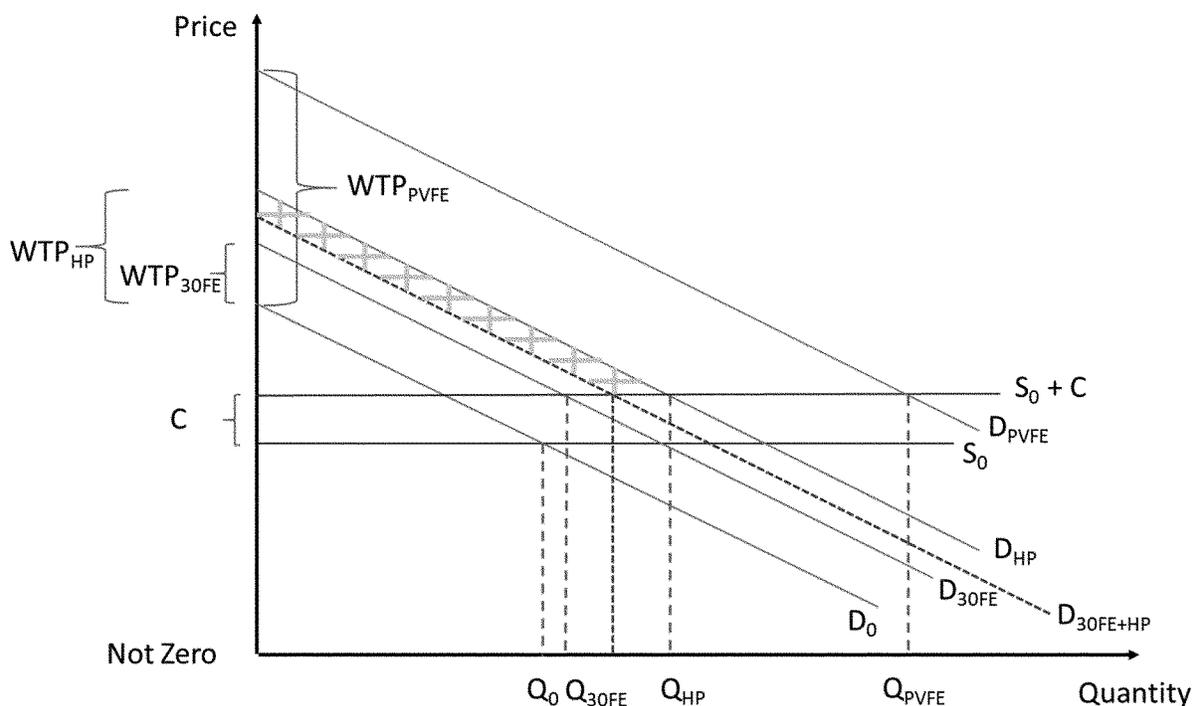


Figure III-23 – Manufacturers’ Decision to Adopt Technology with Fuel Economy Standards

Because the CAFE Model estimates the effects of standards on new vehicle sales and scrappage based on the difference between the cost of technology and the perceived value of fuel savings at the time a new vehicle is purchased, whether consumers perceive the value differently in regulated and unregulated markets is an important question. Traditional utility theory of consumer decision making does not allow that consumers' preference rankings depend on the context of the choices they make.

However, in addition to the theory of utility maximizing rational economic behavior, modern economics includes the insights and findings of behavioral economics, which has established many examples of human decision making that differ in important ways from the rational economic model. In particular, the behavioral model allows the possibility that consumers' preferences and decision-making processes often do change depending on the context or framing of choices. The possibility that behavioral theories of decision making

may be useful for understanding how consumers value fuel economy and for evaluating the costs and benefits of fuel economy standards was noted in the most recent NASEM (2021) report. An explanation of the different contexts helps to illustrate this point. If a consumer is thinking about buying a new car and is looking at two models, one that includes fuel economy technology and is more expensive and another that does not, she may buy the cheaper, less fuel efficient version even if the more expensive model will save

³⁴⁵ This is because using the technology to increase performance would not be the second-best

use of the cost of increasing fuel economy. The

second-best use would instead be to invest the cost at a market rate of return.

money in the long run. But if, instead, the consumer is faced with whether to buy a new car at all as opposed to keeping an older one, if all new cars contain technology to meet fuel economy standards then she may view the decision differently. Will, for example, an extra \$1,000 for a new car—a \$1,000 that the consumer will more than recoup in fuel savings—deter her from buying the new car, especially when most consumers finance cars over a number of years rather than paying the \$1,000 cost up front and will therefore partly or entirely offset any increase in monthly payment with lower fuel costs? In addition, the fact that standards generally increase gradually over a period of years allows time for consumers and other information sources to verify that fuel savings are real and of substantial value.

The CAFE Model's representation of consumers' vehicle choices under regulation reflects the "Gruenspecht Effect", the theory that regulation will inevitably cause new vehicles to be less desirable than they would have been in the absence of regulation, which will inevitably lead to reduced new vehicle sales, higher prices for used vehicles and slower turnover of the vehicle stock. However, if consumers severely undervalue fuel savings at the time of vehicle purchase, not only is that itself a market failure (a large discrepancy between decision and experienced utility) but it raises important questions about what causes such undervaluation and whether consumers' perceptions may change as the benefits of increased fuel economy are realized or whether the different framing of new vehicle choices in a regulated market might partially or entirely mitigate that undervaluation. The 2021 NASEM report asserts that if the behavioral model is correct, consumers might value fuel savings at or near their full lifetime discounted present value, potentially reversing the Gruenspecht Effect.

"On the other hand, the Gruenspecht effect is not predicted by the behavioral model, under which it is not only possible but likely that if the fuel savings from increased fuel economy exceed its cost, consumers will find the more fuel-efficient vehicles required by regulation to be preferable to those that would otherwise have been produced." "It is possible that sales would increase rather than decrease and likewise manufacturers' profits. In that case, increased new vehicle sales would reduce used vehicle prices, benefiting buyers of used vehicles and accelerating the turnover of the vehicle stock."³⁴⁶

NHTSA is interested in comments that can help contribute to resolving or improving our understanding of this issue and its implications for how the costs and benefits of fuel economy standards should be estimated.

(2) Refueling Benefit

Increasing CAFE standards, all else being equal, affect the amount of time drivers spend refueling their vehicles in several ways. First, they increase the fuel economy of ICE vehicles produced in the future, which increases vehicle range and decreases the number of refueling events for those vehicles. Conversely, to the extent that more stringent standards increase the purchase price of new vehicles, they may reduce sales of new vehicles and scrapping of existing ones, causing more VMT to be driven by older and less efficient vehicles which require more refueling events for the same amount of VMT driven. Finally, sufficiently stringent standards may also change the number of electric vehicles that are produced, and shift refueling to occur at a charging station, rather than at the pump—changing per-vehicle lifetime expected refueling costs.

The agency estimates these savings by calculating the amount of refueling time avoided—including the time it takes to find, refuel, and pay—and multiplying it by DOT's value of time of travel savings estimate. For a full description of the methodology, refer to TSD Chapter 6.1.4.

(3) Additional Mobility

Any increase in travel demand provides benefits that reflect the value to drivers and other vehicle occupants of the added—or more desirable—social and economic opportunities that become accessible with additional travel. Under the alternatives in this analysis, the fuel cost per mile of driving would decrease as a consequence of the higher fuel economy levels they require, thus increasing the number of miles that buyers of new cars and light trucks would drive as a consequence of the well-documented fuel economy rebound effect.

The fact that drivers and their passengers elect to make more frequent or longer trips to gain access to these opportunities when the cost of driving declines demonstrates that the benefits they gain by doing so exceed the costs they incur. At a minimum, the benefits must equal the cost of the fuel consumed to travel the additional miles (or they would not have occurred). The cost of that energy is subsumed in the simulated fuel expenditures, so it is necessary to account for the benefits

associated with those miles traveled here. But the benefits must also offset the economic value of their (and their passengers') travel time, other vehicle operating costs, and the economic cost of safety risks due to the increase in exposure that occurs with additional travel. The amount by which the benefits of this additional travel exceeds its economic costs measures the net benefits drivers and their passengers experience, usually referred to as increased consumer surplus.

TSD Chapter 6.1.5 explains the agency's methodology for calculating additional mobility.

2. External Costs and Benefits

(a) Costs

(1) Congestion and Noise

Increased vehicle use associated with the rebound effect also contributes to increased traffic congestion and highway noise. Although drivers obviously experience these impacts, they do not fully value their impacts on other system users, just as they do not fully value the emissions impacts of their own driving. Congestion and noise costs are "external" to the vehicle owners whose decisions about how much, where, and when to drive more—or less—in response to changes in fuel economy result in these costs. Therefore, unlike changes in the costs incurred by drivers for fuel consumption or safety risks they willingly assume, changes in congestion and noise costs are not offset by corresponding changes in the travel benefits drivers experience.

Congestion costs are limited to road users; however, since road users include a significant fraction of the U.S. population, changes in congestion costs are treated as part of the rule's economic impact on the broader society instead of as a cost or benefit to private parties. Costs resulting from road and highway noise are even more widely dispersed, because they are borne partly by surrounding residents, pedestrians, and other non-road users, and for this reason are also considered as a cost to the society as a whole.

To estimate the economic costs associated with changes in congestion and noise caused by differences in miles driven, the agency updated the underlying components of the cost estimates of per-mile congestion and noise costs from increased automobile and light truck use provided in FHWA's 1997 Highway Cost Allocation Study. The agencies previously relied on this study in the 2010, 2011, and 2012 final rules, and updating the individual underlying components for congestion

³⁴⁶ NASEM, 2021, p. 11–357.

costs in this analysis improves currency and internal consistency with the rest of the analysis. See TSD Chapter 6.2 for details on how the agency calculated estimate the economic costs associated with changes in congestion and noise caused by differences in miles driven. NHTSA specifically seeks comment on the congestion costs employed in this analysis, and whether and how to change them for the analysis for the final rule.

(2) Fuel Tax Revenue

As mentioned in III.G.1.b)(1), a portion of the fuel savings experienced by consumers includes avoided fuel taxes. While fuel taxes are treated as a transfer within the analysis and do not affect net benefits, the agency provides an estimate here to show the potential impact to state and local governments.

(b) Benefits

(1) Reduced Climate Damages

Extracting and transporting crude petroleum, refining it to produce transportation fuels, and distributing fuel generate additional emissions of GHGs and criteria air pollutants beyond those from cars' and light trucks' use of fuel. By reducing the volume of petroleum-based fuel produced and consumed, adopting higher CAFE standards will thus mitigate global climate-related economic damages caused by accumulation of GHGs in the atmosphere, as well as the more immediate and localized health damages caused by exposure to criteria pollutants. Because they fall broadly on the U.S.—and global, in the case of climate damages—population, reducing them represents an external benefit from requiring higher fuel economy.

NHTSA estimates the global social benefits of CO₂, CH₄, and N₂O emission reductions expected from this proposed rule using the social cost of greenhouse gases (SC–GHG) estimates presented in the Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990 (“February 2021 TSD”). These SC–GHG estimates are interim values developed under Executive Order (E.O.) 13990 for use in benefit-cost analyses until updated estimates of the impacts of climate change can be developed based on the best available science and economics. NHTSA uses the SC–GHG interim values to estimate the benefits of decreased fuel consumption stemming from the proposal.

The SC–GHG estimates used in our analysis were developed over many years, using transparent process, peer-

reviewed methodologies, the best science available at the time of that process, and with input from the public. Specifically, in 2009, an interagency working group (IWG) that included the DOT and other executive branch agencies and offices was established to ensure that agencies were using the best available science and to promote consistency in the social cost of carbon dioxide (SC–CO₂) values used across agencies. The IWG published SC–CO₂ estimates in 2010. These estimates were updated in 2013 based on new versions of each IAM. In August 2016 the IWG published estimates of the social cost of methane (SC–CH₄) and nitrous oxide (SC–N₂O) using methodologies that are consistent with the methodology underlying the SC–CO₂ estimates. Executive Order 13990 (issued on January 20, 2021) re-established the IWG and directed it to publish interim SC–GHG values for CO₂, CH₄, and N₂O within thirty days. Furthermore, the E.O. tasked the IWG with devising long-term recommendations to update the methodologies used in calculating these SC–GHG values, based on “the best available economics and science,” and incorporating principles of “climate risk, environmental justice, and intergenerational equity”.³⁴⁷ The E.O. also instructed the IWG to take into account the recommendations from the NAS committee convened on this topic, published in 2017.³⁴⁸ The February 2021 TSD provides a complete discussion of the IWG’s initial review conducted under E.O. 13990.

NHTSA is using the IWG’s interim values, published in February 2021 in a technical support document, for the CAFE analysis in this NPRM.³⁴⁹ This approach is the same as that taken in DOT regulatory analyses over 2009 through 2016. If the IWG issues new estimates before the final rule, the agency will consider revising the estimates within the CAFE Model time permitting. We request comment on this

³⁴⁷ Executive Order on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis. (2021). Available at <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/executive-order-protecting-public-health-and-environment-and-restoring-science-to-tackle-climate-crisis/>.

³⁴⁸ National Academies of Science (NAS). (2017). Valuing Climate Damage: Updating Estimation of the Social Cost of Carbon Dioxide. Available at <https://www.nap.edu/catalog/24651/valuing-climate-damages-updating-estimation-of-the-social-cost-of->

³⁴⁹ Interagency Working Group on Social Cost of Greenhouse Gases, United States Government. (2021). *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990*, available at https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf?source=email.

approach to estimating social benefits of reducing GHG emissions in this rulemaking in light of the ongoing interagency process.

NHTSA notes that the primary analysis for this proposal estimates benefits from reducing emissions of CO₂ and other GHGs that incorporate a 2.5% discount rate for distant future climate damages, while discounting costs and non-climate related benefits using a 3% rate. NHTSA also presents cost and benefits estimates in the primary analysis that reflect a 3% discount rate for reductions in climate-related damages while discounting costs and non-climate related benefits at 7%. NHTSA believes this approach represents an appropriate treatment of the intergenerational issues presented by emissions that result in climate-related damages over a very-long time horizon, and is within scope of the IWG’s *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide* that recommends discounting future climate damages at rates of 2.5%, 3%, and 5%.³⁵⁰

In addition, NHTSA emphasize the importance and value of considering the benefits calculated using all four SC–GHG estimates for each of three greenhouse gases. NHTSA includes the social costs of CO₂, CH₄, and N₂O calculated using the four different estimates recommended in the February 2021 TSD (model average at 2.5 percent, 3 percent, and 5 percent discount rates; 95th percentile at 3 percent discount rate) in the PRIA.

The February 2021 TSD does not specify how agencies should combine its estimates of benefits from reducing GHG emissions that reflect these alternative discount rates with the discount rates for nearer-term benefits and costs prescribed in OMB Circular A–4. Instead, it provides agencies with broad flexibility in implementing the February 2021 TSD. However, the February 2021 TSD does identify 2.5% as the “average certainty-equivalent rate using the mean-reverting and random walk approaches from Newell and Pizer (2003) starting at a discount rate of 3 percent.”³⁵¹ As such, NHTSA believes using a 2.5% discount rate for climate-related damages is consistent with the IWG guidance.

This section provides further discussion of the discount rates that NHTSA uses in its regulatory analysis

³⁵⁰ Interagency Working Group on Social Cost of Greenhouse Gases, United States Government, *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide, Interim Estimates under Executive Order 13990*, February 2021.

³⁵¹ *Ibid.*

and presents results of a sensitivity analysis using a 3% discount rate for reductions in climate-related damages. NHTSA welcomes public comment on its selection of 2.5% for climate-related damages and will consider other discount rates for the final rule.

For a full discussion of the agency's quantification of GHGs, see TSD Chapter 6.2.1 and the PRIA.

(a) Discount Rates Accounting for Intergenerational Impacts

A standard function of regulatory analysis is to evaluate tradeoffs between impacts that occur at different points in time. Many, if not most, Federal regulations involve costly upfront investments that generate future benefits in the form of reductions in health, safety, or environmental damages. To evaluate these tradeoffs, the analysis must account for the social rate of time preference—the broadly observed social preference for benefits that occur sooner versus those that occur further in the future.³⁵² This is accomplished by discounting impacts that occur further in the future more than impacts that occur sooner.

OMB Circular A-4 affirmed the appropriateness of accounting for the social rate of time preference in regulatory analyses and prescribed discount rates of 3% and 7% for doing so. The 3% discount rate was chosen to represent the “consumption rate of interest” approach, which discounts future costs and benefits to their present values using the rate at which consumers appear to make tradeoffs between current consumption and equal consumption opportunities deferred to the future. OMB Circular A-4 reports a real rate of return on 10-year Treasury notes of 3.1% between 1973 and its 2003 publication date and interprets this as approximating the rate at which society is indifferent between consumption today and in the future.

The 7% rate reflects the opportunity cost of capital approach to discounting, where the discount rate approximates the foregone return on private investment if the regulation were to divert resources from capital formation. OMB Circular A-4 cites pre-tax rates of return on capital as part of its selection of the 7% rate.³⁵³ The IWG rejected the use of the opportunity cost of capital approach to discounting reductions in climate-related damages because

“consumption rate of interest is the correct discounting concept to use when future damages from elevated temperatures are estimated in consumption-equivalent units as is done in the IAMs used to estimate the SC-GHG (National Academies 2017).”³⁵⁴

As the IWG states, “GHG emissions are stock pollutants, where damages are associated with what has accumulated in the atmosphere over time, and they are long lived such that subsequent damages resulting from emissions today occur over many decades or centuries depending on the specific greenhouse gas under consideration.”³⁵⁵ OMB Circular A-4 states that impacts occurring over such intergenerational time horizons require special treatment:

Special ethical considerations arise when comparing benefits and costs across generations. Although most people demonstrate time preference in their own consumption behavior, it may not be appropriate for society to demonstrate a similar preference when deciding between the well-being of current and future generations. Future citizens who are affected by such choices cannot take part in making them, and today's society must act with some consideration of their interest.³⁵⁶

In addition to the ethical considerations, Circular A-4 also identifies uncertainty in long-run interest rates as a potential justification for using lower rates to discount intergenerational impacts. As Circular A-4 states, “Private market rates provide a reliable reference for determining how society values time within a generation, but for extremely long time periods no comparable private rates exist.”³⁵⁷ The social costs of distant future climate damages—and by implication, the value of reducing them by lowering emissions of GHGs—are highly sensitive to the discount rate, and the present value of reducing climate damages grows at an increasing rate as the discount rate used in the analysis declines. This “non-linearity” means that even if uncertainty about the exact value of the long-run interest rate is equally distributed between values above and below the 3% consumption rate of interest, the probability-weighted (or “expected”) present value of a unit reduction in climate damages will be higher than the value calculated using a 3% discount rate. The effect of such

uncertainty about the correct discount rate can thus be accounted for by using a lower “certainty-equivalent” rate to discount distant future damages.

The IWG identifies “a plausible range of certainty-equivalent constant consumption discount rates: 2.5, 3, and 5 percent per year.” The IWG's justification for its selection of these rates is summarized in this excerpt from its 2021 guidance:

The 3 percent value was included as consistent with estimates provided in OMB's Circular A-4 (OMB 2003) guidance for the consumption rate of interest. . . . The upper value of 5 percent was included to represent the possibility that climate-related damages are positively correlated with market returns, which would imply a certainty equivalent value higher than the consumption rate of interest. The low value, 2.5 percent, was included to incorporate the concern that interest rates are highly uncertain over time. It represents the average certainty-equivalent rate using the mean-reverting and random walk approaches from Newell and Pizer (2003) starting at a discount rate of 3 percent. Using this approach, the certainty equivalent is about 2.2 percent using the random walk model and 2.8 percent using the mean reverting approach. Without giving preference to a particular model, the average of the two rates is 2.5 percent. Additionally, a rate below the consumption rate of interest would also be justified if the return to investments in climate mitigation are negatively correlated with the overall market rate of return. Use of this lower value was also deemed responsive to certain judgments based on the prescriptive or normative approach for selecting a discount rate and to related ethical objections that have been raised about rates of 3 percent or higher.

Because the certainty-equivalent discount rate will lie progressively farther below the best estimate of the current rate as the time horizon when future impacts occur is extended, the IWG's recent guidance also suggest that it may be appropriate to use a discount rate that declines over time to account for interest rate uncertainty, as has been recommended by the National Academies and EPA's Science Advisory Board.³⁵⁸ The IWG mentioned that it will consider these recommendations and the relevant academic literature on declining rates in developing its final

³⁵² This preference is observed in many market transactions, including by savers that expect a return on their investments in stocks, bonds, and other equities; firms that expect positive rates of return on major capital investments; and banks that demand positive interest rates in lending markets.

³⁵³ OMB Circular A-4.

³⁵⁴ Interagency Working Group on Social Cost of Greenhouse Gases, United States Government, *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide, Interim Estimates under Executive Order 13990*, February 2021.

³⁵⁵ *Ibid.*

³⁵⁶ OMB Circular A-4.

³⁵⁷ *Ibid.*

³⁵⁸ Interagency Working Group on Social Cost of Greenhouse Gases, United States Government, *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide, Interim Estimates under Executive Order 13990*, February 2021.

guidance on the social cost of greenhouse gases.

The IWG 2021 interim guidance also presented new evidence on the consumption-based discount rate suggesting that a rate lower than 3% may be appropriate. For example, the IWG replicated OMB Circular A-4’s original 2003 methodology for estimating the consumption rate using the average return on 10-year Treasury notes over the last 30 years and found a discount rate close to 2%. They also presented rates over a longer time horizon, finding an average rate of 2.3% from 1962 to the present. Finally, they summarized results from surveys of experts on the topic and found a “surprising degree of consensus” for using a 2% consumption rate of interest to discount future climate-related impacts.³⁵⁹

NHTSA expects that the Interagency Working Group will continue to develop its final guidance on the appropriate discount rates to use for reductions in climate damages as NHTSA develops its final rule. If new guidance is issued in time for NHTSA’s final rule, NHTSA will incorporate the IWG’s updated guidance in the final regulatory analysis.

(b) Discount Rates Used in This Proposal for Climate-Related Benefits

As indicated above, NHTSA’s primary analysis presents cost and benefit estimates using a 2.5% discount rate for reductions in climate-related damages and 3% for non-climate related impacts. NHTSA also presents cost and benefits estimates using a 3% discount rate for reductions in climate-related damages alongside estimates of non-climate related impacts discounted at 7%. This latter pairing of a 3% rate for discounting benefits from reducing climate-related damages with a 7% discount rate for non-climate related impacts is consistent with NHTSA’s past practice.³⁶⁰ However, NHTSA’s pairing of 2.5% for climate-related damage reductions with 3% for non-climate related impacts is novel in this proposal.

As discussed above, the IWG’s guidance indicates that uncertainty in long-run interest rates suggests that a lower “certainty-equivalent” discount rate is appropriate for intergenerational impacts, and identifies 2.5%, 3%, and 5% as “certainty-equivalent” discount rates. NHTSA emphasizes the importance and value of considering the

benefits calculated using all four SC-GHG estimates for each of three greenhouse gases. NHTSA includes the social costs of CO₂, CH₄, and N₂O calculated using the four different estimates recommended in the February 2021 TSD (model average at 2.5 percent, 3 percent, and 5 percent discount rates; 95th percentile at 3 percent discount rate) in the PRIA. For presentation purposes in this rule, NHTSA shows two primary estimates. NHTSA believes that pairing OMB’s 3% estimate of the consumption discount rate for near-term costs and benefits with the IWG’s lower certainty-equivalent rate of 2.5% is consistent with current interim guidance in the February 2021 TSD. NHTSA also believe that its pairing of the 3% certainty-equivalent rate for climate-related benefits with OMB’s 7% discount rate is consistent with guidance from the February 2021 TSD for GHGs and OMB Circular A-4 for other costs and benefits.

In addition, NHTSA presents a sensitivity analysis where both distant future and nearer-term GHG impacts are discounted using the 3% rate combined with all other costs and benefits discounted at 3%.

Table III-39 – Comparison of Results Using a 3% Discount Rate for All Impacts Except GHGs with Impacts Using Either 2.5% or 3% for Climate-Related Benefits, Model Years 1981 through 2029

	Totals	
	3%/2.5% SC-GHG Discount Rate	3%/3% SC-GHG Discount Rate
Costs	121.1	121.1
Benefits	121.4	110.5
Net Benefits	0.3	-10.6

Table III-40 – Comparison of Results Using a 3% Discount Rate for All Impacts Except GHGs with Impacts Using Either 2.5% or 3% for Climate-Related Benefits, Calendar Years 2021 through 2050

	Totals	
	3%/2.5% SC-GHG Discount Rate	3%/3% SC-GHG Discount Rate
Costs	333.6	333.6
Benefits	433.6	391.7
Net Benefits	100	58.1

³⁵⁹ *Ibid.*

³⁶⁰ *See, e.g.,* the 2012 and 2020 final CAFE rules.

NHTSA seeks comment on the above discussion.

(2) Reduced Health Damages

The CAFE Model estimates monetized health effects associated with emissions from three criteria pollutants: NO_x, SO_x, and PM_{2.5}. As discussed in Section III.F above, although other criteria pollutants are currently regulated, only impacts from these three pollutants are calculated since they are known to be emitted regularly from mobile sources, have the most adverse effects to human health, and there exist several papers from the EPA estimating the benefits per ton of reducing these pollutants. Other pollutants, especially those that are precursors to ozone, are more difficult to model due to the complexity of their formation in the atmosphere, and EPA does not calculate benefit-per-ton estimates for these. The CAFE Model computes the monetized impacts associated with health damages from each pollutant by multiplying monetized health impact per ton values by the total tons of these pollutants, which are emitted from both upstream and tailpipe sources. Chapter 5 of the TSD accompanying this proposal includes a detailed description of the emission factors that inform the CAFE Model's calculation of the total tons of each pollutant associated with upstream and tailpipe emissions.

These monetized health impacts per ton values are closely related to the health incidence per ton values described above in Section III.F and in detail in Chapter 5.4 of the TSD. We use the same EPA sources that provided health incidence values to determine which monetized health impacts per ton values to use as inputs in the CAFE Model. Like the estimates associated with health incidences per ton of criteria pollutant emissions, we used multiple EPA papers and conversations with EPA staff to appropriately account for monetized damages for each pollutant associated with the source sectors included in the CAFE Model, based on which papers contained the most up-to-date data.³⁶¹ The various emission source sectors included in the EPA papers do not always correspond exactly to the emission source categories

used in the CAFE Model.³⁶² In those cases, we mapped multiple EPA sectors to a single CAFE source category and computed a weighted average of the health impact per ton values.

The EPA uses the value of a statistical life (VSL) to estimate premature mortality impacts, and a combination of willingness to pay estimates and costs of treating the health impact for estimating the morbidity impacts.³⁶³ EPA's 2018 technical support document, "Estimating the Benefit per Ton of Reducing PM_{2.5} Precursors from 17 Sectors,"³⁶⁴ (referred to here as the 2018 EPA source apportionment TSD) contains a more detailed account of how health incidences are monetized. It is important to note that the EPA sources cited frequently refer to these monetized health impacts per ton as "benefits per ton," since they describe these estimates in terms of emissions avoided. In the CAFE Model input structure, these are generally referred to as monetized health impacts or damage costs associated with pollutants emitted, not avoided, unless the context states otherwise.

The CAFE Model health impacts inputs are based partially on the structure the 2018 EPA source apportionment TSD, which reported benefits per ton values for the years 2020, 2025, and 2030. For the years in between the source years used in the input structure, the CAFE Model applies values from the closest source year. For instance, the model applies 2020 monetized health impact per ton values for calendar years 2020–2022 and applies 2025 values for calendar years 2023–2027. For some of the monetized health damage values, in order to match the structure of other impacts costs, DOT staff developed proxies for 7% discounted values for specific source sectors by using the ratio between a comparable sector's 3% and 7% discounted values. In addition, we used implicit price deflators from the Bureau of Economic Analysis (BEA) to convert different monetized estimates to 2018 dollars, in order to be consistent with the rest of the CAFE Model inputs.

³⁶² The CAFE Model's emission source sectors follow a similar structure to the inputs from GREET. See Chapter 5.2 of the TSD accompanying this proposal for further information.

³⁶³ Although EPA and DOT's VSL values differ, DOT staff determined that using EPA's VSL was appropriate here, since it was already included in these monetized health impact values, which were best suited for the purposes of the CAFE Model.

³⁶⁴ See Environmental Protection Agency (EPA). 2018. Estimating the Benefit per Ton of Reducing PM_{2.5} Precursors from 17 Sectors. https://www.epa.gov/sites/production/files/2018-02/documents/sourceapportionmentbpttsd_2018.pdf.

³⁶¹ Environmental Protection Agency (EPA). 2018. Estimating the Benefit per Ton of Reducing PM_{2.5} Precursors from 17 Sectors. https://www.epa.gov/sites/production/files/2018-02/documents/sourceapportionmentbpttsd_2018.pdf; Wolfe et al. 2019. Monetized health benefits attributable to mobile source emissions reductions across the United States in 2025. <https://pubmed.ncbi.nlm.nih.gov/30296769/>; Fann et al. 2018. Assessing Human Health PM_{2.5} and Ozone Impacts from U.S. Oil and Natural Gas Sector Emissions in 2025. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6718951/>.

This process is described in more detail in Chapter 6.2.2 of the TSD accompanying this proposal. In addition, the CAFE Model documentation contains more details of the model's computation of monetized health impacts. All resulting emissions damage costs for criteria pollutants are located in the Criteria Emissions Cost worksheet of the Parameters file.

(3) Reduction in Petroleum Market Externality

By amending existing standards, the proposal would decrease domestic consumption of gasoline, producing a correspondingly decrease in the Nation's demand for crude petroleum, a commodity that is traded actively in a worldwide market. Although the U.S. accounts for a sufficient (albeit diminishing) share of global oil consumption that the resulting decrease in global petroleum demand will exert some downward pressure on worldwide prices.

U.S. consumption and imports of petroleum products have three potential effects on the domestic economy that are often referred to collectively as "energy security externalities," and increases in their magnitude are sometimes cited as possible social costs of increased U.S. demand for petroleum. First, any increase in global petroleum prices that results from higher U.S. gasoline demand will cause a transfer of revenue to oil producers worldwide from consumers of petroleum, because consumers throughout the world are ultimately subject to the higher global price that results. Although this transfer is simply a shift of resources that produces no change in global economic welfare, the financial drain it produces on the U.S. economy is sometimes cited as an external cost of increased U.S. petroleum consumption because consumers of petroleum products are unlikely to consider it.

As the U.S. approaches self-sufficiency in petroleum production (the Nation became a net exporter of petroleum in 2020), this transfer is increasingly from U.S. consumers of refined petroleum products to U.S. petroleum producers, so it not only leaves welfare unaffected, but even ceases to be a financial burden on the U.S. economy. In fact, as the U.S. becomes a larger net petroleum exporter, any transfer from global consumers to petroleum producers would become a financial benefit to the U.S. economy. Nevertheless, uncertainty in the Nation's long-term import-export balance makes it difficult to project precisely how these effects might

change in response to increased consumption.

Higher U.S. petroleum consumption can also increase domestic consumers' exposure to oil price shocks and thus increase potential costs to all U.S. petroleum users (including those outside the light duty vehicle sector, whose consumption would be unaffected by this proposed rule) from possible interruptions in the global supply of petroleum or rapid increases in global oil prices. Because users of petroleum products are unlikely to consider the effect of their increased purchases on these risks, their economic value is often cited as an external cost of increased U.S. consumption.

Finally, some analysts argue that domestic demand for imported petroleum may also influence U.S. military spending; because the increased cost of military activities would not be reflected in the price paid at the gas pump, this is often suggested to represent a third category of external costs from increased U.S. petroleum consumption. For example, NHTSA has received extensive comments to past actions from the group Securing America's Energy Future on this topic.

Each of these three factors would be expected to decrease—albeit by a limited magnitude—as a consequence of decrease in U.S. petroleum consumption resulting from the proposed standards. TSD Chapter 6.2.4 provides a comprehensive explanation of the agency's analysis of these three impacts.

(4) Changes in Labor

As vehicle prices rise, we expect consumers to purchase fewer vehicles than they would have at lower prices. If manufacturers produce fewer vehicles as a consequence of lower demand, manufacturers may need less labor to produce their fleet and dealers may need less labor to sell the vehicles. Conversely, as manufacturers add equipment to each new vehicle, the industry will require labor resources to develop, sell, and produce additional fuel-saving technologies.³⁶⁵ We also account for the possibility that new standards could shift the relative shares of passenger cars and light trucks in the overall fleet. Since the production of different vehicles involves different amounts of labor, this shift impacts the quantity of estimated labor.

The analysis considers the direct labor effects that the CAFE standards have across the automotive sector. The

facets include (1) dealership labor related to new light-duty vehicle unit sales; (2) assembly labor for vehicles, engines, and transmissions related to new vehicle unit sales; and (3) labor related to mandated additional fuel savings technologies, accounting for new vehicle unit sales. The labor utilization analysis is intentionally narrow in its focus and does not represent an attempt to quantify the overall labor or economic effects of this rulemaking because adjacent employment factors and consumer spending factors for other goods and services are uncertain and difficult to predict. We do not consider how direct labor changes may affect the macro economy and potentially change employment in adjacent industries. For instance, we do not consider possible labor changes in vehicle maintenance and repair, nor changes in labor at retail gas stations. We also do not consider possible labor changes due to raw material production, such as production of aluminum, steel, copper, and lithium, nor does the agency consider possible labor impacts due to changes in production of oil and gas, ethanol, and electricity.

All labor effects are estimated and reported at a national level, in person-years, assuming 2,000 hours of labor per person-year.³⁶⁶ These labor hours are not converted into monetized values because we assume that the labor costs are included into a new vehicle's purchasing price. The analysis estimates labor effects from the forecasted CAFE Model technology costs and from review of automotive labor for the MY 2020 fleet. The agency uses information about the locations of vehicle assembly, engine assembly, and transmission assembly, and the percent of U.S. content of vehicles collected from American Automotive Labeling Act (AALA) submissions for each vehicle in the reference fleet.³⁶⁷ The analysis assumes the portion of parts that are made in the U.S. will remain constant for each vehicle as manufacturers add fuel-savings technologies. This should not be misconstrued as a prediction that the percentage of U.S.-made parts—and by extension U.S. labor—will remain constant, but rather that the agency does not have a clear basis to project where future productions may shift. The analysis also uses data from the National Automotive Dealers

Association (NADA) annual report to derive dealership labor estimates.

In sum, the analysis shows that the increased labor from production of new technologies used to meet the preferred alternative will outweigh any decreases attributable to the change in new vehicle sales. For a full description of the process the agency uses to estimate labor impacts, see TSD Chapter 6.2.5.

3. Costs and Benefits Not Quantified

In addition to the costs and benefits described above, Table III-37 and Table III-38 each include two line-items without values. The first is maintenance and repair costs. Many of the technologies manufacturers apply to vehicles to meet CAFE standards are sophisticated and costly. The technology costs capture only the initial or "upfront" costs to incorporate this equipment into new vehicles; however, if the equipment is costlier to maintain or repair—which is likely either because the materials used to produce the equipment are more expensive or the equipment is significantly more complex than less fuel efficient alternatives and requires more time and labor—then consumers will also experience increased costs throughout the lifetime of the vehicle to keep it operational. The agency does not calculate the additional cost of repair and maintenance currently because it lacks a basis for estimating the incremental change attributable to the standards. The agency seeks comment on methods for estimating these costs.

The second item is the potential sacrifice in other vehicle attributes. In addition to fuel economy, potential buyers of new cars and light trucks value other features such as their seating and cargo-carrying capacity, ride comfort, safety, and performance. Changing some of these other features, however, can affect vehicles' fuel economy, so manufacturers will carefully consider tradeoffs among them when deciding how to comply with stricter CAFE standards. Currently the analysis assumes that these vehicle attributes will not change as a result of these rules,³⁶⁸ but in practice manufacturers may need to make practical design changes to meet the standards. Even if manufacturers are able to hold vehicles' other attributes at *today's* levels while meeting higher fuel economy targets, manufacturers may have to dedicate additional resources to comply with stricter CAFE targets and forego improvements in other vehicle attributes. The potential loss of other

³⁶⁵ For the purposes of this analysis, DOT assumes a linear relationship between labor and production volumes.

³⁶⁶ The agencies recognize a few local production facilities may contribute meaningfully to local economies, but the analysis reports only on national effects.

³⁶⁷ 49 CFR part 583.

³⁶⁸ See TSD Chapter 2.4.5.

vehicle attributes is an opportunity cost to consumers.

The agency has previously attempted to model the potential sacrifice in other vehicle attributes in sensitivity analyses. In those other rulemakings, the agency acknowledged that it is extremely difficult to quantify the potential loss of other vehicle attributes. To accurately do so requires extensive projections about which and how much of other attributes will be sacrificed and a detailed accounting of how much value consumers assigned to those attributes. The agency modeled the loss in other vehicle attributes using published empirical estimates of tradeoffs between higher fuel economy and improvements to other attributes, together with estimates of the values buyers attach to those attributes. The agency is unsure whether this is an appropriate methodology since there is uncertainty about how much fuel economy consumers are willing to pay for and how consumers value other vehicle attributes. The agency seeks comment on alternative methods for estimating the potential sacrifice in other vehicle attributes.

H. Simulating Safety Effects of Regulatory Alternatives

The primary objective of CAFE standards is to achieve maximum feasible fuel economy, thereby reducing fuel consumption. In setting standards to achieve this intended effect, the potential of the standards to affect vehicle safety is also considered. As a safety agency, the agency has long considered the potential for adverse safety consequences when establishing CAFE standards.

This safety analysis includes the comprehensive measure of safety impacts from three factors:

1. Changes in Vehicle Mass. Similar to previous analyses, the agency calculates the safety impact of changes in vehicle mass made to reduce fuel consumption and comply with the standards. Statistical analysis of historical crash data indicates reducing mass in heavier vehicles generally improves safety, while reducing mass in lighter vehicles generally reduces safety. The agency's crash simulation modeling of vehicle design concepts for reducing mass revealed similar effects. These observations align with the role of mass disparity in crashes; when vehicles of different masses collide, the smaller vehicle will experience a larger change in velocity (and, by extension, force) which increases the risk to its occupants.

2. Impacts of Vehicle Prices on Fleet Turnover. Vehicles have become safer

over time through a combination of new safety regulations and voluntary safety improvements. The agency expects this trend to continue as emerging technologies, such as advanced driver assistance systems, are incorporated into new vehicles. Safety improvements will likely continue regardless of changes to CAFE standards.

As discussed in Section III.E.2, technologies added to comply with fuel economy standards have an impact on vehicle prices, therefore slowing the acquisition of newer vehicles and retirement of older ones. The delay in fleet turnover caused by the effect of new vehicle prices affect safety by slowing the penetration of new safety technologies into the fleet.

The standards also influence the composition of the light-duty fleet. As the safety provided by light trucks, SUVs and passenger cars responds differently to technology that manufacturers employ to meet the standards—particularly mass reduction—fleets with different compositions of body styles will have varying numbers of fatalities, so changing the share of each type of light-duty vehicle in the projected future fleet impacts safety outcomes.

3. Increased driving because of better fuel economy. The “rebound effect” predicts consumers will drive more when the cost of driving declines. More stringent standards reduce vehicle operating costs, and in response, some consumers may choose to drive more. Additional driving increases exposure to risks associated with motor vehicle travel, and this added exposure translates into higher fatalities and injuries.

The contributions of the three factors described above generate the differences in safety outcomes among regulatory alternatives.³⁶⁹ The agency's analysis makes extensive efforts to allocate the differences in safety outcomes between the three factors. Fatalities expected during future years under each alternative are projected by deriving a fleet-wide fatality rate (fatalities per vehicle mile of travel) that incorporates the effects of differences in each of the three factors from baseline conditions and multiplying it by that alternative's expected VMT. Fatalities are converted

³⁶⁹ The terms safety performance and safety outcome are related but represent different concepts. When we use the term safety performance, we are discussing the intrinsic safety of a vehicle based on its design and features, while safety outcome is used to describe whether a vehicle has been involved in an accident and the severity of the accident. While safety performance influences safety outcomes, other factors such as environmental and behavioral characteristics also play a significant role.

into a societal cost by multiplying fatalities with the DOT-recommended value of a statistical life (VSL) supplemented by economic impacts that are external to VSL measurements. Traffic injuries and property damage are also modeled directly using the same process and valued using costs that are specific to each injury severity level.

All three factors influence predicted fatalities, but only two of them—changes in vehicle mass and in the composition of the light-duty fleet in response to changes in vehicle prices—impose increased risks on drivers and passengers that are not compensated for by accompanying benefits. In contrast, increased driving associated with the rebound effect is a consumer choice that reveals the benefit of additional travel. Consumers who choose to drive more have apparently concluded that the utility of additional driving exceeds the additional costs for doing so, including the crash risk that they perceive additional driving involves. As discussed in Chapter 7 of the accompanying Technical Support Document, the benefits of rebound driving are accounted for by offsetting a portion of the added safety costs.

The agency categorizes safety outcome through three measures of light-duty vehicle safety: Fatalities to occupants occurring in crashes, serious injuries sustained by occupants, and the number of vehicles involved in crashes that cause property damage but no injuries. Counts of fatalities to occupants of automobiles and light trucks are obtained from the agency's Fatal Accident Reporting System (FARS). Estimates of the number of serious injuries to drivers and passengers of light-duty vehicles are tabulated from the agency's General Estimates System (GES), an annual sampling of motor vehicle crashes occurring throughout the U.S. Weights for different types of crashes were used to expand the samples of each type to estimates of the total number of crashes occurring during each year. Finally, estimates of the number of automobiles and light trucks involved in property damage-only (PDO) crashes each year were also developed using GES. NHTSA seeks comment on the following discussion.

1. Mass Reduction Impacts

Vehicle mass reduction can be one of the more cost-effective means of improving fuel economy, particularly for makes and models not already built with much high-strength steel or aluminum closures or low-mass components. Manufacturers have stated that they will continue to reduce vehicle

mass to meet more stringent standards, and therefore, this expectation is incorporated into the modeling analysis supporting the standards. Safety trade-offs associated with mass-reduction have occurred in the past, particularly before CAFE standards were attribute-based; past safety trade-offs may have occurred because manufacturers chose at the time, in response to CAFE standards, to build smaller and lighter vehicles. In cases where fuel economy improvements were achieved through reductions in vehicle size and mass, the smaller, lighter vehicles did not fare as well in crashes as larger, heavier vehicles, on average. Although The agency now uses attribute-based standards, in part to reduce or eliminate the incentive to downsize vehicles to comply with CAFE standards, the agency must be mindful of the possibility of related safety trade-offs.

For this proposed rule, the agency employed the modeling technique developed in the 2016 Puckett and Kindelberger report to analyze the updated crash and exposure data by examining the cross sections of the societal fatality rate per billion vehicle miles of travel (VMT) by mass and footprint, while controlling for driver age, gender, and other factors, in separate logistic regressions for five vehicle groups and nine crash types.³⁷⁰ The agency utilized the relationships between weight and safety from this analysis, expressed as percentage increases in fatalities per 100-pound weight reduction (which is how mass reduction is applied in the technology analysis; see Section III.D.4), to examine the weight impacts applied in this CAFE analysis. The effects of mass reduction on safety were estimated relative to (incremental to) the regulatory baseline in the CAFE analysis, across all vehicles for MY 2021 and beyond.

In computing the impact of changes in mass on safety, the agency is faced with competing challenges. Research has consistently shown that mass reduction affects “lighter” and “heavier” vehicles differently across crash types. The 2016 Puckett and Kindelberger report found mass reduction concentrated among the heaviest vehicles is likely to have a beneficial effect on overall societal fatalities, while mass reduction concentrated among the lightest vehicles is likely to have a detrimental effect on fatalities. This represents a relationship between the dispersion of

mass across vehicles in the fleet and societal fatalities: Decreasing dispersion is associated with a decrease in fatalities. Mass reduction in heavier vehicles is more beneficial to the occupants of lighter vehicles than it is harmful to the occupants of the heavier vehicles. Mass reduction in lighter vehicles is more harmful to the occupants of lighter vehicles than it is beneficial to the occupants of the heavier vehicles.

To accurately capture the differing effect on lighter and heavier vehicles, the agency splits vehicles into lighter and heavier vehicle classifications in the analysis. However, this poses a challenge of creating statistically meaningful results. There is limited relevant crash data to use for the analysis. Each partition of the data reduces the number of observations per vehicle classification and crash type, and thus reduces the statistical robustness of the results. The methodology employed by the agency was designed to balance these competing forces as an optimal trade-off to accurately capture the impact of mass-reduction across vehicle curb weights and crash types while preserving the potential to identify robust estimates.

Comments on the NPRM (83 FR 42986, August 24, 2018) for the 2020 CAFE rule included suggestions that the sample of LTVs in the analysis should not include the medium- or heavy-duty (*i.e.*, truck-based vehicles with GVWR above 8,500 pounds) equivalents of light-duty vehicles in the sample (*e.g.*, Ford F-250 versus F-150, RAM 2500 versus RAM 1500, Chevrolet Suburban 2500 versus Chevrolet Suburban 1500), or Class 2b and 3 vehicles. For the proposal, NHTSA explored revising the analysis consistent with such comments. The process involved two key analytical steps: (1) Removing all case vehicles from the analysis whose GVWR exceeded 8,500 pounds; and (2) re-classifying all crash partners with GVWR above 8,500 pounds as heavy vehicles. The direct effects of these changes are: (1) The range of curb weights in the LTV sample is reduced, lowering the median curb weight from 5,014 pounds to 4,808 pounds; (2) the sample size of LTVs is reduced (the number of case LTVs under this alternative specification is approximately 18 percent lower than in the central analysis); and (3) the relative impact of crashes with LTVs on overall impacts on societal fatality rates decreases, while the corresponding impact of crashes with heavy vehicles increases.

The results from the exploratory analysis of this alternative approach are provided in Table III-41. The agency seeks comment on this alternative approach; public comment will inform the decision whether to incorporate the results into the CAFE Model. The primary functional change offered by the alternative approach is that the sample of vehicles classified as LTVs would be restricted to vehicles that would be subject to CAFE regulations. At the statistical level, the concerns raised in the agency’s response to comment on the 2018 CAFE NPRM remain. In particular, including Class 2b and 3 vehicles in the analysis to determine the relationship of vehicle mass on safety has the added benefit of improving correlation constraints. Notably, curb weight increases faster than footprint for large light trucks and Class 2b and 3 pickup trucks and SUVs, in part because the widths of vehicles are constrained more tightly (*i.e.*, due to lane widths) than their curb weights. Including data from Class 2b and 3 pickup truck and SUV fatal crashes provides data over a wider range of vehicle weights, which improves the ability to estimate the mass-crash fatality relationship. That is, by extending the footprint-curb weight-fatality data to include Class 2b and 3 trucks that are functionally and structurally similar to corresponding ½-ton models that are subject to CAFE regulation, the sample size and ranges of curb weights and footprint are improved. Sample size is a challenge for estimating relationships between curb weight and fatality risk for individual crash types in the main analysis; dividing the sample further or removing observations makes it increasingly difficult to identify meaningful estimates and the relationships that are present in the data, as shown in the sensitivity analysis below. For the proposal, the agency has determined that the benefit of the additional data points outweighs the concern that some of the vehicles used to determine the mass-safety coefficients are not regulated by CAFE vehicles.

The agency also explored three other alternative model specifications that are presented in Table III-41. The first alternative centers on aligning CUVs and minivans with the rest of the sample, by splitting these vehicles into two weight classes. The key factor restricting this change historically has been a low sample size for these vehicles; the exploratory analysis examined whether the current database (which, due to the range of CYs covered, contains a smaller share of CUVs and

³⁷⁰Puckett, S.M. and Kindelberger, J.C. (2016, June). Relationships between Fatality Risk, Mass, and Footprint in Model Year 2003–2010 Passenger Cars and LTVs—Preliminary Report. (Docket No. 2016–0068). Washington, DC: National Highway Traffic Safety Administration.

minivans than the current fleet) contains a sufficient sample size to evaluate two weight classes for CUVs and minivans. A complicating factor in this analysis is that minivans tend to have higher curb weights than other CUVs, adding statistical burden in identifying meaningful effects of mass on societal fatality rates after accounting for body type in the weight class with the fewest minivans (*i.e.*, lighter CUVs and minivans).

The second alternative centers on aligning passenger cars with the rest of the sample by including cars that are equipped with all-wheel drive (AWD). In previous analyses, passenger cars with AWD were excluded from the analysis because they represented a sufficiently low share of the vehicle fleet that statistical relationships between AWD status and societal

fatality risk were highly prone to being conflated with other factors associated with AWD status (*e.g.*, location, luxury vehicle status). However, the share of AWD passenger cars in the fleet has grown. Approximately one-quarter of the passenger cars in the database have AWD, compared to an approximately five-percent share in the MY 2000–2007 database. Furthermore, all other vehicle types in the analysis include AWD as an explanatory variable. Thus, the agency finds the inclusion of a considerable portion of the real-world fleet (*i.e.*, passenger cars with AWD) to be a meaningful consideration.

The third alternative is a minor procedural question: Whether to expand the CYs and MYs used to identify the distribution of fatalities across crash types. The timing of the safety databases places the years of the analysis used to

establish the distribution of fatalities by crash type firmly within the central years of the economic downturn of the late 2000s and early 2010s. During these years, travel demand was below long-term trends, resulting in fewer crashes. In turn, applying the same window of CYs and MYs to the identification of the distribution of fatalities across crash types results in notably fewer crashes to incorporate into the analysis. The agency conducted exploratory analysis on the question of whether to add CYs and MYs to the range of crashes used to identify the distribution of fatalities across crash types; this analysis was conducted in concert with the two alternatives discussed directly above. Results incorporating these three alternatives are presented in Table III–41.

Table III-41 – Fatality Increase (%) per 100-Pound Mass Reduction While Holding Footprint Constant with Alternative Model Specifications - MY 2004-2011, CY 2006-2012

Vehicle Class	Point Estimates, Fatalities Weighted Across MY 2008-2011 in CY 2008-2012 (Original Weights)	Point Estimates, Fatalities Weighted Across MY 2007-2011 in CY 2007-2012	Point Estimates, Fatalities Weighted Across MY 2006-2011 in CY 2006-2012	Point Estimates, Fatalities Weighted Across MY 2004-2011 in CY 2006-2012 (Full Sample)
Cars < 3,201 Pounds (including AWD)	1.12%	1.12%	1.11%	1.12%
Cars 3,201+ Pounds (including AWD)	0.89%	0.87%	0.84%	0.86%
LTVs < 4,808 Pounds (No Class 2b/3)	0.26%	0.26%	0.26%	0.29%
LTVs 4,808+ Pounds (No Class 2b/3)	-0.16%	-0.17%	-0.16%	-0.17%
CUVs and Minivans < 3,955 Pounds	0.20%	0.19%	0.18%	0.18%
CUVs and Minivans 3,955+ Pounds	-0.52%	-0.52%	-0.53%	-0.51%

Under the alternative specification excluding Class 2b and Class 3 truck-based vehicles as case vehicles, the median curb weight for LTVs is 4,808 pounds, or 206 pounds lighter than in the central analysis. When splitting CUVs and minivans into two weight classes, the median curb weight for the vehicles is 3,955 pounds. Under this alternative specification, where Class 2b and Class 3 truck-based crash partners are shifted from truck-based LTVs to heavy-duty vehicles, the median curb weight for LTV crash partners is 4,216

pounds, or 144 pounds lighter than in the central analysis.

Re-classifying Class 2b and Class 3 truck-based vehicles has a strong effect on the point estimate for heavier LTVs. Critically, removing the heaviest trucks as case vehicles yields a much smaller point estimate (reduction in societal fatality rates of between 0.16% and 0.17% per 100-pound mass reduction, versus 0.61% in the central analysis). This result is consistent with a relationship where a key share of the sensitivity of fatality risk is attributed to the mass of the heaviest vehicles in the

fleet (*i.e.*, supporting the role of mass dispersion in societal fatality rates). Importantly, the point estimate for lighter LTVs is not meaningfully different from the corresponding estimate in the central analysis (increase in societal fatality rates of between 0.26% and 0.29% per 100-pound mass reduction, versus 0.3% in the central analysis). Considered in concert, these results indicate that the most effective reductions in societal fatality rates via mass reduction in truck-based vehicles would arise not from lightweighting the heaviest vehicles subject to CAFE

regulation, but rather from lightweighting similar, medium- and heavy-duty vehicles.

Including passenger cars with AWD in the analysis has little effect on the point estimate for lighter passenger cars (increase in societal fatality rates of approximately 1.1% per 100-pound mass reduction, versus 1.2% in the central analysis). However, this revision has a strong effect on the point estimate for heavier passenger cars (increase in societal fatality rates of between 0.84% and 0.89% per 100-pound mass reduction, versus 0.42% in the central analysis). This result supports a hypothesis that, after taking AWD status into account, mass reduction in heavier passenger cars is a more important driver of societal fatality rates than previously estimated. Although this result could be spurious, estimated confidence bounds (presented below) indicate that accounting for AWD status reduces uncertainty in the point estimate. The agency seeks comment on the inclusion of passenger cars with AWD when estimating the effects of mass reduction on societal fatality rates.

Splitting CUVs and minivans into two vehicle classes yields point estimates that are consistent with the point estimate for the consolidated CUV-minivan vehicle class (an average decrease in societal fatality rates of approximately 0.16% to 0.18% per 100-pound mass reduction across the two vehicle classes, versus a decrease of 0.25% in the central analysis). However, sample sizes half as large in the two vehicle classes relative to the consolidated vehicle class lead to very large estimated confidence bounds, as shown below. Due to this uncertainty, the agency does not feel that the current databases contain a large enough sample of CUVs and minivans to split these vehicles into two classes in the analysis; however, this issue will be re-examined when the next iteration of the databases is complete.

Extending the range of CYs and MYs used to establish the distribution of fatalities across crash types has a negligible effect on the point estimates. Based on the narrow ranges of results in Table III–41, the agency finds evidence supporting a flexible approach in the choice of CYs and MYs used in this manner. All else being equal, extending the range helps to mitigate the potential for individual crash types with large estimated effects to drive spurious effects on overall estimates through unrepresentatively high estimated shares of overall fatalities. As a hedge in this direction, the agency applied the estimates from the alternative specification with two additional CYs

and MYs (*i.e.*, the second column from the right in Table III–41) when evaluating 95-percent confidence bounds for the alternative models considered here. The agency seeks comment on this approach to representing the distribution of fatalities across crash types.

A more detailed description of the mass-safety analysis can be found in Chapter 7 of the accompanying TSD.

2. Sales/Scrapage Impacts

The sales and scrapage responses to higher vehicle prices discussed in Section III.E.2 have important safety consequences and influence safety through the same basic mechanism, fleet turnover. In the case of the scrapage response, delaying fleet turnover keeps drivers in older vehicles which tend to be less safe than newer vehicles.³⁷¹ Similarly, the sales response slows the rate at which newer vehicles, and their associated safety improvements, enter the on-road population. The sales response also influences the mix of vehicles on the road—with more stringent CAFE standards leading to a higher share of light trucks sold in the new vehicle market, assuming all else is equal. This occurs because there is diminishing value to marginal improvements in fuel economy (there are fewer gallons to be saved), and as the difference in consumption between light trucks and passenger cars diminishes, the other attributes of the trucks will likely lead to increases in their market share—especially under lower gas prices. Light trucks have higher rates of fatal crashes when interacting with passenger cars and, as earlier discussed, different directional responses to mass reduction technology based on the existing mass and body style of the vehicle.

Any effects on fleet turnover (either from delayed vehicle retirement or deferred sales of new vehicles) will affect the distribution of both ages and model years present in the on-road fleet. Because each of these vintages carries with it inherent rates of fatal crashes, and newer vintages are generally safer than older ones, changing that distribution will change the total number of on-road fatalities under each regulatory alternative. Similarly, the dynamic fleet share model captures the

³⁷¹ See Passenger Vehicle Occupant Injury Severity by Vehicle Age and Model Year in Fatal Crashes, Traffic Safety Facts Research Note, DOT–HS–812–528, National Highway Traffic Safety Administration, April, 2018, and The Relationship Between Passenger Vehicle Occupant Injury Outcomes and Vehicle Age or Model Year in Police-Reported Crashes, Traffic Safety Facts Research Note, DOT–HS–812–937, National Highway Traffic Safety Administration, March, 2020.

changes in the fleet's composition of cars and trucks. As cars and trucks have different fatality rates, differences in fleet composition across the alternatives will affect fatalities.

At the highest level, the agency calculates the impact of the sales and scrapage effects by multiplying the VMT of a vehicle by the fatality risk of that vehicle. For this analysis, calculating VMT is rather simple: The agency uses the distribution of miles calculated in TSD Chapter 4.3. The trickier aspect of the analysis is creating fatality rate coefficients. The fatality risk measures the likelihood that a vehicle will be involved in a fatal accident per mile driven. The agency calculates the fatality risk of a vehicle based on the vehicle's model year, age, and style, while controlling for factors which are independent of the intrinsic nature of the vehicle, such as behavioral characteristics. Using this same approach, the agency designed separate models for fatalities, non-fatal injuries, and property damaged vehicles.

The fatality risk projections described above capture the historical evolution of safety. Given that modern technologies are proliferating faster than ever and offer greater safety benefits than traditional safety improvements, the agency augmented the fatality risk projections with knowledge about forthcoming safety improvements. The agency applied detailed empirical estimates of the market uptake and improving effectiveness of crash avoidance technologies to estimate their effect on the fleet-wide fatality rate, including explicitly incorporating both the direct effect of those technologies on the crash involvement rates of new vehicles equipped with them, as well as the “spillover” effect of those technologies on improving the safety of occupants of vehicles that are not equipped with these technologies.³⁷²

The agency's approach to measuring these impacts is to derive effectiveness rates for these advanced crash-avoidance technologies from safety technology literature. The agency then applies these effectiveness rates to specific crash target populations for

³⁷² These technologies included Forward Collision Warning (FCW), Crash Imminent Braking (CIB), Dynamic Brake Support (DBS), Pedestrian AEB (PAEB), Rear Automatic Braking, Semi-automatic Headlamp Beam Switching, Lane Departure Warning (LDW), Lane Keep Assist (LKA), and Blind Spot Detection (BSD). While Autonomous vehicles offer the possibility of significantly reducing or eventually even eliminating the effect of human error in crash causation, a contributing factor in roughly 94% of all crashes, there is insufficient information and certainty regarding autonomous vehicles eventual impact to include them in this analysis.

which the crash avoidance technology is designed to mitigate and adjusted to reflect the current pace of adoption of the technology, including the public commitment by manufacturers to install these technologies. The products of these factors, combined across all 6 advanced technologies, produce a fatality rate reduction percentage that is applied to the fatality rate trend model discussed above, which projects both vehicle and non-vehicle safety trends. The combined model produces a projection of impacts of changes in vehicle safety technology as well as behavioral and infrastructural trends. A much more detailed discussion of the methods and inputs used to make these projections of safety impacts from advanced technologies is included in Chapter 7 of the accompanying TSD.

3. Rebound Effect Impacts

The additional VMT demanded due to the rebound effect is accompanied by more exposure to risk, however, rebound miles are not imposed on consumers by regulation. They are a freely chosen activity resulting from reduced vehicle operational costs. As such, the agencies believe a large portion of the safety risks associated with additional driving are offset by the benefits drivers gain from added driving. The level of risk internalized by drivers is uncertain. This analysis assumes that consumers internalize 90 percent of this risk, which mostly offsets the societal impact of any added fatalities from this voluntary consumer

choice. Additional discussion of internalized risk is contained in TSD Chapter 7.4.

4. Value of Safety Impacts

Fatalities, nonfatal injuries, and property damage crashes are valued as a societal cost within the CAFE Model's cost and benefit accounting. Their value is based on the comprehensive value of a fatality, which includes lost quality of life and is quantified in the value of a statistical life (VSL) as well as economic consequences such as medical and emergency care, insurance administrative costs, legal costs, and other economic impacts not captured in the VSL alone. These values were derived from data in Blincoe et al. (2015), adjusted to 2018 dollars, and updated to reflect the official DOT guidance on the value of a statistical life. Nonfatal injury costs, which differ by severity, were weighted according to the relative incidence of injuries across the Abbreviated Injury Scale (AIS). To determine this incidence, the agency applied a KABCO³⁷³/maximum abbreviated injury scale (MAIS) translator to GES KABCO based injury counts from 2010 through 2015. This produced the MAIS based injury profile. This profile was used to weight nonfatal

³⁷³The "KABCO" injury scale also can be used for establishing crash costs. This scale was developed by the National Safety Council (NSC) and is frequently used by law enforcement for classifying injuries: K—Fatal; A—Incapacitating injury; B—Non-incapacitating injury; C—Possible injury; and O—No injury.

injury unit costs derived from Blincoe et al., adjusted to 2018 economics and updated to reflect the official DOT guidance on the value of a statistical life. Property-damaged vehicle costs were also taken from Blincoe et al. and adjusted to 2018 economics. VSL does not affect property damage. This gives societal values of \$10.8 million for each fatality, \$132,000 for each nonfatal injury, and \$7,100 for each property damaged vehicle.

5. Impacts of the Proposal on Safety

Table III–42 through Table III–44 summarize the safety impacts of the proposed standards on safety broken down by factor. These impacts are summarized over the lifetimes of model year 1981 through 2029 vehicles for all light passenger vehicles (including passenger cars and light trucks). Economic impacts are shown separately under both 3% and 7% discount rates. Model years 1981 through 2029 were examined because they represent the model years that might be affected by shifts in fleet composition due to the impact of higher new vehicle prices on sales of new vehicles and retention of older vehicles. Earlier years will be affected by slower scrappage rates and we expect the impacts of these standards will be fully realized in vehicle designs by MY 2029.

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Table III-42 – Change in Safety Parameters from Alternative 0 (Baseline) for MY 1981-2029 for Total Fleet, 3% Percent Discount Rate, by Alternative

Alternative:	1	2	3
Fatalities			
Fatalities from Mass Changes	64	115	142
Fatalities from Rebound Effect	449	584	801
Fatalities from Sales/Scrappage	506	1,123	1,681
Total Changes in Fatalities	1,019	1,822	2,624
Fatality Costs (\$b)			
Fatality Costs from Mass Changes	0.4	0.8	1.0
Fatality Costs from Rebound Effect	3.0	3.9	5.4
Fatality Costs from Sales/Scrappage	4.4	9.8	14.8
Total - Fatality Costs (\$b)	7.8	14.5	21.1
Non-Fatal Crash Costs (\$b)			
Non-Fatal Crash Costs from Mass Changes	0.5	0.9	1.1
Non-Fatal Crash Costs from Rebound Effect	3.2	4.3	5.9
Non-Fatal Crash Costs from Sales/Scrappage	1.2	2.8	4.1
Total - Non-Fatal Crash Costs (\$b)	4.9	8.0	11.1
Property Damage Costs (\$b)			
Property Damage Costs from Mass Changes	0.1	0.2	0.2
Property Damage Costs from Rebound Effect	0.7	0.9	1.2
Property Damage Costs from Sales/Scrappage	0.2	0.5	0.7
Total - Property Damage Costs (\$b)	1.0	1.6	2.2
Total Crash Costs (\$b)			
Crash Costs from Mass Changes	1.0	1.9	2.3
Crash Costs from Rebound Effect	6.9	9.1	12.5
Crash Costs from Sales/Scrappage	5.8	13.0	19.6
Total - Societal Crash Costs (\$b)	13.7	24.0	34.4

Table III-43 – Change in Safety Parameters from Alternative 0 (Baseline) for MY 1981-2029 for Total Fleet, 7% Percent Discount Rate, by Alternative

Alternative:	1	2	3
Fatalities			
Fatalities from Mass Changes	64	115	142
Fatalities from Rebound Effect	449	584	801
Fatalities from Sales/Scrappage	506	1,123	1,681
Total Changes in Fatalities	1,019	1,822	2,624
Fatality Costs (\$b)			
Fatality Costs from Mass Changes	0.3	0.5	0.6
Fatality Costs from Rebound Effect	1.7	2.2	3.1
Fatality Costs from Sales/Scrappage	3.3	7.2	11.0
Total - Fatality Costs (\$b)	5.2	9.9	14.7
Non-Fatal Crash Costs (\$b)			
Non-Fatal Crash Costs from Mass Changes	0.3	0.6	0.7
Non-Fatal Crash Costs from Rebound Effect	2.0	2.7	3.7
Non-Fatal Crash Costs from Sales/Scrappage	1.0	2.3	3.5
Total - Non-Fatal Crash Costs (\$b)	3.3	5.6	7.9
Property Damage Costs (\$b)			
Property Damage Costs from Mass Changes	0.1	0.1	0.1
Property Damage Costs from Rebound Effect	0.4	0.6	0.8
Property Damage Costs from Sales/Scrappage	0.2	0.4	0.6
Total - Property Damage Costs (\$b)	0.7	1.1	1.5
Total Crash Costs (\$b)			
Crash Costs from Mass Changes	0.6	1.2	1.4
Crash Costs from Rebound Effect	4.1	5.5	7.5
Crash Costs from Sales/Scrappage	4.5	9.9	15.1
Total - Societal Crash Costs (\$b)	9.2	16.6	24.0

Table III-44 – Change in Non-Fatal Safety Parameters from Alternative 0 (Baseline) for MY 1981-2029 for Total Fleet, by Alternative

Alternative:	1	2	3
Non-Fatal Injuries			
Non-Fatal Injuries from Mass Changes	5,537	10,048	12,377
Non-Fatal Injuries from Rebound Effect	36,587	48,618	66,522
Non-Fatal Injuries from Sales/Scrappage	9,723	22,269	32,249
Total Changes in Non-Fatal Injuries	51,847	80,936	111,147
Property Damaged Vehicles			
Property Damaged Vehicles from Mass Changes	21,195	38,471	47,389
Property Damaged Vehicles from Rebound Effect	139,798	185,800	254,194
Property Damaged Vehicles from Sales/Scrappage	29,900	69,638	99,711
Total Changes in Property Damaged Vehicles	190,892	293,909	401,294

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As seen in the tables, all three safety factors—changes in mass, fleet turnover, and rebound—increase as the standards become more stringent. As expected, rebound fatalities grow at a constant rate as vehicles become more fuel efficient and are used more frequently. Mass reduction has a relatively minimal impact on safety and diminishes as stringency increases. This may point to either the fleet becoming more homogeneous and hence less mass disparate in crashes. Alternatively, the model may be capturing that there’s little room for more mass reductions in particular models. The slowing of fleet turnover due to higher vehicle prices has the largest impact of the three factors and accelerates with higher alternatives. Of course, if the agency’s assumptions overstate the rebound effect and/or slower fleet turnover, fatalities, injuries and property damage would be lower, and vice versa.

PRIA Chapter 5.5 discusses the results of the analysis in more detail and PRIA Chapter 5.6—Safety Impacts provides an overview of sensitivity analyses performed to isolate the uncertainty parameters of each of the three safety impacts.

IV. Regulatory Alternatives Considered in this NPRM

A. Basis for Alternatives Considered

Agencies typically consider regulatory alternatives in proposals as a way of evaluating the comparative effects of

different potential ways of accomplishing their desired goal. NEPA requires agencies to compare the potential environmental impacts of their proposed actions to those of a reasonable range of alternatives. Executive Orders 12866 and 13563, as well as OMB Circular A-4, also encourage agencies to evaluate regulatory alternatives in their rulemaking analyses.

Alternatives analysis begins with a “no-action” alternative, typically described as what would occur in the absence of any regulatory action. This proposal includes a no-action alternative, described below, and three “action alternatives.” The proposed standards may, in places, be referred to as the “preferred alternative,” which is NEPA parlance, but NHTSA intends “proposal” and “preferred alternative” to be used interchangeably for purposes of this rulemaking.

Regulations regarding implementation of NEPA require agencies to “rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.” This does not amount to a requirement that agencies evaluate the widest conceivable spectrum of alternatives. Rather, the range of alternatives must be reasonable and consistent with the purpose and need of the action.

The different regulatory alternatives are defined in terms of percent-increases in CAFE stringency from year to year. Readers should recognize that those year-over-year changes in stringency are not measured in terms of mile per gallon differences (as in, 1 percent more stringent than 30 miles per gallon in one year equals 30.3 miles per gallon in the following year), but rather in terms of shifts in the footprint functions that form the basis for the actual CAFE standards (as in, on a gallon per mile basis, the CAFE standards change by a given percentage from one model year to the next). Under some alternatives, the rate of change is the same from year to year, while under others, it differs, and under some alternatives, the rate of change is different for cars and for trucks. One action alternative is more stringent than the proposal, while one is less stringent than the proposal. The alternatives considered in this proposal represent a reasonable range of possible final agency actions.

B. Regulatory Alternatives and Proposed CAFE Standards for MYs 2024–2026

The regulatory alternatives for this proposal are presented here as the percent-increases-per-year that they represent. The sections that follow will present the alternatives as the literal coefficients which define standards curves increasing at the given percentage rates and will also further explain the basis for the alternatives selected.

Table IV-1 – Regulatory Alternatives Considered in this Proposal

Regulatory Alternative	Year-Over-Year Stringency Increases (Passenger Cars)			Year-Over-Year Stringency Increases (Light Trucks)		
	2024	2025	2026	2024	2025	2026
Alternative 0 (No Action)	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Alternative 1	9.14%	3.26%	3.26%	11.02%	3.26%	3.26%
Alternative 2 (Preferred)	8%	8%	8%	8%	8%	8%
Alternative 3	10%	10%	10%	10%	10%	10%

As for past rulemaking analyses, NHTSA has analyzed each of the regulatory alternatives in a manner that estimates manufacturers' potential application of technology in response to the corresponding CAFE requirements and the estimated market demand for fuel economy, considering estimated fuel prices, estimated product development cadence, and the estimated availability, applicability, cost, and effectiveness of fuel-saving technologies. The analysis sometimes shows that specific manufacturers could increase CAFE levels beyond requirements in ways estimated to "pay buyers back" very quickly (*i.e.*, within 30 months) for the corresponding additional costs to purchase new vehicles through avoided fuel outlays. Consistent with the analysis published with the 2020 final rule, this analysis shows that if battery costs decline as projected while fuel prices increase as projected, BEVs should become increasingly attractive on this basis, such that the modeled application of

BEVs (and some other technologies) clearly outstrips regulatory requirements after the mid-2030s.

The analysis accompanying the 2020 final rule presented such results for CAFE standards as well as—separately—CO₂ standards. New in this proposal, DOT has modified the CAFE Model to account for the *combined* effect of both CAFE and CO₂ standards, simulating technology application decisions each manufacturer could possibly make when faced with both CAFE standards and CO₂ standards (and also estimated market demand for fuel economy). This capacity was exercised for purposes of creating the baseline against which alternatives were analyzed, but not for purposes of modeling compliance with both agencies' proposals. Also, new for this proposal, DOT has further modified the CAFE Model to account for the "Framework" agreements California has reached with BMW, Ford, Honda, Volkswagen, and Volvo, and for the ZEV mandate that California and the "Section 177" states have adopted. The

TSD elaborates on these new model capabilities. Generally speaking, the model treats each manufacturer as applying the following logic when making technology decisions:

1. What do I need to carry over from last year?
2. What should I apply more widely in order to continue sharing (of, *e.g.*, engines) across different vehicle models?
3. What new PHEVs or BEVs do I need to build in order to satisfy the ZEV mandates?
4. What further technology, if any, could I apply that would enable buyers to recoup additional costs within 30 months after buying new vehicles?
5. What additional technology, if any, should I apply in order to respond to CAFE and CO₂ standards?

All of the regulatory alternatives considered here include, for passenger cars, the following coefficients defining the combination of baseline Federal CO₂ standards and the California Framework agreement.

Table IV-2 – Passenger Car CO₂ Target Function Coefficients

	2022	2023	2024	2025	2026
<i>a</i> (g/mi)	159	156	154	151	149
<i>b</i> (g/mi)	217	214	210	207	203
<i>c</i> (g/mi per s.f.)	3.88	3.82	3.77	3.71	3.65
<i>d</i> (g/mi)	-0.1	-0.4	-0.6	-0.9	-1.2
<i>e</i> (s.f.)	41	41	41	41	41
<i>f</i> (s.f.)	56	56	56	56	56
<i>g</i> (g/mi)	151	146	140	135	130
<i>h</i> (g/mi)	207	199	192	185	178
<i>i</i> (g/mi per s.f.)	3.70	3.56	3.43	3.30	3.18
<i>j</i> (g/mi)	-0.4	-0.4	-0.4	-0.3	-0.3

Coefficients *a*, *b*, *c*, *d*, *e*, and *f* define the current Federal CO₂ standards for passenger cars. Analogous to

coefficients defining CAFE standards, coefficients *a* and *b* specify minimum and maximum passenger car CO₂ targets

in each model year. Coefficients *c* and *d* specify the slope and intercept of the linear portion of the CO₂ target function,

and coefficients *e* and *f* bound the region within which CO₂ targets are defined by this linear form. Coefficients *g*, *h*, *i*, and *j* define the CO₂ targets applicable to BMW, Ford, Honda,

Volkswagen, and Volvo, pursuant to the agreement these manufacturers have reached with California. Beyond 2026, the MY 2026 Federal standards apply to all manufacturers, including these five

manufacturers. The coefficients shown in Table IV–3 define the corresponding CO₂ standards for light trucks.

Table IV-3 – Light Truck CO₂ Target Function Coefficients

	2022	2023	2024	2025	2026
<i>a</i> (g/mi)	203	200	196	193	190
<i>b</i> (g/mi)	324	319	314	309	304
<i>c</i> (g/mi per s.f.)	4.44	4.37	4.31	4.23	4.17
<i>d</i> (g/mi)	20.6	20.2	19.6	19.6	19.0
<i>e</i> (s.f.)	41	41	41	41	41
<i>f</i> (s.f.)	74	74	74	74	74
<i>g</i> (g/mi)	188	181	175	168	162
<i>h</i> (g/mi)	322	310	299	288	277
<i>i</i> (g/mi per s.f.)	4.12	3.97	3.82	3.68	3.54
<i>j</i> (g/mi)	19.1	18.4	17.7	17.0	16.4

All of the regulatory alternatives considered here also include NHTSA’s estimates of ways each manufacturer could introduce new PHEVs and BEVs in response to ZEV mandates. As discussed in greater detail below, these

estimates force the model to convert specific vehicle model/configurations to either a BEV200, BEV300, or BEV400 at the earliest estimated redesign. These “ZEV Candidates” define an *incremental* response to ZEV mandates

(*i.e.*, beyond PHEV and BEV production through MY 2020) comprise the following shares of manufacturers’ MY 2020 production for the U.S. market as shown in Table IV–4.

Table IV-4 – ZEV “Candidates” as Share of MY 2020 Production

Manufacturer	BEV200	BEV300	BEV400
BMW		1.9%	
Daimler	2.6%		0.8%
FCA		1.1%	
Ford	0.1%	1.1%	
GM		1.0%	
Honda		1.8%	
Hyundai		1.3%	
Kia	1.7%	0.5%	
Jaguar – Land Rover	0.2%	1.4%	
Mazda	3.1%		
Mitsubishi	0.6%	1.2%	
Nissan		0.5%	
Subaru		2.2%	
Tesla			
Toyota	1.2%	0.7%	
Volvo	2.3%	0.7%	
VWA		1.5%	

For example, while Tesla obviously need not introduce additional BEVs to comply with ZEV mandates, our

analysis indicates Nissan could need to increase BEV offerings modestly to do so, and Mazda and some other

manufacturers may need to do considerably more than Nissan to introduce new BEV offerings.

This representation of CO₂ standards and ZEV mandates applies equally to all regulatory alternatives, and NHTSA's analysis applies the CAFE Model to examine each alternative treating each manufacturer as responding jointly to the entire set of requirements. This is distinct from model application of BEVs for compliance purposes under the compliance simulations of the different action alternatives which inform decision-makers regarding potential effects of the standards.

Chapter 1 of the TSD contains extensive discussion of the development

of the No-Action Alternative, and explains the reasons for and effect of apparent "over-compliance" with the No-Action Alternative, which reduces costs and benefits attributable to the proposed CAFE standards and other action alternatives. NHTSA seeks comment broadly on that discussion and whether and how to change its approach to developing the No-Action Alternative for the final rule. NHTSA also specifically seeks comment on whether and how to add to the No-Action Alternative for the final rule an estimation of GHG standards that

California and the Section 177 states might separately enforce if California's waiver of CAA preemption was re-established.

1. No-Action Alternative

The No-Action Alternative (also sometimes referred to as "Alternative 0") applies the CAFE target curves set in 2020 for MYs 2024–2026, which raised stringency by 1.5 percent per year for both passenger cars and light trucks.

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Table IV-5 – Characteristics of No-Action Alternative – Passenger Cars

	2024	2025	2026
<i>a (mpg)</i>	51.78	52.57	53.37
<i>b (mpg)</i>	38.74	39.33	39.93
<i>c (gpm per s.f.)</i>	0.000433	0.000427	0.000420
<i>d (gpm)</i>	0.00155	0.00152	0.00150

Table IV-6 – Characteristics of No-Action Alternative – Light Trucks

	2024	2025	2026
<i>a (mpg)</i>	41.55	42.18	42.82
<i>b (mpg)</i>	26.82	27.23	27.64
<i>c (gpm per s.f.)</i>	0.000484	0.000477	0.000469
<i>d (gpm)</i>	0.00423	0.00417	0.00410

These equations are presented graphically in Figure IV-1 and Figure IV-2, where the x-axis represents

vehicle footprint and the y-axis represents fuel economy, showing that in "CAFE space," targets are higher in

fuel economy for smaller footprint vehicles and lower for larger footprint vehicles.

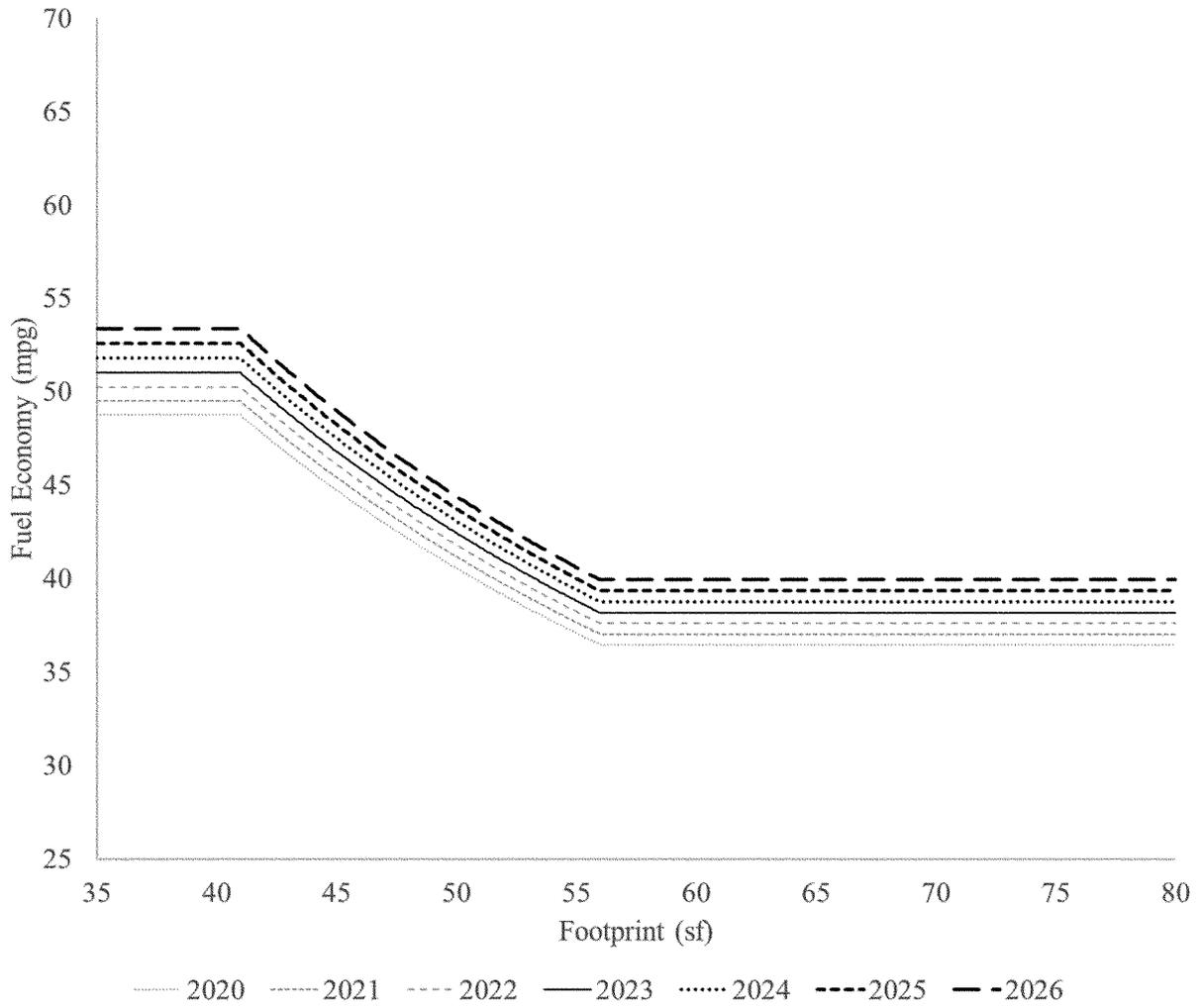


Figure IV-1 – No-Action Alternative, Passenger Car Fuel Economy Target Curves

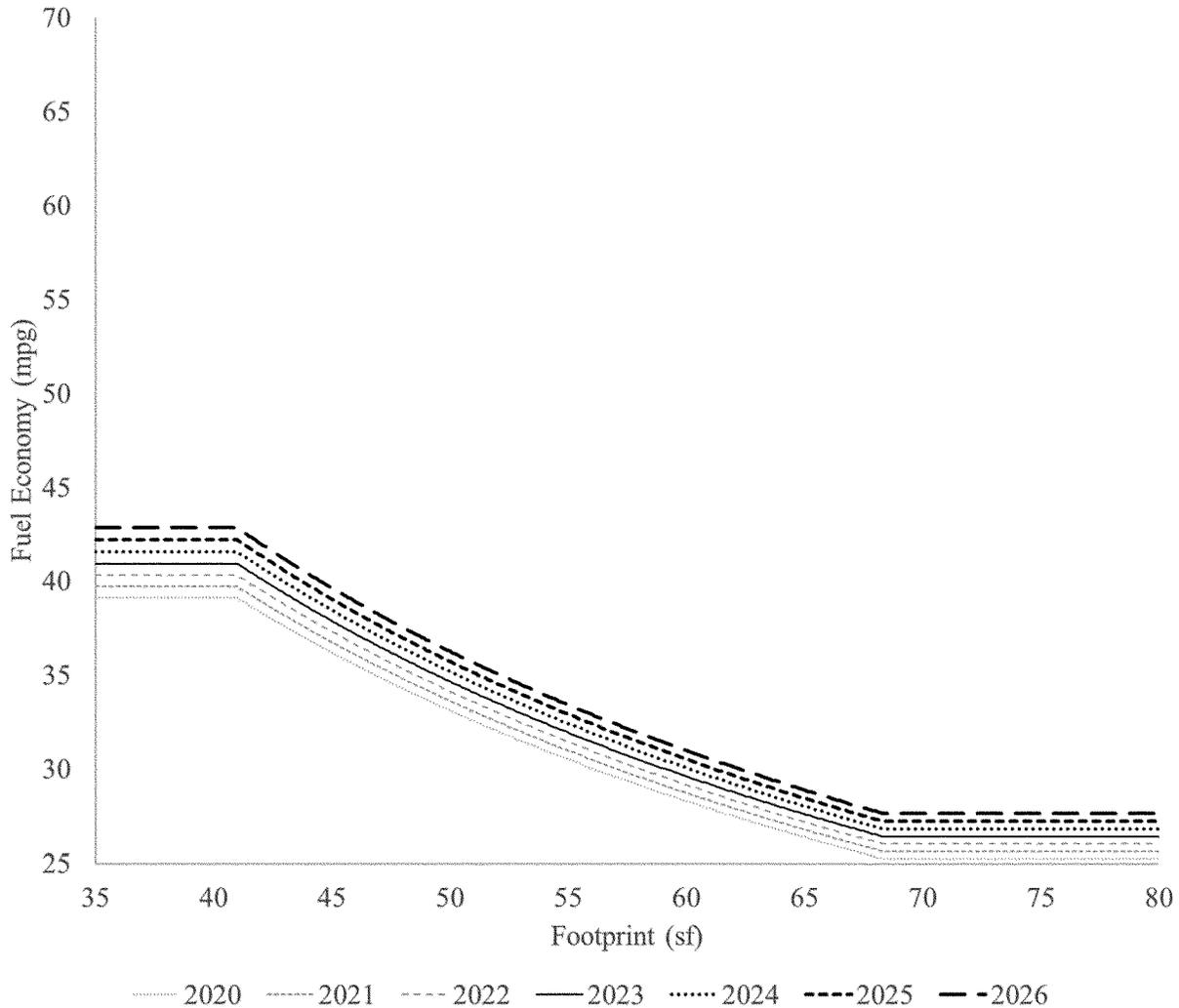


Figure IV-2 – No-Action Alternative, Light Truck Fuel Economy Target Curves

NHTSA must also set a minimum standard for domestically manufactured passenger cars, which is often referred to as the “MDPCS.” Any time NHTSA

establishes or changes a passenger car standard for a model year, the MDPCS must also be evaluated or re-evaluated and established accordingly, but for

purposes of the No-Action alternative, the MDPCS is as it was established in the 2020 final rule, as shown in Table IV-7.

Table IV-7 – No-Action Alternative - Minimum Domestic Passenger Car Standard

2024	2025	2026
41.8 mpg	42.4 mpg	43.1 mpg

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As the baseline against which the Action Alternatives are measured, the No-Action Alternative also includes several other actions that NHTSA believes will occur in the absence of further regulatory action. First, NHTSA has included California’s ZEV mandate as part of the No-Action Alternative. NHTSA has already proposed to rescind

the 2019 “SAFE I” rule,³⁷⁴ and EPA has reopened consideration of whether to grant California a waiver to consider its ZEV mandate,³⁷⁵ although California does not currently possess a waiver of preemption under the CAA and NHTSA regulations currently purport to preempt the California ZEV program. Although

neither of these actions has yet been finalized, it is reasonably foreseeable that manufacturers selling vehicles in California and in the Section 177 states could be required to comply with the ZEV mandate during the timeframe of this rulemaking. Second, NHTSA has included the agreements made between California and BMW, Ford, Honda, VWA, and Volvo, because these agreements by their terms are contracts,

³⁷⁴ 86 FR 25980 (May 12, 2021).

³⁷⁵ 86 FR 22421 (Apr. 28, 2021).

even though they were entered into voluntarily.³⁷⁶ NHTSA did so by including EPA’s baseline (*i.e.*, 2020) GHG standards in its analysis, and introducing more stringent GHG target functions during MYs 2022–2026, but treating only these five manufacturers as subject to these more stringent target functions. Because a significant portion of the market voluntarily adopted the California framework, presumably because the manufacturers who joined believed it could be met, and because that adoption is contractually binding once entered into, it is reasonable to assume that it will occur as expected during the rulemaking timeframe, and thus, reasonable to include in the No-Action Alternative. As in past analyses, NHTSA’s analysis further assumes that, beyond any technology applied in response to CAFE standards, EPA GHG standards, California/OEM agreements, and ZEV mandates applicable in California and the Section 177 states, manufacturers could also make any additional fuel economy improvements estimated to reduce owners’ estimated average fuel outlays during the first 30 months of vehicle operation by more than the estimated increase in new vehicle price.

NHTSA accomplished much of this through expansion of the CAFE Model after the prior rulemaking. The previous

version of the model had been extended to apply to GHG standards as well as CAFE standards but had not been published in a form that simulated simultaneous compliance with both sets of standards. As discussed at greater length in the current CAFE Model documentation, the updated version of the model simulates all the following simultaneously:

1. Compliance with CAFE standards
2. Compliance with GHG standards applicable to all manufacturers
3. Compliance with alternative GHG standards applicable to a subset of manufacturers
4. Compliance with ZEV mandates
5. Further fuel economy improvements applied if sufficiently cost-effective for buyers

Inclusion of these actions in the No-Action Alternative means that they are necessarily included in each of the Action Alternatives. That is, the impacts of all the alternatives evaluated in this proposal are against the backdrop of these State and voluntary actions by automakers. This is important to remember, because it means that automakers will be taking actions to improve fuel economy even in the absence of new CAFE standards, and that costs and benefits attributable to those actions are therefore *not*

attributable to possible future CAFE standards.

2. Alternative 1

Alternative 1 would increase CAFE stringency for MY 2024 by 9.14% for passenger cars and 11.02% for light trucks and increase stringency in MYs 2025 and 2026 by 3.26% per year for both passenger cars and light trucks. NHTSA calculates that the stringency of Alternative 1 in each of MYs 2024–2026 is equivalent to the average stringency of the California framework agreement applied to all manufacturers in those model years. NHTSA calculated the stringency values using a spreadsheet, shown in TSD Chapter 1, assuming manufacturers would achieve a one percent reduction in stringency each model year under the California framework through the application of ZEV vehicle multipliers. The spreadsheet applies a normalized stringency value of 100 percent in MY 2021 for both CO₂ standards and CAFE standards.

Informed by these calculations, NHTSA defined Alternative 1 by applying the CAFE equivalent stringency increases in MYs 2024–2026, resulting in the coefficients listed in Table IV–8 and Table IV–9.

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Table IV-8 – Characteristics of Alternative 1 – Passenger Cars

	2024	2025	2026
<i>a (mpg)</i>	56.15	58.04	60.00
<i>b (mpg)</i>	42.00	43.41	44.88
<i>c (gpm per s.f.)</i>	0.000400	0.000387	0.000374
<i>d (gpm)</i>	0.00141	0.00136	0.00132

Table IV-9 – Characteristics of Alternative 1 – Light Trucks³⁷⁷

	2024	2025	2026
<i>a (mpg)</i>	46.17	47.73	49.34
<i>b (mpg)</i>	27.73	28.67	29.63
<i>c (gpm per s.f.)</i>	0.000436	0.000422	0.000408
<i>d (gpm)</i>	0.00377	0.00365	0.00353

These equations are represented graphically in Figure IV–4 and Figure IV–4.

³⁷⁶ See <https://ww2.arb.ca.gov/news/framework-agreements-clean-cars>.

³⁷⁷ For this and other action alternatives, readers may note that the cutpoint for large trucks is further to the right than in the 2020 final rule. The 2020

final rule (and its preceding NPRM) did not contain an adjustment to the right cutpoint that had been finalized in 2012. Because comments were not received to the NPRM, the lack of adjustment was finalized. Considering the question again for this

proposal, NHTSA believes that moving the cutpoint to the right for large trucks (consistent with the intent and requirements in 2012) is reasonable, given the rate of increase in stringency for this proposal.

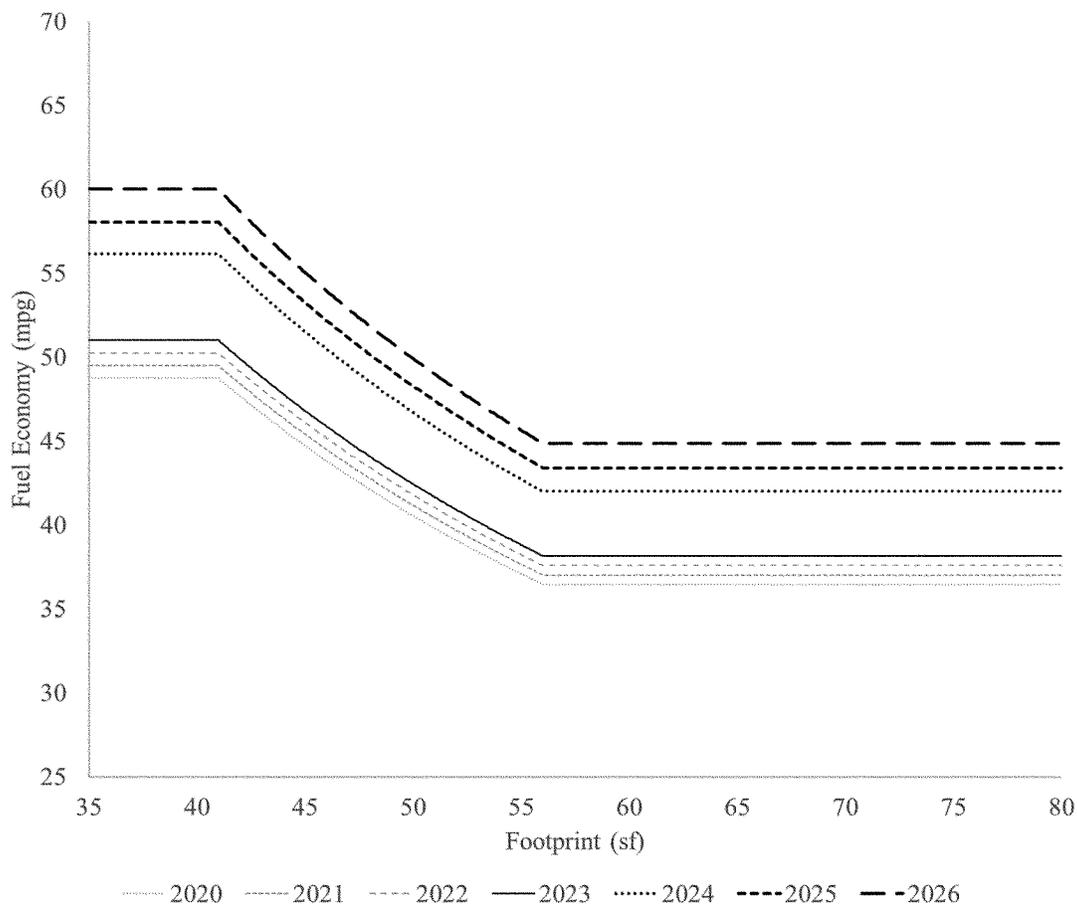


Figure IV-3 – Alternative 1, Passenger Car Fuel Economy, Target Curves

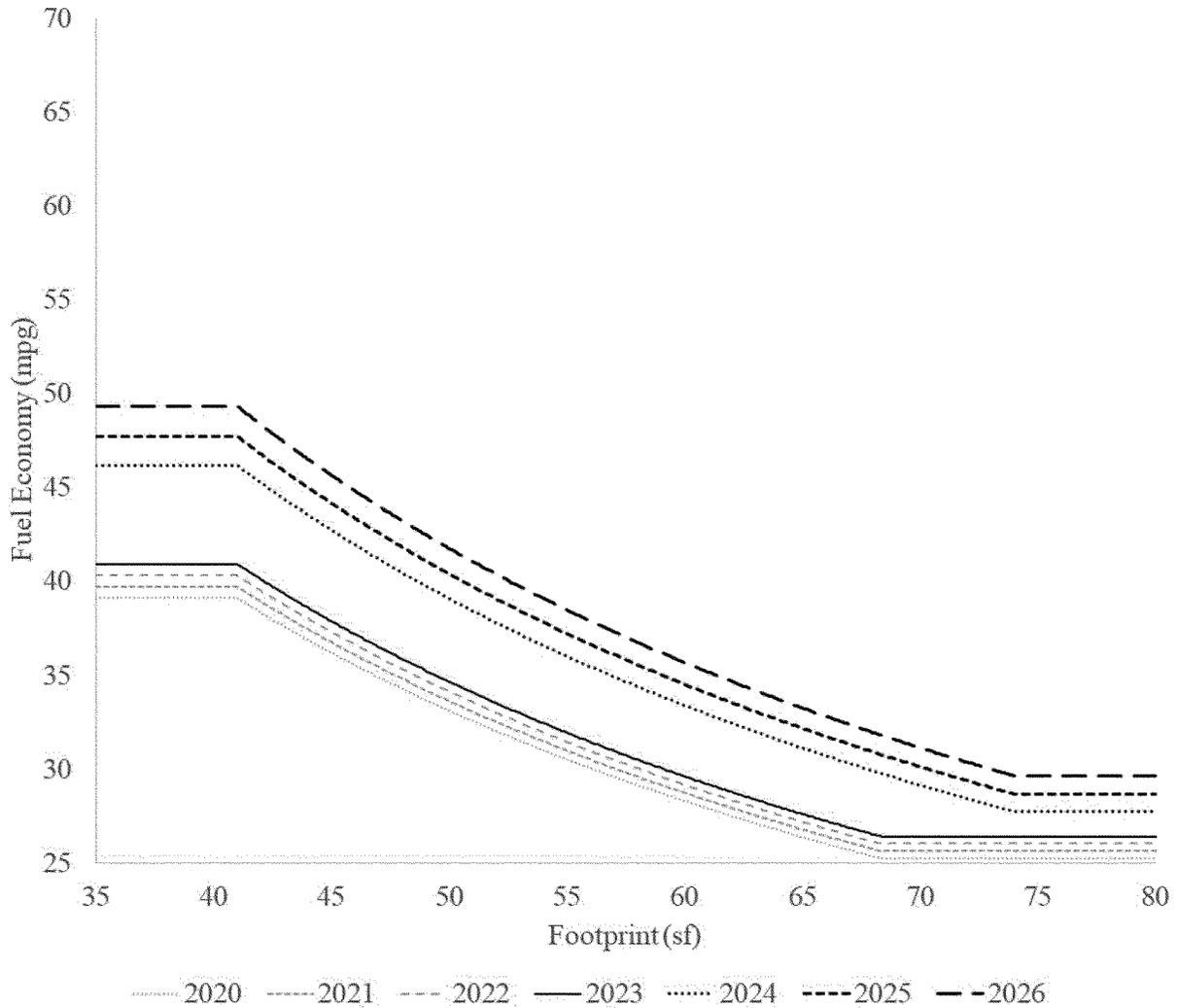


Figure IV-4 – Alternative 1, Light Truck Fuel Economy, Target Curves

Under this alternative, the MDPCS is as shown in Table IV-10.

Table IV-10 – Alternative 1 - Minimum Domestic Passenger Car Standard

2024	2025	2026
44.9 mpg	46.5 mpg	48.0 mpg

NHTSA considered this alternative as a way to evaluate the effects of industry-wide CAFE standards approximately harmonized with the California framework agreement applied to signatory OEMs’ production for the U.S. market.³⁷⁸ The fact that five major

³⁷⁸ CAFE standards defining this alternative reflect the fact that EPCA does not provide a basis for CAFE standards to include “multipliers” applicable to PHEV and/or BEV production volumes, as well as the fact that EPCA’s treatment

manufacturers voluntarily bound themselves to the framework levels, not just for MYs 2024–2026 but for MYs 2021–2026, is a relevant data point in terms of their technological feasibility and economic practicability for the fleet as a whole. NHTSA seeks comment on whether Alternative 1 (as defined by the rate of increase and the curve

of BEV energy consumption is different from the “0 grams/mile” treatment for purposes of determining compliance with GHG emissions standards.

coefficients) appropriately captures its stated goal of approximating the fuel savings that would occur under an industry-wide application of fuel economy standards harmonized with the California framework, or whether changes might be appropriate for the final rule. NHTSA asks that commenters explain the specific technical basis for any requested changes, as well as the basis for determining that the resultant CAFE standards could meet EPCA’s

requirement that NHTSA select the maximum feasible standard for each fleet in each model year.

3. Alternative 2

Alternative 2 would increase CAFE stringency at 8 percent per year, which NHTSA calculates would result in total lifetime fuel savings from vehicles

produced during MYs 2021–2029 similar to total lifetime fuel savings that would occur if the fuel economy standards harmonized with California framework agreement had applied to all manufacturers during MYs 2021–2026.

Table IV-11 – Characteristics of Alternative 2 – Passenger Cars

	2024	2025	2026
a (mpg)	55.44	60.26	65.50
b (mpg)	41.48	45.08	49.00
c (gpm per s.f.)	0.000405	0.000372	0.000343
d (gpm)	0.00144	0.00133	0.00122

Table IV-12 – Characteristics of Alternative 2 – Light Trucks

	2024	2025	2026
a (mpg)	44.48	48.35	52.56
b (mpg)	26.74	29.07	31.60
c (gpm per s.f.)	0.000452	0.000416	0.000382
d (gpm)	0.00395	0.00364	0.00334

Under this alternative, the MDPCS is as shown in Table IV-13.

Table IV-13 – Alternative 2 - Minimum Domestic Passenger Car Standard

2024	2025	2026
44.4 mpg	48.2 mpg	52.4 mpg

NHTSA considered this alternative as a way to evaluate the effects of CAFE standards that sought to achieve the fuel savings that would be achieved if fuel economy standards harmonized with the California framework agreement had been applied to all vehicle manufacturers from its beginning the time the framework was agreed. As for Alternative 1, the fact that five major manufacturers voluntarily bound themselves to these levels, not just for MYs 2024–2026 but for MYs 2021–2026, is a relevant data point in terms of their technological feasibility and economic

practicability for the fleet as a whole.³⁷⁹ NHTSA seeks comment on whether Alternative 2 (as defined by the rate of increase and the curve coefficients) appropriately captures its stated goal of representing the fuel savings achievement that would be achieved if fuel economy standards harmonized with the California framework agreement were applied to all companies at a national level over MYs 2021–2026, or whether changes might be appropriate for the final rule. NHTSA asks that commenters explain the specific technical basis for any

requested changes, as well as the basis for determining that the resultant CAFE standards could meet EPCA’s requirement that NHTSA select the maximum feasible standard for each fleet in each model year.

As another possibility, NHTSA could modify Alternative 2 by increasing the stringency of CAFE standards by 10 percent between model years 2025 and 2026, rather than by 8 percent. Shown graphically, this possibility would look as shown in Figure IV-5.

³⁷⁹ Section VI discusses economic practicability in more detail, including NHTSA’s long-standing interpretation that economic practicability need not

mean that the standards are comfortably achievable for every single manufacturer individually, as long

as they appear economically practicable for the fleet as a whole.

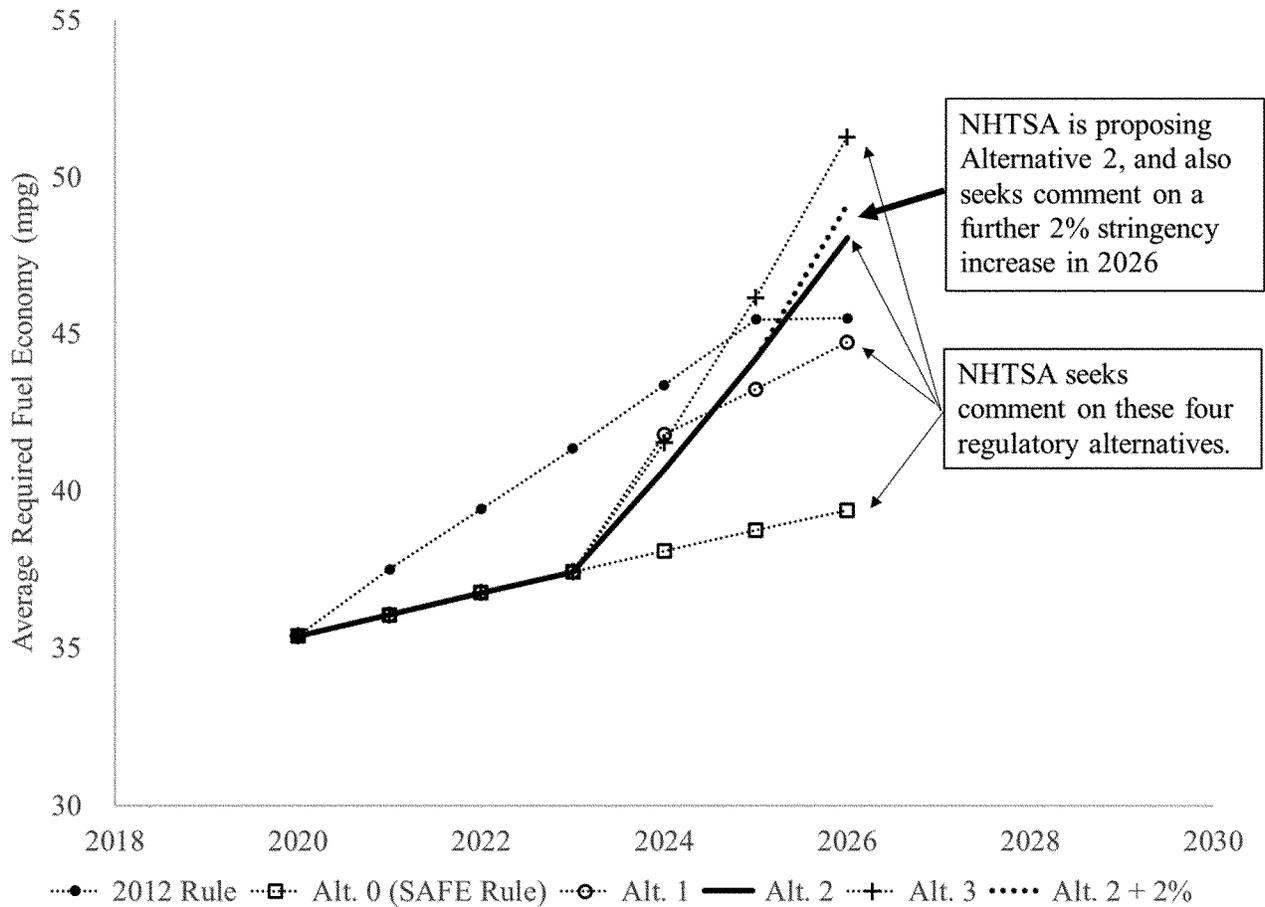


Figure IV-5 – Graphic Representation of Possible Other Alternative

NHTSA seeks comment on this option as well as on Alternative 2.

4. Alternative 3

Alternative 3 would increase CAFE stringency at 10 percent per year, which NHTSA calculates would result in total

lifetime fuel savings from vehicles produced during MYs 2021–2029 similar to total lifetime fuel savings that would have occurred if NHTSA had promulgated final CAFE standards for MYs 2021–2025 at the augural levels

announced in 2012 and, in addition, if NHTSA had also promulgated MY 2026 standards that reflected a continuation of that average rate of stringency increase (4.48% for passenger cars and 4.54% for light trucks).

Table IV-14 – Characteristics of Alternative 3 – Passenger Cars

	2024	2025	2026
a (mpg)	56.67	62.97	69.96
b (mpg)	42.40	47.11	52.34
c (gpm per s.f.)	0.000396	0.000356	0.000321
d (gpm)	0.00141	0.00127	0.00114

Table IV-15 – Characteristics of Alternative 3 – Light Trucks

	2024	2025	2026
a (mpg)	45.47	50.53	56.14
b (mpg)	27.34	30.38	33.75
c (gpm per s.f.)	0.000442	0.000398	0.000358
d (gpm)	0.00387	0.00348	0.00313

These equations are represented graphically in Figure IV-6 and Figure IV-7.

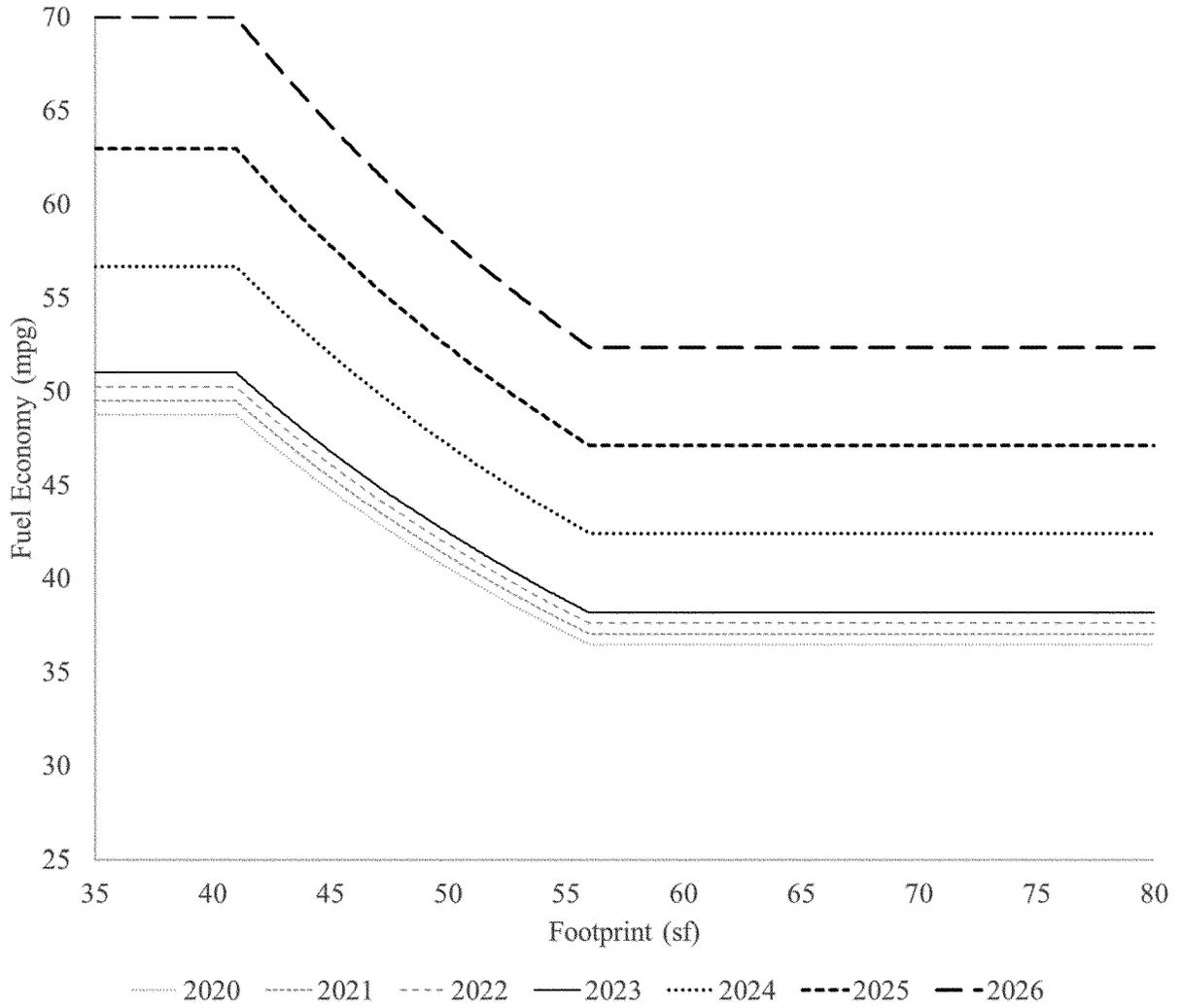


Figure IV-6 – Alternative 3, Passenger Car Fuel Economy, Target Curves

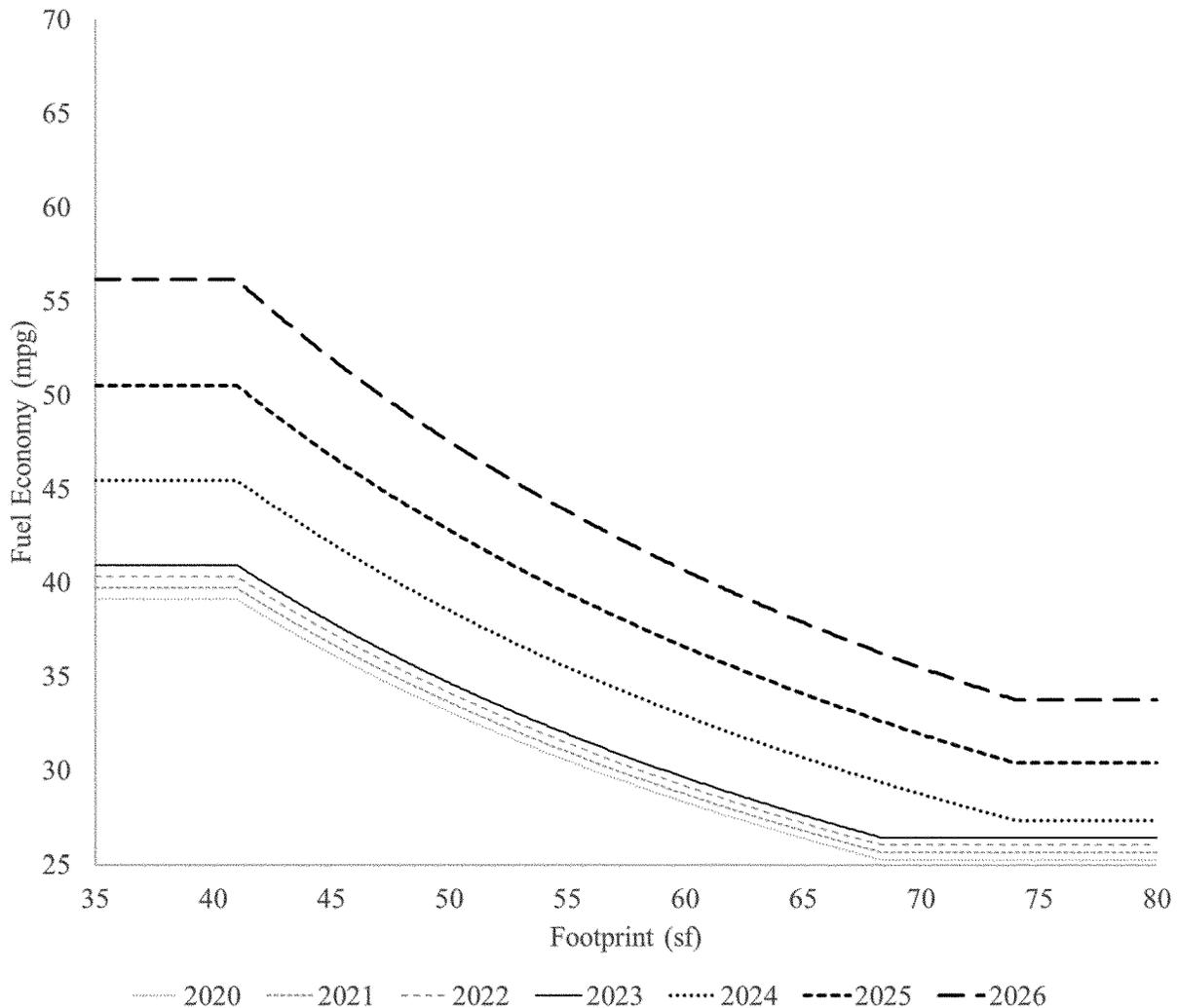


Figure IV-7 – Alternative 3, Light Truck Fuel Economy, Target Curves

Under this alternative, the MDPCS is as follows in Table IV-16.

Table IV-16 – Alternative 3 – Minimum Domestic Passenger Car Standard

2024	2025	2026
45.4 mpg	50.4 mpg	56.0 mpg

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NHTSA considered this alternative as a way to evaluate the effects of CAFE standards that would return to a fuel consumption trajectory exemplified by the standards announced in 2012. NHTSA seeks comment on whether Alternative 3 (as defined by the rate of increase and the curve coefficients) appropriately captures this goal, or whether changes might be appropriate for the final rule. NHTSA asks that commenters explain the specific

technical basis for any requested changes, as well as the basis for determining that the resultant CAFE standards could meet EPCA’s requirement that NHTSA select the maximum feasible standard for each fleet in each model year. While NHTSA believes that this alternative may be beyond maximum feasible based on the information currently before us, as discussed in more detail in Section VI, all alternatives remain under

consideration for the final rule. Moreover, because Alternative 3 produces significant social benefits, NHTSA seeks comment on whether to adopt a more stringent increase from MY 2025 to MY 2026, as described above, that would parallel the year over year increase Alternative 3 analyzes.

V. Effects of the Regulatory Alternatives**A. Effects on Vehicle Manufacturers**

Each of the regulatory alternatives NHTSA has considered would increase the stringency of both passenger car and light truck CAFE standards in each of model years 2024–2026. To estimate the potential impacts of each of these alternatives, NHTSA has, as for all recent rulemakings, assumed that

standards would continue unchanged after the last model year (in this case, 2026) to be covered by newly issued standards. It is possible that the size and composition of the fleet (*i.e.*, in terms of distribution across the range of vehicle footprints) could change over time, affecting the average fuel economy requirements under both the passenger car and light truck standards, and for

the overall fleet. If fleet changes differ from NHTSA's projections, average requirements could, therefore, also differ from NHTSA's projections. At this time, NHTSA estimates that, under each of the regulatory alternatives, average fuel economy requirements could increase as summarized in the following three tables.

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Table V-1 – Estimated Required Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	43.3	43.9	44.6	45.2	45.9	46.6	47.3	47.3	47.3	47.3
Alternative 1	43.3	43.9	44.6	45.2	49.8	51.5	53.2	53.2	53.2	53.2
Alternative 2	43.3	43.9	44.6	45.2	49.2	53.4	58.1	58.1	58.1	58.1
Alternative 3	43.3	43.9	44.6	45.2	50.2	55.8	62.0	62.0	62.0	62.0

Table V-2 – Estimated Required Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	31.0	31.5	31.9	32.4	32.9	33.5	33.9	33.9	33.9	33.9
Alternative 1	31.0	31.5	31.9	32.4	36.4	37.7	39.0	39.0	39.0	39.0
Alternative 2	31.0	31.5	31.9	32.4	35.1	38.2	41.5	41.5	41.5	41.5
Alternative 3	31.0	31.5	31.9	32.4	35.9	39.9	44.3	44.3	44.3	44.3

Table V-3 – Estimated Required Average Fuel Economy (mpg), Total Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	35.4	36.0	36.8	37.4	38.1	38.7	39.4	39.4	39.5	39.5
Alternative 1	35.4	36.0	36.8	37.4	41.8	43.2	44.7	44.8	44.8	44.9
Alternative 2	35.4	36.0	36.8	37.4	40.7	44.2	48.1	48.1	48.2	48.2
Alternative 3	35.4	36.0	36.8	37.4	41.5	46.2	51.3	51.3	51.3	51.4

Manufacturers do not always comply exactly with each CAFE standard in each model year. To date, some manufacturers have tended to regularly exceed one or both requirements. Many manufacturers make use of EPCA's provisions allowing CAFE compliance credits to be applied when a fleet's CAFE level falls short of the corresponding requirement in a given model year. Some manufacturers have paid civil penalties (*i.e.*, fines) required under EPCA when a fleet falls short of a standard in a given model year and the

manufacturer cannot provide compliance credits sufficient to address the compliance shortfall. As discussed in the accompanying PRIA and TSD, NHTSA simulates manufacturers' responses to each alternative given a wide range of input estimates (*e.g.*, technology cost and efficacy, fuel prices), and, per EPCA, setting aside the potential that any manufacturer would respond to CAFE standards in model years 2024–2026 by applying CAFE compliance credits or introducing new models of alternative fuel vehicles.

Many of these inputs are subject to uncertainty and, in any event, as in all CAFE rulemakings, NHTSA's analysis merely illustrates one set of ways manufacturers could potentially respond to each regulatory alternative. At this time, NHTSA estimates that manufacturers' responses to standards defining each alternative could lead average fuel economy levels to increase through model year 2029 as summarized in the following three tables. Changes are shown to occur in MY 2023 even though NHTSA is not explicitly

proposing to regulate that model year because NHTSA anticipates that

manufacturers could make changes as early as that model year to affect future

compliance positions (*i.e.*, multi-year planning).

Table V-4 – Estimated Achieved Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	41.7	43.6	46.6	48.3	50.4	51.5	52.4	52.8	53.0	53.4
Alternative 1	41.7	43.6	46.6	49.3	52.6	54.6	55.8	56.3	56.7	57.0
Alternative 2	41.7	43.6	46.6	49.7	53.9	57.1	59.6	60.5	61.3	61.4
Alternative 3	41.7	43.6	46.6	50.1	55.3	59.4	62.9	64.1	65.3	65.5

Table V-5 – Estimated Achieved Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	30.2	31.5	33.1	34.4	35.5	36.0	37.0	37.2	37.4	37.7
Alternative 1	30.2	31.5	33.1	34.6	36.6	37.5	38.7	39.2	39.5	39.8
Alternative 2	30.2	31.5	33.1	34.8	36.5	37.9	40.2	40.7	41.1	41.4
Alternative 3	30.2	31.5	33.1	34.9	37.4	39.1	41.8	42.5	43.0	43.2

Table V-6 – Estimated Achieved Average Fuel Economy (mpg), Total Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	34.3	35.9	38.2	39.8	41.3	42.1	43.2	43.5	43.8	44.2
Alternative 1	34.3	35.9	38.2	40.3	42.8	44.1	45.5	46.0	46.4	46.8
Alternative 2	34.3	35.9	38.2	40.5	43.2	45.1	47.6	48.3	48.9	49.2
Alternative 3	34.3	35.9	38.2	40.7	44.2	46.6	49.7	50.6	51.4	51.7

While these increases in average fuel economy account for estimated changes in the composition of the fleet (*i.e.*, the relative shares of passenger cars and light trucks), they result almost wholly from the projected application of fuel-saving technology. As mentioned above, NHTSA's analysis merely illustrates one set of ways manufacturers could

potentially respond to each regulatory alternative. Manufacturers' actual responses will almost assuredly differ from NHTSA's current estimates.

At this time, NHTSA estimates that manufacturers' application of advanced gasoline engines (*i.e.*, gasoline engines with cylinder deactivation, turbocharging, high or variable compression ratios) could increase

through MY 2029 under the no-action alternative and through at least MY 2024 under each of the action alternatives. However, NHTSA also estimates that in MY 2024, reliance on advanced gasoline engines could begin to decline under the more stringent action alternatives, as manufacturers shift toward electrification.

Table V-7 – Estimated Advanced Gasoline Engine Penetration Rate, Passenger Car Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	53%	56%	61%	59%	64%	62%	61%	62%	61%	65%
Alternative 1	53%	56%	61%	59%	63%	62%	64%	64%	65%	69%
Alternative 2	53%	56%	61%	59%	66%	63%	62%	62%	62%	62%
Alternative 3	53%	56%	61%	58%	65%	58%	55%	52%	52%	52%

Table V-8 – Estimated Advanced Gasoline Engine Penetration Rate, Light Truck Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	55%	55%	56%	56%	57%	59%	61%	61%	63%	64%
Alternative 1	55%	55%	56%	57%	57%	57%	58%	57%	57%	56%
Alternative 2	55%	55%	56%	56%	56%	54%	53%	52%	52%	52%
Alternative 3	55%	55%	56%	56%	55%	53%	48%	46%	45%	45%

Table V-9 – Estimated Advanced Gasoline Engine Penetration Rate, Total Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	54%	55%	58%	58%	60%	60%	61%	62%	62%	65%
Alternative 1	54%	55%	58%	58%	60%	59%	61%	60%	61%	62%
Alternative 2	54%	55%	58%	58%	61%	58%	57%	57%	57%	57%
Alternative 3	54%	55%	58%	57%	60%	55%	51%	49%	48%	48%

The aforementioned estimated shift to electrification under the more stringent regulatory alternatives is the most pronounced for hybrid-electric vehicles (i.e., “mild” ISG HEVs and “strong” P2 and Power-Split HEVs).

Table V-10 – Estimated Hybrid Electric Vehicle (HEV) Penetration Rate, Passenger Car Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	4%	4%	4%	4%	7%	7%	8%	8%	8%	8%
Alternative 1	4%	4%	4%	4%	7%	9%	9%	10%	11%	11%
Alternative 2	4%	4%	4%	4%	8%	10%	11%	12%	13%	13%
Alternative 3	4%	4%	4%	5%	11%	17%	20%	21%	23%	23%

Table V-11 – Estimated Hybrid Electric Vehicle (HEV) Penetration Rate, Light Truck Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	6%	9%	10%	12%	15%	15%	17%	17%	17%	17%
Alternative 1	6%	9%	10%	11%	20%	22%	26%	26%	28%	28%
Alternative 2	6%	9%	10%	12%	16%	19%	27%	27%	29%	30%
Alternative 3	6%	9%	10%	13%	19%	21%	29%	30%	32%	32%

Table V-12 – Estimated Hybrid Electric Vehicle (HEV) Penetration Rate, Total Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	5%	7%	7%	8%	11%	11%	13%	13%	13%	13%
Alternative 1	5%	7%	7%	8%	14%	16%	18%	18%	20%	20%
Alternative 2	5%	7%	7%	8%	12%	15%	19%	20%	21%	21%
Alternative 3	5%	7%	7%	9%	15%	19%	24%	26%	28%	28%

Under the more stringent action alternatives, NHTSA estimates that

manufacturers could increase production of plug-in hybrid electric

vehicles (PHEVs) well over current rates.

Table V-13 – Estimated Plug-In Hybrid Electric Vehicle (PHEV) Penetration Rate, Passenger Car Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	1%	1%	1%	1%	1%	1%	2%	2%	2%	1%
Alternative 1	1%	1%	1%	1%	2%	2%	3%	3%	3%	3%
Alternative 2	1%	1%	1%	1%	2%	5%	8%	8%	8%	8%
Alternative 3	1%	1%	1%	1%	2%	7%	10%	10%	10%	10%

Table V-14 – Estimated Plug-In Hybrid Electric Vehicle (PHEV) Penetration Rate, Light Truck Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Alternative 1	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Alternative 2	0%	0%	0%	0%	2%	4%	7%	7%	7%	7%
Alternative 3	0%	0%	0%	0%	4%	8%	12%	12%	12%	11%

Table V-15 – Estimated Plug-In Hybrid Electric Vehicle (PHEV) Penetration Rate, Total Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Alternative 1	0%	0%	0%	0%	2%	2%	3%	3%	3%	2%
Alternative 2	0%	0%	0%	0%	2%	4%	7%	7%	7%	7%
Alternative 3	0%	0%	0%	0%	3%	8%	11%	11%	11%	11%

For this NPRM and accompanying PRIA, NHTSA’s analysis excludes the introduction of new alternative fuel vehicle (AFV) models during MY 2024–2026 as a response to CAFE standards.³⁸⁰ However, NHTSA’s

analysis does consider the potential that manufacturers might respond to CAFE standards by introducing new BEV models outside of MYs 2024–2026, and NHTSA’s analysis does account for the potential that ZEV mandates could lead

manufacturers to introduce new BEV models even during MYs 2024–2026. Also accounting for shifts in fleet mix, NHTSA projects increased production of BEVs through MY 2029.

³⁸⁰ The SEIS does not make this analytical exclusion.

Table V-16 – Estimated Battery Electric Vehicle (BEV) Penetration Rate, Passenger Car Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	4%	5%	6%	7%	7%	8%	8%	8%	8%	9%
Alternative 1	4%	5%	6%	8%	9%	9%	9%	10%	10%	10%
Alternative 2	4%	5%	6%	9%	9%	10%	10%	10%	11%	11%
Alternative 3	4%	5%	6%	9%	10%	10%	10%	11%	12%	12%

Table V-17 – Estimated Battery Electric Vehicle (BEV) Penetration Rate, Light Truck Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	0%	0%	1%	1%	2%	2%	2%	2%	2%	3%
Alternative 1	0%	0%	1%	2%	2%	2%	2%	2%	2%	3%
Alternative 2	0%	0%	1%	2%	2%	2%	3%	3%	3%	3%
Alternative 3	0%	0%	1%	2%	2%	3%	3%	3%	3%	3%

Table V-18 – Estimated Battery Electric Vehicle (BEV) Penetration Rate, Total Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	2%	2%	3%	4%	4%	5%	5%	5%	5%	6%
Alternative 1	2%	2%	3%	5%	5%	6%	6%	6%	6%	6%
Alternative 2	2%	2%	3%	5%	6%	6%	6%	6%	7%	7%
Alternative 3	2%	2%	3%	6%	6%	6%	6%	7%	7%	8%

The PRIA provides a wider-ranging summary of NHTSA's estimates of manufacturers' potential application of fuel-saving technologies (including other types of technologies, such as advanced transmissions, aerodynamic improvements, and reduced vehicle mass) in response to each regulatory alternative. Appendices I and II of the accompanying PRIA provide much more detailed and comprehensive results, and the underlying CAFE Model output files provide all information, including the specific combination of technologies estimated to be applied to every specific vehicle model/configuration in each of model years 2020–2050.³⁸¹

NHTSA's analysis shows manufacturers' regulatory costs for CAFE standards, CO₂ standards, and ZEV mandates increasing through MY 2029, and (logically) increasing more under the more stringent alternatives. Accounting for fuel-saving technologies estimated to be added under each regulatory alternative (including air conditioning improvements and other off-cycle technologies), and also accounting for CAFE fines that NHTSA estimates some manufacturers could elect to pay rather than achieving full compliance with CAFE standards in some model years, NHTSA estimates that relative to the continued application of MY 2020 technologies,

manufacturers' *cumulative* costs during MYs 2023–2029 could total \$121b under the no-action alternative, and \$166b, \$208b, and \$251b under alternatives 1, 2, and 3, respectively. The table below shows how these costs are estimated to vary among manufacturers, accounting for differences in the quantities of vehicles produced for sale in the U.S. Appendices I and II of the accompanying PRIA present results separately for each manufacturer's passenger car and light truck fleets in each model year under each regulatory alternative, and the underlying CAFE Model output files also show results specific to manufacturers' domestic and imported car fleets.

³⁸¹ See Appendices I and II of the accompanying PRIA and the CAFE Model output files.

Table V-19 – Cumulative Costs (\$b) During MYs 2023-2029

Manufacturer	Alternative 0	Alternative 1	Alternative 2	Alternative 3
BMW	4	4	5	6
Daimler	5	6	6	7
Stellantis (FCA)	18	21	23	25
Ford	18	22	27	33
General Motors	18	34	39	48
Honda	10	10	15	22
Hyundai	5	8	11	14
Kia	4	6	9	11
Jaguar - Land Rover	1	2	2	2
Mazda	3	4	5	5
Mitsubishi	1	1	1	2
Nissan	6	9	22	24
Subaru	6	9	10	10
Tesla	0	0	0	0
Toyota	12	19	22	29
Volvo	2	2	2	3
Volkswagen	9	8	9	10
Industry Total	121	166	208	251

As discussed in the TSD, these estimates reflect technology cost inputs that, in turn, reflect a “markup” factor that includes manufacturers’ profits. In

other words, if costs to manufacturers’ are reflected in vehicle price increases as in the past, NHTSA estimates that the average costs to new vehicle purchasers

could increase through MY 2029 as summarized in Table V-20 through Table V-22.

Table V-20 – Estimated Average Per Vehicle Regulatory Costs (\$), Passenger Car Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	265	369	586	694	873	1,008	1,076	1,058	1,028	1,001
Alternative 1	265	369	586	896	1,242	1,455	1,550	1,507	1,473	1,426
Alternative 2	265	369	586	1,055	1,521	1,968	2,264	2,198	2,157	2,073
Alternative 3	265	369	586	1,147	1,748	2,327	2,733	2,649	2,607	2,506

Table V-21 – Estimated Average Per Vehicle Regulatory Costs (\$), Light Truck Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	155	365	633	833	1,056	1,153	1,257	1,260	1,251	1,240
Alternative 1	155	365	633	888	1,456	1,616	1,748	1,715	1,717	1,684
Alternative 2	155	365	633	933	1,413	1,795	2,210	2,159	2,134	2,086
Alternative 3	155	365	633	980	1,760	2,255	2,810	2,730	2,687	2,619

Table V-22 – Estimated Average Per Vehicle Regulatory Costs (\$), Total Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	203	367	611	768	969	1,083	1,169	1,160	1,140	1,120
Alternative 1	203	367	611	892	1,354	1,539	1,653	1,614	1,598	1,557
Alternative 2	203	367	611	991	1,464	1,877	2,236	2,177	2,145	2,080
Alternative 3	203	367	611	1,058	1,754	2,289	2,773	2,692	2,649	2,565

Table V-23 shows how these costs could vary among manufacturers, suggesting that disparities could

decrease as the stringency of standards increases.

Table V-23 – Average Manufacturer Per-Vehicle Costs by Alternative

Manufacturer	Alternative 0	Alternative 1	Alternative 2	Alternative 3
BMW	1,604	1,644	2,126	2,607
Daimler	1,583	2,062	2,412	2,741
Stellantis (FCA)	1,527	1,887	2,185	2,484
Ford	1,331	1,488	2,021	2,609
General Motors	1,056	2,014	2,591	3,160
Honda	965	972	1,515	2,107
Hyundai	846	1,516	2,320	2,859
Kia	850	1,295	2,006	2,595
Jaguar - Land Rover	1,168	1,829	2,137	2,479
Mazda	1,523	1,819	2,416	2,829
Mitsubishi	587	1,115	1,720	2,124
Nissan	737	1,134	2,679	3,147
Subaru	1,058	1,568	1,699	1,802
Tesla	47	47	47	47
Toyota	859	1,394	1,583	2,181
Volvo	1,867	2,578	2,855	3,201
Volkswagen	2,459	2,408	2,547	2,937
Industry Average	1,120	1,557	2,080	2,565

NHTSA estimates that although projected fuel savings under the more stringent regulatory alternatives could tend to increase new vehicles sales, this tendency could be outweighed by the opposing response to higher prices, such that new vehicle sales could

decline slightly under the more stringent alternatives. The magnitude of these fuel savings and vehicle price increases depends on manufacturer compliance decisions, especially technology application. In the event that manufacturers select technologies with

lower prices and/or higher fuel economy improvements, vehicle sales effects could differ. For example, in the case of the “unconstrained” SEIS results, manufacturer costs across alternatives are lower.

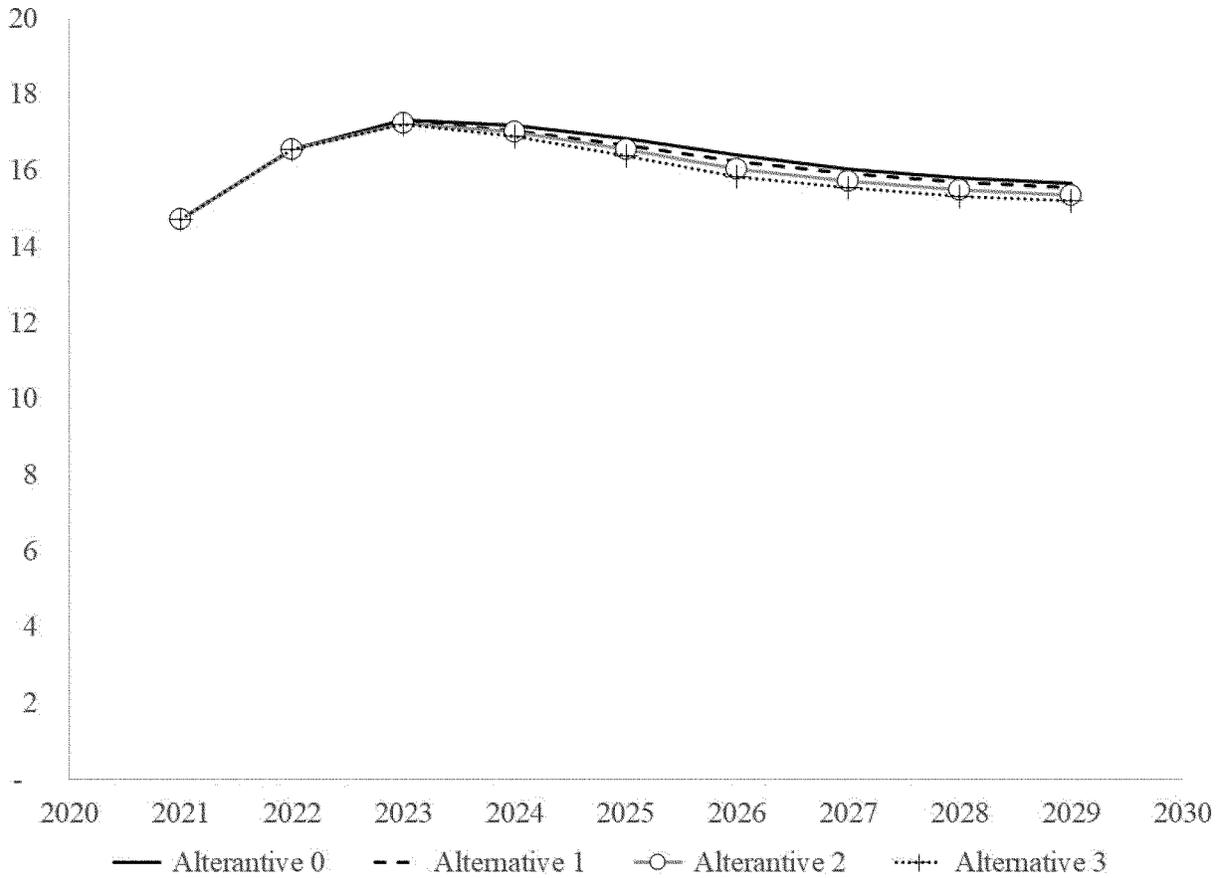


Figure V-1 – Estimated Annual New Vehicles Sales (Millions)

The TSD discusses NHTSA’s approach to estimating new vehicle sales, including NHTSA’s estimate that new vehicle sales could recover from 2020’s aberrantly low levels.

While these slight reductions in new vehicles sales tend to slightly reduce projected automobile industry labor, NHTSA estimates that the cost increases could reflect an underlying increase in

employment to produce additional fuel-saving technology, such that automobile industry labor could about the same under each of the four regulatory alternatives.

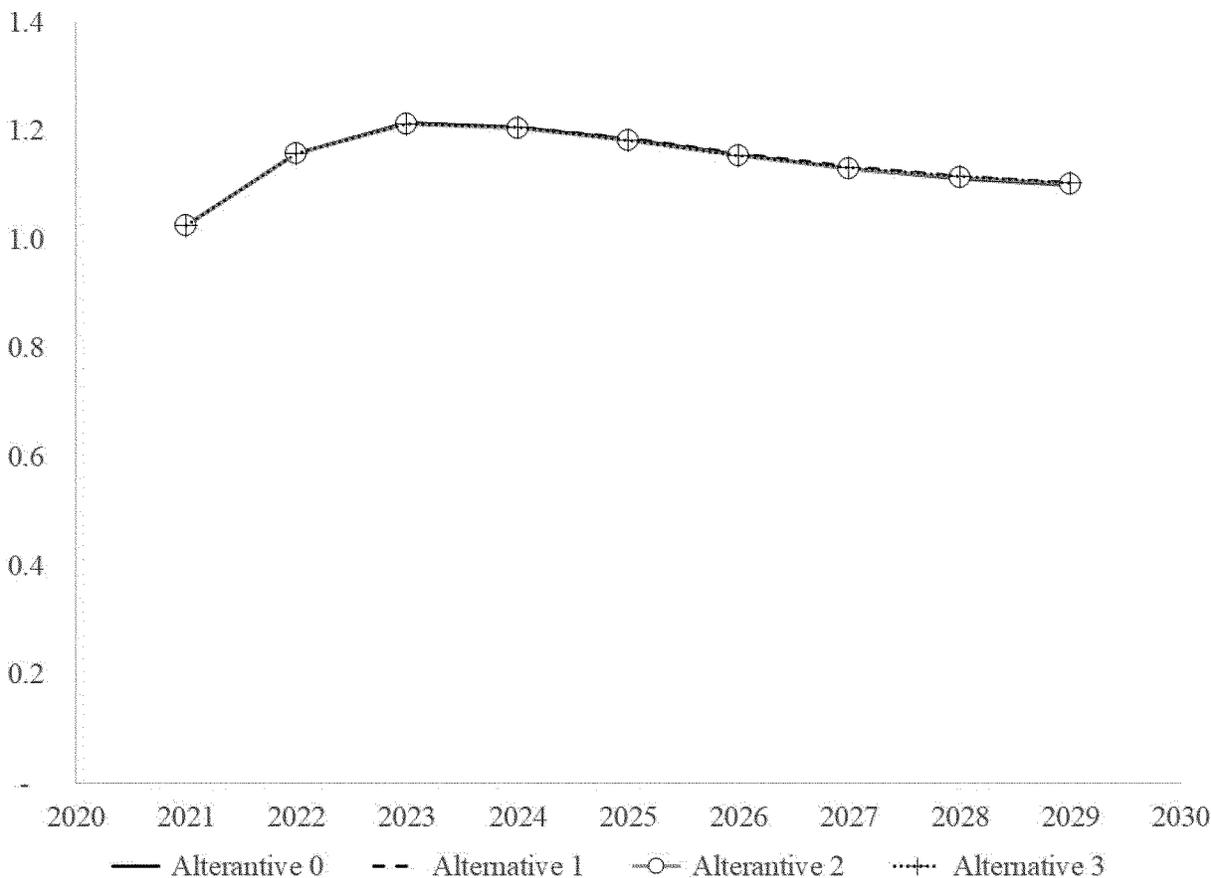


Figure V-2 – Estimated Automobile Industry Labor (as Millions of Full-Time-Equivalent Jobs)

The accompanying TSD discusses NHTSA’s approach to estimating automobile industry employment, and the accompanying RIA (and its Appendices I and II) and CAFE Model output files provide more detailed results of NHTSA’s analysis.

B. Effects on New Car and Truck Buyers
 As discussed above, NHTSA estimates that the average fuel economy and purchase cost of new vehicles could increase between 2020 and 2029 and increase more quickly under each of the action alternatives than under the baseline No-Action Alternative. On one hand, buyers could realize the benefits

of increase fuel economy: Spending less on fuel. On the other, buyers could pay more for new vehicles, for some costs tied directly to vehicle value (e.g., sales taxes and collision insurance). Table V-24 reports sales-weighted MSRP values for the No-Action Alternative and relative increases in MSRP for the three regulatory alternatives.

Table V-24 – Sales-Weighted MSRP and Incremental Costs Under the Regulatory Alternatives by Regulatory Class, Undiscounted 2018\$

Model Year	Light Truck				Passenger Car			
	Alt. 0	Relative to Alt. 0			Alt. 0	Relative to Alt. 0		
		Alt. 1	Alt. 2	Alt. 3		Alt. 1	Alt. 2	Alt. 3
2024	42,300	400	350	700	31,220	360	640	870
2025	42,400	460	640	1,100	31,360	440	950	1,300
2026	42,500	490	950	1,550	31,440	460	1,170	1,630
2027	42,500	460	900	1,470	31,430	440	1,120	1,550
2028	42,490	470	890	1,440	31,410	430	1,100	1,540
2029	42,480	450	850	1,380	31,390	410	1,040	1,460

Table V-25 – Average Per-Vehicle Consumer Benefits and Costs – Passenger Cars and Light Trucks, Undiscounted 2018\$

	MY 2029				MY 2039			
	Alt. 0	Relative to Alt. 0			Alt. 0	Relative to Alt. 0		
		Alt. 1	Alt. 2	Alt. 3		Alt. 1	Alt. 2	Alt. 3
Consumer Costs								
Insurance cost	5,190	73	157	232	5,128	60	116	166
Financing cost	4,153	59	125	186	4,103	48	93	132
Taxes and fees	2,016	28	61	90	1,992	23	45	64
Regulatory cost	1,120	437	960	1,444	924	324	645	934
Foregone consumer sales surplus	0	1	7	17	0	0	1	3
Maintenance and repair cost	0	0	0	0	0	0	0	0
Implicit opportunity cost	0	0	0	0	0	0	0	0
Total consumer costs	12,478	598	1,310	1,970	12,147	456	899	1,299
Consumer Benefits								
Retail fuel outlay	19,703	-738	-1,186	-1,688	19,727	-818	-1,622	-2,351
Refueling time cost	1,046	-1	-2	-15	1,191	15	89	181
Drive value	693	125	160	219	779	137	162	204
Total consumer benefits	21,442	864	1,347	1,922	21,696	940	1,694	2,373
Net benefits	8,964	266	37	-48	9,550	484	795	1,074

Table V-25 through Table V-27 presents projected consumer costs and benefits along with net benefits for model year 2029 and 2039 vehicles under the proposed alternatives. Results are shown in 2018 dollars, without discounting and with benefits and costs

discounted at annual rates of 3% and 7%. The TSD and PRA accompanying this NPRM discuss underlying methods, inputs, and results in greater detail, and more detailed tables and underlying results are contained in the accompanying CAFE Data Book and

CAFE Model output files. For all of the action alternatives, avoided outlays for fuel purchases account for most of the projected benefits to consumers, and increases in the cost to purchase new vehicles account for most of the projected costs.

Table V-26 – Average Per-Vehicle Consumer Benefits and Costs – Passenger Cars and Light Trucks, Discounted at 3% 2018\$

	MY 2029				MY 2039			
	Alt. 0	Relative to Alt. 0			Alt. 0	Relative to Alt. 0		
		Alt. 1	Alt. 2	Alt. 3		Alt. 1	Alt. 2	Alt. 3
Consumer Costs								
Insurance cost	4,353	61	131	195	4,301	50	97	139
Financing cost	3,874	55	117	173	3,828	45	86	124
Taxes and fees	2,016	28	61	90	1,992	23	45	64
Regulatory cost	1,120	437	960	1,444	924	324	645	934
Foregone consumer sales surplus	0	1	7	17	0	0	1	3
Maintenance and repair cost	0	0	0	0	0	0	0	0
Implicit opportunity cost	0	0	0	0	0	0	0	0
Total consumer costs	11,362	582	1,276	1,920	11,044	443	874	1,263
Consumer Benefits								
Retail fuel outlay	15,510	-581	-937	-1,332	15,652	-648	-1,287	-1,866
Refueling time cost	834	0	-1	-12	951	13	72	145
Drive value	546	97	125	171	622	108	128	161
Total consumer benefits	16,890	679	1,063	1,516	17,226	743	1,343	1,882
Net benefits	5,527	96	-213	-404	6,182	300	469	619

Table V-27 – Average Per-Vehicle Consumer Benefits and Costs – Passenger Cars and Light Trucks, Discounted at 7% 2018\$

	MY 2029				MY 2039			
	Alt. 0	Relative to Alt. 0			Alt. 0	Relative to Alt. 0		
		Alt. 1	Alt. 2	Alt. 3		Alt. 1	Alt. 2	Alt. 3
Consumer Costs								
Insurance cost	3,619	51	109	162	3,576	42	81	115
Financing cost	3,555	50	107	159	3,512	41	79	113
Taxes and fees	2,016	28	61	90	1,992	23	45	64
Regulatory cost	1,120	437	960	1,444	924	324	645	934
Foregone consumer sales surplus	0	1	7	17	0	0	1	3
Maintenance and repair cost	0	0	0	0	0	0	0	0
Implicit opportunity cost	0	0	0	0	0	0	0	0
Total consumer costs	10,310	568	1,244	1,873	10,004	431	851	1,230
Consumer Benefits								
Retail fuel outlay	12,001	-449	-726	-1,032	12,217	-503	-1,001	-1,453
Refueling time cost	654	0	-1	-9	747	10	56	115
Drive value	422	75	96	132	489	84	100	126
Total consumer benefits	13,077	524	823	1,173	13,453	578	1,045	1,464
Net benefits	2,767	-44	-421	-700	3,449	147	194	234

BILLING CODE 4910-59-C**C. Effects on Society**

Table V-28 and Table V-29 describe the costs and benefits of increasing CAFE standards in each alternative, as well as the party to which they accrue. Manufacturers are directly regulated under the program and incur additional production costs when they apply technology to their vehicle offerings in order to improve their fuel economy. In this analysis, we assume that those costs are fully passed through to new car and

truck buyers, in the form of higher prices. Other assumptions are possible, but we do not currently have data to support attempting to model cross-subsidization. We also assume that any civil penalties—paid by manufacturers for failing to comply with their CAFE standards—are passed through to new car and truck buyers and are included in the sales price. However, those civil penalties are paid to the U.S. Treasury, where they currently fund the general business of Government. As such, they are a transfer from new vehicle buyers

to all U.S. citizens, who then benefit from the additional Federal revenue. While they are calculated in the analysis, and do influence consumer decisions in the marketplace, they do not contribute to the calculation of net benefits (and are omitted from the tables below). While incremental maintenance and repair costs would accrue to buyers of new cars and trucks affected by more stringent CAFE standards, we do not carry these costs in the analysis. They are difficult to estimate for emerging

technologies but represent real costs (and benefits in the case of alternative fuel vehicles that may require less frequent maintenance events). They may be included in future analyses as data become available to evaluate lifetime maintenance costs. This analysis assumes that drivers of new vehicles internalize 90 percent of the risk associated with increased exposure to crashes when they engage in additional travel (as a consequence of the rebound effect).

Private benefits are dominated by the value of fuel savings, which accrue to new car and truck buyers at retail fuel prices (inclusive of Federal and state taxes). In addition to saving money on fuel purchases, new vehicle buyers also benefit from the increased mobility that results from the lower cost of driving their vehicle (higher fuel economy reduces the per-mile cost of travel) and fewer refueling events. The additional travel occurs as drivers take advantage of lower operating costs to increase mobility, and this generates benefits to those drivers—equivalent to the cost of operating their vehicles to travel those miles, the consumer surplus, and the offsetting benefit that represents 90 percent of the additional safety risk from travel.

In addition to private benefits and costs, there are purely external benefits and costs that can be attributed to increases in CAFE standards. These are benefits and costs that accrue to society more generally, rather than to the specific individuals who purchase a new vehicle that was produced under more stringent CAFE standards. Of the external costs, the largest is the loss in fuel tax revenue that occurs as a result of falling fuel consumption. While drivers of new vehicles (purchased in years where CAFE stringency is increasing) save fuel costs at retail prices, the rest of U.S. road users experience a welfare loss, in two ways. First, the revenue generated by fuel taxes helps to maintain roads and bridges, and improve infrastructure more generally, and that loss in fuel tax revenue is a social cost. And second, the additional driving that occurs as new vehicle buyers take advantage of lower per-mile fuel costs is a benefit to those drivers, but the congestion (and road noise) created by the additional travel impose a social cost to all road users.

Among the purely external benefits created when CAFE standards are increased, the largest is the reduction in damages resulting from greenhouse gas emissions. The estimates in Table V–28

assume a social cost of GHG emissions based on a 2.5% discount rate, and those in Table V–29 assume a social cost of GHG emissions based on a 3% discount rate. The associated benefits related to reduced health damages from conventional pollutants and the benefit of improved energy security are both significantly smaller than the associated change in GHG damages across alternatives. As the tables also illustrate, the overwhelming majority of both costs and benefits are private costs and benefits that accrue to buyers of new cars and trucks, rather than external welfare changes that affect society more generally. This has been consistently true in CAFE rulemakings.

The choice of discount rate also affects the resulting benefits and costs. As the tables show, net social benefits are positive for Alternative 1 and 2 at a 3% discount rate, but only for Alternative 1 when applying a 7% discount rate to benefits and costs. Alternative 3 has negative net benefits under both discount rates. As mentioned above, the benefits of the regulatory alternatives, but especially Alternative 3, are concentrated in later years where a higher discount rate has a greater contracting effect.

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Table V-28 – Incremental Benefits and Costs Over the Lifetimes of Total Fleet Produced Through 2029 (2018\$ Billions), 3% Percent Discount Rate, by Alternative

Alternative:	1	2	3
Private Costs			
Technology Costs to Increase Fuel Economy	34.3	67.6	100.1
Increased Maintenance and Repair Costs	0.0	0.0	0.0
Sacrifice in Other Vehicle Attributes	0.0	0.0	0.0
Consumer Surplus Loss from Reduced New Vehicle Sales	0.1	0.6	1.3
Safety Costs Internalized by Drivers	6.2	8.2	11.2
Subtotal - Private Costs	40.6	76.4	112.6
External Costs			
Congestion and Noise Costs from Rebound-Effect Driving	7.3	10.1	13.5
Safety Costs Not Internalized by Drivers	7.5	15.8	23.2
Loss in Fuel Tax Revenue for the Highway Trust Fund	11.0	18.9	27.0
Subtotal - External Costs	25.8	44.8	63.7
Total Social Costs	66.4	121.2	176.3
Private Benefits			
Reduced Fuel Costs	47.9	73.0	103.8
Benefits from Additional Driving	12.3	15.3	20.8
Less Frequent Refueling	-0.5	-0.8	0.3
Subtotal - Private Benefits	59.7	87.5	124.9
External Benefits			
Reduction in Petroleum Market Externality	0.9	1.5	2.1
Reduced Climate Damages	20.3	32.0	45.6
Reduced Health Damages	1.7	0.4	0.3
Subtotal - External Benefits	22.9	33.9	48.0
Total Social Benefits	82.6	121.4	172.9
Net Social Benefits	16.1	0.3	-3.4

Table V-29 – Incremental Benefits and Costs Over the Lifetimes of Total Fleet Produced Through 2029 (2018\$ Billions), 7% Percent Discount Rate, by Alternative

Alternative:	1	2	3
Private Costs			
Technology Costs to Increase Fuel Economy	28.1	55.0	81.4
Increased Maintenance and Repair Costs	0.0	0.0	0.0
Sacrifice in Other Vehicle Attributes	0.0	0.0	0.0
Consumer Surplus Loss from Reduced New Vehicle Sales	0.1	0.5	1.1
Safety Costs Internalized by Drivers	3.7	4.9	6.8
Subtotal - Private Costs	31.9	60.4	89.3
External Costs			
Congestion and Noise Costs from Rebound-Effect Driving	4.8	6.8	9.3
Safety Costs Not Internalized by Drivers	5.5	11.6	17.3
Loss in Fuel Tax Revenue	7.0	11.9	17.0
Subtotal - External Costs	17.3	30.3	43.6
Total Social Costs	34.6	60.6	87.2
Private Benefits			
Reduced Fuel Costs	29.7	44.9	63.7
Benefits from Additional Driving	7.5	9.3	12.7
Less Frequent Refueling	-0.4	-0.6	0.0
Subtotal - Private Benefits	36.8	53.6	76.4
External Benefits			
Reduction in Petroleum Market Externality	0.5	0.9	1.3
Reduced Climate Damages	13.3	21.0	29.9
Reduced Health Damages	0.9	0.1	-0.1
Subtotal - External Benefits	14.8	22.0	31.2
Total Social Benefits	51.6	75.6	107.6
Net Social Benefits	2.3	-15.1	-25.2

The following tables show the costs and benefits associated with external effects to society. As seen in Table V-28 and Table V-29, the external benefits are composed of reduced climate damages (Table V-30 and Table V-31), reduced health damages (Table V-32

and Table V-33), and reduced petroleum market externalities (Table V-36). The external costs to society include congestion and noise costs (Table V-34 and Table V-35) and safety costs (Table V-37). We show the costs and benefits by model year (1981-2029),

in contrast to the tables above, which present incremental and net costs and benefits over the lifetimes of the entire fleet produced through 2029, beginning with model year 1981.

Table V-30 – Total and Incremental Costs of GHGs (2018\$, billions), MY 1981-2029, 2.5% Discount Rate, by Alternative

Model Year	1981 - 2023	2024	2025	2026	2027	2028	2029	Total
Alternative 0/Baseline (Totals)								
CO ₂	1,202.4	91.6	87.7	83.0	80.0	77.4	75.2	1,697.2
CH ₄	40.4	3.2	3.1	2.9	2.9	2.8	2.7	58.0
N ₂ O	15.5	1.0	1.0	0.9	0.9	0.9	0.9	21.1
Alternative 1 (Relative to Baseline)								
CO ₂	1.8	-3.0	-3.6	-3.7	-3.7	-3.7	-3.5	-19.4
CH ₄	0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.6
N ₂ O	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2
Alternative 2 (Relative to Baseline)								
CO ₂	4.5	-3.4	-5.2	-6.8	-6.7	-6.7	-6.3	-30.7
CH ₄	0.2	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-1.0
N ₂ O	0.1	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.3
Alternative 3 (Relative to Baseline)								
CO ₂	7.3	-5.2	-7.6	-9.8	-9.7	-9.7	-9.0	-43.8
CH ₄	0.3	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-1.4
N ₂ O	0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.4

Table V-30 and Table V-31 present the total costs of GHGs in the baseline scenario and the incremental costs relative to the baseline in the other three alternatives. Negative incremental values indicate a decrease in social costs

of GHGs, while positive incremental values indicate an increase in costs relative to the baseline for the given model year. The GHG costs follow a similar pattern in all three alternatives, decreasing across all model years, with

the largest reductions associated with 2025-2028 model years. The magnitude of CO₂ emissions is much higher than the magnitudes of CH₄ and N₂O emissions, which is why the total costs are so much larger for CO₂.

Table V-31 – Total and Incremental Costs of GHGs (2018\$, billions), MY 1981-2029, 3% Discount Rate, by Alternative

Model Year:	1981 - 2023	2024	2025	2026	2027	2028	2029	Total
Alternative 0/Baseline (Totals)								
CO ₂	796.4	60.2	57.6	54.4	52.4	50.6	49.0	1,120.5
CH ₄	30.3	2.4	2.3	2.2	2.1	2.1	2.0	43.3
N ₂ O	10.4	0.7	0.7	0.6	0.6	0.6	0.6	14.0
Alternative 1 (Relative to Baseline)								
CO ₂	1.2	-2.0	-2.4	-2.4	-2.4	-2.4	-2.3	-12.7
CH ₄	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.5
N ₂ O	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1
Alternative 2 (Relative to Baseline)								
CO ₂	3.0	-2.2	-3.4	-4.5	-4.4	-4.4	-4.1	-20.1
CH ₄	0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.7
N ₂ O	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2
Alternative 3 (Relative to Baseline)								
CO ₂	4.8	-3.4	-5.0	-6.5	-6.3	-6.3	-5.9	-28.6
CH ₄	0.2	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-1.0
N ₂ O	0.1	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.3

The CAFE Model calculates health costs attributed to criteria pollutant

emissions of NO_x, SO_x, and PM_{2.5}, shown in Table V-32 and Table V-33.

These costs are directly related to the tons of each pollutant emitted from

various upstream and downstream sources, including on-road vehicles, electricity generation, fuel refining, and fuel transportation and distribution. See Chapter 4 of the SEIS and Chapter 5.4 of the TSD for further information regarding the calculations used to estimate health impacts, and more details about the types of health effects. The following section of the preamble, V.D, discusses the changes in tons of emissions themselves across rulemaking alternatives, while the current section

focuses on the changes in social costs associated with those emissions.

Criteria pollutant health costs (presented in Table V-32 and Table V-35) increase slightly in earlier model years (1981-2023), but those cost increases are offset by the decrease in health costs in later model years. In Table V-32 and Table V-33, the costs in alternatives 1-3 are shown in terms of percent of the baseline. For instance, the total decrease in SO_x costs in Alternative 2 is equivalent to 0.2% of

the total baseline SO_x costs. The changes across alternatives relative to the baseline are relatively minor, although some impacts in later model years are more significant (e.g., 7.5% decrease in PM_{2.5} in 2028, Alternative 3). Since the health cost value per ton of emissions differs by pollutant, the pollutants that incur the highest costs are not necessarily those with the largest amount of emissions.

Table V-32 – Totals and Percent Changes in Health Costs of Criteria Pollutants (2018\$, billions), MY 1981-2029, 3% Discount Rate, by Alternative

Model Year:	1981 - 2023	2024	2025	2026	2027	2028	2029	Total
Alternative 0/Baseline (Totals)								
NO _x	119.0	1.7	1.5	1.4	1.4	1.3	1.3	127.6
SO _x	168.7	11.6	11.0	10.3	9.8	9.3	8.9	229.7
PM _{2.5}	330.6	9.9	9.4	8.8	8.4	8.1	7.8	383.0
Alternative 1 (Relative to Baseline)								
NO _x	0.2%	-1.0%	-1.6%	-1.7%	-1.6%	-1.9%	-1.9%	0.1%
SO _x	0.2%	-1.7%	-2.5%	-2.6%	-2.6%	-2.9%	-2.9%	-0.5%
PM _{2.5}	0.2%	-2.1%	-2.6%	-2.8%	-2.8%	-2.9%	-2.8%	-0.2%
Alternative 2 (Relative to Baseline)								
NO _x	0.5%	-0.3%	-0.4%	0.1%	0.3%	0.2%	0.2%	0.5%
SO _x	0.4%	-1.3%	-2.1%	-2.2%	-2.0%	-2.2%	-2.1%	-0.2%
PM _{2.5}	0.5%	-2.3%	-3.7%	-5.0%	-4.9%	-5.1%	-4.9%	-0.1%
Alternative 3 (Relative to Baseline)								
NO _x	0.8%	-0.5%	-0.2%	0.0%	0.4%	0.3%	0.1%	0.7%
SO _x	0.7%	-2.0%	-2.6%	-3.2%	-2.9%	-3.0%	-3.0%	-0.2%
PM _{2.5}	0.8%	-3.5%	-5.5%	-7.4%	-7.3%	-7.5%	-7.3%	-0.2%

Table V-33 – Totals and Percent Changes in Health Costs of Criteria Pollutants (2018\$, billions), MY 1981-2029, 7% Discount Rate, by Alternative

Model Year:	1981 - 2023	2024	2025	2026	2027	2028	2029	Total
Alternative 0/Baseline (Totals)								
NO _x	91.1	1.1	1.0	0.9	0.8	0.7	0.7	96.2
SO _x	125.8	7.5	6.8	6.2	5.6	5.2	4.8	161.9
PM _{2.5}	246.6	6.1	5.5	5.0	4.6	4.3	3.9	276.0
Alternative 1 (Relative to Baseline)								
NO _x	0.2%	-1.0%	-1.6%	-1.7%	-1.7%	-2.0%	-2.0%	0.1%
SO _x	0.2%	-1.8%	-2.5%	-2.7%	-2.7%	-2.9%	-2.9%	-0.4%
PM _{2.5}	0.2%	-2.2%	-2.7%	-2.9%	-2.8%	-2.9%	-2.9%	-0.1%
Alternative 2 (Relative to Baseline)								
NO _x	0.4%	-0.4%	-0.6%	-0.1%	0.1%	-0.1%	-0.1%	0.4%
SO _x	0.4%	-1.4%	-2.2%	-2.3%	-2.1%	-2.2%	-2.1%	-0.2%
PM _{2.5}	0.4%	-2.3%	-3.7%	-5.0%	-4.9%	-5.0%	-4.8%	-0.1%
Alternative 3 (Relative to Baseline)								
NO _x	0.6%	-0.6%	-0.4%	-0.3%	0.0%	-0.1%	-0.3%	0.6%
SO _x	0.6%	-2.1%	-2.8%	-3.3%	-3.0%	-3.0%	-3.1%	-0.2%
PM _{2.5}	0.7%	-3.6%	-5.5%	-7.4%	-7.3%	-7.4%	-7.2%	-0.1%

NHTSA estimates social costs of congestion and noise across regulatory alternatives, throughout the lifetimes of model years 1981–2029. Congestion and noise are functions of VMT and fleet mix, and the differences between alternatives are due mainly to differences in VMT (see Section V.D).

Overall, congestion and noise costs increase relative to the baseline across all alternatives, but viewed from a model year perspective, the congestion and noise costs associated with later model years are negative relative to the baseline. It is important to note that the overall increases in congestion and

noise costs are relatively small when compared to the total congestion and noise costs in the baseline (No-Action Alternative). For further details regarding congestion and noise costs, see Chapter 6.2.3 of the TSD and Chapter 6.5 of the PRIA.

Table V-34 – Total and Incremental Congestion and Noise Costs (2018\$, billions), MY 1981-2029, 3% Discount Rate, by Alternative

Model Year:	1981 - 2023	2024	2025	2026	2027	2028	2029	Total
Alternative 0/Baseline (Totals)								
Congestion	4,003.4	347.5	331.3	314.3	298.9	285.9	274.8	5,856.1
Noise	28.5	2.5	2.3	2.2	2.1	2.0	1.9	41.6
Alternative 1 (Relative to the Baseline)								
Congestion	8.07	-0.83	-0.62	-0.42	0.10	0.38	0.59	7.28
Noise	0.06	-0.01	0.00	0.00	0.00	0.00	0.00	0.05
Alternative 2 (Relative to the Baseline)								
Congestion	17.61	-0.39	-1.61	-2.66	-1.61	-0.91	-0.44	9.98
Noise	0.13	0.00	-0.01	-0.02	-0.01	-0.01	0.00	0.07
Alternative 3 (Relative to the Baseline)								
Congestion	27.43	-0.92	-2.85	-4.42	-2.90	-1.88	-1.10	13.35
Noise	0.20	-0.01	-0.02	-0.03	-0.02	-0.01	-0.01	0.10

Table V-35 – Total and Incremental Congestion and Noise Costs (2018\$, billions), MY 2020-2029, 7% Discount Rate, by Alternative

Model Year:	1981 - 2023	2024	2025	2026	2027	2028	2029	Total
Alternative 0/Baseline (Totals)								
Congestion	3,276.3	242.6	222.8	203.5	186.4	171.7	158.9	4,462.3
Noise	23.3	1.7	1.6	1.4	1.3	1.2	1.1	31.7
Alternative 1 (Relative to the Baseline)								
Congestion	5.62	-0.63	-0.47	-0.32	0.03	0.21	0.33	4.77
Noise	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.04
Alternative 2 (Relative to the Baseline)								
Congestion	12.06	-0.39	-1.19	-1.81	-1.07	-0.58	-0.27	6.75
Noise	0.09	0.00	-0.01	-0.01	-0.01	0.00	0.00	0.05
Alternative 3 (Relative to the Baseline)								
Congestion	18.80	-0.83	-2.07	-2.98	-1.89	-1.17	-0.65	9.20
Noise	0.13	-0.01	-0.01	-0.02	-0.01	-0.01	0.00	0.07

The CAFE Model accounts for benefits of increased energy security by computing changes in social costs of petroleum market externalities. These social costs represent the risk to the U.S. economy incurred by exposure to price shocks in the global petroleum market that are not accounted for by oil prices and are a direct function of gallons of

fuel consumed. Chapter 6.2.4 of the accompanying TSD describes the inputs involved in calculating these petroleum market externality costs. Petroleum market externality costs decrease relative to the baseline under all alternatives, regardless of the discount rate used. This pattern occurs due to the decrease in gallons of fuel consumed

(see Section V.D) as the stringency of alternatives increases. Only the earlier model year cohorts (1981–2023) contribute to slight increases in petroleum market externality costs, but these are offset by the decreases from later model years.

Table V-36 – Total and Incremental Petroleum Market Externalities Costs (2018\$, billions), MY 1981-2029, by Alternative

Model Year:	1981-2020	2021-2023	2024-2026	2027-2029
Discount rate	Alternative 0/Baseline (Totals)			
	3%	35.31	10.9	10.3	9.3
7%	28.89	7.9	6.7	5.4
Alternative 1 (Relative to Baseline)				
3%	0.08	-0.02	-0.45	-0.48
7%	0.06	-0.02	-0.29	-0.28
Alternative 2 (Relative to Baseline)				
3%	0.18	-0.02	-0.72	-0.94
7%	0.13	-0.02	-0.47	-0.55
Alternative 3 (Relative to Baseline)				
3%	0.28	-0.01	-1.06	-1.36
7%	0.19	-0.01	-0.69	-0.80

NHTSA estimates various monetized safety impacts across regulatory alternatives, including costs of fatalities, non-fatal crash costs, and property

damage costs. Table V-37 presents these social costs across alternatives and discount rates. Safety effects are discussed at length in the PRIA

accompanying this NPRM (see Chapter 5 of the PRIA).

Table V-37 – Total Social Costs of Safety Impacts (2018\$, billions), MY 1981-2029, All Alternatives

	Alternative 1		Alternative 2		Alternative 3	
	3%	7%	3%	7%	3%	7%
Fatality Costs	7.8	5.2	14.5	9.9	21.1	14.7
Non-Fatal Crash Costs	4.9	3.3	8.0	5.6	11.1	7.9
Property Damage Crash Costs	1.0	0.7	1.6	1.1	2.2	1.5

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D. Physical and Environmental Effects

NHTSA calculates estimates for the various physical and environmental effects associated with the proposed standards. These include quantities of fuel and electricity consumption, tons of greenhouse gas (GHG) emissions and criteria pollutants, and health and safety impacts.

In terms of fuel and electricity usage, NHTSA estimates that the proposal would save about 50 billion gallons of gasoline and increase electricity consumption by about 275 TWh over the lives of vehicles produced prior to MY 2030, relative to the baseline standards (*i.e.*, the No-Action Alternative). From a calendar year perspective, NHTSA’s analysis also estimates total annual consumption of

fuel by the entire on-road fleet from calendar year 2020 through calendar year 2050. On this basis, gasoline and electricity consumption by the U.S. light-duty vehicle fleet evolves as shown in the following two graphs, each of which shows projections for the No-Action Alternative (Alternative 0, *i.e.*, the baseline), Alternative 1, Alternative 2 (the proposal), and Alternative 3.

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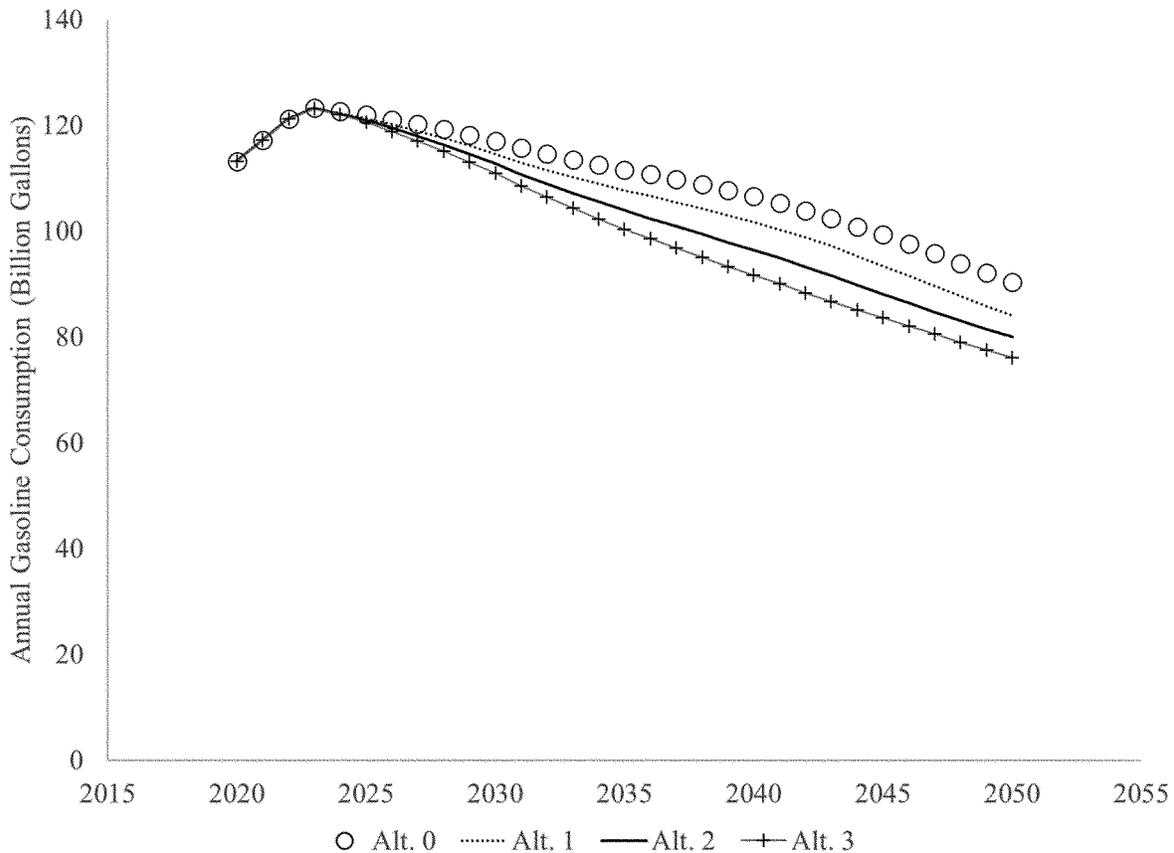


Figure V-3 – Estimated Annual Gasoline Consumption by Light-Duty On-Road Fleet

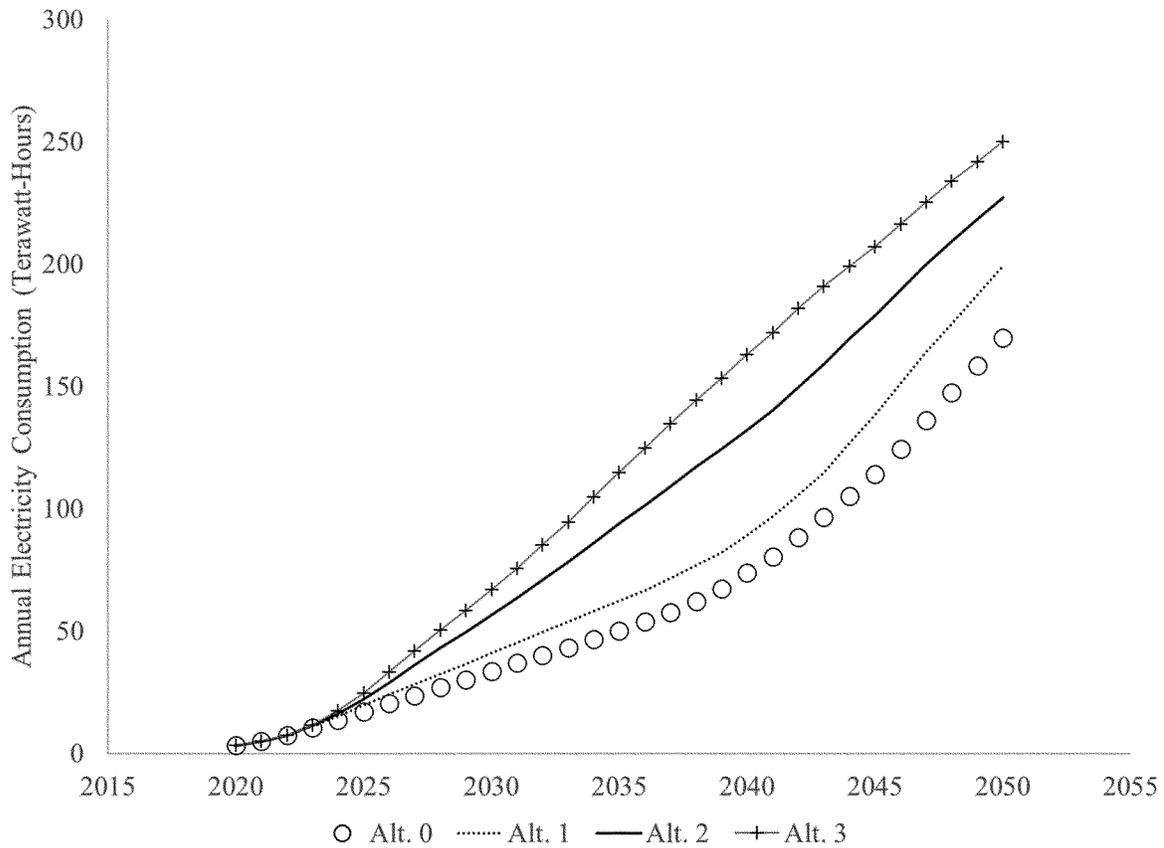


Figure V-4 – Estimated Electricity Consumption by Light-Duty On-Road Fleet

NHTSA estimates the greenhouse gas emissions (GHGs) attributable to the light-duty on-road fleet, from both vehicles and upstream energy sector processes (e.g., petroleum refining, fuel transportation and distribution, electricity generation). Overall, NHTSA estimates that the proposed rule would

reduce greenhouse gases by about 465 million metric tons of carbon dioxide (CO₂), about 500 thousand metric tons of methane (CH₄), and about 12 thousand tons of nitrous oxide (N₂O). The following three graphs (Figure V-5, Figure V-6, and Figure V-7) present NHTSA’s estimate of how emissions

from these three GHGs could evolve over the years. Note that these graphs include emissions from both vehicle and upstream processes. All three GHG emissions follow similar trends in the years between 2020–2050.

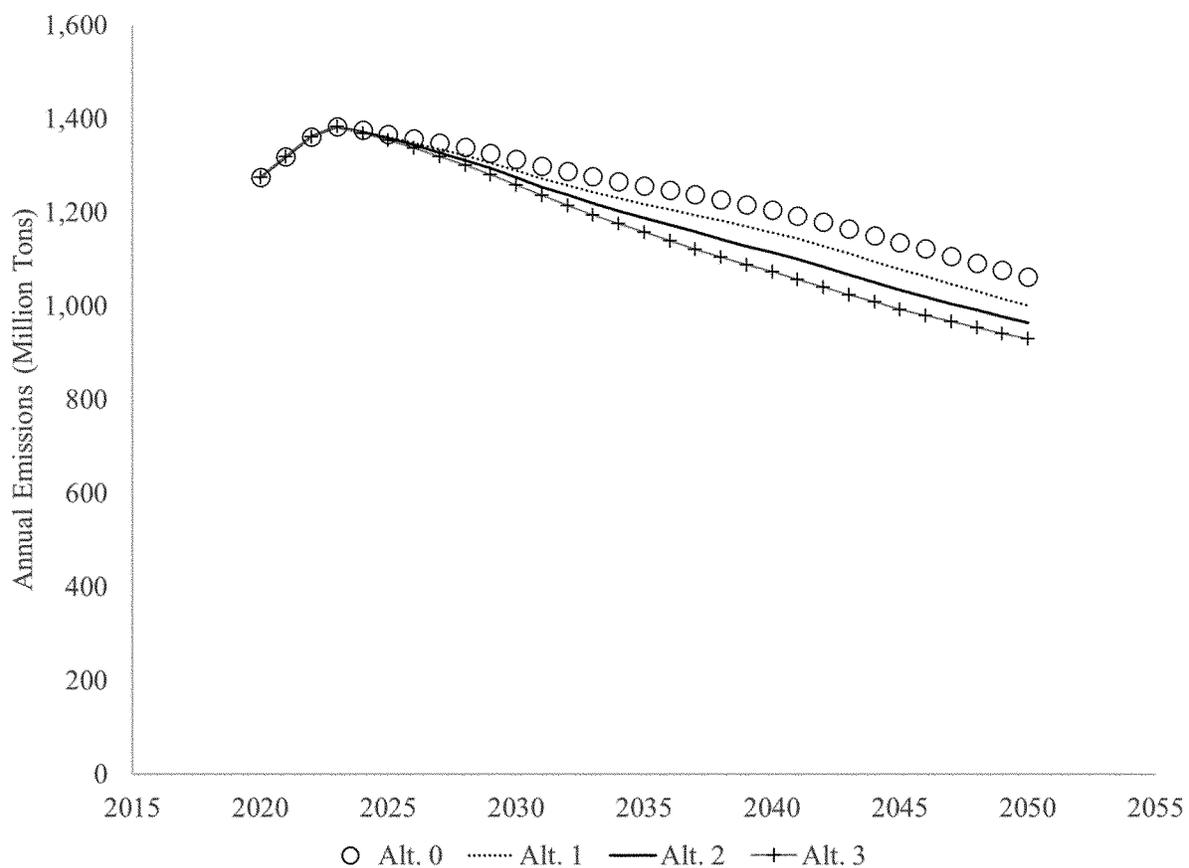


Figure V-5 – Estimated Annual CO₂ Emissions Attributable to Light-Duty On-Road Fleet

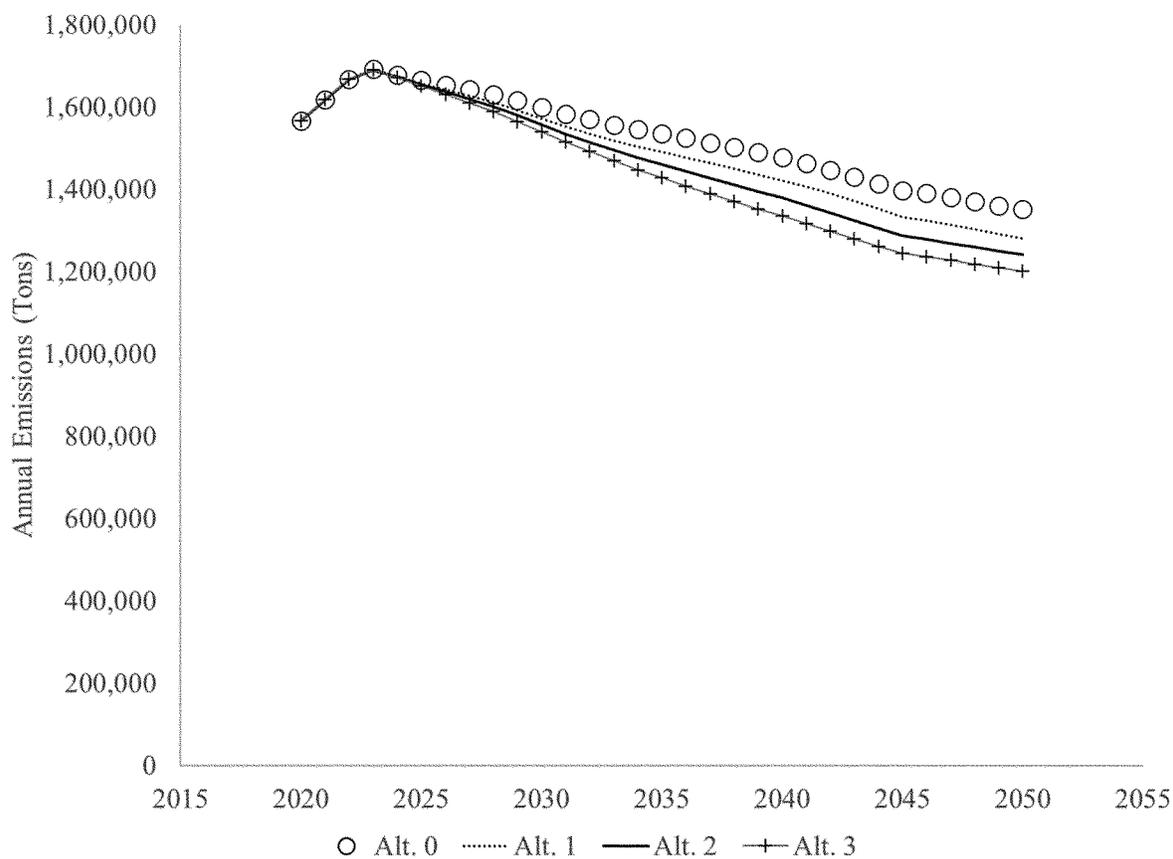


Figure V-6 – Estimated Annual CH₄ Emissions Attributable to Light-Duty On-Road Fleet

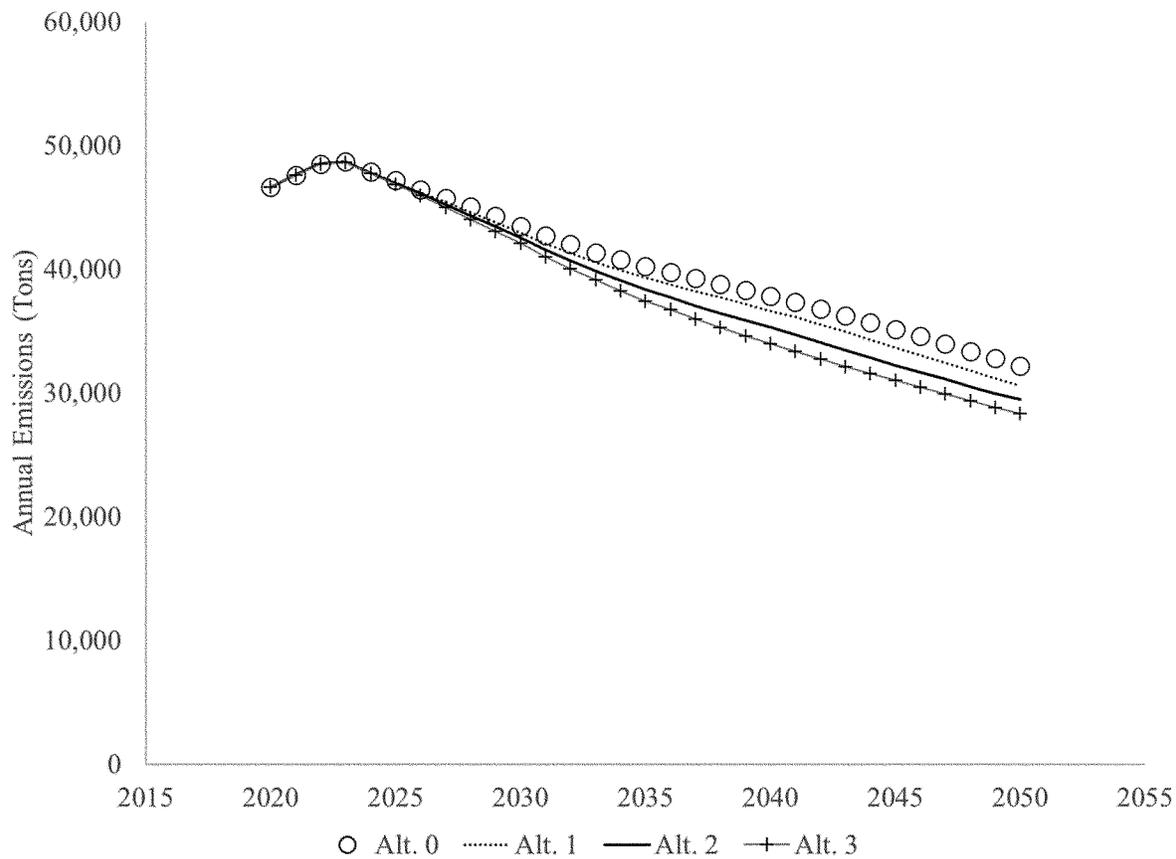


Figure V-7 – Estimated Annual N₂O Emissions Attributable to Light-Duty On-Road Fleet

The figures presented here are not the only estimates NHTSA has calculated regarding projected GHG emissions in future years. As discussed in Section II, the accompanying SEIS uses an “unconstrained” analysis as opposed to the “standard setting” analysis presented in this NPRM and PRIA. For more information regarding projected GHG emissions, as well as model-based estimates of corresponding impacts on several measures of global climate change, see the SEIS.

NHTSA also estimates criteria pollutant emissions resulting from vehicle and upstream processes attributable to the light-duty on-road fleet. NHTSA includes estimates for all

of the criteria pollutants for which EPA has issued National Ambient Air Quality Standards. Under each regulatory alternative, NHTSA projects a dramatic decline in annual emissions of carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxide (NO_x), and fine particulate matter (PM_{2.5}) attributable to the light-duty on-road fleet between 2020 and 2050. As exemplified in Figure V-8, emissions in any given year could be very nearly the same under each regulatory alternative.

On the other hand, as discussed in the PRIA and SEIS accompanying this NPRM, NHTSA projects that annual SO₂ emissions attributable to the light-duty on-road fleet could increase modestly

under the action alternatives, because, as discussed above, NHTSA projects that each of the action alternatives could lead to greater use of electricity (for PHEVs and BEVs). The adoption of actions—such as actions prompted by President Biden’s Executive order directing agencies to develop a Federal Clean Electricity and Vehicle Procurement Strategy—to reduce electricity generation emission rates beyond projections underlying NHTSA’s analysis (discussed in the TSD) could dramatically reduce SO₂ emissions under all regulatory alternatives considered here.³⁸²

³⁸² E.O. 14008, 86 FR 7619 (Feb. 1, 2021), <https://www.whitehouse.gov/briefing-room/presidential->

[actions/2021/01/27/executive-order-on-tackling-](https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-)

[the-climate-crisis-at-home-and-abroad/](https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/), accessed June 17, 2021.

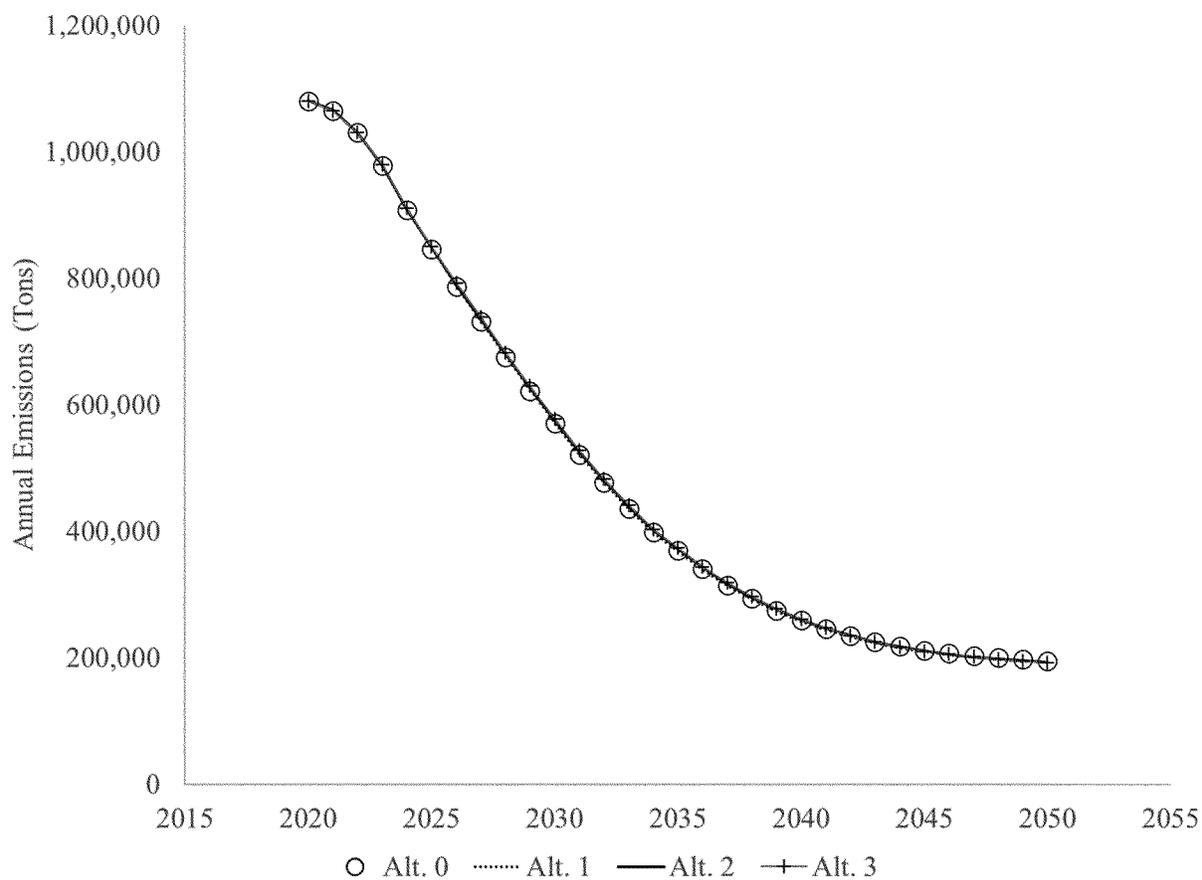


Figure V-8 – Estimated Annual NOx Emissions Attributable to Light-Duty On-Road Fleet

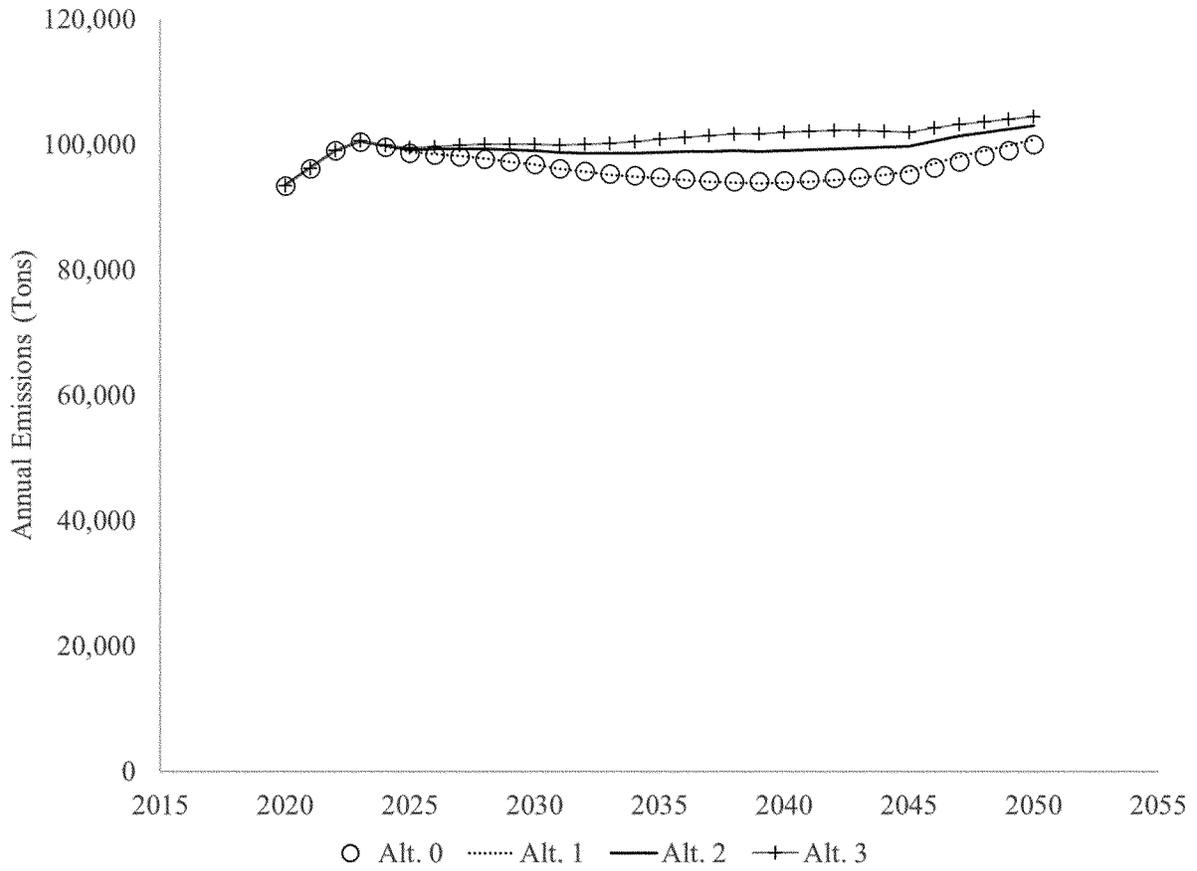


Figure V-9 – Estimated Annual SO₂ Emissions Attributable to Light-Duty On-Road Fleet

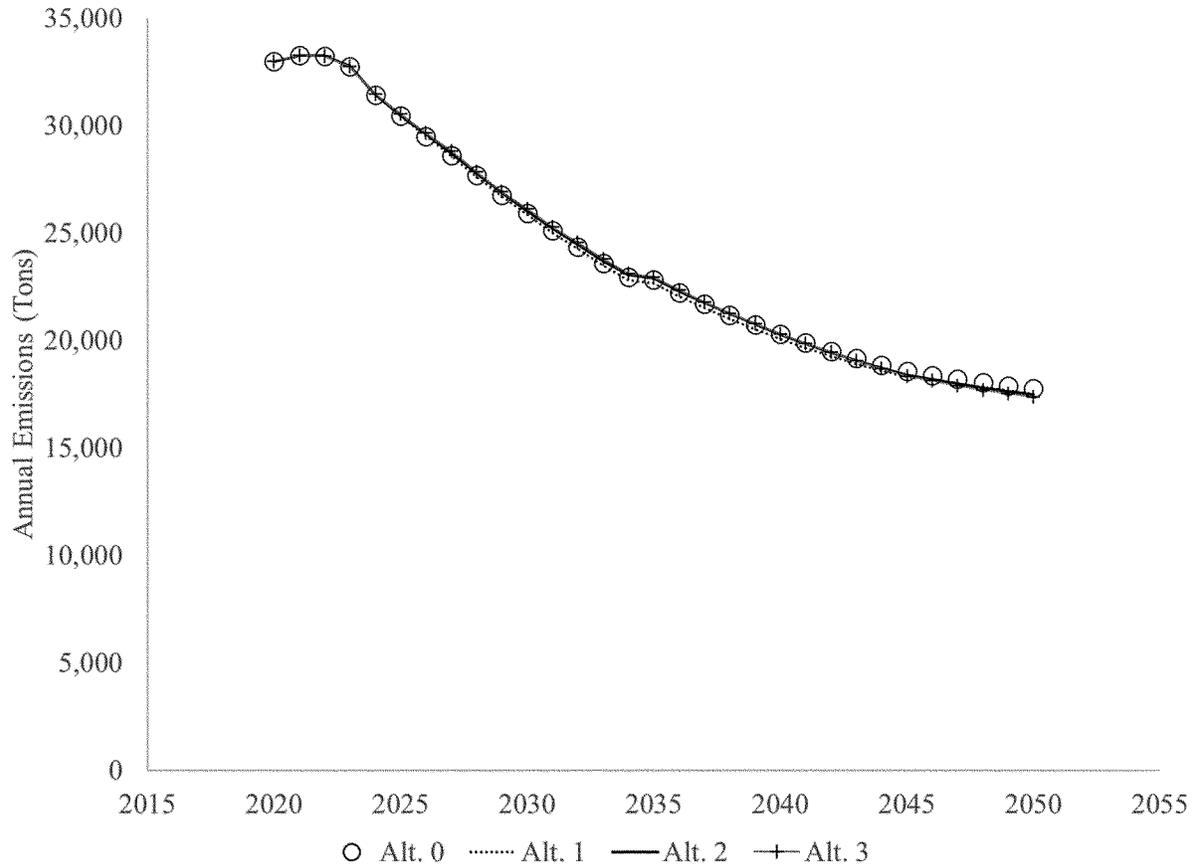


Figure V-10 – Estimated Annual PM_{2.5} Emissions Attributable to Light-Duty On-Road Fleet

Health impacts quantified by the CAFE Model include various instances of hospital visits due to respiratory problems, minor restricted activity days, non-fatal heart attacks, acute bronchitis, premature mortality, and other effects of criteria pollutant emissions on health.

Figure V-11 shows the differences in select health impacts relative to the baseline, across alternatives 1-3. These changes are split between calendar year decades, with the largest differences between the baseline and alternatives occurring between 2041-2050. The

magnitude of the differences relates directly to the changes in tons of criteria pollutants emitted. See Chapter 5.4 of the TSD for information regarding how the CAFE Model calculates these health impacts.

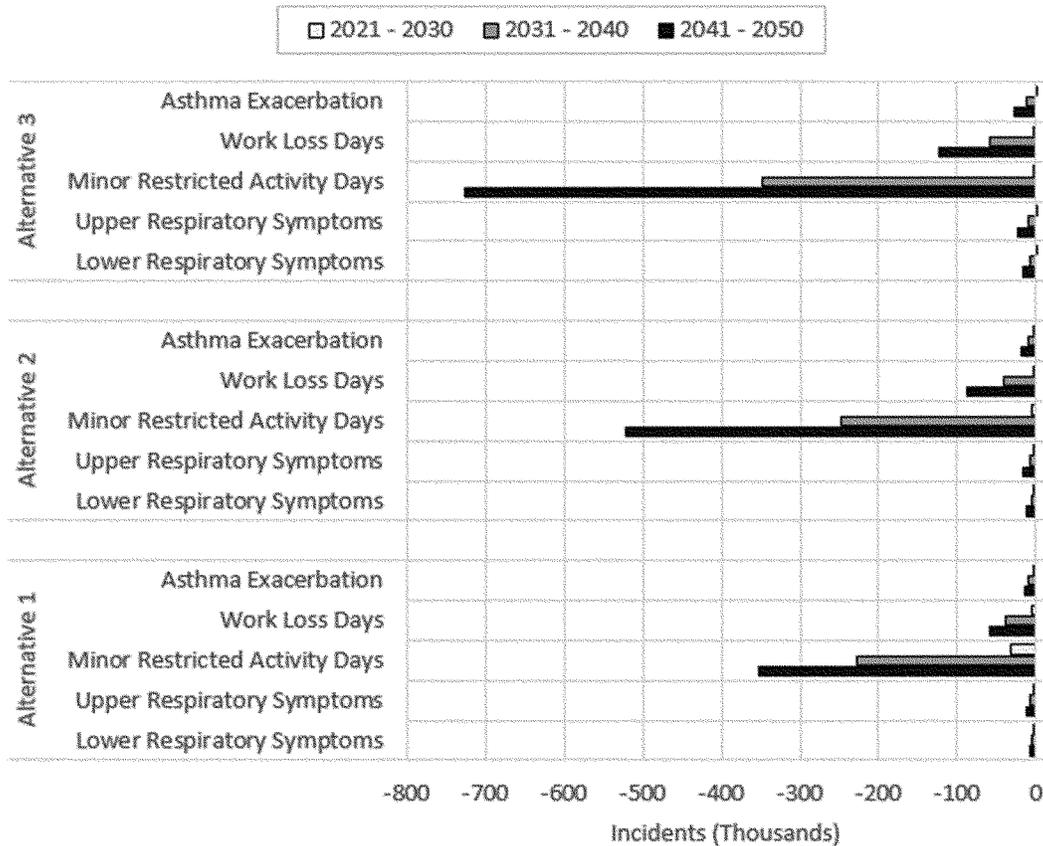


Figure V-11 – Changes in Cumulative Emission Health Impacts Relative to the Baseline

Lastly, NHTSA also quantifies safety impacts in its analysis. These include estimated counts of fatalities, non-fatal injuries, and property damage crashes occurring over the lifetimes of the light-duty on-road vehicles considered in the analysis. Chapter 5 in the PRIA accompanying this NPRM contains an in-depth discussion on the effects of the various alternatives on these safety measures, and TSD Chapter 7 contains information regarding the construction of the safety estimates.

E. Sensitivity Analysis

The analysis conducted to support this proposal consists of data, estimates, and assumptions, all applied within an analytical framework, the CAFE Model. Just like in all past CAFE rulemakings, NHTSA recognizes that many analytical inputs are uncertain, and some inputs are very uncertain. Of those uncertain inputs, some are likely to exert considerable influence over specific types of estimated impacts, and some are likely to do so for the bulk of the

analysis. Yet making assumptions in the face of that uncertainty is necessary, if we are going to try to analyze meaningfully the effects of something that will happen in the future—*i.e.*, the regulatory alternatives being considered, that represent different possible CAFE standards for MYs 2024–2026. To get a sense of the effect that these assumptions have on the analytical findings, we conducted additional model runs with alternative assumptions, which explored a range of potential inputs and the sensitivity of estimated impacts to changes in model inputs. Sensitivity cases in this analysis span assumptions related to technology applicability and cost, economic conditions, consumer preferences, externality values, and safety assumptions, among others.³⁸³ A sensitivity analysis can identify two critical pieces of information: *How big an influence* does each parameter exert on the analysis, and *how sensitive are the model results* to that assumption?

That said, influence is different from likelihood. NHTSA does not mean to suggest that any one of the sensitivity cases presented here is inherently more likely than the collection of assumptions that represent the reference case in the figures and tables that follow. Nor is this sensitivity analysis intended to suggest that only one of the many assumptions made is likely to prove off-base with the passage of time or new observations. It is more likely that, when assumptions are eventually contradicted by future observation (*e.g.*, deviations in observed and predicted fuel prices are nearly a given), there will be *collections* of assumptions, rather than individual parameters, that simultaneously require updating. For this reason, we do not interpret the sensitivity analysis as necessarily providing justification for alternative regulatory scenarios to be preferred. Rather, the analysis simply provides an indication of which assumptions are most critical, and the extent to which future deviations from central analysis

³⁸³In contrast to an uncertainty analysis, where many assumptions are varied simultaneously, the sensitivity analyses included here vary a single

assumption and provide information about the influence of each individual factor, rather than

suggesting that an alternative assumption would have justified a different preferred alternative.

assumptions could affect costs and benefits of this proposal.

Table V-38 lists and briefly describes the cases that we examined in the sensitivity analysis.

Table V-38 – Cases Included in Sensitivity Analysis

Sensitivity Case	Description
Reference case (RC)	Reference case with 2.5% SCC discount rate
RC w/ 7% social DR, 3% SC-GHG DR	Reference case with 3% SCC discount rate (DR) (for 7% social discount rate)
RC w/ 7% social DR, 5% SC-GHG DR	Reference case with 5% SCC discount rate
RC w/ 95th pctile SC-GHG DR	Reference case with 95th percentile SCC discount rate
2020 SCC	Social cost of carbon values at 2020 Final Rule levels
One-year redesign cadence	Vehicles redesigned every year
MR5/6 skip (>100k)	MR5 and MR6 skipped for platforms with 100k or more units
MR5/6 skip (>2k)	MR5 and MR6 skipped for platforms with 2k or more units
No MR5/6 skip	No MR5 or MR6 application applied without SKIP restriction
2020 Final Rule MR5/6 costs	Cost values for MR5 and MR6 at levels from 2020 Final Rule
No HCR skip	HCR engine applicable for all OEMs and technology classes
Flat AC/OC	No additional AC or OC credit accumulation after MY 2021 levels
Reduced MDPCS stringency	Minimum domestic passenger car standard reduced as described in Section VI of the preamble
60-month payback period	60-month payback period
Battery direct costs (-20%)	Battery direct manufacturing cost decreased by 20%, reference battery learning cost
Battery direct costs (+20%)	Battery direct manufacturing cost increased by 20%, reference battery learning cost
Battery learning costs (-20%)	Battery learning cost decreased by 20%, reference direct manufacturing cost
Battery learning costs (+20%)	Battery learning cost increased by 20%, reference direct manufacturing cost
Rebound (10%)	Ten percent rebound effect
Rebound (20%)	Twenty percent rebound effect
Mass-size-safety (low)	The lower bound of the 95% CI for all model coefficients
Mass-size-safety (high)	The upper bound of the 95% CI for all model coefficients
Crash avoidance (low effectiveness)	Lower-bound estimate of effectiveness for 6 current crash avoidance technologies at avoiding fatal, injury, and property damage
Crash avoidance (high effectiveness)	Upper-bound estimate of effectiveness for 6 current crash avoidance technologies at avoiding fatal, injury, and property damage
Sales-scrappage response (-20%)	Sales-scrappage elasticity decreased by 20%
Sales-scrappage response (+20%)	Sales-scrappage elasticity increased by 20%
Low GDP	Low economic growth (AEO2021)
High GDP	High economic growth (AEO2021)
Oil price (EIA low)	Input oil price series based on EIA low forecast
Oil price (Global Insight)	Input oil price series based on Global Insight forecast
Oil price (EIA high)	Input oil price series based on EIA high forecast

Complete results for the sensitivity cases are summarized in Chapter 7 of the accompanying PRIA, and detailed model inputs and outputs for curious

readers are available on NHTSA’s website.³⁸⁴ For purposes of this preamble, Figure V–12 below illustrates the relative change of the sensitivity

effect of selected inputs on the costs and benefits that we estimate for the proposal.

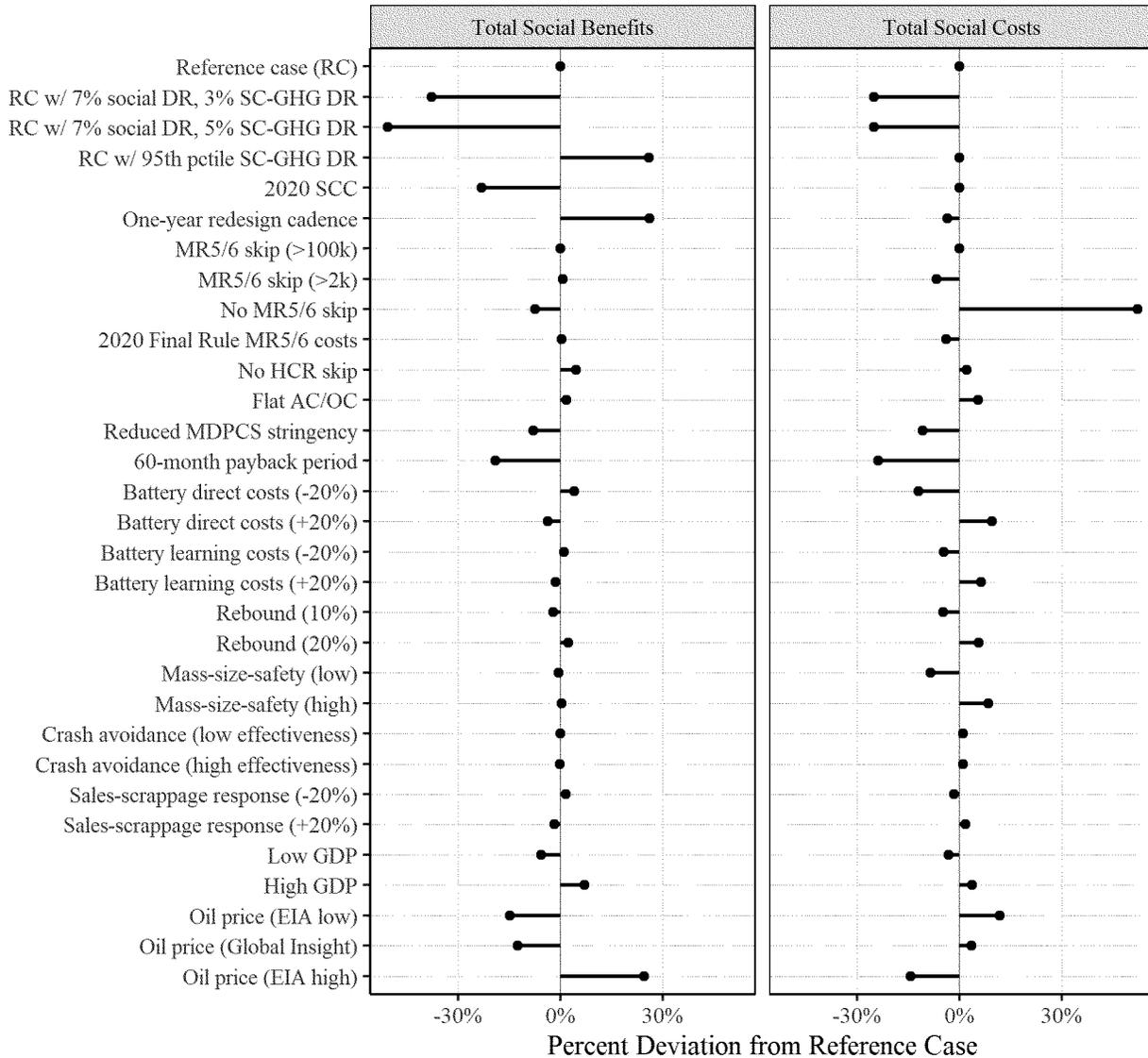


Figure V-12 – Relative Change in Total Costs and Total Benefits from Reference Case

While Figure V–12 does not show precise values, it gives us a sense of which inputs are ones for which a different assumption would have a much different effect on analytical findings, and which ones would not have much effect. Assuming a more-discounted or lower social cost of carbon would have a relatively large effect, as would assuming a different oil price, or doubling the assumed

“payback period.” Making very high levels of mass reduction unavailable in the modeling appears to have a (relatively) very large effect on costs, but this is to some extent an artifact of the “standard setting” runs used for the preamble and PRIA analysis, where electrification is limited due to statutory restrictions. On the other hand, assumptions about which there has been significant disagreement in the past, like

the rebound effect or the sales-scrappage response, appear to cause only relatively small changes in net benefits. Chapter 7 of the PRIA provides a much fuller discussion of these findings, and presents net benefits estimated under each of the cases included in the sensitivity analysis, including the subset for which impacts are summarized in Figure V–13.

³⁸⁴ <https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy>.

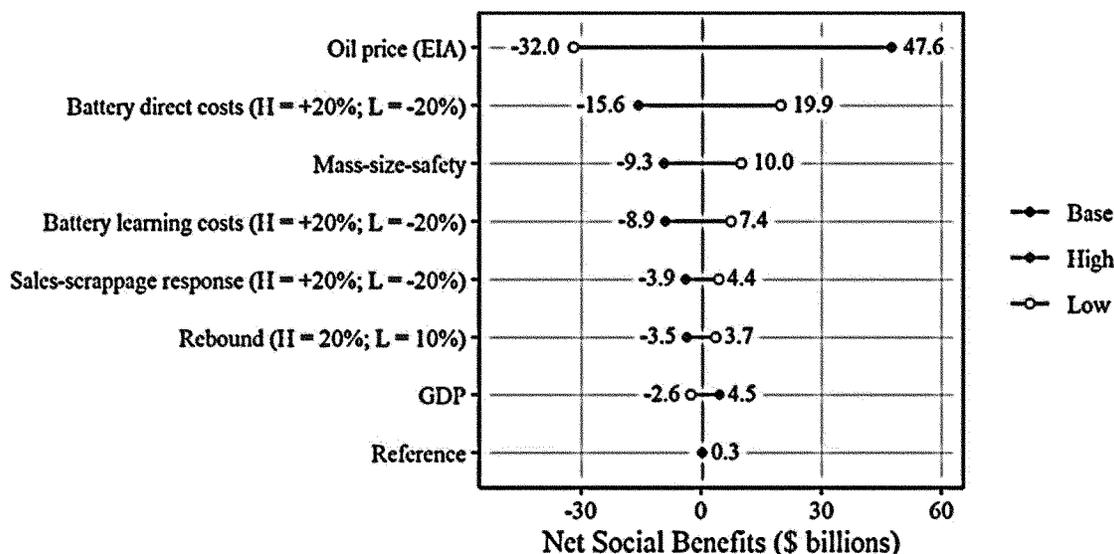


Figure V-13 – Relative Magnitude of Sensitivity Effect on Net Benefits

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The results presented in the earlier subsections of Section V and discussed in Section VI reflect the agency's best judgments regarding many different factors, and the sensitivity analysis discussed here is simply to illustrate the obvious, that differences in assumptions can lead to differences in analytical outcomes, some of which can be large and some of which may be smaller than expected. Policy-making in the face of future uncertainty is inherently complex. Section VI explains how NHTSA proposes to balance the statutory factors in light of the analytical findings, the uncertainty that we know exists, and our Nation's policy goals, to determine the CAFE standards that NHTSA tentatively concludes are maximum feasible for MYs 2024–2026.

VI. Basis for NHTSA's Tentative Conclusion That the Proposed Standards Are Maximum Feasible

In this section, NHTSA discusses the factors, data, and analysis that the agency has considered in the tentative selection of the proposed CAFE standards for MYs 2024–2026. The primary purpose of EPCA, as amended by EISA, and codified at 49 U.S.C. chapter 329, is energy conservation, and fuel economy standards help to conserve energy by requiring automakers to make new vehicles travel a certain distance on a gallon of fuel.³⁸⁵

³⁸⁵ While individual vehicles need not meet any particular mpg level, as discussed elsewhere in this preamble, fuel economy standards do require vehicle manufacturers' fleets to meet certain compliance obligations based on fuel economy

The goal of the CAFE standards is to conserve energy, while taking into account the statutory factors set forth at 49 U.S.C. 32902(f), as discussed below.

The provision at 49 U.S.C. 32902(f) states that when setting maximum feasible CAFE standards for new passenger cars and light trucks, the Secretary of Transportation³⁸⁶ "shall consider technological feasibility, economic practicability, the effect of other motor vehicle standards of the Government on fuel economy, and the need of the United States to conserve energy." In previous rulemakings, including the 2012 final rule issued during the Obama Administration and the recent 2020 final rule, NHTSA considered technological feasibility, including the availability of various fuel-economy-improving technologies to be applied to new vehicles in the timeframe of the standards depending on the ultimate stringency levels, and also considered economic practicability, including the differences between a range of regulatory alternatives in terms of effects on per-vehicle costs, the ability of both the industry and individual manufacturers to comply with standards at various levels, as well as effects on vehicle sales, industry employment, and consumer demand. NHTSA also considered how compliance with other motor vehicle standards of the Government might affect manufacturers' ability to meet CAFE standards represented by a range

levels target curves set forth by NHTSA in regulation.

³⁸⁶ By delegation, the NHTSA Administrator.

of regulatory alternatives, and how the need of the U.S. to conserve energy could be more or less addressed under a range of regulatory alternatives, in terms of considerations like costs to consumers, the national balance of payments, environmental implications like climate and smog effects, and foreign policy effects such as the likelihood that U.S. military and other expenditures could change as a result of more or less oil consumed by the U.S. vehicle fleet. These elements are discussed in detail throughout this analysis. As will be explained in greater detail below, while NHTSA is considering all of the same factors in proposing revised CAFE standards for MYs 2024–2026 that it considered in previous rulemakings, the agency's balancing of those factors has shifted, and NHTSA is therefore choosing to set CAFE standards at a different level from what both the 2012 final rule and the 2020 final rule set forth. Besides the factors specified in 32902(f), NHTSA has also historically considered the safety effects of potential CAFE standards, and additionally considers relevant case law.

NHTSA and EPA have coordinated in setting standards, and many of the factors that NHTSA considers to set maximum feasible standards complement factors that EPA considers under the Clean Air Act. The balancing of competing factors by both EPA and NHTSA are consistent with each agency's statutory authority and recognize the statutory obligations the Supreme Court pointed to in *Massachusetts v. EPA*. NHTSA also

considers the Ninth Circuit's decision in *Center for Biological Diversity v. NHTSA*, which remanded NHTSA's 2006 final rule establishing standards for MYs 2008–2011 light trucks and underscored that “the overarching purpose of EPCA is energy conservation.”³⁸⁷

This proposal contains a range of regulatory alternatives for MYs 2024–2026, from retaining the 1.5 percent annual increases set in 2020, up to a stringency increase of 10 percent annually. The analysis supported this range of alternatives based on factors relevant to NHTSA's exercise of its 32902(f) authority, such as fuel saved and emissions reduced, the technologies available to meet the standards, the costs of compliance for automakers and their abilities to comply by applying technologies, the impact on consumers with respect to cost, fuel savings, and vehicle choice, and effects on safety, among other things.

NHTSA's tentative conclusion, after consideration of the factors described below and information in the administrative record for this action, is that 8 percent increases in stringency for MYs 2024–2026 (Alternative 2 of this analysis) are maximum feasible. The Biden Administration is deeply committed to working aggressively to improve energy conservation, and higher standards appear increasingly likely to be economically practicable given almost-daily announcements by major automakers about forthcoming new high-fuel-economy vehicle models, as described below. Despite only one year having passed since the 2020 final rule, enough has changed in the U.S. and the world that revisiting the CAFE standards for MYs 2024–2026, and raising their stringency considerably, is both appropriate and reasonable.

The following sections discuss in more detail the statutory requirements and considerations involved in NHTSA's tentative determination of maximum feasible CAFE standards, and NHTSA's explanation of its balancing of factors for this tentative determination.

A. EPCA, as Amended by EISA

EPCA, as amended by EISA, contains a number of provisions regarding how NHTSA must set CAFE standards. DOT (by delegation, NHTSA)³⁸⁸ must establish separate CAFE standards for passenger cars and light trucks³⁸⁹ for

each model year,³⁹⁰ and each standard must be the maximum feasible that the Secretary (again, by delegation, NHTSA) believes the manufacturers can achieve in that model year.³⁹¹ In determining the maximum feasible levels of CAFE standards, EPCA requires that NHTSA consider four statutory factors: Technological feasibility, economic practicability, the effect of other motor vehicle standards of the Government on fuel economy, and the need of the United States to conserve energy.³⁹² In addition, NHTSA has the authority to consider (and typically does consider) other relevant factors, such as the effect of CAFE standards on motor vehicle safety and consumer preferences. The ultimate determination of what standards can be considered maximum feasible involves a weighing and balancing of factors, and the balance may shift depending on the information before NHTSA about the expected circumstances in the model years covered by the rulemaking. The agency's decision must also be guided by the overarching purpose of EPCA, energy conservation, while balancing these factors.³⁹³

Besides the requirement that the standards be maximum feasible for the fleet in question and the model year in question, EPCA/EISA also contain several other requirements, as follow.

1. Lead Time

EPCA requires that NHTSA prescribe new CAFE standards at least 18 months before the beginning of each model year.³⁹⁴ For amendments to existing standards (as this NPRM proposes), EPCA requires that if the amendments make an average fuel economy standard more stringent, at least 18 months of lead time must be provided.³⁹⁵ Thus, if the first year for which NHTSA is proposing to amend standards in this NPRM is MY 2024, NHTSA interprets this provision as requiring the agency to issue a final rule covering MY 2024 standards no later than April 2022.

2. Separate Standards for Cars and Trucks, and Minimum Standards for Domestic Passenger Cars

As mentioned above, EPCA requires NHTSA to set separate standards for passenger cars and light trucks for each

model year.³⁹⁶ NHTSA has long interpreted this requirement as preventing the agency from setting a single combined CAFE standard for cars and trucks together, based on the plain language of the statute. Congress originally required separate CAFE standards for cars and trucks to reflect the different fuel economy capabilities of those different types of vehicles, and over the history of the CAFE program, has never revised this requirement. Even as many cars and trucks have come to resemble each other more closely over time—many crossover and sport-utility models, for example, come in versions today that may be subject to either the car standards or the truck standards depending on their characteristics—it is still accurate to say that vehicles with truck-like characteristics such as 4-wheel drive, cargo-carrying capability, etc., currently consume more fuel per mile than vehicles without these characteristics.

EPCA, as amended by EISA, also requires another separate standard to be set for domestically-manufactured³⁹⁷ passenger cars. Unlike the generally-applicable standards for passenger cars and light trucks described above, the compliance obligation of the minimum domestic passenger car standard (MDPCS for brevity) is identical for all manufacturers. The statute clearly states that any manufacturer's domestically manufactured passenger car fleet must meet the greater of either 27.5 mpg on average, or 92 percent of the average fuel economy projected by the Secretary for the combined domestic and non-domestic passenger automobile fleets manufactured for sale in the United States by all manufacturers in the model year, which projection shall be published in the **Federal Register** when the standard for that model year is promulgated in accordance with 49 U.S.C. 32902(b).³⁹⁸

Since that requirement was promulgated, the “92 percent” has always been greater than 27.5 mpg, and foreseeably will continue to be so in the future. While NHTSA published 92 percent MDPCSs for MYs 2024–2026 at 49 CFR 531.5(d) as part of the 2020 final rule, the statutory language is clear that

³⁹⁶ 49 U.S.C. 32902(b)(1) (2007).

³⁹⁷ In the CAFE program, “domestically-manufactured” is defined by Congress in 49 U.S.C. 32904(b). The definition roughly provides that a passenger car is “domestically manufactured” as long as at least 75 percent of the cost to the manufacturer is attributable to value added in the United States, Canada, or Mexico, unless the assembly of the vehicle is completed in Canada or Mexico and the vehicle is imported into the United States more than 30 days after the end of the model year.

³⁹⁸ 49 U.S.C. 32902(b)(4) (2007).

³⁸⁷ 538 F.3d 1172 (9th Cir. 2008).

³⁸⁸ EPCA and EISA direct the Secretary of Transportation to develop, implement, and enforce fuel economy standards (see 49 U.S.C. 32901 *et seq.*), which authority the Secretary has delegated to NHTSA at 49 CFR 1.95(a).

³⁸⁹ 49 U.S.C. 32902(b)(1) (2007).

³⁹⁰ 49 U.S.C. 32902(a) (2007).

³⁹¹ *Id.*

³⁹² 49 U.S.C. 32902(f) (2007).

³⁹³ *Center for Biological Diversity v. NHTSA*, 538 F.3d 1172, 1197 (9th Cir. 2008) (“Whatever method it uses, NHTSA cannot set fuel economy standards that are contrary to Congress's purpose in enacting the EPCA—energy conservation.”).

³⁹⁴ 49 U.S.C. 32902(a) (2007).

³⁹⁵ 49 U.S.C. 32902(g)(2) (2007).

the MDPCS must be determined at the time an overall passenger car standards is promulgated and published in the **Federal Register**. Thus, any time NHTSA establishes or changes a passenger car standard for a model year, the MDPCS must also be evaluated or re-evaluated and established accordingly.

As in the 2020 final rule, NHTSA recognizes industry concerns that actual total passenger car fleet standards have differed significantly from past projections, perhaps more so when the agency has projected significantly into the future. In that final rule, because the compliance data showed that the standards projected in 2012 were consistently more stringent than the actual standards, by an average of 1.9 percent. NHTSA stated that this difference indicated that in rulemakings conducted in 2009 through 2012, NHTSA's and EPA's projections of passenger car vehicle footprints and production volumes, in retrospect, underestimated the production of larger passenger cars over the MYs 2011 to 2018 period.³⁹⁹

Unlike the passenger car standards and light truck standards which are vehicle-attribute-based and automatically adjust with changes in consumer demand, the MDPCS are *not* attribute-based, and therefore do not adjust with changes in consumer demand and production. They are

instead fixed standards that are established at the time of the rulemaking. As a result, by assuming a smaller-footprint fleet, on average, than what ended up being produced, the MYs 2011–2018 MDPCS ended up being more stringent and placing a greater burden on manufacturers of domestic passenger cars than was projected and expected at the time of the rulemakings that established those standards. In the 2020 final rule, therefore, NHTSA agreed with industry concerns over the impact of changes in consumer demand (as compared to what was assumed in 2012 about future consumer demand for greater fuel economy) on manufacturers' ability to comply with the MDPCS and in particular, manufacturers that produce larger passenger cars domestically. Some of the largest civil penalties for noncompliance in the history of the CAFE program have been paid for noncompliance with the MDPCS. NHTSA also expressed concern that consumer demand may shift even more in the direction of larger passenger cars if fuel prices continue to remain low. Sustained low oil prices can be expected to have real effects on consumer demand for additional fuel economy, and consumers may foreseeably be even more interested in 2WD crossovers and passenger-car-fleet SUVs (and less interested in smaller passenger cars) than they are at present.

Therefore, in the 2020 final rule, to help avoid similar outcomes in the 2021–2026 timeframe to what had happened with the MDPCS over the preceding model years, NHTSA determined that it was reasonable and appropriate to consider the recent projection errors as part of estimating the total passenger car fleet fuel economy for MYs 2021–2026. NHTSA therefore projected the total passenger car fleet fuel economy using the central analysis value in each model year, and applied an offset based on the historical 1.9 percent difference identified for MYs 2011–2018.

For this proposal, recognizing that we are proposing to increase stringency considerably over the baseline standards and that civil penalties have also recently increased, NHTSA remains concerned that the MDPCS may pose a significant challenge to certain manufacturers. To that end, NHTSA is proposing to retain the 1.9 percent offset for the MDPCS for MYs 2024–2026, which we have appropriately recalculated based on the current projections for passenger cars based on the current analysis fleet. Table VI–1 shows the calculation values used to determine the total passenger car fleet fuel economy value for each model year for the preferred alternative.

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Table VI-1 – Calculation of the Projected Total Passenger Car Fleet Standard and the Minimum Domestic Passenger Car Standard (92 Percent of the Total Passenger Car Standard) for the Preferred Alternative

	2024	2025	2026
Projected Total PC Fleet Standard – Central Analysis (mpg)	49.2	53.4	58.1
Offset: Average Historical Difference Between Regulatory Analyses and Actual Total PC Fleet Standard (percent)	-1.9	-1.9	-1.9
Offset: Average Historical Difference Between Regulatory Analyses and Actual Total PC Fleet Standard (mpg)	-0.92	-1.00	-1.08
Projected Total PC Standard Accounting for Historical Offset (mpg)	48.2	52.4	57.0
Minimum Domestic Passenger Car Standard = 92% of Projected Total PC Standard Accounting for Historical Offset (mpg)	44.4	48.2	52.4

Using this approach, the MDPCS under each regulatory alternative would thus be as shown in Table VI–2.

³⁹⁹ See 85 FR at 25127 (Apr. 30, 2020).

Table VI-2 – Proposed MDPCS for Each Regulatory Alternative, Calculated per 1.9 Percent Offset

Alternative	MY 2024	MY 2025	MY 2026
No Action	41.4	42.1	42.7
Alternative 1	44.9	46.5	48.0
Alternative 2 (Preferred)	44.4	48.2	52.4
Alternative 3	45.4	50.4	56.0

NHTSA is also seeking comment on another approach to offsetting the MDPCS. Recognizing that the analysis supporting this proposal does not attempt to project how vehicle footprints may change in the future, nor how that might affect the average fuel economy of passenger cars sold in the

U.S., NHTSA could instead attempt to make such a projection explicitly. Examination of the average footprints of passenger cars sold in the U.S. from 2008, when EPA began reporting footprint data, to 2020 indicates a clear and statistically significant trend of gradually increasing average footprint (Figure VI-1). The average annual increase in passenger car footprint,

estimated by ordinary least squares, indicates that the passenger car footprints increased by an average of 0.1206 square feet annually over the 2008–2020 period. The estimated average increase is statistically significant at the 0.000001 level, with a 95 percent confidence interval of (0.0929, 0.1483).

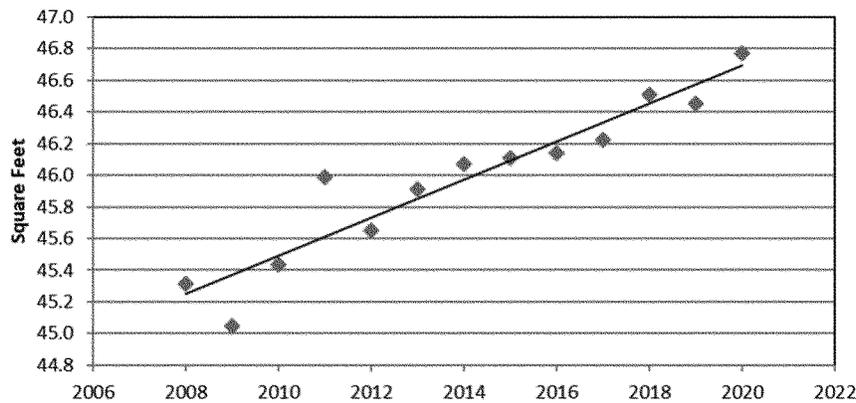


Figure VI-1 – Trend in Passenger Car Footprint, 2008-2020 (Source: EPA 2020 Automotive Trends Report)

The alternate method for calculating an offset to the MDPCS would be three steps, as follows:

1. Starting from the average footprint of passenger cars in 2020 as reported by EPA, add 0.1206 square feet per year through 2026.

2. Calculate the estimated fuel economy of passenger cars using the average projected footprint numbers calculated in step 1 and the footprint functions that are the passenger car standards for the corresponding model year, which then become “the

Secretary’s projected passenger car fuel economy numbers.”

3. Apply the 92 percent factor to calculate the MDPCS for 2024, 2025, and 2026.

The results of this approach are shown in Table VI-3.

Table VI-3 – Alternate Approach to Offsetting MDPCS, on Which NHTSA Seeks Comment

Alternative	MY 2024	MY 2025	MY 2026
No Action	41.6	42.2	42.7
Alternative 1	45.1	46.5	48.0
Alternative 2 (Preferred)	44.6	48.3	52.4
Alternative 3	45.5	50.5	56.0

Comparing all of these, Table VI-4 shows (1) the unadjusted 92 percent MDPCS for MYs 2024–2026, (2) the

proposed 1.9 percent-offset MDPCS for MYs 2024–2026, and (3) the alternate

approach offset MDPCS for MYs 2024–2026.

Table VI-4 – Comparing the Required mpg Levels for the MDPCS by Regulatory Alternative and Offset Approach

Alternative	MY 2024	MY 2025	MY 2026
No Action			
Unadjusted 92%	42.2	42.9	43.5
1.9% offset	41.4	42.1	42.7
Alternate approach offset	41.6	42.2	42.7
Alternative 1			
Unadjusted 92%	45.8	47.3	48.9
1.9% offset	44.9	46.5	48.0
Alternate approach offset	45.1	46.5	48.0
Alternative 2 (Preferred)			
Unadjusted 92%	45.2	49.2	53.4
1.9% offset	44.4	48.2	52.4
Alternate approach offset	44.6	48.3	52.4
Alternative 3			
Unadjusted 92%	50.2	55.8	62.0
1.9% offset	45.4	50.4	56.0
Alternate approach offset	45.5	50.5	56.0

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While the CAFE Model analysis underlying this proposal, the PRIA, and the Draft SEIS does not reflect an offset to the unadjusted 92 percent MDPCS, separate analysis that does reflect the change demonstrates that doing so does not change estimated impacts of any of the regulatory alternatives under consideration, despite the mpg values being slightly different as shown in Table VI-4.

NHTSA seeks comment on the discussion above. To be clear, the agency also seeks comment on whether to apply the MDPCS without any modifier.

3. Attribute-Based and Defined by a Mathematical Function

EISA requires NHTSA to set CAFE standards that are “based on 1 or more attributes related to fuel economy and express[ed] . . . in the form of a mathematical function.”⁴⁰⁰ Historically, NHTSA has based standards on vehicle footprint, and proposes to continue to do so for the reasons described in

Section III.B of this preamble and Chapter 1 of the accompanying TSD. As in previous rulemakings, NHTSA is proposing to define the standards in the form of a constrained linear function that generally sets higher (more stringent) targets for smaller-footprint vehicles and lower (less stringent) targets for larger-footprint vehicles. These footprint curves are discussed in more detail in Section III.B and TSD Chapter 1. NHTSA seeks comment in Section III.B both on the continued use of footprint as the relevant attribute and on the continued use of the constrained linear curve shapes.

4. Number of Model Years for Which Standards May Be Set at a Time

EISA also states that NHTSA shall “issue regulations under this title prescribing average fuel economy standards for at least 1, but not more than 5, model years.”⁴⁰¹ In this NPRM, NHTSA is proposing to set CAFE standards for three model years, MYs

2024–2026. This proposal fits squarely within the plain language of the statute.

5. Maximum Feasible Standards

As discussed above, EPCA requires NHTSA to consider four factors in determining what levels of CAFE standards would be maximum feasible. NHTSA presents in the sections below its understanding of the meanings of those four factors.

(a) Technological Feasibility

“Technological feasibility” refers to whether a particular method of improving fuel economy is available for deployment in commercial application in the model year for which a standard is being established. Thus, NHTSA is not limited in determining the level of new standards to technology that is already being applied commercially at the time of the rulemaking. For this proposal, NHTSA has considered a wide range of technologies that improve fuel economy, while considering the need to account for which technologies have already been applied to which vehicle model/configuration, as well as the need to estimate realistically the cost and fuel

⁴⁰⁰ 49 U.S.C. 32902(b)(3)(A) (2007).

⁴⁰¹ 49 U.S.C. 32902(b)(3)(B) (2007).

economy impacts of each technology as applied to different vehicle models/configurations. NHTSA has not, however, attempted to account for every technology that might conceivably be applied to improve fuel economy, nor does NHTSA believe it is necessary to do so given that many technologies address fuel economy in similar ways.⁴⁰²

NHTSA notes that the technological feasibility factor allows NHTSA to set standards that force the development and application of new fuel-efficient technologies, but this factor does not *require* NHTSA to do so.⁴⁰³ In the 2012 final rule, NHTSA stated that “[i]t is important to remember that technological feasibility must also be balanced with the other of the four statutory factors. Thus, while ‘technological feasibility’ can drive standards higher by assuming the use of technologies that are not yet commercial, ‘maximum feasible’ is also defined in terms of economic practicability, for example, which might caution the agency against basing standards (even fairly distant standards) *entirely* on such technologies.”⁴⁰⁴ NHTSA further stated that “. . . as the ‘maximum feasible’ balancing may vary depending on the circumstances at hand for the model year in which the standards are set, the extent to which technological feasibility is simply met or plays a more dynamic role may also shift.”⁴⁰⁵ For purposes of this proposal covering standards for MYs 2024–2026, NHTSA is certain that sufficient technology exists to meet the standards—even for the most stringent regulatory alternative. As will be discussed further below, for this proposal, the question is more likely rather, given that the technology exists, how much of it should be required to be added to new cars and trucks in order to conserve more energy, and how to balance that objective against the additional cost of adding that technology.

(b) Economic Practicability

“Economic practicability” has consistently referred to whether a standard is one “within the financial capability of the industry, but not so

⁴⁰² For example, NHTSA has not considered high-speed flywheels as potential energy storage devices for hybrid vehicles; while such flywheels have been demonstrated in the laboratory and even tested in concept vehicles, commercially-available hybrid vehicles currently known to NHTSA use chemical batteries as energy storage devices, and the agency has considered a range of hybrid vehicle technologies that do so.

⁴⁰³ See 77 FR at 63015 (Oct. 12, 2012).

⁴⁰⁴ *Id.*

⁴⁰⁵ *Id.*

stringent as to” lead to “adverse economic consequences, such as a significant loss of jobs or unreasonable elimination of consumer choice.”⁴⁰⁶ In evaluating economic practicability, NHTSA considers the uncertainty surrounding future market conditions and consumer demand for fuel economy alongside consumer demand for other vehicle attributes. There is not necessarily a bright-line test for whether a regulatory alternative is economically practicable, but there are several metrics that we discuss below that we find can be useful for making this assessment. In determining whether standards may or may not be economically practicable, NHTSA considers:

Application rate of technologies—whether it appears that a regulatory alternative would impose undue burden on manufacturers in either or both the near and long term in terms of how much and which technologies might be required. This metric connects to the next two metrics, as well.

Other technology-related considerations—related to the application rate of technologies, whether it appears that the burden on several or more manufacturers might cause them to respond to the standards in ways that compromise, for example, vehicle safety, or other aspects of performance that may be important to consumer acceptance of new products.

Cost of meeting the standards—even if the technology exists and it appears that manufacturers can apply it consistent with their product cadence, if meeting the standards will raise per-vehicle cost more than we believe consumers are likely to accept, which could negatively impact sales and employment in this sector, the standards may not be economically practicable. While consumer acceptance of additional new vehicle cost associated with more stringent CAFE standards is uncertain, NHTSA still finds this metric useful for evaluating economic practicability. Elsewhere in this preamble, we seek comment specifically on consumer valuation of fuel economy.

Sales and employment responses—as discussed above, sales and employment responses have historically been key to NHTSA’s understanding of economic practicability.

*Uncertainty and consumer acceptance*⁴⁰⁷ *of technologies*—considerations not accounted for

expressly in our modeling analysis, but important to an assessment of economic practicability given the timeframe of this rulemaking. Consumer acceptance can involve consideration of anticipated consumer responses not just to increased vehicle cost and consumer valuation of fuel economy, but also the way manufacturers may change vehicle models and vehicle sales mix in response to CAFE standards.

Over time, NHTSA has tried different methods to account for economic practicability. Many years ago, prior to the MYs 2005–2007 rulemaking under the non-attribute-based (fixed value) CAFE standards, NHTSA sought to ensure the economic practicability of standards in part by setting them at or near the capability of the “least capable manufacturer” with a significant share of the market, *i.e.*, typically the manufacturer whose fleet mix was, on average, the largest and heaviest, generally having the highest capacity and capability so as not to limit the availability of those types of vehicles to consumers. NHTSA rejected the “least capable manufacturer” approach several rulemakings ago and no longer believes that it is consistent with our root interpretation of economic practicability. Economic practicability focuses on the capability of the *industry* and seeks to avoid adverse consequences such as (*inter alia*) a significant loss of jobs or unreasonable elimination of consumer choice. If the overarching purpose of EPCA is energy conservation, it seems reasonable to expect that maximum feasible standards may be harder for some automakers than for others, and that they need not be keyed to the capabilities of the *least* capable manufacturer.

NHTSA has also sought to account for economic practicability by applying marginal cost-benefit analysis since the first rulemakings establishing attribute-based standards, considering both overall societal impacts and overall consumer impacts. Whether the standards maximize net benefits has thus been a significant, but not dispositive, factor in the past for NHTSA’s consideration of economic practicability. Executive Order 12866, as amended by Executive Order 13563, states that agencies should “select, in choosing among alternative regulatory approaches, those approaches that maximize net benefits . . .” In practice, however, agencies, including NHTSA, must consider that the modeling of net benefits does not capture all considerations relevant to economic practicability. Therefore, as in past rulemakings, NHTSA is considering net societal impacts, net consumer impacts,

⁴⁰⁶ 67 FR 77015, 77021 (Dec. 16, 2002).

⁴⁰⁷ See, e.g., *Center for Auto Safety v. NHTSA* (CAS), 793 F.2d 1322 (D.C. Cir. 1986) (Administrator’s consideration of market demand as component of economic practicability found to be reasonable).

and other related elements in the consideration of economic practicability. That said, it is well within the agency's discretion to deviate from the level at which modeled net benefits are maximized if the agency concludes that the level would not represent the maximum feasible level for future CAFE standards. Economic practicability is complex, and like the other factors must be considered in the context of the overall balancing and EPCA's overarching purpose of energy conservation.

(c) The Effect of Other Motor Vehicle Standards of the Government on Fuel Economy

"The effect of other motor vehicle standards of the Government on fuel economy" involves analysis of the effects of compliance with emission, safety, noise, or damageability standards on fuel economy capability and thus on average fuel economy. In many past CAFE rulemakings, NHTSA has said that it considers the adverse effects of other motor vehicle standards on fuel economy. It said so because, from the CAFE program's earliest years⁴⁰⁸ until recently, the effects of such compliance on fuel economy capability over the history of the CAFE program have been negative ones. For example, safety standards that have the effect of increasing vehicle weight thereby lower fuel economy capability, thus decreasing the level of average fuel economy that NHTSA can determine to be feasible. NHTSA has also accounted for EPA's "Tier 3" standards for criteria pollutants in its estimates of technology effectiveness in this proposal, and State emissions standards (like California's) that address the tailpipe NO_x, NMOG, and CO emissions that occur during cold start.⁴⁰⁹

⁴⁰⁸ 43 FR 63184, 63188 (Dec. 15, 1977). *See also* 42 FR 33534, 33537 (Jun. 30, 1977).

⁴⁰⁹ For most ICE vehicles on the road today, the majority of tailpipe NO_x, NMOG, and CO emissions occur during "cold start," before the three-way catalyst has reached the very high temperature (e.g., 900–1000 °F) at which point it is able to convert (through oxidation and reduction reactions) those emissions into less harmful derivatives. By limiting the amount of those emissions, tailpipe smog standards require the catalyst to be brought to temperature extremely quickly, so modern vehicles employ cold start strategies that intentionally release fuel energy into the engine exhaust to heat the catalyst to the right temperature as quickly as possible. The additional fuel that must be used to heat the catalyst is typically referred to as a "cold-start penalty," meaning that the vehicle's fuel economy (over a test cycle) is reduced because the fuel consumed to heat the catalyst did not go toward the goal of moving the vehicle forward. The Autonomie work employed to develop technology effectiveness estimates for this proposal accounts for cold-start penalties, as discussed in the Autonomie model documentation.

In other cases, the effect of other motor vehicle standards of the Government may be neutral, or positive. Since the Obama administration, NHTSA has considered the GHG standards set by EPA as "other motor vehicle standards of the Government." In the 2012 final rule, NHTSA stated that "To the extent the GHG standards result in increases in fuel economy, they would do so almost exclusively as a result of inducing manufacturers to install the same types of technologies used by manufacturers in complying with the CAFE standards."⁴¹⁰ NHTSA concluded in 2012 that "no further action was needed" because "the agency had already considered EPA's [action] and the harmonization benefits of the National Program in developing its own [action]."⁴¹¹ In the 2020 final rule, NHTSA reinforced that conclusion by explaining that a textual analysis of the statutory language made it clear that EPA's CO₂ standards applicable to light-duty vehicles are literally "other motor vehicle standards of the Government," because they are standards set by a Federal agency that apply to motor vehicles. NHTSA and EPA are obligated by Congress to exercise their own independent judgment in fulfilling their statutory missions, even though both agencies' regulations affect both fuel economy and CO₂ emissions. There are differences between the two agencies' programs that make NHTSA's CAFE standards and EPA's GHG standards not perfectly one-to-one (even besides the fact that EPA regulates other GHGs besides CO₂, EPA's CO₂ standards also differ from NHTSA's in a variety of ways, often because NHTSA is bound by statute to a certain aspect of CAFE regulation). NHTSA endeavors to create standards that meet our statutory obligations and still avoid requiring manufacturers to build multiple fleets of vehicles for the U.S. market.⁴¹² As in 2020, NHTSA has continued to do all of these things with this proposal.

Similarly, NHTSA has considered and accounted for California's ZEV mandate (and its adoption by the other Section 177 states) in developing the baseline for this proposal. As discussed above, NHTSA has not expressly accounted for California's GHG standards for the model years subject to this rulemaking in the baseline analysis for this proposal,⁴¹³ but seeks comment on this

⁴¹⁰ 77 FR 62624, 62669 (Oct. 15, 2012).

⁴¹¹ *Id.*

⁴¹² *Massachusetts v. EPA*, 549 U.S. 497, 532 (2007) ("[T]here is no reason to think that the two agencies cannot both administer their obligations and yet avoid inconsistency.")

⁴¹³ As discussed elsewhere, however, NHTSA has sought to account in the baseline for the California

approach for the final rule. NHTSA notes again that no final decision has yet been made on the CAA waiver for California.

(d) The Need of the U.S. To Conserve Energy

NHTSA has consistently interpreted "the need of the United States to conserve energy" to mean "the consumer cost, national balance of payments, environmental, and foreign policy implications of our need for large quantities of petroleum, especially imported petroleum."⁴¹⁴

(1) Consumer Costs and Fuel Prices

Fuel for vehicles costs money for vehicle owners and operators, so all else equal, consumers benefit from vehicles that need less fuel to perform the same amount of work. Future fuel prices are a critical input into the economic analysis of potential CAFE standards because they determine the value of fuel savings both to new vehicle buyers and to society; the amount of fuel economy that the new vehicle market is likely to demand in the absence of regulatory action; and they inform NHTSA about the "consumer cost . . . of our need for large quantities of petroleum." For this proposal, NHTSA relied on fuel price projections from the U.S. Energy Information Administration's (EIA) Annual Energy Outlook (AEO) for 2021. Federal government agencies generally use EIA's price projections in their assessment of future energy-related policies.

In previous CAFE rulemakings, discussions of fuel prices have always been intended to reflect the price of motor gasoline. However, a growing set of vehicle offerings that rely in part, or entirely, on electricity suggests that gasoline prices are no longer the only fuel prices relevant to evaluations of proposed CAFE standards. In the analysis supporting this proposal, NHTSA considers the energy consumption and resulting emissions from the entire on-road fleet, which already contains a number of plug-in hybrid and fully electric vehicles. Higher CAFE standards encourage manufacturers to improve fuel economy; concurrently, manufacturers will foreseeably seek to continue to maximize profit (or minimize compliance cost), and some reliance on electrification is a viable strategy for some manufacturers, even though NHTSA does not consider it in determining maximum feasible CAFE

Framework Agreement with BMW, Ford, Honda, VWA, and Volvo.

⁴¹⁴ 42 FR 63184, 63188 (Dec. 15, 1977).

stringency. Under the more stringent CAFE alternatives in this proposal, we see a greater reliance on electrification technologies in the analysis in the years following the explicitly-regulated model years, even though internal combustion engines continue to be the most common powertrain across the industry in the action years of this proposal.

While the current national average electricity price is significantly higher than that of gasoline, on an energy equivalent basis (\$/MMBtu),⁴¹⁵ electric motors convert energy into propulsion much more efficiently than internal combustion engines. This means that, even though the energy-equivalent prices of electricity are higher, electric vehicles still produce fuel savings for their owners. EIA also projects rising real gasoline prices over the next three decades, while projecting real electricity prices to remain relatively flat. As the reliance on electricity grows in the light-duty fleet, NHTSA will continue to monitor the trends in electricity prices and their implications for CAFE standards. Even if NHTSA is prohibited from considering electrification as a technology during the model years covered by the rulemaking, the consumer (and social) cost implications of manufacturers otherwise switching to electrification may remain relevant to the agency's considerations.

For now, gasoline is still the dominant fuel used in light-duty transportation. As such, consumers, and the economy more broadly, are subject to fluctuations in price that impact the cost of travel and, consequently, the demand for mobility. Over the last decade, the U.S. has become a stabilizing force in the global oil market and our reliance on imported petroleum has decreased steadily. The most recent Annual Energy Outlook, AEO 2021, projects the U.S. to be a net exporter of petroleum and other liquids through 2050 in the Reference Case. Over the last decade, EIA projections of real fuel prices have generally flattened in recognition of the changing dynamics of the oil market and slower demand growth, both in the U.S. and in developing markets. For example, the International Energy Agency projects that global demand for gasoline is unlikely to ever return to its 2019 level (before the pandemic).⁴¹⁶ However, vehicles are long-lived assets and the long-term price uncertainty of petroleum still represents a risk to consumers, albeit one that has

decreased in the last decade. Continuing to reduce the amount of money consumers spend on vehicle fuel thus remains an important consideration for the need of the U.S. to conserve energy.

(2) National Balance of Payments

NHTSA has consistently included consideration of the "national balance of payments" as part of the need of the U.S. to conserve energy because of concerns that importing large amounts of oil created a significant wealth transfer to oil-exporting countries and left the U.S. economically vulnerable.⁴¹⁷ As recently as 2009, nearly half the U.S. trade deficit was driven by petroleum,⁴¹⁸ yet this concern has been less critical in more recent CAFE actions, in part because other factors besides petroleum consumption have been playing a bigger role in the U.S. trade deficit.⁴¹⁹ While transportation demand is expected to increase as the economy recovers from the pandemic, it is foreseeable that the trend of trade in consumer goods and services continuing to dominate the national balance of payments, as compared to petroleum, will continue during the rulemaking timeframe.

That said, the U.S. continues to rely on oil imports, and NHTSA continues to recognize that reducing the vulnerability of the U.S. to possible oil price shocks remains important. This proposal aims to improve fleet-wide fuel efficiency and to help reduce the amount of petroleum consumed in the U.S., and therefore aims to improve this part of the U.S. balance of payments.

⁴¹⁷ For the earliest discussion of this topic, see 42 FR 63184, 63192 (Dec. 15, 1977) ("A major reason for this need [to reduce petroleum consumption] is that the importation of large quantities of petroleum creates serious balance of payments and foreign policy problems. The United States currently spends approximately \$45 billion annually for imported petroleum. But for this large expenditure, the current large U.S. trade deficit would be a surplus.").

⁴¹⁸ See, *Today in Energy: Recent improvements in petroleum trade balance mitigate U.S. trade deficit*, U.S. Energy Information Administration (July 21, 2014). Available at <https://www.eia.gov/todayinenergy/detail.php?id=17191> and in the docket for this rulemaking, NHTSA-2021-0053.

⁴¹⁹ Consumer products are the primary drivers of the trade deficit. In 2020, the U.S. imported \$2.4 trillion in consumer goods, versus \$116.4 billion of petroleum, which is the lowest amount since 2002. The 2020 goods deficit of \$904.9 billion was the highest on record, while the 2020 petroleum surplus of \$18.1 billion was the first annual surplus on record. See U.S. Census Bureau, "Annual 2020 Press Highlights," at [census.gov/foreign-trade/statistics/highlights/AnnualPressHighlights.pdf](https://www.census.gov/foreign-trade/statistics/highlights/AnnualPressHighlights.pdf), and available in the docket for this rulemaking. While 2020 was an unusual year for U.S. transportation demand, given the global pandemic, this is consistent with existing trends in which consumer products imports significantly outweigh oil imports.

(3) Environmental Implications

Higher fleet fuel economy reduces U.S. emissions of CO₂ as well as various other pollutants by reducing the amount of oil that is produced and refined for the U.S. vehicle fleet, but can also potentially increase emissions by reducing the cost of driving, which can result in increased vehicle miles traveled (*i.e.*, the rebound effect). Thus, the net effect of more stringent CAFE standards on emissions of each pollutant depends on the relative magnitudes of its reduced emissions in fuel refining and distribution and increases in its emissions from vehicle use. Fuel savings from CAFE standards also necessarily result in lower emissions of CO₂, the main greenhouse gas emitted as a result of refining, distribution, and use of transportation fuels.

NHTSA has considered environmental issues, both within the context of EPCA and the context of the National Environmental Policy Act (NEPA), in making decisions about the setting of standards since the earliest days of the CAFE program. As courts of appeal have noted in three decisions stretching over the last 20 years,⁴²⁰ NHTSA defined "the need of the United States to conserve energy" in the late 1970s as including, among other things, environmental implications. In 1988, NHTSA included climate change concepts in its CAFE NPRMs and prepared its first environmental assessment addressing that subject.⁴²¹ It cited concerns about climate change as one of the reasons for limiting the extent of its reduction of the CAFE standard for MY 1989 passenger cars.⁴²²

NHTSA also considers environmental justice issues as part of the environmental considerations under the need of the U.S. to conserve energy, per Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations" ⁴²³ and DOT Order 5610.2(c), "U.S. Department of Transportation Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." ⁴²⁴ The affected environment for environmental justice is nationwide, with a focus on areas that

⁴²⁰ CAS, 793 F.2d 1322, 1325 n. 12 (D.C. Cir. 1986); Public Citizen, 848 F.2d 256, 262-63 n. 27 (D.C. Cir. 1988) (noting that "NHTSA itself has interpreted the factors it must consider in setting CAFE standards as including environmental effects"); CBD, 538 F.3d 1172 (9th Cir. 2007).

⁴²¹ 53 FR 33080, 33096 (Aug. 29, 1988).

⁴²² 53 FR 39275, 39302 (Oct. 6, 1988).

⁴²³ 59 FR 629 (Feb. 16, 1994).

⁴²⁴ Department of Transportation Updated Environmental Justice Order 5610.2(c) (May 14, 2021).

⁴¹⁵ Source: AEO 2021, Table 3.

⁴¹⁶ International Energy Agency, Oil 2021, (p. 30), https://iea.blob.core.windows.net/assets/1fa45234-bac5-4d89-a532-768960f99d07/Oil_2021-PDF.pdf.

could contain minority and low-income communities who would most likely be exposed to the environmental and health effects of oil production, distribution, and consumption, or the impacts of climate change. This includes areas where oil production and refining occur, areas near roadways, coastal flood-prone areas, and urban areas that are subject to the heat island effect.

Numerous studies have found that some environmental hazards are more prevalent in areas where minority and low-income populations represent a higher proportion of the population compared with the general population. In terms of effects due to criteria pollutants and air toxics emissions, the body of scientific literature points to disproportionate representation of minority and low-income populations in proximity to a range of industrial, manufacturing, and hazardous waste facilities that are stationary sources of air pollution, although results of individual studies may vary. While the scientific literature specific to oil refineries is limited, disproportionate exposure of minority and low-income populations to air pollution from oil refineries is suggested by other broader studies of racial and socioeconomic disparities in proximity to industrial facilities generally. Studies have also consistently demonstrated a disproportionate prevalence of minority and low-income populations that are living near mobile sources of pollutants (such as roadways) and therefore are exposed to higher concentrations of criteria air pollutants in multiple locations across the United States. Lower-positioned socioeconomic groups are also differentially exposed to air pollution and differentially vulnerable to effects of exposure.

In terms of exposure to climate change risks, the literature suggests that across all climate risks, low-income communities, some communities of color, and those facing discrimination are disproportionately affected by climate events. Communities overburdened by poor environmental quality experience increased climate risk due to a combination of sensitivity and exposure. Urban populations experiencing inequities and health issues have greater susceptibility to climate change, including substantial temperature increases. Some communities of color facing cumulative exposure to multiple pollutants also live in areas prone to climate risk. Indigenous peoples in the United States face increased health disparities that cause increased sensitivity to extreme heat and air pollution. Together, this

information indicates that climate impacts disproportionately affect minority and low-income populations because of socioeconomic circumstances, histories of discrimination, and inequity. Furthermore, high temperatures can exacerbate poor air quality, further compounding the risk to overburdened communities. Finally, health-related sensitivities in low-income and minority populations increase risk of damaging impacts from poor air quality under climate change, underscoring the potential benefits of improving air quality to communities overburdened by poor environmental quality.

In the SEIS, Chapters 3, 4, 5, and 8 discuss the connections between oil production, distribution, and consumption, and their health and environmental impacts.

All of the action alternatives considered in this proposal reduce carbon dioxide emissions and, thus, the effects of climate change, as compared to the baseline. Effects on criteria pollutants and air toxics emissions are somewhat more complicated, for a variety of reasons, as discussed in Section VI.C, although over time and certainly over the lifetimes of the vehicles that would be subject to this proposal, these emissions are currently forecast to fall significantly.

As discussed above, while the majority of light-duty vehicles will continue to be powered by internal combustion engines in the near- to mid-term under all regulatory alternatives, the more stringent alternatives do appear in the analysis to lead to greater electrification in the mid- to longer-term. While NHTSA is prohibited from considering electric vehicles in determining maximum feasible CAFE levels, electric vehicles (which appear both in the agency's baseline and which may be produced in model years following the period of regulation as an indirect effect of more stringent standards, or in response to other standards or to market demand) produce few to zero tailpipe emissions, and thus contribute meaningfully to the decarbonization of the transportation sector, in addition to having environmental, health, and economic development benefits, although these benefits may not yet be equally distributed across society. They also present new environmental (and social) questions, like those associated with reduced tailpipe emissions, upstream electricity production, minerals extraction for battery components, and ability to charge an electric vehicle. The upstream environmental effects of extraction and refining for petroleum

are well-recognized; minerals extraction and refining can also have significant downsides. As one example of documentation of these effects, the United Nations Conference on Trade and Development issued a report in July 2020 describing acid mine drainage and uranium-laced dust associated with cobalt mines in the DRC, along with child labor concerns; considerable groundwater consumption and dust issues that harm miners and indigenous communities in the Andes; issues with fine particulate matter causing human health effects and soil contamination in regions near graphite mines; and so forth.⁴²⁵ NHTSA's SEIS discusses these and other effects (such as production and end-of-life issues) in more detail, and NHTSA will continue to monitor these issues going forward insofar as CAFE standards may increase electrification levels even if NHTSA does not expressly consider electrification in setting those standards, because NHTSA does not control what technologies manufacturers use to meet those standards, and because NHTSA is required to consider the environmental effects of its standards under NEPA.

NHTSA carefully considered the environmental effects of this proposal, both quantitative and qualitative, as discussed in the SEIS and in Sections VI.C and VI.D.

(4) Foreign Policy Implications

U.S. consumption and imports of petroleum products impose costs on the domestic economy that are not reflected in the market price for crude petroleum or in the prices paid by consumers for petroleum products such as gasoline. These costs include (1) higher prices for petroleum products resulting from the effect of U.S. oil demand on world oil prices; (2) the risk of disruptions to the U.S. economy caused by sudden increases in the global price of oil and its resulting impact of fuel prices faced by U.S. consumers, and (3) expenses for maintaining the strategic petroleum reserve (SPR) to provide a response option should a disruption in commercial oil supplies threaten the U.S. economy, to allow the U.S. to meet part of its International Energy Agency obligation to maintain emergency oil stocks, and to provide a national defense fuel reserve. Reducing U.S. consumption of crude oil or refined petroleum products (by reducing motor

⁴²⁵ UNCTAD, "Commodities at a Glance: Special issue on strategic battery raw materials," No. 13, Geneva, 2020, at 46. Available at https://unctad.org/system/files/official-document/ditccom2019d5_en.pdf and in the docket for this rulemaking, NHTSA-2021-0053.

fuel use) can reduce these external costs.⁴²⁶

Stephen Brown, who has published extensively on price shock and foreign policy risks associated with U.S. oil consumption, stated in a recent paper that:

Over the past few years, world oil market conditions have changed considerably (with the United States importing much less oil), new estimates of the probabilities of world oil supply disruptions have become available, and new estimates of the response of U.S. real GDP to oil supply shocks and the short-run elasticity of oil demand have become available. These developments suggest that it is time to update the estimates of the security costs of U.S. oil consumption. The new estimates of the oil security premiums suggest that U.S. oil security may have become less of an issue than it was in the past, mostly as a result of new estimates of the short-run elasticity of demand and the response of U.S. real GDP to oil price shocks.⁴²⁷

⁴²⁶ A 2006 report by the Council on Foreign Relations identified six foreign policy costs that it said arose from U.S. consumption of imported oil. These costs include (1) the adverse effect that significant disruptions in oil supply will have for political and economic conditions in the U.S. and other importing countries; (2) the fears that the current international system is unable to ensure secure oil supplies when oil is seemingly scarce and oil prices are high; (3) political realignment from dependence on imported oil that limits U.S. alliances and partnerships; (4) the flexibility that oil revenues give oil-exporting countries to adopt policies that are contrary to U.S. interests and values; (5) an undermining of sound governance by the revenues from oil and gas exports in oil-exporting countries; and (6) an increased U.S. military presence in the Middle East that results from the strategic interest associated with oil consumption. Council on Foreign Relations, National Security Consequences of U.S. Oil Dependency, Independent Task Force Report No. 58, October 2006. Available at https://cdn.cfr.org/sites/default/files/report_pdf/0876093659.pdf and in the docket for this rulemaking, NHTSA–2021–0053. Brown and Huntington (2015) find that these six costs are either implicitly incorporated in the welfare-theoretic analysis, are not externalities, or cannot be quantified. Brown, Stephen and Hillard Huntington, Evaluating U.S. oil security and import reliance, *Energy Policy* 108, 2015, at 512–523. Available at <https://www.sciencedirect.com/science/article/abs/pii/S0301421515000026> and for hard copy review at DOT headquarters. To the extent that these costs are externalities that cannot be quantified, the measured security costs of U.S. reliance on imported oil will be understated.

⁴²⁷ Brown, Stephen. “New Estimates of the security costs of U.S. oil consumption,” *Energy Policy*, Vol. 113, Feb. 2018, at 172. Available at <https://www.sciencedirect.com/science/article/abs/>

Brown notes that “Because we have not observed a modern economy with large oil supply disruptions, we have no reliable method to quantify the effects of these disruptions,” and “The result could be an average of old and new results or estimation problems and a poor fit.”⁴²⁸ Geopolitical risk can still affect global oil prices, of course, because oil is a global market, and thus can affect U.S. oil prices, although possibly by less than in the past.⁴²⁹ The U.S. still maintains a military presence in certain parts of the world to help secure global access to petroleum supplies. Chapter 6.2.4 of the TSD discusses this topic in more detail. Brown concludes that:

Nonetheless, only the highest estimates of the oil security premiums suggest that U.S. oil security is nearly an equally important issue to the environmental costs of oil use. The mid-estimates from the model that may best represent how the world oil market and the U.S. economy will respond to world oil supply disruptions of various sizes . . . find U.S. consumption of imported or domestic oil does yield important security costs, but those costs are much lower than the estimated environmental costs of oil use. Consistent with Brown and Huntington (2013), the substitution of domestic oil for imported oil only slightly improves U.S. oil security. Oil conservation is more effective

[pii/S0301421517307413](https://www.federalregister.gov/doc/50301421517307413) and for hard copy review at DOT headquarters.

⁴²⁸ *Id.* at 181.

⁴²⁹ Also in 2018, Beccue, Huntington, Leiby, and Vincent reported on their findings of an expert panel on oil market disruption risks and likelihoods, and stated that based on these findings, during the period of 2016–2025, “It is very likely that a disruption greater than 2 MMBD will occur (81%). However, it is unlikely that disruptions greater than 15 MMBD will occur (1%).” They further state that “. . . experts in the current study expect that both gross shocks and excess capacity will be lower than before, resulting in similar net disruptions [to what was estimated in 2005]. Although turmoil remains high in these countries with the ongoing Iraq war, tensions between Iran and its Arab neighbors, and concern over the ability of terrorists to cut oil supply facilities, these conditions do not produce larger oil market disruptions.” They conclude that “In general, this panel of energy security experts has concluded that current world events and energy markets have increased the likelihood of oil disruptions since 1996 but demonstrated a similar risk profile compared to the 2005 period. Moreover, their assessments indicate that lower oil price paths make net disruptions of any given size more likely.” Beccue *et al.*, “An updated assessment of oil market disruption risks,” *Energy Policy*, Vol. 115, Apr. 2018, at 456. Available at <https://www.sciencedirect.com/science/article/abs/pii/S0301421517308285> and for hard copy review at DOT headquarters.

than increased domestic oil production at improving U.S. oil security.⁴³⁰

NHTSA agrees both that oil conservation improves U.S. oil security, and that the environmental costs of oil use are intertwined with the security costs of oil use in some ways as climate change destabilizes traditional geopolitical power structures over time. The effect of climate change on natural resources inevitably has security implications—population changes and shifts have already been forced in some countries, which can create social and security effects at all geopolitical levels—local, national, regional, and global. CAFE standards over the last few decades have conserved significant quantities of oil, and the petroleum intensity of the U.S. fleet has decreased significantly. Continuing to improve energy conservation and reduce U.S. oil consumption by raising CAFE standards further has the potential to continue to help with all of these considerations.

As standards and market demand move the U.S. light-duty vehicle fleet toward electrification, different potential foreign policy implications arise. Most vehicle electrification is enabled by lithium-ion batteries. Lithium-ion battery global value chains have several phases: Sourcing (mining/extraction); processing/refining; cell manufacturing; battery manufacturing; installation in an EV; and recycling.⁴³¹ Because lithium-ion battery materials have a wide global diversity of origin, accessing them can pose varying geopolitical challenges.⁴³² The U.S. International Trade Commission (USITC) recently summarized 2018 data from the U.S. Geological Survey on the production/sourcing of the four key lithium-ion battery materials, as shown in Table VI–5.

⁴³⁰ Brown, 2018, at 182.

⁴³¹ Scott, Sarah, and Robert Ireland, “Lithium-Ion Battery Materials for Electric Vehicles and their Global Value Chains,” Office of Industries Working Paper ID–068, U.S. International Trade Commission, June 2020, at 7. Available at https://www.usitc.gov/publications/332/working_papers/gvc_overview_scott_ireland_508_final_061120.pdf and in the docket for this rulemaking, NHTSA–2021–0053.

⁴³² *Id.* at 8.

Table VI-5 – Lithium-ion Battery Materials Mining Production, 2018⁴³³

Lithium-ion Battery Material Ores and Concentrates	Countries with Largest Mining Production (Share of Global Total)	U.S. Mining Production (Share of Global Total)
Lithium	Australia (60 percent), Chile (19 percent), China (9 percent), Argentina (7 percent)	USITC staff estimates less than 1 percent
Cobalt	Democratic Republic of Congo (64 percent), Cuba (4 percent), Russia (4 percent), Australia (3 percent)	Less than 0.5 percent
Graphite (natural)	China (68 percent), Brazil (10 percent), India (4 percent)	0 percent
Nickel	Indonesia (24 percent), Philippines (15 percent), Russia (9 percent)	Less than 1 percent

Of these sources, the USITC notes that while “lithium has generally not faced political instability risks,” “Because of the [Democratic Republic of Congo’s] ongoing political instability, as well as poor labor conditions, sourcing cobalt faces significant geopolitical challenges.”⁴³⁴ Nickel is also used extensively in stainless steel production, and much of what is produced in Indonesia and the Philippines is exported to China for stainless steel manufacturing.⁴³⁵ Obtaining graphite for batteries does not currently pose geopolitical obstacles, but the USITC notes that Turkey has great potential to become a large graphite producer, which would make stability there a larger concern.⁴³⁶

For materials processing and refining, China is the largest importer of unprocessed lithium, which it then transforms into processed or refined lithium,⁴³⁷ the leading producer of refined cobalt (with Finland a distant second),⁴³⁸ one of the leading producers of primary nickel products (along with Indonesia, Japan, Russia, and Canada) and one of the leading refiners of nickel into nickel sulfate, the chemical compound used for cathodes in lithium-ion batteries,⁴³⁹ and one of the leading processors of graphite intended for use in lithium-ion batteries as well.⁴⁴⁰ In all regions, increasing attention is being given to vertical integration in the lithium-ion battery industry from

material extraction, mining and refining, battery materials, cell production, battery systems, reuse, and recycling. The United States is lagging in upstream capacity; although the U.S. has some domestic lithium deposits, it has very little capacity in mining and refining any of the key raw materials. As mentioned elsewhere, however, there can be benefits and drawbacks in terms of environmental consequences associated with increased mining, refining, and battery production.

China and the European Union (EU) are also major consumers of lithium-ion batteries, along with Japan, Korea, and others. Lithium-ion batteries are used not only in light-duty vehicles, but in many ubiquitous consumer goods, and are likely to be used eventually in other forms of transportation as well. Thus, securing sufficient batteries to enable large-scale shifts to electrification in the U.S. light-duty vehicle fleet may face new issues as vehicle companies compete with other new sectors. NHTSA will continue to monitor these issues going forward.

President Biden has already issued an Executive Order on “America’s Supply Chains,” aiming to strengthen the resilience of America’s supply chains, including those for automotive batteries.⁴⁴¹ Reports are to be developed within one year of issuance of the Executive Order, and NHTSA will monitor these findings as they develop.

(e) Factors That NHTSA Is Prohibited From Considering

EPCA also provides that in determining the level at which it should set CAFE standards for a particular

model year, NHTSA may not consider the ability of manufacturers to take advantage of several EPCA provisions that facilitate compliance with CAFE standards and thereby reduce the costs of compliance.⁴⁴² NHTSA cannot consider compliance credits that manufacturers earn by exceeding the CAFE standards and then use to achieve compliance in years in which their measured average fuel economy falls below the standards. NHTSA also cannot consider the use of alternative fuels by dual fueled automobiles, nor the fuel economy (*i.e.*, the availability) of dedicated alternative fueled automobiles—including battery-electric vehicles—in any model year. EPCA encourages the production of alternative fuel vehicles by specifying that their fuel economy is to be determined using a special calculation procedure that results in those vehicles being assigned a higher equivalent fuel economy level than they actually achieve.

The effect of the prohibitions against considering these statutory flexibilities in setting the CAFE standards is that the flexibilities remain voluntarily-employed measures. If NHTSA were instead to assume manufacturer use of those flexibilities in setting new standards (as NHTSA does in the “EIS analysis,” but not the “standard setting analysis”), compliance with higher standards would appear more cost-effective and, potentially, more feasible, which would thus effectively require manufacturers to use those flexibilities if NHTSA determined that standards should be more stringent. By keeping NHTSA from including them in our stringency determination, the provision ensures that those statutory credits

⁴³³ *Id.*, citing U.S. Geological Survey, Mineral Commodity Summaries, Feb. 2019.

⁴³⁴ *Id.* at 8, 9.

⁴³⁵ *Id.* at 9.

⁴³⁶ *Id.*

⁴³⁷ *Id.*

⁴³⁸ *Id.* at 10.

⁴³⁹ *Id.*

⁴⁴⁰ *Id.*

⁴⁴¹ Executive Order 14017, “America’s Supply Chains,” Feb. 24, 2021, 86 FR 11849 (Mar. 1, 2021).

⁴⁴² 49 U.S.C. 32902(h).

remain true compliance flexibilities. However, the flip side of the effect described above is that preventing NHTSA from assuming use of dedicated alternative fuel vehicles for compliance makes it more difficult for the CAFE program to facilitate a complete transition of the U.S. light-duty fleet to full electrification.

In contrast, for the non-statutory fuel economy improvement value program that NHTSA developed by regulation, NHTSA does not consider these fuel economy adjustments subject to the 32902(h) prohibition on considering flexibilities. The statute is very clear as to which flexibilities are not to be considered. When the agency has introduced additional flexibilities such as A/C efficiency and “off-cycle” technology fuel improvement values, NHTSA has considered those technologies as available in the analysis. Thus, this analysis includes assumptions about manufacturers’ use of those technologies, as detailed in Chapter 3.8 of the accompanying TSD.

NHTSA notes that one of the recommendations in the 2021 NAS Report was for Congress to “amend the statute to delete the [32902(h)] prohibition on considering the fuel economy of dedicated alternative fueled vehicles in setting CAFE standards.”⁴⁴³ Recognizing that changing statutory text is Congress’ affair and not NHTSA’s, the committee further recommended that if Congress does not change the statute, NHTSA should consider adding another attribute to the fuel economy standard function, like “the expected market share of ZEVs in the total U.S. fleet of new light-duty vehicles—such that the standards increase as the share of ZEVs in the total U.S. fleet increases.”⁴⁴⁴ NHTSA discusses this recommendation further in Section III.B.

While NHTSA does not consider the prohibited items in its standard-setting analysis or for making its tentative decision about what levels of standards would be maximum feasible, NHTSA notes that it is informed by the “EIS” analysis presented in the PRIA. The EIS analysis does not contain these restrictions, and therefore accounts for credit availability and usage, and manufacturers’ ability to employ alternative fueled vehicles, for purpose of conformance with E.O. 12866 and NEPA regulations. Under the EIS analysis, compliance generally appears less costly. For example, this EIS analysis shows manufacturers’ costs averaging about \$1,070 in MY 2029

under the proposed standards, as compared to the \$1,175 shown by the standard setting analysis. Again, however, for purposes of tentatively determining maximum feasible CAFE levels, NHTSA considers only the standard setting analysis shown in the NPRM, consistent with Congress’ direction.

(f) Other Considerations in Determining Maximum Feasible CAFE Standards

NHTSA has historically considered the potential for adverse safety effects in setting CAFE standards. This practice has been upheld in case law.⁴⁴⁵ In this proposal, NHTSA has considered the safety effects discussed in Section V of this preamble and in Chapter 5 of the accompanying PRIA. NHTSA discusses its consideration of these effects in Section VI.D.

B. Administrative Procedure Act

The Administrative Procedure Act governs agency rulemaking generally and provides the standard of judicial review for agency actions. To be upheld under the “arbitrary and capricious” standard of judicial review under the APA, an agency rule must be rational, based on consideration of the relevant factors, and within the scope of the authority delegated to the agency by statute. The agency must examine the relevant data and articulate a satisfactory explanation for its action including a “rational connection between the facts found and the choice made.”⁴⁴⁶

Statutory interpretations included in an agency’s rule are subject to the two-step analysis of *Chevron, U.S.A. v. Natural Resources Defense Council*.⁴⁴⁷ Under step one, where a statute “has directly spoken to the precise question at issue,” *id.* at 842, the court and the agency “must give effect to the

unambiguously expressed intent of Congress.”⁴⁴⁸ If the statute is silent or ambiguous regarding the specific question, the court proceeds to step two and asks “whether the agency’s answer is based on a permissible construction of the statute.”⁴⁴⁹ The APA also requires that agencies provide notice and comment to the public when proposing regulations,⁴⁵⁰ as NHTSA is doing in this proposal.

NHTSA recognizes that this proposal, like the 2020 final rule, is reconsidering standards previously promulgated. NHTSA, like any other Federal agency, is afforded an opportunity to reconsider prior views and, when warranted, to adopt new positions. Indeed, as a matter of good governance, agencies *should* revisit their positions when appropriate, especially to ensure that their actions and regulations reflect legally sound interpretations of the agency’s authority and remain consistent with the agency’s views and practices. As a matter of law, “an Agency is entitled to change its interpretation of a statute.”⁴⁵¹

Nonetheless, “[w]hen an Agency adopts a materially changed interpretation of a statute, it must in addition provide a ‘reasoned analysis’ supporting its decision to revise its interpretation.”⁴⁵²

“Changing policy does not, on its own, trigger an especially ‘demanding burden of justification.’”⁴⁵³ Providing a reasoned explanation “would ordinarily demand that [the Agency] display awareness that it *is* changing position.”⁴⁵⁴ Beyond that, however, “[w]hen an agency changes its existing position, it ‘need not always provide a more detailed justification than what would suffice for a new policy created on a blank slate.’”⁴⁵⁵ While the agency “must show that there are good reasons for the new policy,” the agency “need not demonstrate to a court’s satisfaction that the reasons for the new policy are

⁴⁴⁸ *Id.* at 843.

⁴⁴⁹ *Id.*

⁴⁵⁰ 5 U.S.C. 553.

⁴⁵¹ *Phoenix Hydro Corp. v. FERC*, 775 F.2d 1187, 1191 (D.C. Cir. 1985).

⁴⁵² *Alabama Educ. Ass’n v. Chao*, 455 F.3d 386, 392 (D.C. Cir. 2006) (quoting *Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 57 (1983)); see also *Encino Motorcars, LLC v. Navarro*, 136 S.Ct. 2117, 2125 (2016) (“Agencies are free to change their existing policies as long as they provide a reasoned explanation for the change.”) (citations omitted).

⁴⁵³ See *Mingo Logan Coal Co. v. EPA*, 829 F.3d 710, 718 (D.C. Cir. 2016) (quoting *Ark Initiative v. Tidwell*, 816 F.3d 119, 127 (D.C. Cir. 2016)).

⁴⁵⁴ *FCC v. Fox Television Stations, Inc.* 556 U.S. 502, 515 (2009) (emphasis in original) (“An agency may not, for example, depart from a prior policy *sub silentio* or simply disregard rules that are still on the books.”).

⁴⁵⁵ *Encino Motorcars, LLC*, 136 S.Ct. at 2125–26 (quoting *Fox Television Stations, Inc.* 556 U.S. at 515).

⁴⁴³ 2021 NAS Report, Summary Recommendation 5.

⁴⁴⁴ *Id.*

⁴⁴⁵ As courts have recognized, “NHTSA has always examined the safety consequences of the CAFE standards in its overall consideration of relevant factors since its earliest rulemaking under the CAFE program.” *Competitive Enterprise Institute v. NHTSA*, 901 F.2d 107, 120 n. 11 (D.C. Cir. 1990) (“CEI-I”) (citing 42 FR 33534, 33551 (Jun. 30, 1977)). Courts have consistently upheld NHTSA’s implementation of EPCA in this manner. See, e.g., *Competitive Enterprise Institute v. NHTSA*, 956 F. 2d 321, 322 (D.C. Cir. 1992) (“CEI-II”) (in determining the maximum feasible standard, “NHTSA has always taken passenger safety into account) (citing CEI-I, 901 F.2d at 120 n. 11); *Competitive Enterprise Institute v. NHTSA*, 45 F.3d 481, 482–83 (D.C. Cir. 1995) (CEI-III) (same); *Center for Biological Diversity v. NHTSA*, 538 F.3d 1172, 1203–04 (9th Cir. 2008) (upholding NHTSA’s analysis of vehicle safety issues associated with weight in connection with the MYs 2008–2011 light truck CAFE rulemaking).

⁴⁴⁶ *Burlington Truck Lines, Inc. v. United States*, 371 U.S. 156, 168 (1962).

⁴⁴⁷ 467 U.S. 837 (1984).

better than the reasons for the old one.”⁴⁵⁶ “[I]t suffices that the new policy is permissible under the statute, that there are good reasons for it, and that the Agency *believes* it to be better, which the conscious change of course adequately indicates.”⁴⁵⁷ For instance, “evolving notions” about the appropriate balance of varying policy considerations constitute sufficiently good reasons for a change in position.⁴⁵⁸ Moreover, it is “well within an Agency’s discretion” to change policy course even when no new facts have arisen: Agencies are permitted to conduct a “reevaluation of which policy would be better in light of the facts,” without “rely[ing] on new facts.”⁴⁵⁹

To be sure, providing “a more detailed justification” is appropriate in some cases. “Sometimes [the agency] must [provide a more detailed justification than what would suffice for a new policy created on a blank slate]—when, for example, its new policy rests upon factual findings that contradict those which underlay its prior policy; or when its prior policy has engendered serious reliance interests that must be taken into account.”⁴⁶⁰ This preamble, and the accompanying TSD and PRIA, all provide extensive detail on the agency’s updated analysis, and Section VI.D contains the agency’s explanation of how the agency has considered that analysis and other relevant information in tentatively determining that the proposed CAFE standards are maximum feasible for MYs 2024–2026 passenger cars and light trucks.

C. National Environmental Policy Act

As discussed above, EPCA requires NHTSA to determine the level at which to set CAFE standards for each model year by considering the four factors of technological feasibility, economic practicability, the effect of other motor vehicle standards of the Government on fuel economy, and the need of the United States to conserve energy. The National Environmental Policy Act (NEPA) directs that environmental considerations be integrated into that process.⁴⁶¹ To explore the potential environmental consequences of this

rulemaking action, NHTSA has prepared a Supplemental Environmental Impact Statement (“SEIS”) for this proposal.⁴⁶² The purpose of an EIS is to “provide full and fair discussion of significant environmental impacts and [to] inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.”⁴⁶³

When preparing an EIS, NEPA requires an agency to compare the potential environmental impacts of its proposed action and a reasonable range of alternatives. In the SEIS, NHTSA analyzed a No Action Alternative and three action alternatives. The alternatives represent a range of potential actions the agency could take, and they are described more fully in Section IV of this preamble, Chapter 1 of the TSD, and Chapter 2 of the PRIA. The environmental impacts of these alternatives, in turn, represent a range of potential environmental impacts that could result from NHTSA’s setting maximum feasible fuel economy standards for passenger cars and light trucks.

To derive the direct and indirect impacts of the action alternatives, NHTSA compared each action alternative to the No Action Alternative, which reflects baseline trends that would be expected in the absence of any further regulatory action. More specifically, the No Action Alternative in the SEIS assumed that the CAFE standards set in the 2020 final rule for MYs 2021–2026 passenger cars and light trucks would remain in effect. In addition, the No Action Alternative also includes several other actions that NHTSA believes will occur in the absence of further regulatory action, as discussed in more detail in Section IV above: (1) California’s ZEV mandate; (2) the “Framework Agreements” between California and BMW, Ford, Honda, VWA, and Volvo, which NHTSA implemented by including EPA’s baseline GHG standards (*i.e.*, those set in the 2020 final rule) and introducing more stringent GHG target functions for those manufacturers; and (3) the assumption that manufacturers will also make any additional fuel economy improvements estimated to reduce owners’ estimated average fuel outlays during the first 30 months of vehicle operation by more than the estimated

increase in new vehicle price. The No Action Alternative provides a baseline against which to compare the environmental impacts of other alternatives presented in the SEIS.⁴⁶⁴

For the SEIS, NHTSA analyzed three action alternatives, Alternatives 1 through 3, which ranged from increasing CAFE stringency for MY 2024 by 9.14 percent for passenger cars and 11.02 percent for light trucks, and increase stringency in MYs 2025 and 2026 by 3.26 percent per year for both passenger cars and light trucks (Alternative 1) to increasing CAFE stringency for each year, for each fleet, at 10 percent per year (Alternative 3). The range of action alternatives, as well as the No Action Alternative, encompass a spectrum of possible standards NHTSA could determine was maximum feasible based on the different ways the agency could weigh EPCA’s four statutory factors. Throughout the SEIS, estimated impacts were shown for all of these action alternatives, as well as for the No Action Alternative. For a more detailed discussion of the environmental impacts associated with the alternatives, see Chapters 3–6 of the SEIS, as well as Section V of this preamble.

NHTSA’s SEIS describes potential environmental impacts to a variety of resources, including fuel and energy use, air quality, climate, land use and development, hazardous materials and regulated wastes, historical and cultural resources, noise, and environmental justice. The SEIS also describes how climate change resulting from global greenhouse gas emissions (including CO₂ emissions attributable to the U.S. light-duty transportation sector under the alternatives considered) could affect certain key natural and human resources. Resource areas are assessed qualitatively and quantitatively, as appropriate, in the SEIS, and the findings of that analysis are summarized here.⁴⁶⁵

⁴⁶⁴ See 40 CFR 1502.2(e), 1502.14(d). CEQ has explained that “[T]he regulations require the analysis of the no action alternative even if the agency is under a court order or legislative command to act. This analysis provides a benchmark, enabling decision makers to compare the magnitude of environmental effects of the action alternatives [See 40 CFR 1502.14(c).] . . . Inclusion of such an analysis in the EIS is necessary to inform Congress, the public, and the President as intended by NEPA. [See 40 CFR 1500.1(a).]” Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations, 46 FR 18026 (Mar. 23, 1981).

⁴⁶⁵ The impacts described in this section come from NHTSA’s SEIS, which is being publicly issued simultaneously with this NPRM. As described above, the SEIS is based on “unconstrained” modeling rather than “standard setting” modeling.

Continued

⁴⁵⁶ Fox Television Stations, Inc., 556 U.S. at 515 (emphasis in original).

⁴⁵⁷ *Id.* (emphasis in original).

⁴⁵⁸ *N. Am.’s Bldg. Trades Unions v. Occupational Safety & Health Admin.*, 878 F.3d 271, 303 (D.C. Cir. 2017) (quoting the agency’s rule).

⁴⁵⁹ *Nat’l Ass’n of Home Builders v. EPA*, 682 F.3d 1032, 1037–38 (D.C. Cir. 2012).

⁴⁶⁰ See Fox Television Stations, Inc., 556 U.S. at 515 (2009).

⁴⁶¹ NEPA is codified at 42 U.S.C. 4321–47. The Council on Environmental Quality (CEQ) NEPA implementing regulations are codified at 40 CFR parts 1500–08.

⁴⁶² Because this proposal revises CAFE standards established in the 2020 final rule, NHTSA chose to prepare a SEIS to inform that amendment of the MYs 2024–2026 standards. See the SEIS for more details.

⁴⁶³ 40 CFR 1502.1.

As the stringency of the alternatives increases, total U.S. passenger car and light truck fuel consumption for the period of 2020 to 2050 decreases. Total light-duty vehicle fuel consumption from 2020 to 2050 under the No Action Alternative is projected to be 3,510 billion gasoline gallon equivalents (GGE). Light-duty vehicle fuel consumption from 2020 to 2050 under the action alternatives is projected to range from 3,409 billion GGE under Alternative 1 to 3,282 billion GGE under Alternative 3. Under Alternative 2, light-duty vehicle fuel consumption from 2020 to 2050 is projected to be 3,344 billion GGE. All of the action alternatives would decrease fuel consumption compared to the No-Action Alternative, with fuel consumption decreases that range from 100 billion GGE under Alternative 1 to 227 billion GGE under Alternative 3.

The relationship between stringency and criteria and air toxics pollutant emissions is less straightforward, reflecting the complex interactions among the tailpipe emissions rates of the various vehicle types (passenger cars and light trucks, ICE vehicles and EVs, older and newer vehicles, etc.), the technologies assumed to be incorporated by manufacturers in response to CAFE standards, upstream emissions rates, the relative proportions of gasoline, diesel, and electricity in total fuel consumption, and changes in VMT from the rebound effect. In general, emissions of criteria and toxic air pollutants increase very slightly in the short term, and then decrease dramatically in the longer term, across all action alternatives, with some exceptions. In addition, the action alternatives would result in decreased incidence of PM_{2.5}-related health impacts in most years and alternatives due to the emissions decreases. Decreases in adverse health outcomes include decreased incidences of premature mortality, acute bronchitis, respiratory emergency room visits, and work-loss days.

The air quality analysis in the SEIS identified the following impacts on criteria air pollutants.

NHTSA conducts modeling both ways in order to reflect the various statutory requirements of EPCA/EISA and NEPA. The preamble employs the "standard setting" modeling in order to aid the decision-maker in avoiding consideration of the prohibited items in 49 U.S.C. 32902(h) in determining maximum feasible standards, but as a result, the impacts reported here may differ from those reported elsewhere in this preamble. However, NHTSA considers the impacts reported in the SEIS, in addition to the other information presented in this preamble, the TSD, and the PRIA, as part of its decision-making process.

For all criteria pollutants in 2025, emissions increase slightly under the action alternatives compared to the No-Action Alternative. The emission increases generally get larger (although they are still small) from Alternative 1 through Alternative 3 (the most stringent alternative in terms of required miles per gallon). This temporary increase is largely due to new vehicle prices increasing in the short-term, which slightly slows new-vehicle sales and encourages consumers to buy used vehicles instead or retain existing vehicles for longer. As the analysis timeframe progresses, the new, higher fuel-economy vehicles become used vehicles, and the impacts of the standards change direction. In 2025, across all criteria pollutants and action alternatives, the smallest increase in emissions is 0.01 percent for VOCs under Alternative 2; the largest increase is 0.6 percent and occurs for SO₂ under Alternative 3. We underscore that these are fractions of a single percent.

In 2035 and 2050, emissions of CO, NO_x, PM_{2.5}, and VOCs generally decrease under the action alternatives compared to the No-Action Alternative, except for CO in 2035 under Alternative 1 (0.07 percent increase) and NO_x in 2035 under Alternative 3 (0.5 percent increase) (again, these are fractions of a single percent), with the more stringent alternatives having the largest decreases, except for NO_x and PM_{2.5} in 2035 (emissions decrease less or increase with more stringent alternatives) and NO_x in 2050 (emissions increase under Alternative 3 relative to Alternative 2, due primarily to slightly higher upstream emissions associated with greater electrification rates). SO₂ emissions generally increase under the action alternatives compared to the No-Action Alternative (except in 2035 under Alternative 1), with the more stringent alternatives having the largest increases. SO₂ increases are largely due to higher upstream emissions associated with electricity use by greater numbers of electrified vehicles being produced in response to the standards. In 2035 and 2050, across all criteria pollutants and action alternatives, the smallest decrease in emissions is 0.03 percent and occurs for NO_x under Alternative 2; the largest decrease is 11.9 percent and occurs for VOCs under Alternative 3. The smallest increase in emissions is 0.07 percent and occurs for CO under Alternative 1; the largest increase is 4.8 percent and occurs for SO₂ under Alternative 3.

The air quality analysis identified the following impacts on toxic air pollutants.

Under each action alternative in 2025 compared to the No-Action Alternative, increases in emissions would occur for all toxic air pollutants by as much as 0.5 (half of 1) percent, except for DPM, for which emissions would decrease by as much as 0.5 percent. For 2025, the largest relative increases in emissions would occur for benzene and 1,3-butadiene, for which emissions would increase by as much as 0.5 percent. Percentage increases in emissions of acetaldehyde, acrolein, and formaldehyde would be even smaller.

Under each action alternative in 2035 and 2050 compared to the No-Action Alternative, decreases in emissions would occur for all toxic air pollutants, except for acetaldehyde, acrolein, and 1,3-butadiene in 2035 under Alternative 1 where emissions would increase by 0.2 (one-fifth of 1), 0.01, and 0.1 percent, respectively, with the more stringent alternatives having the largest decreases, except for benzene (emissions increase in 2035 under Alternative 3 relative to Alternative 2). The largest relative decreases in emissions would occur for formaldehyde, for which emissions would decrease by as much as 10.3 percent. Percentage decreases in emissions of acetaldehyde, acrolein, benzene, 1,3-butadiene, and DPM would be less.

The air quality analysis identified the following health impacts.

In 2025, Alternative 3 would result in slightly increased adverse health impacts (mortality, acute bronchitis, respiratory emergency room visits, and other health effects) nationwide compared to the No-Action Alternative as a result of increases in emissions of NO_x, PM_{2.5}, and SO₂. Alternative 2 would also result in slightly increased adverse health impacts from mortality and non-fatal heart attacks due to increases in NO_x, PM_{2.5}, and SO₂ emissions, while Alternative 1 would result in decreased adverse health impacts. The more stringent alternatives are associated with the largest increases in adverse health impacts, or the smallest decreases in impacts, relative to the No-Action Alternative. Again, in the short-term, these slight changes in health impacts are projected under the action alternatives as the result of increases in the prices of new vehicles slightly delaying sales of new vehicles and encouraging more VMT in older vehicles instead, but this trend shifts over time as higher fuel-economy new vehicles become used vehicles and older vehicles are removed from the fleet.

In 2035 and 2050, all action alternatives would result in decreased

adverse health impacts nationwide compared to the No-Action Alternative as a result of general decreases in emissions of NO_x, PM_{2.5}, and DPM. The decreases in adverse health impacts get larger from Alternative 1 to Alternative 3.

In terms of climate effects, all action alternatives would decrease U.S. passenger car and light truck fuel consumption compared with the No-Action Alternative, resulting in reductions in the anticipated increases in global CO₂ concentrations, temperature, precipitation, and sea level, and increases in ocean pH that would otherwise occur. The impacts of the action alternatives on global mean surface temperature, precipitation, sea level, and ocean pH would be small in relation to global emissions trajectories. Although these effects are small, they occur on a global scale and are long lasting; therefore, in aggregate, they can have large consequences for health and welfare and can make an important contribution to reducing the risks associated with climate change.

The alternatives would have the following impacts related to GHG emissions.

Passenger cars and light trucks are projected to emit 89,600 million metric tons of carbon dioxide (MMTCO₂) from 2021 through 2100 under the No-Action Alternative. Alternative 1 would decrease these emissions by 5 percent through 2100. Alternative 3 would decrease these emissions by 10 percent through 2100. Emissions would be highest under the No-Action Alternative, and emission reductions would increase from Alternative 1 to Alternative 3.

Compared with total projected CO₂ emissions of 984 MMTCO₂ from all passenger cars and light trucks under the No-Action Alternative in the year 2100, the action alternatives are expected to decrease CO₂ emissions from passenger cars and light trucks in the year 2100 from 6 percent under Alternative 1 to 12 percent under Alternative 3.

The emission reductions in 2025 compared with emissions under the No-Action Alternative are approximately equivalent to the annual emissions from 1,284,000 vehicles under Alternative 1 to 2,248,000 vehicles under Alternative 3. For scale, a total of 253,949,000 passenger cars and light trucks are projected to be on the road in 2025 under the No-Action Alternative.

CO₂ emissions affect the concentration of CO₂ in the atmosphere, which in turn affects global temperature, sea level, precipitation, and ocean pH. For the analysis of direct

and indirect impacts, NHTSA used the Global Change Assessment Model Reference Scenario to represent the Reference Case emissions scenario (*i.e.*, future global emissions assuming no comprehensive global actions to mitigate GHG emissions).

Estimated CO₂ concentrations in the atmosphere for 2100 would range from 788.33 pollutant per million parts (ppm) under Alternative 3 to approximately 789.11 ppm under the No-Action Alternative, indicating a maximum atmospheric CO₂ decrease of approximately 0.77 ppm compared to the No-Action Alternative. Atmospheric CO₂ concentration under Alternative 1 would decrease by 0.37 ppm compared with the No-Action Alternative.

Global mean surface temperature is projected to increase by approximately 3.48 °C (6.27 °F) under the No-Action Alternative by 2100. Implementing the most stringent alternative (Alternative 3) would decrease this projected temperature rise by 0.003 °C (0.006 °F), while implementing Alternative 1 would decrease projected temperature rise by 0.002 °C (0.003 °F).

Projected sea-level rise in 2100 ranges from a high of 76.28 centimeters (30.03 inches) under the No-Action Alternative to a low of 76.22 centimeters (30.01 inches) under Alternative 3. Alternative 3 would result in a decrease in sea-level rise equal to 0.06 centimeter (0.03 inch) by 2100 compared with the level projected under the No-Action Alternative compared to a decrease under Alternative 1 of 0.03 centimeter (0.01 inch) compared with the No-Action Alternative.

Global mean precipitation is anticipated to increase by 5.85 percent by 2100 under the No-Action Alternative. Under the action alternatives, this increase in precipitation would be reduced by 0.00 to 0.01 percent.

Ocean pH is anticipated to be 8.2180 under Alternative 3, about 0.0004 more than the No-Action Alternative. Under Alternative 1, ocean pH in 2100 would be 8.2178, or 0.0002 more than the No-Action Alternative.

The action alternatives would reduce the impacts of climate change that would otherwise occur under the No-Action Alternative. Although the projected reductions in CO₂ and climate effects are small compared with total projected future climate change, they are quantifiable and directionally consistent and would represent an important contribution to reducing the risks associated with climate change.

Although NHTSA does quantify the changes in monetized damages that can be attributable to each action

alternative, many specific impacts of climate change on health, society, and the environment cannot be estimated quantitatively. Therefore, NHTSA provides a qualitative discussion of these impacts by presenting the findings of peer-reviewed panel reports including those from the Intergovernmental Panel on Climate Change (IPCC), U.S. Global Change Research Program (GCRP), the U.S. Climate Change Science Program (CCSP), the National Research Council, and the Arctic Council, among others. While the action alternatives would decrease growth in GHG emissions and reduce the impact of climate change across resources relative to the No-Action Alternative, they would not themselves prevent climate change and associated impacts. Long-term climate change impacts identified in the scientific literature are briefly summarized below, and vary regionally, including in scope, intensity, and directionality (particularly for precipitation). While it is difficult to attribute any particular impact to emissions that could result from this proposal, the following impacts are likely to be beneficially affected to some degree by reduced emissions from the action alternatives:

- Impacts on freshwater resources could include changes in rainfall and streamflow patterns, warming temperatures and reduced snowpack, changes in water availability paired with increasing water demand for irrigation and other needs, and decreased water quality from increased algal blooms. Inland flood risk could increase in response to increasing intensity of precipitation events, drought, changes in sediment transport, and changes in snowpack and the timing of snowmelt.

- Impacts on terrestrial and freshwater ecosystems could include shifts in the range and seasonal migration patterns of species, relative timing of species' life-cycle events, potential extinction of sensitive species that are unable to adapt to changing conditions, increases in the occurrence of forest fires and pest infestations, and changes in habitat productivity due to increased atmospheric concentrations of CO₂.

- Impacts on ocean systems, coastal regions, and low-lying areas could include the loss of coastal areas due to inundation, submersion, or erosion from sea-level rise and storm surge, with increased vulnerability of the built environment and associated economies. Changes in key habitats (*e.g.*, increased temperatures, decreased oxygen, decreased ocean pH, increased

salinization) and reductions in key habitats (e.g., coral reefs) may affect the distribution, abundance, and productivity of many marine species.

- Impacts on food, fiber, and forestry could include increasing tree mortality, forest ecosystem vulnerability, productivity losses in crops and livestock, and changes in the nutritional quality of pastures and grazing lands in response to fire, insect infestations, increases in weeds, drought, disease outbreaks, or extreme weather events. Increased concentrations of CO₂ in the atmosphere can also stimulate plant growth to some degree, a phenomenon known as the CO₂ fertilization effect, but the impact varies by species and location. Many marine fish species could migrate to deeper or colder water in response to rising ocean temperatures, and global potential fish catches could decrease. Impacts on food and agriculture, including yields, food processing, storage, and transportation, could affect food prices, socioeconomic conditions, and food security globally.

- Impacts on rural and urban areas could affect water and energy supplies, wastewater and stormwater systems, transportation, telecommunications, provision of social services, incomes (especially agricultural), air quality, and safety. The impacts could be greater for vulnerable populations such as lower-income populations, historically underserved populations, some communities of color and tribal and Indigenous communities, the elderly, those with existing health conditions, and young children.

- Impacts on human health could include increases in mortality and morbidity due to excessive heat and other extreme weather events, increases in respiratory conditions due to poor air quality and aeroallergens, increases in water and food-borne diseases, increases in mental health issues, and changes in the seasonal patterns and range of vector-borne diseases. The most disadvantaged groups such as children, the elderly, the sick, those experiencing discrimination, historically underserved populations, some communities of color and tribal and Indigenous communities, and low-income populations are especially vulnerable and may experience disproportionate health impacts.

- Impacts on human security could include increased threats in response to adversely affected livelihoods, compromised cultures, increased or restricted migration, increased risk of armed conflicts, reduction in adequate essential services such as water and energy, and increased geopolitical rivalry.

In addition to the individual impacts of climate change on various sectors, compound events may occur more frequently. Compound events consist of two or more extreme weather events occurring simultaneously or in sequence when underlying conditions associated with an initial event amplify subsequent events and, in turn, lead to more extreme impacts. To the extent the action alternatives would result in reductions in projected increases in global CO₂ concentrations, this rulemaking would contribute to reducing the risk of compound events.

NHTSA has considered the SEIS carefully in arriving at its tentative conclusion that Alternative 2 is maximum feasible, as discussed below. We seek comment on the SEIS associated with this NPRM.

D. Evaluating the EPCA Factors and Other Considerations To Arrive at the Proposed Standards

Despite only one year having passed since the 2020 final rule, enough has changed in the United States and in the world that revisiting the CAFE standards for MYs 2024–2026 is reasonable and appropriate. The global coronavirus pandemic, with all of its tragedy, also demonstrated what happens to U.S. and global oil consumption (and CO₂ and other pollutant emissions) when driving demand plummets. The Biden Administration committed itself in its earliest moments to improving energy conservation and tackling climate change. Nearly all auto manufacturers have announced forthcoming new advanced technology, high-fuel-economy vehicle models, making strong public commitments that mirror those of the Administration. Five major manufacturers voluntarily bound themselves to stricter GHG national-level requirements as part of the California Framework agreement. While some facts on the ground remain similar to what was before NHTSA in the prior analysis—gas prices remain relatively low in the U.S., for example, and while light-duty vehicle sales fell sharply in MY 2020, the vehicles that *did* sell tended to be, on average, larger, heavier, and more powerful, all factors which increase fuel consumption—again, enough has changed that a rebalancing of the EPCA factors is appropriate for model years 2024–2026.

In the 2020 final rule, NHTSA interpreted the need of the U.S. to conserve energy as less important than in previous rulemakings. This was in part because of structural changes in global oil markets as a result of shale oil drilling in the U.S., but also because in

the context of environmental effects, NHTSA interpreted the word “conserve” as “to avoid waste.” NHTSA concluded then that the ultimate difference to the climate (among the regulatory alternatives) of thousandths of a degree Celsius in 2100 did not represent a “wasteful” use of energy, given the other considerations involved in the balancing of factors.

One of those factors was consumer demand for vehicles with higher fuel economy levels. In the 2020 final rule, NHTSA expressed concern that low gasoline prices and apparent consumer preferences for larger, heavier, more powerful vehicles would make it exceedingly difficult for manufacturers to achieve higher standards without negative consequences to sales and jobs, and would cause consumer welfare losses. Since then, however, more and more manufacturers are announcing more and more vehicle models with advanced engines and varying levels of electrification. It is reasonable to conclude that manufacturers (who are all for-profit companies) would not be announcing plans to offer these types of vehicles if they did not expect to be able to sell them,⁴⁶⁶ and thus that manufacturers are more sanguine about consumer demand for fuel efficiency and the market for fully electric vehicles going forward than they have been previously.

Additionally, NHTSA no longer believes that it is reasonable or appropriate to focus only on “avoiding waste” in evaluating the need of the U.S. to conserve energy. EPCA’s overarching purpose is energy conservation. The need of the U.S. to conserve energy may be reasonably interpreted as continuing to push the balancing toward greater stringency.

The following sections will walk through the four statutory factors in more detail and discuss NHTSA’s decision-making process more thoroughly. To be clear at the outset, however, the fundamental balancing of factors for this proposal is different from the 2020 final rule because the evidence suggests that manufacturers believe there is a market for advanced technology vehicles with higher fuel economy, and CAFE standards are likely to be maximum feasible if they are set at levels that reflect that evidence.

⁴⁶⁶ To the extent that manufacturers are offering these vehicles in response to expected regulations, NHTSA still believes that they would not do so if they believed the vehicles were unsaleable or unmanageably detrimental to profits. Vehicle manufacturers are sophisticated corporate entities well able to communicate their views to regulatory agencies.

We may begin with the need of the U.S to conserve energy, which as stated is being considered more holistically in this proposal as compared to in the 2020 final rule. According to the analysis presented in Section V and in the accompanying PRIA and SEIS, Alternative 3 would save consumers the most in fuel costs, and would achieve the greatest reductions in climate change-causing CO₂ emissions. Alternative 3 would also maximize fuel consumption reductions, better protecting consumers from international oil market instability and price spikes. As discussed above, for now, gasoline is still the dominant fuel used in light-duty transportation. As such, consumers, and the economy more broadly, are subject to fluctuations in price that impact the cost of travel and, consequently, the demand for mobility. Vehicles are long-lived assets and the long-term price uncertainty of petroleum still represents a risk to consumers. By increasing the fuel economy of vehicles in the marketplace, more stringent CAFE standards better insulate consumers against these risks over longer periods of time. Fuel economy improvements that reduce demand for oil are a more certain hedging strategy against price volatility than increasing U.S. energy production. Continuing to reduce the amount of money consumers spend on vehicle fuel thus remains an important consideration for the need of the U.S. to conserve energy.

Additionally, the SEIS finds that overall, projected changes in both upstream and downstream emissions of

criteria and toxic air pollutants are mixed, with emissions of some pollutants remaining constant or increasing and emissions of some pollutants decreasing. These increases are associated with both upstream and downstream sources, and therefore, may disproportionately affect minority and low-income populations that reside in proximity to these sources. However, the magnitude of the change in emissions relative to the No-Action alternative is minor for all action alternatives, and would not be characterized as high or adverse; over time, adverse health impacts are projected to decrease nationwide under each of the action alternatives.

For the other considerations that contribute to the need of the U.S. to conserve energy, it follows reasonably that reducing fuel consumption more would improve our national balance of payments more, and our energy security, as discussed above. It is therefore likely that Alternative 3 best meets the need of the U.S. to conserve energy.

During interagency review, the Department of Energy urged NHTSA to propose Alternative 3, on the basis that “a faster transition to battery electric vehicles (BEVs) is feasible,” because a variety of market analysts and the National Academies of Sciences, Engineering, and Medicine find that BEVs will reach cost parity with ICE vehicles by or before 2025. DOE further commented that new BEV prices would drop over time because “DOE has set aggressive technology targets for battery costs and electric drive technologies, . . . And DOE has a consistent track

record in meeting its technology targets: DOE met or exceeded its technology cost and performance goals for battery and electric drive technologies every year between 2012 and 2018.” [citation omitted] While NHTSA appreciates this comment from DOE, as stated repeatedly throughout this proposal, NHTSA is statutorily prohibited from considering the fuel economy of dedicated alternative fuel vehicles during the rulemaking time frame when determining what levels of standards would be maximum feasible. NHTSA believes that Alternative 3 could potentially end up being maximum feasible in the final rule depending on a variety of factors, but NHTSA would be prohibited from basing such a finding exclusively on the date by which DOE estimates that BEVs will achieve cost parity with ICEs.

We next evaluate how the regulatory alternatives fare in terms of economic practicability. NHTSA recognizes that the amount of lead time available before MY 2024 is less than what was provided in the 2012 rule. As will be discussed further below, NHTSA believes that the evidence suggests that the proposed standards are still economically practicable, and not out of reach for a significant portion of the industry. CAFE standards can help support industry by requiring ongoing improvements even if demand for more fuel economy flags unexpectedly.

For the proposed standards, the annual rates of increase in the passenger car and light truck standards represent increases over the required levels in MY 2023 and are as shown in Table VI-6.

Table VI-6 – Annual Rate of Increase in Proposed CAFE Stringency for Each Model Year from 2024 to 2026

Model year	Passenger Car (percent)	Light Truck (percent)
2024	8	8
2025	8	8
2026	8	8

Part of the way that we try to evaluate economic practicability, and thus where the tipping point in the balancing of factors might be, is through a variety of metrics, examined in more detail below. If the amounts of technology or per-vehicle cost increases required to meet the standards appear to be beyond what we believe the market could bear; or sales and employment appear to be

unduly impacted, the agency may decide that the standards under consideration may not be economically practicable. We underscore again, as throughout this preamble, that the modeling analysis does not dictate the “answer,” it is merely one source of information among others that aids the agency’s balancing of the standards. We similarly underscore that there is no

single bright line beyond which standards might be economically practicable, and that these metrics are not intended to suggest one; they are simply ways to think about the information before us.

Economic practicability may be evaluated in terms of how much technology manufacturers would have to apply to meet a given regulatory

alternative. Technology application can be considered as “which technologies, and when”—both the technologies that NHTSA’s analysis suggests would be used, and how that application occurs given manufacturers’ product redesign cadence. While the need of the U.S. to conserve energy may encourage the agency to be more technology-forcing in its balancing, and while technological feasibility is not limiting in this rulemaking given the state of technology in the industry, regulatory alternatives that require extensive application of very advanced technologies (that may have known or unknown consumer acceptance issues) or that require manufacturers to apply additional technology in earlier model years, in which meeting the standards is already challenging, may not be economically practicable, and may thus be beyond maximum feasible.

The first issue is timing of technology application. While the MY 2024 standards provide less lead time for an increase in stringency than was provided by the standards set in 2012, NHTSA believes that the standards for MYs 2021–2023 should provide a relative “break” for compliance purposes. NHTSA does not believe that significant additional technology application would be required by the CAFE standards in the years immediately preceding the rulemaking

time frame. That said, NHTSA is aware of, and has accounted for, several manufacturers voluntarily agreeing with CARB to increase their fuel economy during those model years. Manufacturers would have to apply more technology than would be required by the MYs 2021–2023 CAFE standards alone to meet those higher fuel economy levels. Again, NHTSA interprets these agreements as evidence that the participating companies believe that applying that additional technology is practicable, because for-profit companies can likely be relied upon to make decisions that maximize their profit. Companies who did not agree with CARB to meet higher targets may not increase their fuel economy levels by as much over MYs 2021–2023, but they, too, will get the relative “break” in CAFE obligations mentioned above, and have additional time to plan for the higher stringency increases in subsequent years. Those manufacturers can opt to employ more modest technologies to improve fuel economy (beyond their standard) to generate credits to carry forward into more challenging years, or concentrate limited research and development resources on the next generation of higher fuel economy vehicles that will be needed to meet the proposed standards in MYs 2024–2026 (and

beyond), rather investing in more modest improvements in the near-term. NHTSA’s analysis estimates manufacturers’ product “cadence,” representing them in terms of estimated schedules for redesigning and “freshening” vehicles, and assuming that significant technology changes will be implemented during vehicle redesigns—as they historically have been. Once applied, a technology will be carried forward to future model years until superseded by a more advanced technology. NHTSA does not consider model years in isolation in the analysis, because that is not consistent with how industry responds to standards, and thus would not accurately reflect practicability. If manufacturers are already applying technology widely and intensively to meet standards in earlier years, requiring them to add yet more technology in the model years subject to the rulemaking may be less economically practicable; conversely, if the preceding model years require less technology, more technology during the rulemaking time frame may be more economically practicable. The tables below illustrate how the agency has modeled that process of manufacturers applying technologies in order to comply with different alternative standards. The technologies themselves are described in detail in Chapters 2 and 3 of the accompanying TSD.

Table VI-7 – Estimated Market Share (%) of Selected Technologies, Passenger Cars, Alternative 2 and Alternative 3, Standard Setting Analysis

Tech	Alt	2020	2023	2024	2025	2026
PHEV (all types)	2	< 1	< 1	2	5	8
BEV (all ranges)	2	4	9	9	10	10
Advanced AERO ¹	2	8	48	71	82	87
Strong Hybrid (all types)	2	3	3	5	5	6
MR4 ²	2	5	12	28	36	44
Advanced Engine ³	2	13	29	46	50	50
PHEV (all types)	3	< 1	< 1	2	7	10
BEV (all ranges)	3	4	9	10	10	10
Advanced AERO	3	8	48	76	87	92
Strong Hybrid (all types)	3	3	4	7	8	8
MR4	3	5	12	30	38	46
Advanced Engine	3	13	29	46	51	52

¹ Combined penetration of 15% and 20% aerodynamic improvement

² Reduce glider weight by 15%

³ Combined penetration of advanced cylinder deactivation, advanced turbo, variable compression ratio, high compression ratio and diesel engines

Table VI-8 – Estimated Market Share (%) of Selected Technologies, Light Trucks, Alternative 2 and Alternative 3, Standard Setting Analysis

Tech	Alt	2020	2023	2024	2025	2026
PHEV (all types)	2	< 1	< 1	2	4	7
BEV (all ranges)	2	< 1	2	2	2	3
Advanced AERO ¹	2	16	38	55	64	75
Strong Hybrid (all types)	2	2	4	7	9	9
MR4 ²	2	11	12	16	21	28
Advanced Engine ³	2	15	32	37	42	50
PHEV (all types)	3	< 1	< 1	4	8	12
BEV (all ranges)	3	< 1	2	2	3	3
Advanced AERO	3	16	38	55	64	74
Strong Hybrid (all types)	3	2	5	9	9	9
MR4	3	11	12	16	21	29
Advanced Engine	3	15	32	36	40	51

¹ Combined penetration of 15% and 20% aerodynamic improvement

² Reduce glider weight by 15%

³ Combined penetration of advanced cylinder deactivation, advanced turbo, variable compression ratio, high compression ratio and diesel engines

Although NHTSA's analysis is intended to estimate ways manufacturers *could* respond to new standards, not to predict how manufacturers *will* respond to new standards, manufacturers have indicated in meetings with the agency and in public announcements (including the CARB Framework Agreements) that they do intend to increase technology application over the coming years, and specifically electrification technology which NHTSA does not model as part of its standard-setting analysis, considered for decision-making, due to the 49 U.S.C. 32902(h) restrictions for MYs 2024–2026.

As the tables illustrate, both Alternative 2 and Alternative 3 appear to require rapid deployment of fuel efficiency technology across a variety of vehicle systems—body improvements due to weight reduction and improved aerodynamic drag, engine advancements, and electrification.⁴⁶⁷ The aggressive application that is simulated to occur between MY 2020 (which NHTSA observed and is the starting point of this analysis) and MY 2023 occurs in all of the alternatives, for both cars and light trucks. This reflects

both the task presented to signatories by the California Framework and existing compliance positions (in some fleets) across the industry to improve fuel economy in the near-term. In general, technology market shares for Alternative 3 look similar to those for Alternative 2, with the notable exception of plug-in hybrids which differ by only a couple of percent for cars and about 5 percent for light trucks. While still relatively small differences on their own, the market share of plug-in hybrids is currently less than one percent in total. While manufacturers could certainly choose to produce fully electric vehicles instead of PHEVs, fully electric vehicles are projected to grow by multiples of their current market share as well. The market for high levels of electrification is likely to continue growing but NHTSA acknowledges that consumer demand, especially in the near-term, remains somewhat unclear. If policy decisions are made to extend or expand incentives for electric vehicle purchases, NHTSA could potentially consider the greater reliance on electrification in Alternative 3 to be a smaller risk.

NHTSA's analysis seeks to account for manufacturers' capital and resource constraints in several ways—through the restriction of technology application to refreshes and redesigns, through the phase-in caps applied to certain technologies, and through the explicit

consideration of vehicle components (like powertrains) and technologies (like platforms based on advanced materials) that are shared by models throughout a manufacturer's portfolio. NHTSA is aware that there is a significant difference in the level of capital and resources required to implement one or more new technologies on a single vehicle model, and the level of capital and resources required to implement those same technologies across the entire vehicle fleet. NHTSA realizes that it would not be economically practicable to expand some of the most advanced technologies to every vehicle in the fleet within the rulemaking time frame, although it should be possible to increase the application of advanced technologies across the fleet in a progression that accounts for those resource constraints. That is what NHTSA's analysis tries to do.

Another consideration for economic practicability is the extent to which new standards could increase the average cost to acquire new vehicles, because even insofar as the underlying application of technology leads to reduced outlays for fuel over the useful lives of the affected vehicles, these per-vehicle cost increases provide both a measure of the degree of effort faced by manufacturers, and also the degree of adjustment, in the form of potential vehicle price increases, that will ultimately be required of vehicle

⁴⁶⁷ While these technology pathways reflect NHTSA's statutory restrictions under EPCA/EISA, it is worth noting that they represent only one possible solution. In the simulations that support the SEIS, PHEV market share grows by less, and is mostly offset by an increase in BEV market share.

purchasers. Table VI-9 and Table VI-10 show the agency's estimates of average cost increase under the Preferred Alternative for passenger cars and light trucks, respectively. Because our analysis includes estimates of manufacturers' indirect costs and profits, as well as civil penalties that some manufacturers (as allowed under EPCA/EISA) might elect to pay in lieu of achieving compliance with CAFE standards, we report cost increases as estimated average increases in vehicle price (as MSRP). These are average values, and the agency does not expect that the prices of every vehicle would increase by the same amount; rather, the

agency's underlying analysis shows unit costs varying widely between different vehicle models. For example, a small SUV that replaces an advanced internal combustion engine with a plug-in hybrid system may incur additional production costs in excess of \$10,000, while a comparable SUV that replaces a basic engine with an advanced internal combustion engine incurs a cost closer to \$2,000. While we recognize that manufacturers will distribute regulatory costs throughout their fleet to maximize profit, we have not attempted to estimate strategic pricing, having insufficient data (which would likely be confidential business information (CBI))

on which to base such an attempt. To provide an indication of potential price increases relative to today's vehicles, we report increases relative to the market forecast using technology in the MY 2020 fleet—the most recent actual fleet for which we have information sufficient for use in our analysis. We provide results starting in MY 2023 in part to illustrate the cost impacts in the first model year that we believe manufacturers might actually be able to change their products in preparation for compliance with standards in MYs 2024–2026.

Table VI-9 – Estimated Total (vs. MY 2020 Technology) Average MSRP Increases During MYs 2023-2026 Under Preferred Alternative, Passenger Cars

Manufacturer	2023	2024	2025	2026
BMW	1,133	1,468	2,125	2,769
Daimler	1,180	2,422	2,789	3,204
FCA (Stellantis)	2,697	3,031	3,404	3,740
Ford	3,699	3,402	3,421	3,310
GM	848	1,339	2,065	2,474
Honda	685	829	1,332	1,757
Hyundai Kia-H	623	978	1,661	2,357
Hyundai Kia-K	411	997	1,371	1,880
JLR	609	1,532	1,837	2,256
Mazda	2,288	2,427	3,285	3,401
Mitsubishi	822	1,342	1,815	1,785
Nissan	1,349	2,054	2,871	2,856
Subaru	909	2,055	2,265	2,748
Tesla	48	47	49	49
Toyota	364	934	1,075	1,179
VWA	1,102	1,397	1,743	4,523
Volvo	943	2,761	2,829	3,006
Total, Average	1,055	1,521	1,968	2,264

Table VI-10 – Estimated Total (vs. MY 2020 Technology) Average MSRP Increases During MYs 2023-2026 Under Preferred Alternative, Light Trucks

Manufacturer	2023	2024	2025	2026
BMW	1,282	1,379	1,404	1,431
Daimler	634	657	1,358	1,935
FCA (Stellantis)	1,114	1,325	1,643	1,973
Ford	938	1,187	1,219	1,912
GM	738	1,311	2,309	2,935
Honda	527	1,183	1,705	1,674
Hyundai Kia-H	638	764	883	3,117
Hyundai Kia-K	599	2,416	2,414	2,421
JLR	822	1,311	1,850	2,247
Mazda	492	594	1,370	1,664
Mitsubishi	363	841	1,862	1,832
Nissan	1,133	2,249	2,327	2,824
Subaru	1,121	1,267	1,441	1,434
Tesla	82	81	79	78
Toyota	1,239	1,921	1,925	2,331
VWA	2,210	2,222	2,467	2,482
Volvo	901	2,010	2,392	2,628
Total, Average	933	1,413	1,795	2,210

Relative to current vehicles (again, as represented here by technology in the MY 2020 fleet, the most recent for which NHTSA has adequate data), NHTSA judges these cost increases to be significant, but not impossible for the market to bear. Cost increases will be partially offset by fuel savings, which consumers will experience eventually, if not concurrent with the upfront increase in purchase price. And as discussed

previously, nearly every manufacturer has already indicated their intent to continue introducing advanced technology vehicles between now and MY 2026. Again, NHTSA believes that manufacturers introduce new vehicles (and technologies) expecting that there is a market for them—if not immediately, then in the near future. For-profit companies cannot afford to lose money indefinitely. This trend

suggests that manufacturers believe that at least some cost increases should be manageable for consumers.

Relative to the Preferred Alternative, however, NHTSA notes significant further cost increases for several major manufacturers under Alternative 3. Table VI-11 and Table VI-12 show additional technology costs estimated to be incurred under Alternative 3 as compared to the Preferred Alternative.

Table VI-11 – Estimated Difference Between Estimated Average MSRP Increase under Preferred Alternative and Alternative 3 for Passenger Cars

Manufacturer	2023	2024	2025	2026
BMW	48	207	631	693
Daimler	45	292	407	546
FCA (Stellantis)	(0)	122	265	379
Ford	(0)	11	(239)	78
GM	115	139	367	428
Honda	498	555	516	534
Hyundai Kia-H	4	206	462	617
Hyundai Kia-K	-	111	696	670
JLR	(2)	125	292	463
Mazda	(0)	266	542	534
Mitsubishi	-	119	602	576
Nissan	16	308	427	573
Subaru	(0)	(0)	147	468
Tesla	-	-	-	-
Toyota	56	326	383	441
VWA	(0)	47	129	160
Volvo	(12)	(216)	(131)	337
Total, Average	92	227	360	469

Table VI-12 – Estimated Difference Between Estimated Average MSRP Increase under Preferred Alternative and Alternative 3 for Light Trucks

Manufacturer	2023	2024	2025	2026
BMW	24	23	44	143
Daimler	(8)	43	168	331
FCA (Stellantis)	0	83	187	318
Ford	66	521	605	847
GM	-	283	622	798
Honda	312	1,036	1,046	1,037
Hyundai Kia-H	-	17	29	671
Hyundai Kia-K	0	719	693	672
JLR	16	122	214	363
Mazda	-	17	96	387
Mitsubishi	0	128	355	340
Nissan	0	27	58	181
Subaru	0	0	47	(0)
Tesla	-	-	-	-
Toyota	53	652	622	798
VWA	653	624	599	597
Volvo	10	369	490	573
Total, Average	46	347	461	600

For example, Honda's light truck fleet appears to hit an inflection point in cost where much more aggressive technology application is required in order to comply with Alternative 3. In general,

light truck fleets appear to be pressed harder to comply with Alternative 3 than passenger car fleets across the industry. For example, Ford's passenger car compliance costs are estimated to

increase minimally between Alternative 2 and Alternative 3, but light truck compliance costs increase by over 40 percent (in most years). A number of other manufacturers are pushed in both

fleets (Honda, Toyota, and Kia, for example), and make significant additional investments in fuel economy technology to reach compliance with the standards in Alternative 3.

Changes in costs for new vehicles are not the only costs that NHTSA considers in balancing the statutory factors—fuel costs for consumers are relevant to the need of the U.S. to conserve energy, and NHTSA believes

that consumers themselves weigh expected fuel savings against increases in purchase price for vehicles with higher fuel economy. Fuel costs (or savings) continue to be the largest source of benefits for CAFE standards, and GHG reduction benefits, which are also part of the need of the U.S. to conserve energy, are also increasing. E.O. 12866 and Circular A–4 also direct agencies to consider maximizing net

benefits in rulemakings whenever possible and consistent with applicable law. Thus, because it can be relevant to balancing the statutory factors and because it is directed by E.O. 12866 and OMB guidance, NHTSA also considers the net benefits attributable to the different regulatory alternatives, as shown in Table VI–13.

Table VI-13 – Summary of Cumulative Benefits and Costs for Model Years through MY 2029, by Alternative and Discount Rate

		Alternative 1	Alternative 2	Alternative 3
3% Rate	Total Benefits	82.6	121.4	172.9
	Total Costs	66.5	121.1	176.3
	Net Benefits	16.1	0.3	-3.4
7% Rate	Total Benefits	51.6	75.6	107.6
	Total Costs	49.3	90.7	132.8
	Net Benefits	2.3	-15.1	-25.2

While maximizing net benefits is a valid decision criterion for choosing among alternatives, it is not the only reasonable decision perspective. When NHTSA recognizes that the need of the U.S. to conserve fuel weighs importantly in the overall balancing of factors, it is reasonable to consider choosing the regulatory alternative that produces the largest reduction in fuel consumption, while remaining net beneficial. The benefit-cost analysis is not the sole factor that NHTSA considers in determining the maximum feasible stringency, though it supports NHTSA's tentative conclusion that Alternative 2 is the maximum feasible stringency. While Alternative 1 produces higher net benefits, it also continues to allow fuel consumption that could have been avoided in a cost-beneficial manner. And while Alternative 3 achieves greater reductions in fuel consumption than Alternative 2, it shows relatively high negative net benefits under both discount rates.

While NHTSA estimates that new vehicle sales will be slightly lower under Alternative 2 than under the No-Action Alternative, as a consequence of the higher retail prices that result from additional technology application, the difference is only about 1 percent over the entire period covered by MYs 2020–

2026. NHTSA does not believe that this estimated change in new vehicle sales over the period covered by the rule is a persuasive reason to choose another regulatory alternative. Similarly, the estimated labor impacts within the automotive industry provide no evidence that another alternative should be preferred. While the change in sales is estimated to decrease industry employment over the period, the decrease is even smaller than the impact on new vehicle sales (about 0.1 percent). As NHTSA explained earlier in defining economic practicability, standards simply should avoid a *significant* loss of jobs, and may still be economically practicable even though they appear to show a negative impact (here, a very slight impact) on sales and employment.

As with any analysis of sufficient complexity, there are a number of critical assumptions here that introduce uncertainty about manufacturer compliance pathways, consumer responses to fuel economy improvements and higher vehicle prices, and future valuations of the consequences from higher CAFE standards. While NHTSA considers dozens of sensitivity cases to measure the influence of specific parametric assumptions and model relationships, only a small number of them

demonstrate meaningful impacts to net benefits under the proposed standards.

Looking at these cases more closely, the majority of both costs and benefits that occur under the proposed standards accrue to buyers of new cars and trucks, rather than society in general. It then follows that the assumptions that exert the greatest influence over private costs and benefits also exert the greatest influence over net benefits—chief among these is the assumed trajectory of future fuel prices, specifically gasoline. NHTSA considers the “High Oil Price” and “Low Oil Price” cases from AEO 2021 as bounding cases, though they are asymmetrical (while the low case is only about 25 percent lower than the Reference case on average, the high case is almost 50 percent higher on average). The sensitivity cases suggest that fuel prices exert considerable influence on net benefits—where higher and lower prices not only determine the dollar value of each gallon saved, but also how market demand responds to higher levels of fuel economy in vehicle offerings. Under the low case, net benefits become negative and exceed \$30 billion, but increase to almost (positive) \$50 billion in the high case (the largest increase among any sensitivity cases run for this proposal). This suggests that the net benefits resulting from this proposal are

dependent upon the future price of gasoline being at least as high as the AEO 2021 Reference Case projects.

Another critical uncertainty that affects private benefits is the future cost of advanced electrification technologies, specifically batteries. These emerging technologies provide both the greatest fuel savings to new car buyers and impose the highest technology costs (at the moment). While the cost to produce large vehicle batteries has been rapidly declining for years, they are still expensive relative to advancements in internal combustion engines and transmissions. However, the analysis projects continued cost learning over time and shows battery electric vehicles reaching price parity with conventional vehicles in the 2030s for most market segments—after which market adoption of BEVs accelerates—although other estimates show price parity occurring sooner and we seek comment on whether and how to use those estimates in our analysis for the final rule. Electrification is also a viable compliance strategy, as partially or fully electric vehicles benefit from generous compliance incentives that improve their estimated fuel economy relative to measured energy consumption. As such, the assumption about future battery costs has the ability to influence compliance costs to manufacturers and prices to consumers, the rate of electric vehicle adoption in the market, and thus the emissions associated with their operation. NHTSA considered two different mechanisms to affect battery costs: Higher/lower direct costs, and faster/slower cost learning rates. The two mechanisms that reduce cost (whether by faster cost learning or lower direct costs) both increase net benefits relative to the central case, though lowering initial direct costs by 20 percent had a greater effect than increasing the learning rate by 20 percent. Increasing cost (through either mechanism) by 20 percent produced a similar effect, but in the opposite direction (reducing net benefits). However, none of those cases exerted a level of influence that compares to alternative fuel price assumptions.

There is one assumption that affects the analysis without influencing the benefits and costs that accrue to new car buyers: The social cost of damages attributable to greenhouse gas emissions. While there is no feedback in either the analysis or the policy between the assumed social cost of GHGs and metric tons of GHGs emitted (or gallons of fuel consumed), it directly controls the valuation of each metric ton saved over time. The central analysis assumes a SC-GHG cost based on the 2.5 percent

discount rate for the 3 percent social discount rate, and a SC-GHG cost based on the 3 percent discount rate in the 7 percent social discount rate case. However, this assumption directly scales total benefits by increasing (or decreasing) the value of each ton saved. Using the highest SCC-GHG, based on the 95th percentile estimate, pushes net benefits above \$30 billion under Alternative 2. NHTSA does not independently develop the SC-GHG assumptions used in this proposal but takes them from the interagency working group on the social cost of GHGs. If future analyses by that group determine that the SC-GHG should be different from what it currently is, NHTSA will consider those values and whether to include them in subsequent analyses. As the sensitivity cases illustrate, their inclusion could exert enough influence on net benefits to suggest that a different alternative could represent the maximum feasible stringency—at least based on the decision criteria described in this section. As mentioned above, NHTSA is seeking comment on the methodology employed by that group for determining the SC-GHG.

Based on all of the above, NHTSA tentatively concludes that while all of the action alternatives are technologically feasible, Alternative 3 may be too costly to be economically practicable in the rulemaking timeframe, even if choosing it could result in greater fuel savings. NHTSA interprets the need of the U.S. to conserve energy as pushing the balancing toward greater stringency—consumer savings on fuel costs are estimated to be higher under Alternative 3 than under Alternative 2, but the additional technology cost required to meet Alternative 3 (as evidenced by the negative net benefits at both discount rates) may yet make Alternative 3 too stringent for these model years. Changes in criteria pollutants, health effects, and vehicle safety effects are relatively minor under all action alternatives, and thus not dispositive. NHTSA has considered the effect of other motor vehicle standards of the Government by incorporating the fuel economy effects of California's ZEV program into its baseline, and calculating the costs and benefits of CAFE standards as above and beyond those baseline costs and benefits. The additional costs of the proposed standards are, on average, not far from what NHTSA estimated in the 2012 final rule for standards in a similar timeframe; the additional benefits are lower, but this is due to a variety of factors, including significant addition of

fuel-economy-improving technology to new vehicles between then and now (including the growing market for electric vehicles), and lower fuel price projections from EIA. To the extent that higher prices for new vehicles as a result of the technology required by the standards could translate to decreases in new vehicle sales, we note that those effects appear small, as discussed above. Moreover, improving the fuel efficiency of new vehicles has effects over time, not just at point of first sale, on consumer fuel savings. Somewhat-more-expensive-but-more-efficient new vehicles eventually become more-efficient used vehicles, which may be purchased by consumers who may be put off by higher new vehicle prices. The benefits have the potential to continue across the fleet and over time, for all consumers regardless of their current purchasing power.

NHTSA recognizes, again, that lead time for this proposal is less than past rulemakings have provided, and that the economy and the country are in the process of recovering from a global pandemic. NHTSA also recognizes that at least parts of the industry are nonetheless making announcement after announcement of new forthcoming advanced technology, high-fuel-economy vehicle models, and does not believe that they would be doing so if they thought there was no market at all for them. Perhaps some of the introductions are driven by industry perceptions of future regulation, but the fact remains that the introductions are happening. CAFE standards can help to buttress this momentum by continuing to require the fleets as a whole to improve their fuel economy levels steadily over the coming years, so that a handful of advanced technology vehicles do not inadvertently allow backsliding in the majority of the fleet that will continue to be powered by internal combustion for likely the next 5–10 years. CAFE standards that increase steadily may help industry make this transition more smoothly.

And finally, if the purpose of EPCA is energy conservation, and NHTSA is interpreting the need to conserve energy to be largely driven by fuel savings, energy security, and environmental concerns, then it makes sense to interpret EPCA's factors as asking the agency to push stringency as far as possible before benefits become negative. The energy conservation benefits of Alternative 3 appear, under the current analysis, to be highest, as discussed in the SEIS and in Section VI.C above, and better protect consumers from international oil market instability and price spikes. By

increasing the fuel economy of vehicles in the marketplace, more stringent CAFE standards better insulate consumers against these risks over longer periods of time. Fuel economy improvements that reduce demand for oil are a more certain hedging strategy against price volatility than increasing U.S. energy production. However, with negative net benefits for Alternative 3 under both discount rates, it may be that for the moment, the costs of achieving those benefits are more than the market is willing to bear. NHTSA thus aims to help bolster the industry's trajectory toward higher future standards, by keeping stringency high in the mid-term, but not so high as to be economically impracticable.

NHTSA therefore proposes that Alternative 2 is maximum feasible for MYs 2024–2026. We seek comment on this tentative conclusion.

VII. Compliance and Enforcement

A. Introduction

1. Overview of the NHTSA Compliance Program

A manufacturer's fleet is divided into three compliance categories of automobiles: Passenger vehicles manufactured domestically, passenger vehicles not manufactured domestically; and non-passenger automobiles.⁴⁶⁸ Each category has its own CAFE fleet mpg standard that a manufacturer is required to meet. The CAFE standard is determined for each model year by a combination of the production volume of vehicles produced for sale, the footprint of those vehicles, and the requisite CAFE footprint-based fuel economy target curves.

For each compliance category, manufacturers self-report data at the end of each MY in the form of a Final Model Year Report, and once these data are verified by EPA, NHTSA determines final compliance. Using EPA's final verified data, a manufacturer fleet is determined to be compliant if the 2-cycle CAFE performance of their fleet with the addition of the Alternative Motor Fuels Act (AMFA) and AC/OC incentives are equal to or greater than the CAFE fleet mpg standard. The manufacturer fleet is out of compliance if its fleet mpg falls below the CAFE mpg standard, in which case the manufacturer may resolve the shortfall through civil penalties or the use of flexibilities. Resolving a shortfall through flexibilities may include the

application of CAFE credits through trade, carry-forward, carry-back, or transfer from within the manufacturer's fleet accounts or from another manufacturer's fleet accounts.

The following sections provide a brief overview how CAFE standards and compliance values are derived, what compliance flexibilities and incentives are available to manufacturers, and the revisions to the CAFE program NHTSA is proposing in this rulemaking. In summary, NHTSA is proposing to: (1) Increase and clarify flexibilities for its off-cycle program; (2) revive incentives for hybrid and electric full-size pickup trucks through MY 2025; (3) modify its standardized templates for CAFE reporting and credit transactions; and (4) add a new template for manufacturers to report information on the monetary and non-monetary costs associated with credit trades.

2. How Manufacturers' Target and Achieved Performances Are Calculated

Compliance begins each model year with manufacturers testing vehicles on a dynamometer in a laboratory over pre-defined test cycles and controlled conditions.⁴⁶⁹ EPA and manufacturers use two different dynamometer test procedures—the Federal Test Procedure (FTP) and the Highway Fuel Economy Test (HFET) to determine fuel economy. These procedures originated in the early 1970s and were intended to generally represent city and highway driving conditions, respectively. These two tests are commonly referred to as the “2-cycle” test procedures for CAFE. A machine is connected to the vehicle's tailpipe while it performs the test cycle, which collects and analyzes exhaust

gases, such as CO₂ quantities.⁴⁷⁰ Fuel economy is determined from relating a derived emissions factor to the amount of observed CO₂ using a reference test fuel.⁴⁷¹ Manufacturers continue to test vehicles over the course of the model year and will test enough vehicles to cover approximately 90 percent of the subconfigurations within each model type. Manufacturers self-report this information to EPA as part of their end-of-the-model year reports, which are due 90 days after the model year is completed. After manufacturers submit their reports, EPA confirms and validates those results by testing a random sample of vehicles at the National Vehicle and Fuel Emissions Laboratory (NVFEL) in Ann Arbor, Michigan.

A manufacturer's fleet fuel economy performance (hereafter referenced as Base CAFE) for a given model year is calculated through the following steps:

- Each vehicle model's mile per gallon (mpg) performance in the city and highway test cycles are calculated based off the carbon emitted during dynamometer testing. The vehicle's mpg performance is combined at 55 percent city and 45 percent highway. Measurement incentives for alternative fuel vehicles (such as for electricity, counting 15 percent of the actual energy used to determine the gasoline equivalent mpg) are applied as part of these procedures;
- Performance improvements not fully captured through 2-cycle dynamometer testing, such as eligible A/C and off-cycle technologies are then added to the vehicle's mpg performance. Incentives for full-size pickup trucks with mild or strong HEV technology or other technologies that perform significantly better than the vehicle's target value are also applied.
- The quantity of vehicles produced of each model type within a manufacturer's fleet is divided by its respective fuel economy performance (mpg) including any flexibility/incentive increases; The resulting numbers for each model type are summed;
- The manufacturer's total production volume is then divided by the summed value calculated in the previous step; and

⁴⁷⁰ Vehicles without tailpipe emissions, such as battery electric vehicles, have their performance measured differently, as discussed below.

⁴⁷¹ Technically, for the CAFE program, carbon-based tailpipe emissions (including CO₂, CH₄, and CO) are measured, and fuel economy is calculated using a carbon balance equation. EPA uses carbon-based emissions (CO₂, CH₄, and CO, the same as for CAFE) to calculate the tailpipe CO₂ equivalent for the tailpipe portion of its standards. CO₂ is by far the largest carbon-based exhaust constituent.

⁴⁶⁸ See 49 U.S. Code 32903.6. Passenger vehicles not manufactured domestically are referenced as import passenger cars and non-passenger automobiles as light trucks.

⁴⁶⁹ For readers unfamiliar with this process, the test is similar to running a car on a treadmill following a program—or more specifically, two programs. 49 U.S.C. 32904(c) states that, in testing for fuel economy, EPA must “use the same procedures for passenger automobiles [that EPA] used for model year 1975 (weighted 55 percent urban cycle and 45 percent highway cycle), or procedures that give comparable results.” Thus, the “programs” are the “urban cycle,” or Federal Test Procedure (abbreviated as “FTP”) and the “highway cycle,” or Highway Fuel Economy Test (abbreviated as “HFET”), and they have not changed substantively since 1975. Each cycle is a designated speed trace (of vehicle speed versus time) that vehicles must follow during testing—the FTP is meant roughly to simulate stop and go city driving, and the HFET is meant roughly to simulate steady flowing highway driving at about 50 mph. The 2-cycle dynamometer test results differ somewhat from what consumers will experience in the real-world driving environment because of the lack of high speeds, rapid accelerations, and hot and cold temperatures evaluations with the A/C operation. These added conditions are more so reflected in the EPA 5-cycle test results listed on each vehicle's fuel economy label and on the *fuel economy.gov* website.

• That number, which is the harmonic average of the fleet’s fuel economy, is rounded to the nearest tenth of an mpg and represents the manufacturer’s achieved fuel economy. The Base CAFE of each fleet is compared to the manufacturer’s unique fleet compliance obligation, which is calculated using the same approach as the Base CAFE performance, except that the fuel economy target value (based on

the unique footprint of each vehicle within a model type) is used instead of the measured fuel economy performance values. The fuel economy target values of the model types within each fleet and production volumes are used to derive the manufacturer’s fleet standard (also known as the obligation) which is the harmonic average of these values.

To further illustrate how Base CAFE and fuel economy targets are calculated, assume that a manufacturer produces two models of cars—a hatchback and a sedan. Figure VII–1 shows the two vehicle models imposed onto a fuel economy target function. From Figure VII–1, we can see that the target function extends from about 30 mpg for the largest cars to about 41 mpg for the smallest cars.

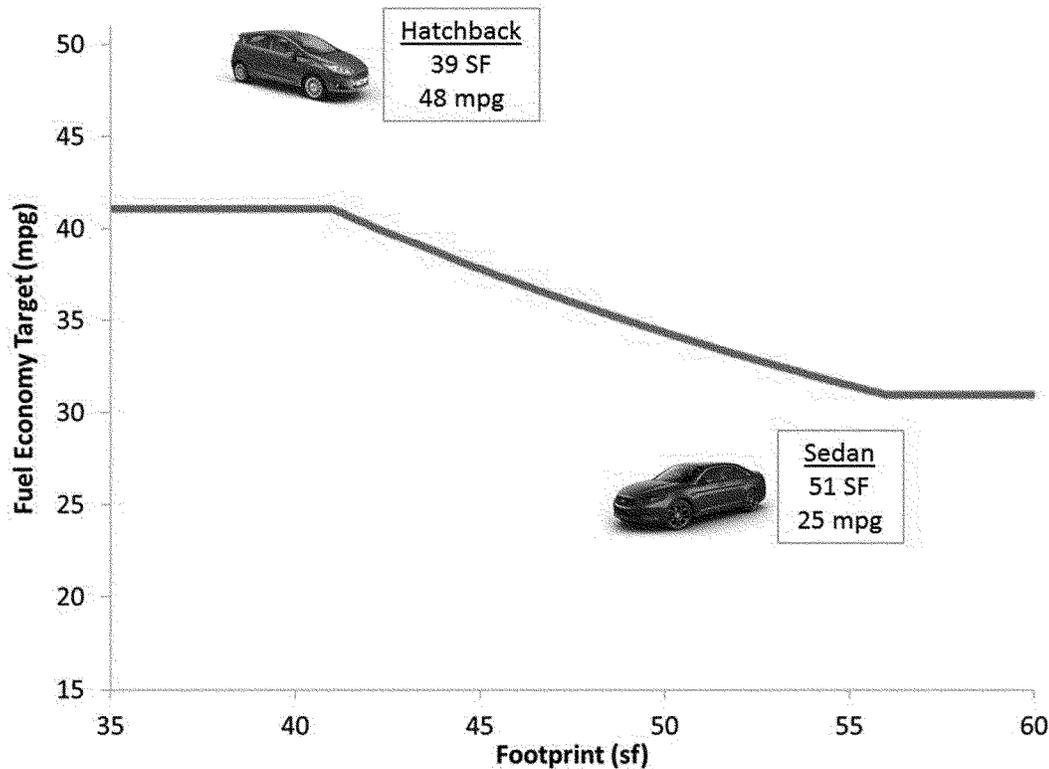


Figure VII-1 – Illustration of Vehicle Models vs. Fuel Economy Targets

The manufacturer’s required CAFE obligation would be determined by calculating the production-weighted harmonic average of the fuel economy target values applicable at the hatchback and sedan footprints (from the curve, about 41 mpg for the hatchback and about 33 mpg for the sedan). The manufacturer’s achieved Base CAFE level is determined by calculating the production-weighted harmonic average of the hatchback and sedan fuel economy levels (in this example the values shown in the boxes in Figure VII–1, 48 mpg for the hatchback and 25 mpg for the sedan). Depending on the relative mix of hatchbacks and sedans produced, the manufacturer’s fleet Base CAFE may be equal to the standard, perform better than the standard (if the required fleet CAFE is less than the achieved fleet Base CAFE) and thereby

earn credits, or perform worse than the standard (if the required fleet CAFE is greater than achieved fleet Base CAFE) and thereby earn a credit shortfall which would need to be made up using CAFE credits, otherwise the manufacturer would be subject to civil penalties.

As illustrated by the example, the CAFE program’s use of sales-weighted harmonic averages makes compliance more intricate than comparing a model to its target as not every model type needs to precisely meet its target for a manufacturer to achieve compliance. Consequently, if a manufacturer finds itself producing large numbers of vehicles that fall well-short of its targets, a manufacturer can attempt to equally balance its compliance by producing vehicles that are excessively over-compliant. However, NHTSA

understands that several factors determine the ability of manufacturers to change their fleet-mix mid-year. In response, the CAFE program is structured to provide relief to manufacturers in offsetting any shortfalls by offering several compliance flexibilities. Many manufacturers use these flexibilities to avoid civil penalties.

3. The Use for CAFE Compliance Flexibilities and Incentives

The CAFE program offers several compliance flexibilities which expand options for compliance, and incentives which encourage manufacturers to build vehicles with certain technologies to achieve longer range policy objectives. For example, since MY 2017, manufacturers have had the flexibility to earn credits for air conditioning

(A/C) systems with improved efficiency. These fuel economy improvements are added to the 2-cycle performance results of the vehicle and increases the calculation of a manufacturer's fleet Base CAFE in determining compliance relative to standards.⁴⁷²

Some CAFE flexibilities and incentives are codified by statute in EPCA or EISA, while others have been implemented by the NHTSA through regulations, consistent with the statutory scheme. Compliance flexibilities and incentives have a great deal of theoretical attractiveness: If designed properly, they can help reduce the overall regulatory costs, while maintaining or improving programmatic benefits. If designed poorly, they may create significant potential for market distortion. Consequently, creating or

revising compliance flexibilities and incentives requires proper governmental and industry collaboration for understanding upcoming technological developments and for determining whether a technology is economically feasible for compliance. When designing these programmatic elements, the agency must be mindful to ensure flexibilities and incentives are provided with long term benefits to the CAFE program while avoiding unintended windfalls for only certain manufacturers or technologies.

Compliance incentives and flexibilities are structured to encourage implementation of technology that will further increase fuel savings. Some incentives are designed to encourage the development of technologies that may have high initial costs but offer promising fuel efficiency benefits in the long-term. Others are designed to bring low cost technologies uniformly into the market that improve fuel economy in the real-world but may be missed by the 2-cycle test, such as the cost-effective off-cycle menu technologies included by EPA for CAFE compliance.

Below is a summary of all the current and proposed changes to the flexibilities and incentives for the CAFE and CO₂ programs in Table VII-1 through Table VII-4. Note that this proposal only covers the CAFE program; the EPA program is listed here to demonstrate the congruencies between the two programs. NHTSA is proposing to maintain the bulk of its current program with a few modifications. One of the changes raised in this proposal is to increase the off-cycle flexibility technology benefit cap along with new technology definitions as shown in the table. NHTSA is also proposing to reinstate incentives for full-size hybrid and game changing advanced technology pickup trucks for model years 2022 through 2026. NHTSA believes that these incentives will increase the production of environmentally beneficial technologies and help achieve economies of scale to reduce costs that will enable more stringent CAFE standards in the future. These proposals are explained in further detail in Section VII.B.

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⁴⁷² NHTSA characterizes any programmatic benefit manufacturers can use to comply with CAFE standards that fully accounts for fuel use as a "flexibility" (e.g., credit trading) and any benefit that counts less than the full fuel use as an "incentive" (e.g., adjustment of alternative fuel vehicle fuel economy). NHTSA flexibilities and incentives are discussed further in Section VII.B.3.a).

Table VII-1 – Statutory Flexibilities for Over-compliance with Standards

Regulatory Item	NHTSA		EPA	
	Authority	Current Program	Authority	Current and <i>Proposed</i> Program
Credit Earning	49 U.S.C. 32903(a)	Denominated in tenths of a mpg	CAA 202(a)	Denominated in g/mi
Credit “Carry-forward”	49 U.S.C. 32903(a)(2)	5 MYs into the future	CAA 202(a)	5 MYs into the future (except for MYs 2010-2015 = credits may be carried forward through MY 2021) <i>EPA proposes to extend credit expiration for MY 2016 by 2 years, and for MYs 2017-2020 by 1 year</i>
Credit “Carryback” (AKA “deficit carry-forward”)	49 U.S.C. 32903(a)(1)	3 MYs into the past	CAA 202(a)	3 MYs into the past
Credit Transfer	49 U.S.C. 32903(g)	Up to 2 mpg per fleet; transferred credits may not be used to meet MDPCS	CAA 202(a)	Unlimited
Credit Trade	49 U.S.C. 32903(f)	Unlimited quantity; traded credits may not be used to meet MDPCS	CAA 202(a)	Unlimited

Table VII-2 – Current and Proposed Flexibilities that Address Gaps in Compliance Test Procedures

Regulatory Item	NHTSA		EPA	
	Authority	Current and Proposed Program	Authority	Current and Proposed Program
A/C efficiency	49 U.S.C. 32904	Allows mfrs to earn “fuel consumption improvement values” (FCIVs) equivalent to EPA credits starting in MY 2017	CAA 202(a)	“Credits” for A/C efficiency improvements up to caps of 5.0 g/mi for cars and 7.2 g/mi for trucks
Off-cycle	49 U.S.C. 32904	Allows mfrs to earn “fuel consumption improvement values” (FCIVs) equivalent to EPA credits starting in MY 2017 <i>For MY 2020 and beyond, NHTSA proposes to implement CAFE provisions equivalent to the EPA proposed changes</i>	CAA 202(a)	“Menu” of pre-approved credits (~10), up to cap of 10 g/mi for MY 2014 and beyond; other pathways require EPA approval through either 5-cycle testing or through public notice and comment <i>EPA proposes to revise the definitions for passive cabin ventilation and active engine and transmission warm-up beginning in MY 2023; for MY 2020-2022, the cap is 15 g/mi if the revised definitions are met (if these technologies are used). In MY 2023 and later, the cap is increased to 15 g/mile</i>

Table VII-3 – Incentives that Encourage Application of Technologies

Regulatory item	NHTSA		EPA	
	Authority	Proposed Program	Authority	Current and Proposed Program
Full-size pickup trucks with HEV or overperforming target	49 U.S.C. 32904	Allows mfrs to earn FCIVs equivalent to EPA credits for MYs 2017-2021 <i>NHTSA proposes to reinstate incentives for strong hybrid OR overperforming target by 20% for MYs 2022-2025</i>	CAA 202(a)	10 g/mi for full-size pickups with mild hybrids OR overperforming target by 15% (MYs 2017-2021); 20 g/mi for full-size pickups with strong hybrids OR overperforming target by 20% (MYs 2017-2021); requires 10% or more of full-size pickup production volume <i>EPA proposes to reinstate incentives for strong hybrid OR overperforming by 20% for MYs 2022-2025</i>

Table VII-4 – Incentives that Encourage Alternative Fuel Vehicles

Regulatory item	NHTSA		EPA	
	Authority	Current Program	Authority	Current and <i>Proposed</i> Program
Dedicated alternative fuel vehicle	49 U.S.C. 32905(a) and (c)	Fuel economy calculated assuming gallon of liquid or gallon equivalent gaseous alt fuel = 0.15 gallons of gasoline; for EVs petroleum equivalency factor	CAA 202(a)	Multiplier incentives for EVs and FCVs (each vehicle counts as 2.0/1.75/1.5 vehicles in 2017-2021), NGVs (1.6/1.45/1.3 vehicles for MYs 2017-2021, then 2.0 for MYs 2022-2026); each EV = 0 g/mi upstream emissions through MY 2021 (then phases out based on per-mfr production cap of 200k vehicles) 2026 <i>EPA proposes to add vehicle multiplier incentive for EVs and FCVs; each vehicle counts as 2.0 for MYs 2022-2024, and 1.75 for MY 2025, subject to a cap on all vehicle multipliers</i>
Dual-fueled vehicles	49 U.S.C. 32905(b), (d), and (e); 32906(a)	FE calc using 50% operation on alt fuel and 50% on gasoline through MY 2019. Starting with MY 2020, NHTSA uses the SAE defined "Utility Factor" methodology to account for actual potential use, and "F-factor" for FFV; NHTSA will continue to incorporate the 0.15 incentive factor	CAA 202(a)	Multiplier incentives for PHEVs and NGVs (each vehicle counts as 1.6/1.45/1.3 vehicles in 2017-2021 NGVs count as 2.0 vehicles in 2022-2026); electric operation = 0 g/mi through MY 2026; the SAE defined "Utility Factor" method for use, and "F-factor" for FFV <i>EPA proposes to add vehicle multiplier incentive for PHEVs; each vehicle counts as 1.6 for MYs 2022-2024, and 1.45 for MY 2025, subject to a cap on all vehicle multipliers</i>

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4. Light Duty CAFE Compliance Data for MYs 2011–2020

NHTSA uses compliance data in part to identify industry trends. For this proposal, NHTSA examined CAFE compliance data for model years 2011 through 2020 using final compliance data for MYs 2011 through 2017,⁴⁷³ projections from end-of-the-model year reports submitted by manufacturers for

MYs 2018 and 2019,⁴⁷⁴ and projections from manufacturers' mid model year reports for MY 2020.⁴⁷⁵ Projections from the mid-year and end-of-the-model year reports may differ from EPA-verified final CAFE values either because of differing test results or final sales-volume figures. MY 2011 was selected as the start of the data because it represents the first compliance model year for which manufacturers were

permitted to trade and transfer credits.⁴⁷⁶ The data go up to MY 2020, because this was the most recent year compliance reports were available.

Figure VII-2 through Figure VII-5 provide a graphical overview of the actual and projected compliance data for MYs 2011 to 2020.⁴⁷⁷

In the figures, an overview is provided for the total fuel economy performance of the industry (the combination of all passenger cars and light trucks produced for sale during the

⁴⁷³ Final compliance data have been verified by EPA and are published on the NHTSA's Public Information Center (PIC) site. MY 2017 is currently the most-recent model year verified by EPA.

⁴⁷⁴ MY 2018 data come from information received in manufacturers' final reports submitted to EPA according to 40 CFR 600.512-12.

⁴⁷⁵ Manufacturers' mid-model year CAFE reports are submitted to NHTSA in accordance with 49 CFR part 537. At the time of the analysis, end of the model year data had not yet been submitted for MY 2020.

⁴⁷⁶ 49 CFR 535.6(c).

⁴⁷⁷ As mentioned previously, the figures include estimated values for certain model years based on the most up to date information provided to NHTSA from manufacturers.

model year) as a single fleet, and for each of the three CAFE compliance fleets: Domestic passenger car, import passenger car, and light truck fleets. For each of the graphs, a sale-production weighting is applied to determine the average total or fleet Base CAFE performances.^{478 479 480} The graphs do not include adjustments for full-size pickup trucks because manufacturers have yet to bring qualifying products into production.

The figures also show how many credits remain in the market each model year. One complicating factor for presenting credits is that the mpg-value of a credit is contingent where it was earned and applied. Therefore, the actual use of the credits for MYs 2018 and beyond will be uncertain until compliance for those model years is completed. Also, since credits can be

⁴⁷⁸ In the figures, the label “2-Cycle CAFE” represents the maximum increase each year in the average fuel economy set to the limitation “cap” for manufacturers attributable to dual-fueled automobiles as prescribed in 49 U.S.C. 32906. The label “AC/OC contribution” represents the increase in the average fuel economy adjusted for A/C and off-cycle fuel consumption improvement values as prescribed by 40 CFR 600.510–12.

⁴⁷⁹ Consistent with applicable law, NHTSA established provisions starting in MY 2017 allowing manufacturers to increase compliance performance based on fuel consumption benefits gained by technologies not accounted for during normal 2-cycle EPA compliance testing (called “off-cycle technologies” for technologies such as stop-start systems) as well as for A/C systems with improved efficiencies and for hybrid or electric full-size pickup trucks.

⁴⁸⁰ Adjustments for earned credits include those that have been adjusted for fuel saving using the manufacturers CAFE values for the model years in which they were earned and adjusted to the average CAFE values for the fleets they exist within.

retained for up to 6 MYs after they were earned or applied retroactively to the previous 3 model years, it is impossible to know the final application of credits for MY 2020 until MY 2023 compliance data are finalized. Instead of attempting to project how credits would be generated and used, the agency opted to value each credit based on its actual value when earned, by estimating the value when applied assuming it was applied to the overall average fleet and across all vehicles. In the figures, two different approaches were used to represent the mpg value of credits used to offset shortages (shown as CAFE after credit allocation in the figures). The mpg shortages for MYs 2011 to 2017 are based upon actual compliance values from EPA and the credit allocations or fines manufacturers instructed NHTSA to adjust and apply to resolve compliance shortages. For MYs 2018 to 2020, NHTSA used a different approach for representing the mpg shortages, deriving them from projected estimates adjusted for fuel savings calculated from the projected fleet average performances and standards for each model year and fleet. To represent the mpg value of manufacturers’ remaining banked credits in the figures (shown as Credits in the Market) the same weighting approach was also applied to these credits based upon the fleet averages. For MYs 2011–2017, the remaining banked credits include those currently existing in manufacturers’ credit accounts adjusted for fuel savings and subtracting any expired credits for each year. This approach was taken to represent these credits for the actual value that would likely exist if the

credits were applied for compliance purposes. Without adjusting the banked credits, it would provide an unrealistic value of the true worth of these credits when used for compliance. For MYs 2018–2020, the mpg value of the remaining banked credits is shown slightly differently where the value represents the difference between the adjusted credits carried forward from previous model years (minus expiring credits) and the projected earned credits minus any expected credit shortages. Since all the credits in these model years were adjusted using the same approach it was possible to subtract the credit amounts. However, readers are reminded that for MYs 2018–2020 since the final CAFE reports have yet to be issued, the credit allocation process has not started, and the data shown in the graphs are a projection of potential overall compliance. Consequently, the credits included for MYs 2018–2020 are separated from earlier model years by a dashed line to highlight that there is a margin of uncertainty in the estimated values. Projecting how and where credits will be used is difficult for a number of reasons such as not knowing which flexibilities manufacturers will utilize and the fact that credits are not valued the same across different fleets. As such, the agency reminds readers that the projections may not align with how manufacturers will actually approach compliance for these years.

Table VII–5 provides the numerical CAFE performance values and standards for MYs 2011–2020 as shown in the figures.

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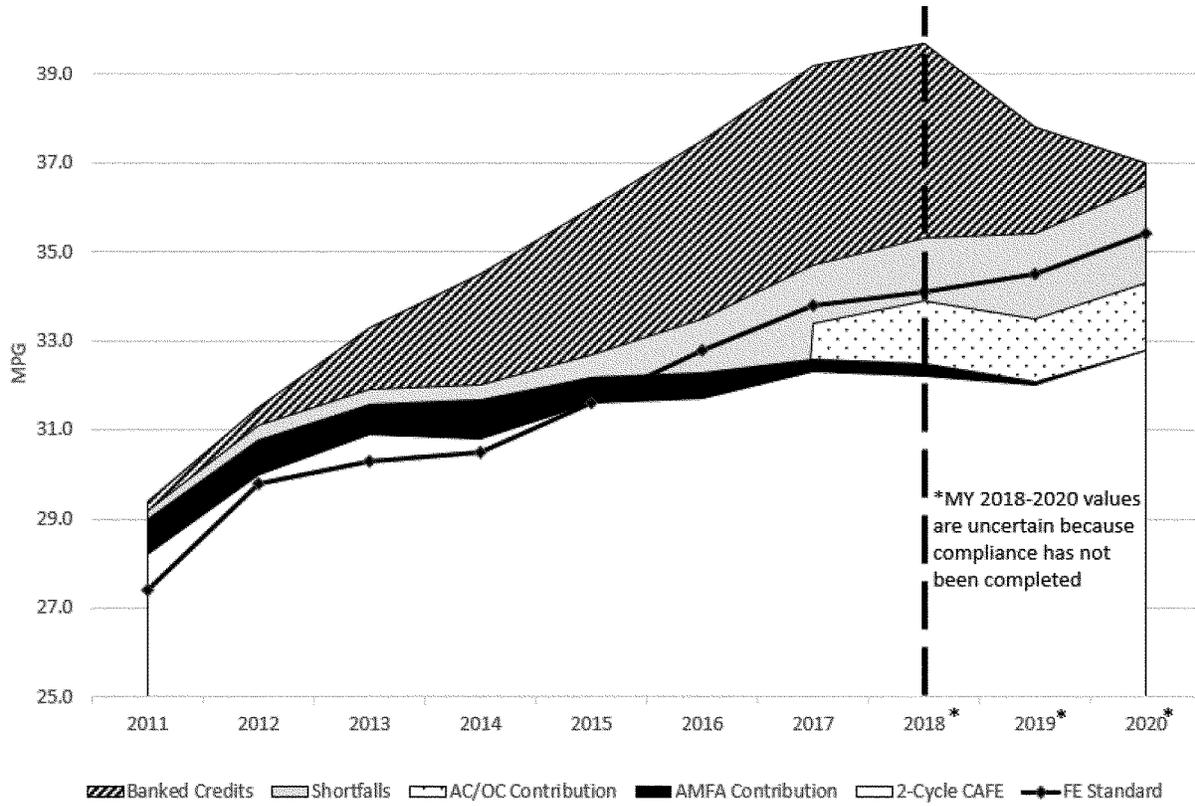


Figure VII-2 – Total Fleet Compliance Overview for MYs 2011 to 2020

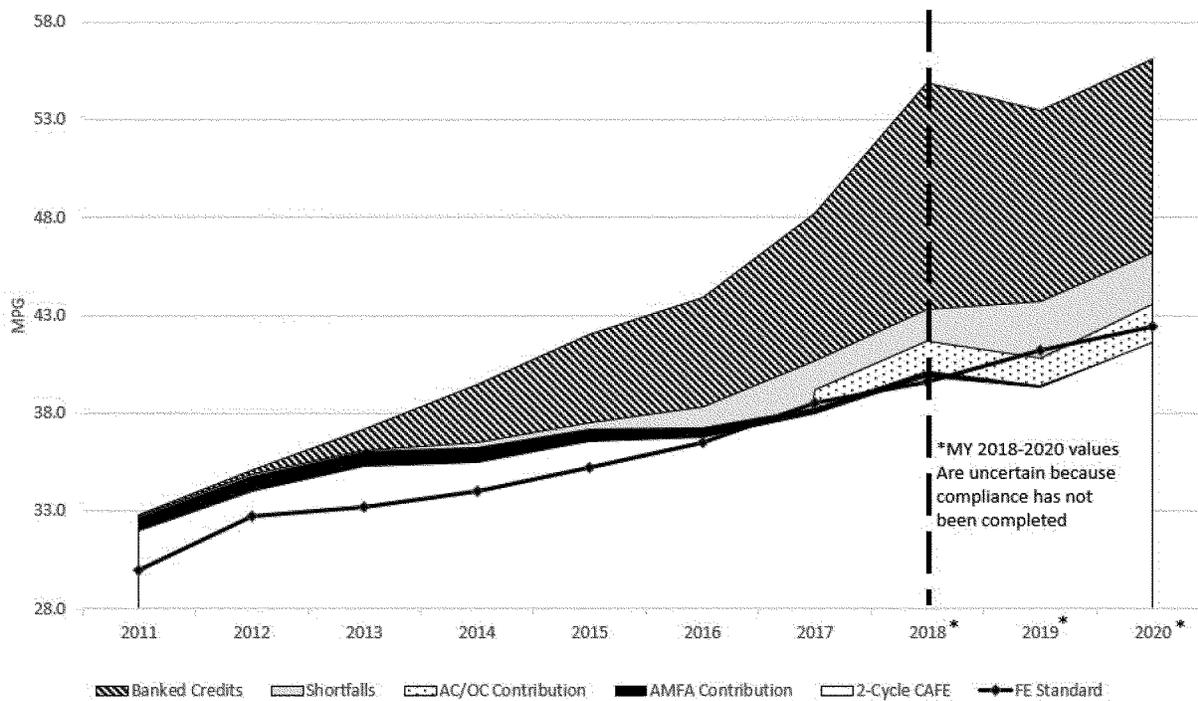


Figure VII-3 – Domestic Passenger Car Compliance Overview for MYs 2011 to 2020

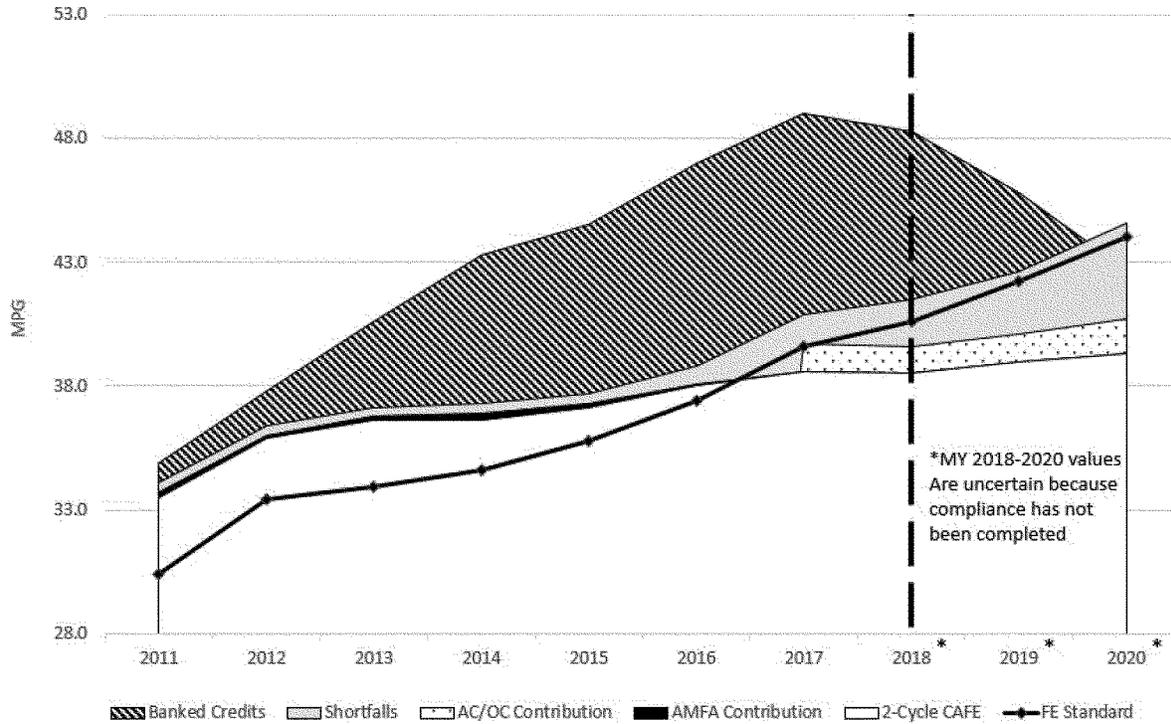


Figure VII-4 – Import Passenger Car Compliance Overview for MYs 2011 to 2020

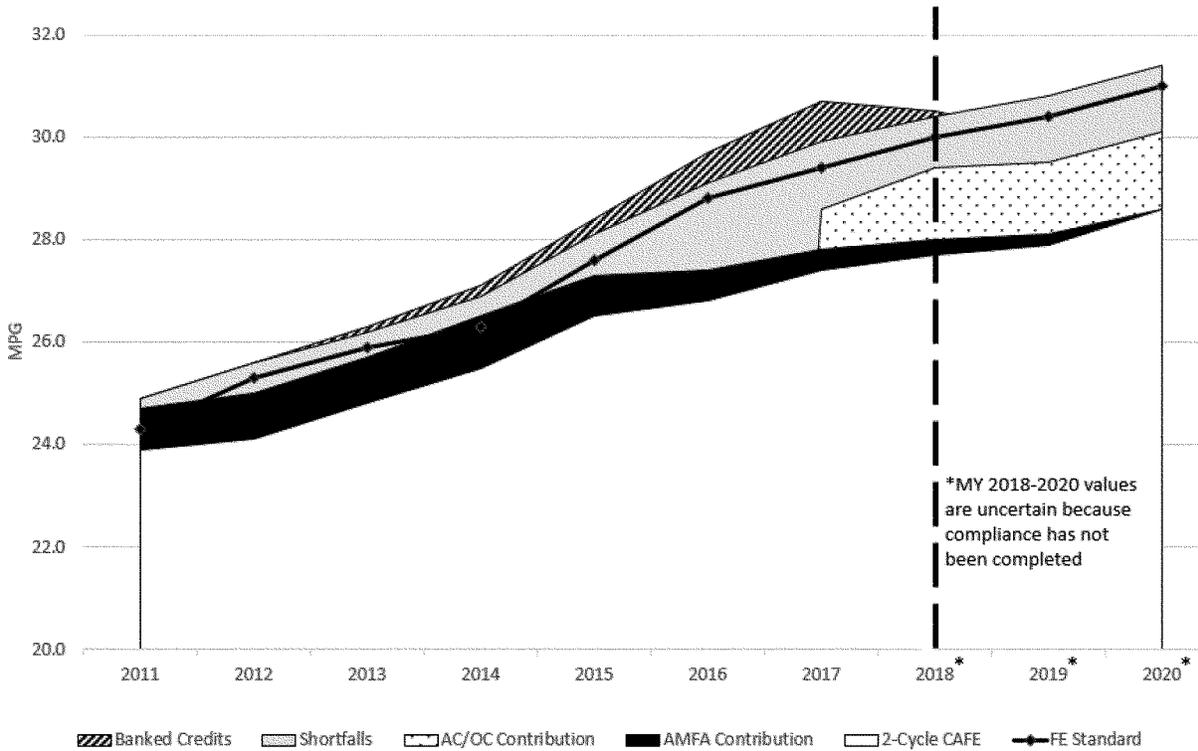


Figure VII-5 – Light Truck Compliance Overview for MYs 2011 to 2020

Table VII-5 – CAFE Performance and Standards for MYs 2011 to 2020

Model Year	Domestic Passenger Car		Import Passenger Car		Light Truck		Total Fleet	
	CAFE (mpg)	Standard (mpg)	CAFE (mpg)	Standard (mpg)	CAFE (mpg)	Standard (mpg)	CAFE (mpg)	Standard (mpg)
2020	43.6	42.4	40.7	44	30.1	31	34.3	35.4
2019	40.8	41.2	40.1	42.2	29.5	30.4	33.5	34.5
2018	41.7	39.6	39.6	40.6	29.4	30	33.9	34.1
2017	39.2	38.5	39.7	39.6	28.6	29.4	33.4	33.8
2016	37.3	36.5	38.1	37.4	27.4	28.8	32.3	32.8
2015	37.2	35.2	37.3	35.8	27.3	27.6	32.2	31.6
2014	36.3	34	36.9	34.6	26.5	26.3	31.7	30.5
2013	36.1	33.2	36.8	33.9	25.7	25.9	31.6	30.3
2012	34.8	32.7	36	33.4	25	25.3	30.8	29.8
2011	32.7	30	33.7	30.4	24.7	24.3	29	27.4

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As shown in Figure VII-2, manufacturers’ fuel economy performance (2-cycle CAFE plus AMFA) for the total fleet was better than the fleet-wide target through MY 2015. On average, the total fleet exceeded the standards by approximately 0.9 mpg for MYs 2011 to 2015. As shown in Figure VII-3 through Figure VII-5, domestic and import passenger cars exceeded standards on average by 2.1 mpg and 2.3 mpg, respectively. By contrast, light truck manufacturers on average fell below the standards by 0.3 mpg over the same time period.

For MYs 2016 through 2020, Figure VII-2 shows that the total fleet Base CAFE (including 2-Cycle CAFE plus A/C and OC benefits) falls below and appears to remain below the fleet CAFE standards for these model years.⁴⁸¹ The projected compliance shortfall (*i.e.* the difference between CAFE performance values and the standards) remains constant and reaches its greatest difference between MYs 2019 and 2020. Compliance becomes even more complex when observing individual compliance fleets over these years. Only domestic passenger car fleets collectively appear to exceed CAFE standards while import passenger car fleets appear to have the greatest compliance shortages. In MY 2020, the import passenger car fleet appear to

reach its highest compliance shortfall equal to 3.3 mpg.

The graphs provide an overall representation of the average values for each fleet, although they are less helpful for evaluating compliance with the minimum domestic passenger car standards given statutory prohibitions on manufacturers using traded or transferred credits to meet those standards.⁴⁸² Consequently, in MY 2020, domestic passenger car manufacturers may improve their performance by adding more AC/OC technology, allowing the domestic passenger car fleet to once again exceed CAFE standards. However, NHTSA notes that several manufacturers have already reported insufficient earned credits and may have to make fine payments if they fail to reach the minimum domestic passenger car standards.

In summary, MY 2016 is the last compliance model year that passenger cars complied with CAFE standards relying solely on Base CAFE performance. Prior to this timeframe, passenger car manufacturers especially those building domestic fleets could substantially exceed CAFE standards. MY 2016 marked the first time in the history of the CAFE program where compliance for passenger car manufacturers fell below standards thereby increasing shortfalls and forcing the need for manufacturers to rely

heavily upon credit flexibilities. Despite higher shortfalls, domestic passenger car manufacturers have continued to generate credits and increase their total credit holdings. The projections show that for MYs 2018–2020, domestic passenger car fleets will transition from generating to using credits but will maintain sizable amounts of banked credits sufficient to sustain compliance shortfalls in other regulatory fleets. Figure VII-4 shows residual available banked credits even as far as MY 2020. Domestic passenger car credits and their off-cycle credits will play an important role in sustaining manufacturers in complying with CAFE standards.

From the projections, it appears that based on the number of remaining domestic passenger credits in the market and the rate at which they are being used, there will be insufficient credits to cover the shortfalls in other compliance fleets in years following MY 2020. Figure VII-2 shows that the total remaining combined credits for the industry is expected to decline starting in MY 2018. Import passenger cars and light truck fleets will play a major role in the decline and possible depletion of all available credits to resolve shortfalls after MY 2020. Several factors exist that could produce this outcome. First, increasing credit shortages are occurring in the import passenger car and light truck fleets especially since the reduction and then termination of AMFA incentives in MY 2019 (a major contributor for light trucks). Next, residual banked credits for the light truck fleet are expected to be exhausted starting in MY 2018 and for import

⁴⁸¹ Until MY 2023 compliance, the last year where earned credits can be retroactively applied to MY 2020, NHTSA will be unable to make a determination about the fleet’s overall compliance over this timespan.

⁴⁸² In accordance with 49 CFR 536.9(c), transferred or traded credits may not be used, pursuant to 49 U.S.C. 32903(g)(4) and (f)(2), to meet the domestically manufactured passenger automobile minimum standard specified in 49 U.S.C. 32902(b)(4) and in 49 CFR 531.5(d).

passenger cars in MY 2020. Finally, the use of AC/OC benefits for import passenger cars and light trucks is not a significant factor for these fleets in complying with CAFE standards. Manufacturers will need to change their production strategies or introduce substantially more fuel saving technologies to sustain compliance in the future.

Figure VII–6 provides a historical overview of the industry’s use of CAFE credit flexibilities and fine payments for addressing compliance shortfalls.⁴⁸³ As mentioned, MY 2017 is the last model year for which CAFE compliance determinations are completed, and credit application and civil penalty payment determinations finalized. As shown in the figure, for MYs 2011–2015, manufacturers generally resolved credit shortfalls by carrying forward earned credits from previous years. However, since 2011, the rise in manufacturers executing credit trades has become increasingly common and, in MY 2017, credit trades were the most frequently used flexibility for achieving compliance. Credit transfers have also become increasingly more prevalent for manufacturers. As a note to readers, credit trades in the figures can also involve credit transfers but are aggregated in the figure as credit trades to simplify results. In MY 2016, credit transfers constituted the highest contributor to credit flexibilities but are

⁴⁸³ The Figure includes all credits manufacturers have used in credit transactions to date. Credits contained in carryback plans yet to be executed or in pending enforcement actions are not included in the Figure.

starting to decline signifying that manufacturers are currently exhausting credit transfers within their own fleets. Manufacturers only occasionally carry back credits to resolve performance shortfalls. NHTSA believes that trading credits between manufacturers and to some degree transferring traded credit across fleets will be the most commonly used flexibility in complying with future CAFE standards as started in MY 2017.

Credit trading has generally replaced civil penalty payments as a compliance mechanism. Only a handful of manufacturers have made civil penalty payments since the implementation of the credit trading program. As previously shown, NHTSA believes that manufacturers have sufficient credits to resolve any import passenger car and light truck performance shortfalls expected through MY 2020. As of recent, the only fine payments being made or expected in the future are those directly resulting from manufacturers failing to comply with the minimum domestic passenger car standards.⁴⁸⁴ There were two fine payments made in MYs 2016 and 2017 which fit this exact case. By statute, manufacturers cannot use traded or transferred credits to address performance shortfalls for failing to meet the minimum domestic

⁴⁸⁴ Six manufacturers have paid CAFE civil penalties since credit trading began in 2011. Fiat Chrysler paid the largest civil penalty total over the period, followed by Jaguar Land Rover and then Volvo. See Summary of CAFE Civil Penalties Collected, CAFE Public Information Center, https://one.nhtsa.gov/cafe_pic/CAFE_PIC_Fines_LIVE.html.

passenger car standards.⁴⁸⁵ Because of this limitation, the fine payments made in MY 2016 and 2017 came from one manufacturer that had exhausted all of its earned domestic passenger credits and could not carryback future credits.⁴⁸⁶ The same condition will occur for other manufacturers in the future. NHTSA calculates that six manufacturers will meet this same condition and have to make substantial civil penalty payments for failing to comply with the minimum domestic passenger cars standards in MYs 2018 through 2020.

In Figure VII–8, additional information is provided on the credit flexibilities exercised and fine payments made by manufacturers for MYs 2011–2017. The figure includes the gasoline gallon equivalent for these credit flexibilities or for paying civil penalties. The figure shows that manufacturers used carrying forward credits most often to resolve shortfalls. Credit trades were the second leading benefit to manufacturers in using credit flexibilities and then followed by credit transfers. In summary, manufacturers used these flexibilities amounting to the equivalent of 2,952,856 gallons of fuel by carrying forward credits in 2017 and 583,720 gallons of fuel by trading credits in 2017.

⁴⁸⁵ Congress prescribed minimum domestic passenger car standards for domestic passenger car manufacturers and unique compliance requirements for these standards in 49 U.S.C. 32902(b)(4) and 32903(f)(2).

⁴⁸⁶ Fiat Chrysler paid \$77,268,702.50 in civil penalties for MY 2016 and \$79,376,643.50 for MY 2017 for failing to comply with the minimum domestic passenger car standards for those MYs.

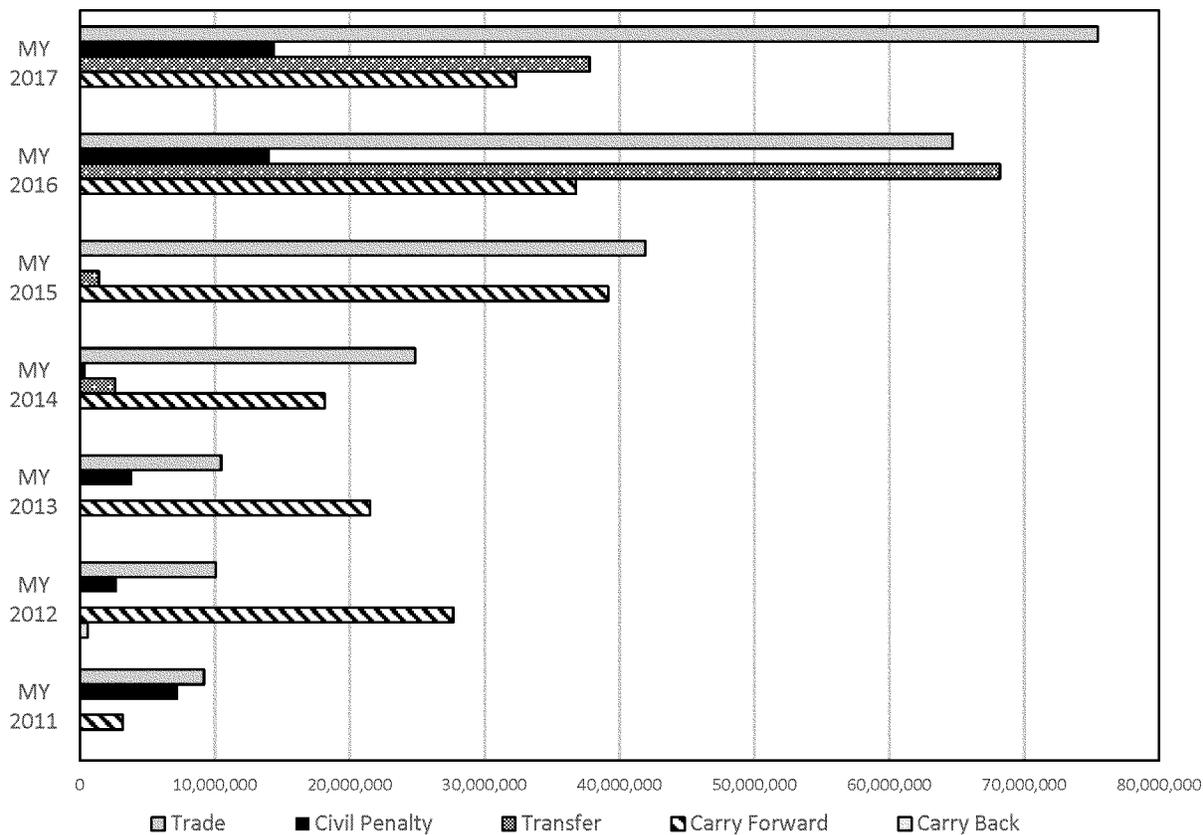


Figure VII-6 – Industry Use of Compliance Flexibilities and Civil Penalty Payments⁴⁸⁷

⁴⁸⁷ For Figure VII-6; in each year some flexibilities were not utilized by manufacturers. For

example, carry backed credits were not utilized in 2011, 2013, 2014, 2015, 2016, or 2017. Transfer

credits were not used in 2011, 2012 or 2013. No civil penalties were paid in 2015.

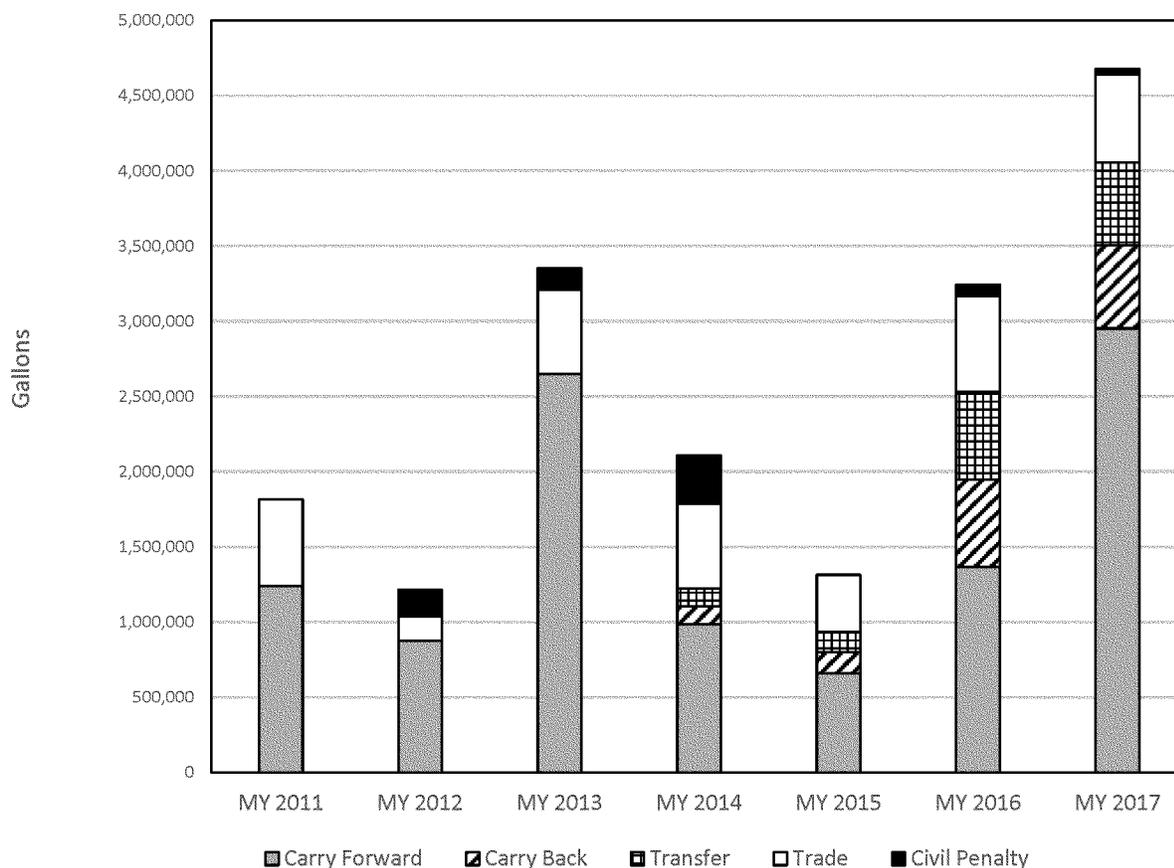


Figure VII-7 – Value of Applied Credit Flexibilities and Civil Penalty Payments in Gallons

Despite this compliance picture, NHTSA's analysis supporting this NPRM shows some amount of overcompliance in the baseline/No-Action Alternative for the model years subject to this proposal. This modeled overcompliance occurs due to assumptions about a variety of factors, including (1) a number of manufacturers voluntarily binding themselves to the California Framework Agreements, (2) expected manufacturer compliance with California's ZEV program, (3) expected manufacturer compliance with the EPA GHG and NHTSA CAFE standards finalized in 2020, (4) a small amount of market demand for increased fuel economy (due mostly to projected fuel prices), (5) the projected affordability of applying certain technologies that are eligible for compliance boosts (like off-cycle adjustments), and so on. If these assumptions do not come to pass in the real world, the difference between the compliance picture over the last several model years and the one shown in the analysis for the next several years would accordingly be smaller. Overcompliance with the regulatory alternatives is much lower than what was shown in the NPRM that preceded the 2020 final rule

and is highly manufacturer-dependent. NHTSA seeks comment on the amount of overcompliance with the regulatory alternatives shown, if any, in light of how the agency has described its modeling approach for this proposal.

5. Shift in Sales Production From Passenger Cars to Light Trucks

The apparent stagnant growth in the automotive industry's CAFE performance is likely related to a relative decrease in the share of passenger cars, where manufacturers made the most gains in fuel economy performance combined with an increase in the relative share of light trucks purchased beginning with MY 2013. Light trucks experienced sharp increases in sales, increasing by a total of 5 percent from MYs 2013 to 2014. In MY 2014, light trucks comprised approximately 41 percent of the total sales production volume of automobiles and has continued to grow ever since. In comparison, for model year 2014, domestic passenger cars represented 36 percent of the total fleet and import passenger cars represented 23 percent. Both domestic and import passenger car sales have continued to fall every year

since MY 2013. Figure VII-8 shows the sales production volumes of light trucks and domestic and import passenger cars for MYs 2004 to 2020. Historically, light truck fleets have fallen below their associated CAFE standards and have had larger performance shortages than either import and domestic passenger car fleets. For MY 2020, NHTSA expects even greater CAFE performance shortages in the light truck and import passenger car fleets than in prior model years, based upon manufacturer's mid-model year (MMY) reports. MY 2020 light trucks are expected to comprise approximately 53 percent of the total. As mentioned previously, the combined effect of these fuel economy shortages will likely require manufacturers to rely on compliance flexibilities or pay civil penalties.

Out of 25 vehicle types listed in the EPA database, 5 vehicle types—namely compact cars, midsize cars, small and standard SUVs with 4WD, and standard pickup trucks with 4WD have the highest volumes of vehicles produced for sale in MYs 2012 to 2017. From 2012 to 2020, there was a drastic decrease of 24% and 17% in the production of compact cars and midsize cars,

respectively. On the other side, there was a significant increase in the production of 4WD small and standard equaling approximately 41% collectively of all sales. Standard pickup trucks with 4WD experienced little change in the production volume throughout the years. As shown in Figure VII-9, small SUVs, with 4WD and 2WD drivetrains, have surpassed the sales production volumes of all

other vehicle types over these the given model years. The number of small and standard SUVs sold in the U.S. for MY 2017 nearly doubled compared to sales in the U.S. for MY 2012. During that same period, passenger car sales production as a total of vehicle sales production decreased by approximately 11 percent. The combination of low gas prices and the increased utility that SUVs provide, along with aggressive

manufacturer marketing, may explain the shift in sales production. Nonetheless, if the sales of these small SUVs and pickup trucks continue to increase, there may be continued stagnation in the CAFE performance of the overall fleet unless manufacturers respond with greater adoption of fuel economy technology in the SUV and pickup truck portion of their fleets.

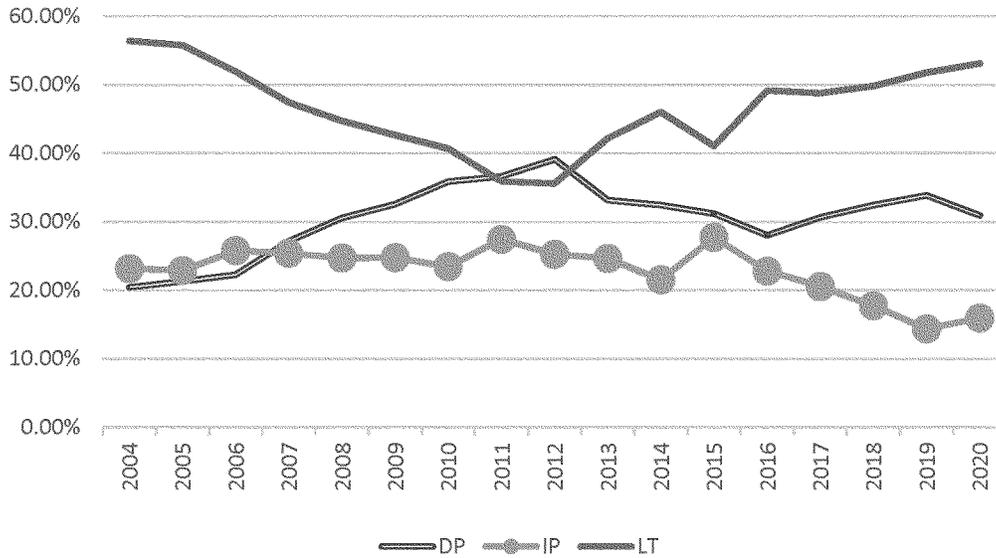


Figure VII-8 – Sales Production Volumes for MYs 2004 to 2020

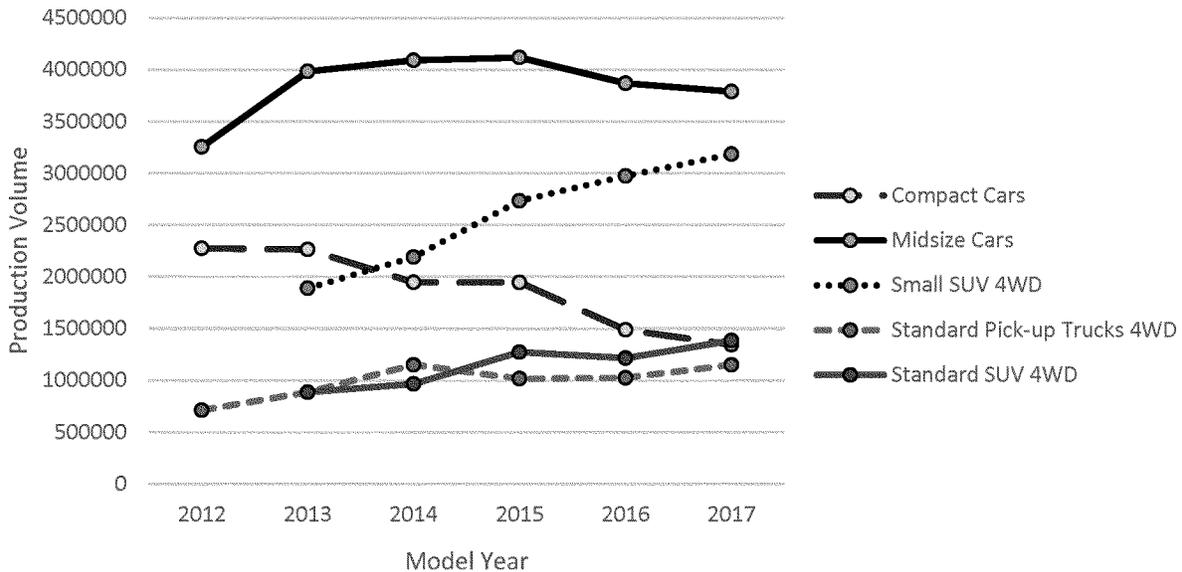


Figure VII-9 – Change in Major Vehicle Type Production from 2012-2017

6. Electrification

According to data submitted to EPA and NHTSA for MYs 2012 through 2017, the population of electrified

vehicles in the passenger car fleet has steadily increased. The percentage of petroleum-based passenger cars in the market has decreased. While the

nominal amount of electric light trucks has increased, the percentage of electric light trucks has decreased due to petroleum-based light trucks growing at

a faster rate. All electric passenger cars account for up to 3 percent of the total production of light-duty vehicles each year. In comparison, all electric light trucks account for about 0.2 percent of

the total fleet each year. The number of passenger cars using alternative fuels has also steadily increased while the population of alternative fuel light trucks has become non-existent.

However, comparing the total fleet, the population of electric and hybrid vehicles is steadily increasing each year on average.

Table VII-6 – Production Volumes by Fuel Usage for MYs 2012 to 2017^{488,489,490,491}

PV number		2012	2013	2014	2015	2016	2017
Petroleum	PC	8,200,856	9,120,467	8,718,892	9,095,073	8,627,914	8,375,973
Flexible Fuel Vehicle	PC	3,307	514	746	372	845	3,521
Electricity/Hybrid	PC	453,447	624,584	486,844	505,846	365,314	614,755
Petroleum	LT	4,770,297	5,428,215	6,283,680	7,115,971	7,211,930	7,928,617
Flexible Fuel Vehicle	LT	216	82	337	0	0	0
Electricity/Hybrid	LT	18,061	23,300	22,216	21,561	65,278	97,980
PV percentage		2012	2013	2014	2015	2016	2017
Petroleum	PC	60.99%	60.01%	56.20%	54.34%	53.03%	49.21%
Alternative	PC	0.02%	0.00%	0.00%	0.00%	0.01%	0.02%
Electricity/Hybrid	PC	3.37%	4.11%	3.14%	3.02%	2.25%	3.61%
Petroleum	LT	35.48%	35.72%	40.51%	42.51%	44.32%	46.58%
Flexible Fuel Vehicle	LT	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Electricity/Hybrid	LT	0.13%	0.15%	0.14%	0.13%	0.40%	0.58%
PV percentage		2012	2013	2014	2015	2016	2017
Petroleum	Total	96.47%	95.73%	96.71%	96.85%	97.35%	95.79%
Flexible Fuel Vehicle	Total	0.03%	0.00%	0.01%	0.00%	0.01%	0.02%
Electricity/Hybrid	Total	3.51%	4.26%	3.28%	3.15%	2.65%	4.19%

Despite the small market share currently for electric and hybrid trucks, manufacturers are making a strong effort to grow this market. Starting in 2020, several manufacturers introduced several new models of hybrid and PEV SUVs and crossovers.

NHTSA is considering new CAFE compliance strategies for electric pickup trucks in this rulemaking. EPA and NHTSA previously provided

⁴⁸⁸ 49 U.S. Code 538 discusses Flexible Fuel Vehicle.

⁴⁸⁹ Definition of Electricity/Hybrids can be found in 49 U.S. Code 523.2.

⁴⁹⁰ If the fuel type is marked as Hybrid, for this table the vehicles are automatically counted as Hybrid no matter what type of fuel category they have. Flexible Fuel Vehicle is everything else except where the fuel type is gasoline and electric/hybrid.

⁴⁹¹ Complete data is only available through MY 2017.

flexibilities for hybrid and electric pickup trucks adopted under the 2017–2025 CAFE and GHG final rule issued in 2012. These flexibilities would have provided manufacturers with an incentive through MY 2025 to build additional electric pickup trucks but in the 2020 final rule, NHTSA and EPA decided to terminate these incentives early. Further discussion of NHTSA’s and EPA’s incentive programs for hybrid and electric pickup trucks is presented in Section B.3.e)(1). As a part of the section, a new proposal is also included for EPA and NHTSA to reconsider extending the incentives for pickup trucks back to their original effective date ending in MY 2025.

7. Vehicle Classification

Vehicle classification, for purposes of the light-duty CAFE program, refers to

whether an automobile qualifies as a passenger automobile (car) or a non-passenger automobile (light truck). Passenger cars and light trucks are subject to different fuel economy standards as required by EPCA/EISA and consistent with their different capabilities.

Vehicles are designated as either passenger automobiles or non-passenger automobiles. Vehicles “capable of off-highway operation” are, by statute, non-passenger automobiles.⁴⁹² Determining “off-highway operation” was left to NHTSA, and currently is a two-part inquiry: First, does the vehicle either have 4-wheel drive or over 6,000 pounds gross vehicle weight rating (GVWR), and second, does the vehicle have a significant feature designed for

⁴⁹² 49 U.S. Code 32902.

off-highway operation.⁴⁹³ NHTSA's regulation on vehicle classification contain requirements for vehicles to be classified as light trucks either on the basis of off-highway capability or on the basis of having "truck-like characteristics." Over time, NHTSA has refined the light truck vehicle classification by revising its regulations and issuing legal interpretations. However, based on the increase in crossover SUVs and advancements in vehicle design trends, NHTSA has become aware of vehicle designs that complicate classification determinations for the CAFE program. Throughout the past decade, NHTSA has identified these changes in compliance testing, data analysis, and has discussed the trend in rulemakings, publications, and with stakeholders.

NHTSA believes that an objective procedure for classifying vehicles is paramount to the agency's continued oversight of the CAFE program. When there is uncertainty as to how vehicles should be classified, inconsistency in determining manufacturers' compliance obligations can result, which is detrimental to the predictability and fairness of the program. In the 2020 final rule, NHTSA attempted to resolve several classification issues and committed to continuing research to resolve others. NHTSA notified the public of its plans to develop a compliance test procedure for verifying manufacturers' submitted classification data. An objective standard would help avoid manufacturers having to reclassify their vehicles, improve consistency and fairness across the industry, and introduce areas within the criteria where uncertainties existed and research could be conducted in the near future to resolve.

In this rulemaking, NHTSA is providing additional classification guidance and seeking comments on several unknown aspects needed to develop its compliance test procedure. Based upon the comments received to this NPRM, NHTSA plans to release its draft test procedure later this year. No changes are being made in this rulemaking that will change how vehicles are classified.

(a) Clarifications for Classifications Based Upon "Off-Road Capability"

For a vehicle to qualify as off-highway (off-road) capable, in addition to either having 4WD or a GVWR more than 6,000 pounds. The vehicle must have four out of five characteristics indicative of off-highway operation. These characteristics are:

- An approach angle of not less than 28 degrees
- A breakover angle of not less than 14 degrees
- A departure angle of not less than 20 degrees
- A running clearance of not less than 20 centimeters
- Front and rear axle clearances of not less than 18 centimeters each

(1) Production Measurements

NHTSA's regulations require manufacturers to measure vehicle characteristics when a vehicle is at its curb weight, on a level surface, with the front wheels parallel to the automobile's longitudinal centerline, and the tires inflated to the manufacturer's recommended cold inflation pressure.⁴⁹⁴ NHTSA clarified in the 2020 final rule that 49 CFR part 537 requires manufacturers to classify vehicles for CAFE based upon their physical production characteristics. The agency verifies reported values by measuring production vehicles. Manufacturers must also use physical vehicle measurements as the basis for values reported to the agency for purposes of vehicle classification. It may be possible for certain vehicles within a model type to qualify as light trucks while others would not because of their production differences. Since issuing the 2020 final rule, NHTSA has met with manufacturers to reinforce the use of production measurements and clarifying here that manufacturers are only required to report classification information for those physical measurements used for qualification and can omit other measurements.

In the previous rulemaking, NHTSA also identified that certain vehicle designs incorporate rigid (*i.e.*, inflexible) air dams, valance panels, exhaust pipes, and other components, equipped as manufacturers' standard or optional equipment (*e.g.*, running boards and towing hitches), that likely do not meet the 20-centimeter running clearance requirement. Despite these rigid features, some manufacturers are not taking these components into consideration when making classification decisions. Additionally, other manufacturers provide dimensions for their base vehicles without considering optional or various trim level components that may reduce the vehicle's ground clearance. Consistent with our approach to other measurements, NHTSA believes that ground clearance, as well as all the other off-highway criteria for a light truck determination, should use the

measurements from vehicles with all standard and optional equipment installed, at the time vehicles are shipped to dealerships. These views were shared by manufacturers in response to the previous CAFE rulemaking.

The agency reiterates that the characteristics listed in 49 CFR 523.5(b)(2) are characteristics indicative of off-highway capability. A fixed feature—such as an air dam that does not flex and return to its original state or an exhaust that could detach— inherently interferes with the off-highway capability of these vehicles. If manufacturers seek to classify vehicles as light trucks under 49 CFR 523.5(b)(2) and the vehicles have a production feature that does not meet the four remaining characteristics to demonstrate off-highway capability, they must be classified as passenger cars. NHTSA also clarifies that vehicles that have adjustable ride height, such as air suspension, and permit variable on-road or off-road running clearances should be classified based upon the mode most commonly used or the off-road mode for those with this feature. NHTSA seeks comments on how to define the mode most commonly used for any adjustable suspensions. For the test procedure, would it be more appropriate to allow manufacturers to define the mode setting for vehicles with adjustable suspensions?

(2) Testing for Approach, Breakover, and Departure Angles

Approach angle, breakover angle, and departure angle are relevant to determine off-highway capability. Large approach and departure angles ensure the front and rear bumpers and valance panels have sufficient clearance for obstacle avoidance while driving off-road. The breakover angle ensures sufficient body clearance from rocks and other objects located between the front and rear wheels while traversing rough terrain. Both the approach and departure angles are derived from a line tangent to the front (or rear) tire static loaded radius arc extending from the ground near the center of the tire patch to the lowest contact point on the front or rear of the vehicle. The term "static loaded radius arc" is based upon the definitions in SAE J1100 and J1544.⁴⁹⁵ The term is defined as the distance from wheel axis of rotation to the supporting surface (ground) at a given load of the vehicle and stated inflation pressure of

⁴⁹³ 49 U.S. Code 523.5(A)(5)(ii)(b).

⁴⁹⁴ 49 U.S. Code 523.5(A)(5).

⁴⁹⁵ See SAE J1100 published on May 26, 2012 and SAE J1544 published on Oct 25, 2011.

the tire (manufacturer's recommended cold inflation pressure).

The static loaded radius arc is easy to measure, but the imaginary line tangent to the static loaded radius arc is difficult to ascertain in the field. The approach and departure angles are the angles between the line tangent to the static loaded radius arc and the level ground on which the test vehicle rests. For the compliance test procedure, a substitute measurement will be used. A measurement that provides a good approximation of the approach and departure angles involve using a line tangent to the outside diameter or perimeter of the tire and extends to the lowest contact point on the front or rear of the vehicle. This approach provides an angle slightly greater than the angle derived from the true static loaded radius arc. The approach also has the advantage to allow measurements to be made quickly for measuring angles in the field to verify data submitted by the manufacturers used to determine light truck classification decisions. In order to comply, the vehicle measurement must be equal to or greater than the required measurements to be considered as compliant and if not, the reported value will require an investigation which could lead to the manufacturer's vehicle becoming reclassified as a passenger car.

(3) Running Clearance

NHTSA regulations define "running clearance" as "the distance from the surface on which an automobile is standing to the lowest point on the automobile, excluding unsprung weight." Unsprung weight includes the components (*e.g.*, suspension, wheels, axles, and other components directly connected to the wheels and axles) that are connected and translate with the wheels. Sprung weight, on the other hand, includes all components fixed underneath the vehicle that translate with the vehicle body (*e.g.*, mufflers and subframes). To clarify these requirements, NHTSA previously issued a letter of interpretation stating that certain parts of a vehicle—such as tire aero deflectors that are made of flexible plastic, bend without breaking, and return to their original position—would not count against the 20-centimeter running clearance requirement. The agency explained that this does not mean a vehicle with less than 20 centimeters running clearance could be elevated by an upward force that bends the deflectors and still be considered compliant with the running clearance criterion, as it would be inconsistent with the conditions listed in the introductory paragraph of 49 CFR

523.5(b)(2). Further, NHTSA explained that without a flexible component installed, the vehicle must meet the 20-centimeter running clearance requirement along its entire underside. This 20-centimeter clearance is required for all sprung weight components. For its compliance test procedure, NHTSA will include a list of the all the components under the vehicle considered as unsprung components. NHTSA will update the list of unsprung components as the need arises.

(4) Front and Rear Axle Clearance

NHTSA regulations state that front and rear axle clearances of not less than 18 centimeters are another criterion that can be used for designating a vehicle as off-highway capable.⁴⁹⁶ The agency defines "axle clearance" as the vertical distance from the level surface on which an automobile is standing to the lowest point on the axle differential of the automobile.

The agency believes this definition may be outdated because of vehicle design changes, including axle system components and independent front and rear suspension components. In the past, traditional light trucks with and without 4WD systems had solid rear axles with center-mounted differential on the axle. For these trucks, the rear axle differential was closer to the ground than any other axle or suspension system component. This traditional axle design still exists today for some trucks with a solid chassis (also known as body-on-frame configuration). Today, however, many SUVs and CUVs that qualify as light trucks are constructed with a unibody frame and have unsprung (*e.g.*, control arms, tie rods, ball joints, struts, shocks, etc.) and sprung components (*e.g.*, the axle subframes) connected together as a part of the axle assembly. These unsprung and sprung components are located under the axles, making them lower to the ground than the axles and the differential, and were not contemplated when NHTSA established the definition and the allowable clearance for axles. The definition also did not originally account for 2WD vehicles with GVWRs greater than 6,000 pounds that had one axle without a differential, such as the model year 2018 Ford Expedition. Vehicles with axle components that are low enough to interfere with the vehicle's ability to perform off-road would seem inconsistent with the regulation's intent of ensuring off-highway capability.

In light of these issues, for the compliance test procedure, NHTSA will

ask manufacturers to identify those axle components that are sprung or unsprung and provide sufficient justification as a part of the testing setup request forms sent to manufacturers before testing. In addition, for vehicles without a differential, NHTSA will request the location each manufacturer used to establish its axle clearance qualification. NHTSA will validate the location specified by the manufacturer but will challenge any location on the vehicle's axle found to be located at a lower elevation to the ground than the designed location of its axle clearance measurement.

(5) 49 CFR 571.3 MPV Definition

The definition for multipurpose passenger vehicle (MPV) is defined as a "a motor vehicle with motive power, except a low-speed vehicle or trailer, designed to carry 10 persons or less which is constructed either on a truck chassis or with special features for occasional off-road operation."⁴⁹⁷ The regulation is silent, however, in defining special features for occasional off-road operation are qualified. In a letter of interpretation dated May 31, 1979, the agency responded to a question from Subaru requesting the agency's opinion whether a four-wheel drive hatchback sedan could be classified as an MPV. NHTSA responded stating that the agency interprets the definition as requiring that the vehicle contain more than a single feature designed for off-road use and that four-wheel drive would be useful in snow on public streets, roads and highways, so this feature cannot be determinative of the vehicle's classification if there are no features for off-road use. The interpretation also stated that Subaru needed to provide additional information (including, but not limited to, pictures or drawings of the vehicle) concerning other special features of the vehicle that would make it suitable for off-road operation. Finally, the interpretation referenced 49 CFR 523.5(b)(2) for a description of some of the characteristics that would be considered "special features" for off-road operation although that section relates primarily related to fuel economy. Considering that the definition for MPVs does not list the "special features," NHTSA is seeking comment on whether manufacturers use "special features" other than those in 49 CFR 523.5(b)(2) to qualify vehicles as MPVs. Should NHTSA link the definition of MPV in 49 CFR 571.3 (as it relates to special features for occasional off-road operation) to 49 CFR

⁴⁹⁶ 49 U.S. Code 523.5(b)(2).

⁴⁹⁷ 49 CFR 571.3.

523.5(b)(2)? What drawbacks exist in linking both provisions? Using the longstanding off-road features for fuel economy provides could clarify the means for certifying that a vehicle meets the definition for MPV in 571.3 when manufacturers may otherwise be uncertain as to how to classify a vehicle.

B. Complying With the NHTSA CAFE Program

1. Annual Compliance Process

Manufacturers' production decisions drive the mixture of automobiles on the road. Manufacturers largely produce a mixture of vehicles both to influence and meet consumer demand and address compliance with CAFE standards through the application of fuel economy improving technologies to those vehicles, and by using compliance flexibilities and incentives that are available in the CAFE program. As discussed earlier in this NPRM, each vehicle manufacturer is subject to separate CAFE standards for passenger cars and light trucks, and for the passenger car standards, a manufacturer's domestically-manufactured and imported passenger car fleets are required to comply separately.⁴⁹⁸ Additionally, domestically-manufactured passenger cars are subject to a statutory minimum standard. Some CAFE program flexibilities are described by statute. Other flexibilities are established by NHTSA through regulation in accordance with the EPCA and EISA, such as fuel economy improvements for air conditioning efficiency, off-cycle, and pickup truck advanced technologies that are not expressly specified by CAFE statute, but are implemented consistent with EPCA's provisions regarding the calculation of fuel economy authorized for EPA.

Compliance with the CAFE program begins each year with manufacturers submitting required reports to NHTSA in advance and during the model year that contain information, specifications, data, and projections about their fleets.⁴⁹⁹ Manufacturers report early product projections to NHTSA describing their efforts to comply with CAFE standards per EPCA's reporting requirements.⁵⁰⁰ Manufacturers' early projections are required to identify any of the flexibilities and incentives manufacturers plan to use for air-conditioning (A/C) efficiency, off-cycle and, through MY 2021, which this action proposes to extend through MY

2026, full-size pickup truck advanced technologies. EPA consults with NHTSA when reviewing and considering manufacturers' requests for fuel consumption improvement values for A/C and off-cycle technologies that improve fuel economy. NHTSA evaluates and monitors the performance of the industry using compliance data. NHTSA also audits manufacturers' projected data for conformance and verifies vehicle conformance through measurements (e.g., vehicle footprints) to ensure manufacturers are complying. After the model year ends, manufacturers submit final reports to EPA, that include final information on all the flexibilities and incentives allowed or approved for the given model year.⁵⁰¹ EPA then verifies manufacturers' reported information and values and calculates the final fuel economy level of each fleet produced by each manufacturer, and transmits that information to NHTSA.⁵⁰²

In previous years, the normal processes for CAFE compliance between NHTSA and EPA have been effective at administering the CAFE program for decades. EPA sends NHTSA its final CAFE results usually between November to December after the given model year. In recent years, this process has been disrupted by manufacturers submitting requests for A/C and off-cycle benefits during the model year and at times well after the end of the model year. As EPA cannot finalize CAFE results until all A/C and off-cycle credits for a model year are accounted for, the belated submissions have significantly delayed NHTSA receiving final CAFE results for many manufacturers. Late submissions place significant burdens on the agencies and complicate administering the CAFE program, including delaying the exchange and use of credits. In the following sections, NHTSA discusses the adverse impacts on the CAFE program resulting from late and retro-active A/C and off-cycle requests and proposes regulatory modifications to mitigate late submissions and help expedite processes for future off-cycle requests.

⁵⁰¹ For example, alternative fueled vehicles get special calculations under EPCA (49 U.S.C. 32905–06), and fuel economy levels can also be adjusted to reflect air conditioning efficiency and “off-cycle” improvements.

⁵⁰² 49 U.S.C. 32904(c)–(e). EPCA granted EPA authority to establish fuel economy testing and calculation procedures; EPA uses a two-year early certification process to qualify manufacturers to start selling vehicles, coordinates manufacturer testing throughout the model year, and validates manufacturer-submitted final test results after the close of the model year.

After receiving EPA's final reports, NHTSA completes the remainder of its compliance processes for manufacturers usually one to three months after receiving EPA's final reports. The process starts with NHTSA using EPA's final verified information to determine the CAFE standard for each of the manufacturer's fleets, and each fleet's compliance level. Those results are then used to determine credits, credit shortfalls and credit balances, and NHTSA sends letters to manufacturers stating the outcome of that assessment. Credit shortfall letters specify the obligated credit deficiency a manufacturer must resolve to comply with the applicable CAFE standard for the given model year. Credit balance letters specify the official balance of credits NHTSA has allotted to the manufacturer in each of its credit accounts and a ledger of the credit transactions the manufacturer has executed. Upon receipt of NHTSA's compliance letters, manufacturers are required to submit plans explaining how they plan to resolve any shortfalls. NHTSA periodically releases data and reports to the public through its CAFE Public Information Center (PIC) based on information in the EPA final reports for the given compliance model year and based on the projections manufacturers provide to NHTSA for the next two model years.⁵⁰³

Some flexibilities are defined, and sometimes limited by statute—for example, while Congress allowed manufacturers to transfer credits earned for over-compliance from their car fleet to their truck fleet and vice versa, Congress also limited the amount by which manufacturers could increase their CAFE levels using those transfers.⁵⁰⁴ Consistent with the limits Congress placed on certain statutory flexibilities and incentives, NHTSA crafted and implemented credit transfer and trading regulations authorized by EISA ensure that total fuel savings are preserved when manufacturers exercise statutory compliance flexibilities required by statute.

NHTSA and EPA have previously developed other compliance flexibilities and incentives for the CAFE program consistent with the statutory provisions regarding EPA's calculation of manufacturers' fuel economy levels. As discussed previously, NHTSA finalized in the 2012 final rule an approach for manufacturers' “credits” under EPA's program to be applied as fuel economy

⁵⁰³ The NHTSA Public Information Center (PIC) is located at https://one.nhtsa.gov/cape_pic/CAFE_PIC_Home.htm.

⁵⁰⁴ See 49 U.S.C. 32903(g).

⁴⁹⁸ 49 U.S.C. 32904(b).

⁴⁹⁹ 49 U.S.C. 32907(a); 49 CFR 537.7.

⁵⁰⁰ 49 U.S.C. 32907(a).

“adjustments” or “improvement values” under NHTSA’s program for: (1) Technologies that cannot be measured or cannot be fully measured on the 2-cycle test procedure, *i.e.*, “off-cycle” technologies; and (2) A/C efficiency improvements that also improve fuel economy but cannot be measured on the 2-cycle test procedure. Additionally, both agencies’ programs give manufacturers compliance incentives through MY 2021, and proposed to be extended to MY 2026 in this NPRM, for utilizing specified technologies on full-size pickup trucks, such as hybridization, or full-size pickup trucks that overperform their fuel economy stringency target values by greater than a specified amount.

The following sections outline how NHTSA determines whether manufacturers are in compliance with CAFE standards for each model year, and how manufacturers may use compliance flexibilities, or alternatively address noncompliance through civil penalties. Moreover, it explains how manufacturers submit data and information to the agency. This includes a detailed discussion of NHTSA’s standardized CAFE reporting template adopted as a part of the 2020 final rule, and the standardized template for reporting credit transactions. In the 2020 final rule, NHTSA also adopted requirements for manufacturers to provide information on terms of credit trades. In this rulemaking, NHTSA is proposing to make changes to its reporting and credit templates and to issue a new template to clarify the required reporting information for credit trades. These new requirements were intended to streamline reporting and data collection from manufacturers, in addition to helping the agency use the best available data to inform CAFE program decision makers.

2. How does NHTSA determine compliance?

(a) Manufacturers Submit Data to NHTSA and EPA and the Agencies Validate Results

EPCA, as amended by EISA, in 49 U.S.C. 32907, requires manufacturers to submit reports to the Secretary of Transportation explaining how they will comply with the CAFE standards for the model year for which the report is made; the actions a manufacturer has taken or intends to take to comply with the standard; and other information the Secretary requires by regulation.⁵⁰⁵ A manufacturer must submit a report containing this information during the

30-day period before the beginning of each model year, and during the 30-day period beginning the 180th day of the model year.⁵⁰⁶ When a manufacturer determines it is unlikely to comply with a CAFE standard, the manufacturer must report additional actions it intends to take to comply and include a statement about whether those actions are sufficient to ensure compliance.⁵⁰⁷

To implement these reporting requirements, NHTSA issued 49 CFR part 537, “Automotive Fuel Economy Reports,” which specifies three types of CAFE reports that manufacturers must submit.⁵⁰⁸ A manufacturer must first submit a pre-model year (PMY) report containing the manufacturer’s projected compliance information for that upcoming model year. By regulation, the PMY report must be submitted in December of the calendar year prior to the corresponding model year.⁵⁰⁹ Manufacturers must then submit a mid-model year (MMY) report containing updated information from manufacturers based upon actual and projected information known midway through the model year. By regulation, the MMY report must be submitted by the end of July for the applicable model year.⁵¹⁰ Finally, manufacturers must submit a supplementary report to supplement or correct previously submitted information, as specified in NHTSA’s regulation.⁵¹¹

If a manufacturer wishes to request confidential treatment for a CAFE report, it must submit both a confidential and redacted version of the report to NHTSA. CAFE reports submitted to NHTSA contain estimated sales production information, which may be protected as confidential until the termination of the production period for that model year.⁵¹² NHTSA protects each manufacturer’s competitive sales production strategies for 12 months, but does not permanently exclude sales production information from public disclosure. Sales production volumes are part of the information NHTSA routinely makes publicly available through the CAFE PIC.

The manufacturer reports provide information on light-duty automobiles such as projected and actual fuel economy standards, fuel economy performance, and production volumes, as well as information on vehicle design features (*e.g.*, engine displacement and

transmission class) and other vehicle attribute characteristics (*e.g.*, track width, wheelbase, and other off-road features for light trucks). Beginning with MY 2017, to obtain credit for fuel economy improvement values attributable to additional technologies, manufacturers must also provide information regarding A/C systems with improved efficiency, off-cycle technologies (*e.g.*, stop-start systems, high-efficiency lighting, active engine warm-up), and full-size pickup trucks with hybrid technologies or with fuel economy performance that is better than footprint-based targets by specified amounts. This includes identifying the makes and model types equipped with each technology, the compliance category those vehicles belong to, and the associated fuel economy improvement value for each technology.⁵¹³ In some cases, NHTSA may require manufacturers to provide supplementary information to justify or explain the benefits of these technologies and their impact on fuel consumption or to evaluate the safety implication of the technologies. These details are necessary to facilitate NHTSA’s technical analyses and to ensure the agency can perform enforcement audits as appropriate.

NHTSA uses manufacturer-submitted PMY, MMY, and supplementary reports to assist in auditing manufacturer compliance data and identifying potential compliance issues as early as possible. Additionally, as part of its footprint validation program, NHTSA conducts vehicle testing throughout the model year to confirm the accuracy of the track width and wheelbase measurements submitted in the reports.⁵¹⁴ These tests help the agency better understand how manufacturers may adjust vehicle characteristics to change a vehicle’s footprint measurement, and ultimately its fuel economy target. NHTSA also includes a summary of manufacturers’ PMY and MMY data in an annual fuel economy performance report made publicly available on its PIC.

As mentioned, NHTSA uses EPA-verified final-model year (FMY) data to evaluate manufacturers’ compliance with CAFE program requirements and draw conclusions about the performance of the industry. After

⁵¹³ NHTSA collects model type information based upon the EPA definition for “model type” in 40 CFR 600.002.

⁵¹⁴ U.S. Department of Transportation, NHTSA, Laboratory Test Procedure for 49 CFR part 537, Automobile Fuel Economy Attribute Measurements (Mar. 30, 2009), available at <http://www.nhtsa.gov/DOC/NHTSA/Vehicle%20Safety/Test%20Procedures/Associated%20Files/TP-537-01.pdf>.

⁵⁰⁶ *Id.*

⁵⁰⁷ *Id.*

⁵⁰⁸ See 47 FR 34986, Aug. 12, 1982.

⁵⁰⁹ 49 CFR 537.5(b).

⁵¹⁰ *Id.*

⁵¹¹ 49 CFR 537.8.

⁵¹² 49 CFR part 512, appx. B(2).

⁵⁰⁵ 49 U.S.C. 32907(a).

manufacturers submit their FMY data, EPA verifies the information, accounting for NHTSA and EPA testing, and subsequently forwards the final verified data to NHTSA.

(b) New CAFE Reporting Templates Adopted in the 2020 Final Rule

NHTSA adopted changes to its CAFE reporting requirements in the 2020 final rule with the intent of streamlining data collection and reporting for manufacturers while helping the agency obtain the best available data to inform CAFE program decision-makers. The agency adopted two new standardized reporting templates for manufacturers. NHTSA's goal was to adopt standardized templates to assist manufacturers in providing the agency with all the necessary data to ensure they comply with CAFE regulations.

The first template was designed for manufacturers to simplify reporting CAFE credit transactions starting in model year 2021. The template's purpose was to reduce the burden on credit account holders, encourage compliance, and facilitate quicker NHTSA credit transaction approval. Before the template, manufacturers would inconsistently submit information required by 49 CFR 536.8, creating difficulties in processing credit transactions. Using the template simplifies CAFE compliance aspects of the credit trading process and helps to ensure that trading parties follow the requirements for a credit transaction in 49 CFR 536.8(a).⁵¹⁵

The second template was designed to standardize reporting for CAFE PMY and MMY information, as specified in 49 CFR 537.7(b) and (c), as well as supplementary information required by 49 CFR 537.8. The template organizes the required data in a manner consistent with NHTSA and EPA regulations and simplifies the reporting process by incorporating standardized responses consistent with those provided to EPA. The template collects the relevant data, calculates intermediate and final values in accordance with EPA and NHTSA methodologies, and aggregates all the final values required by NHTSA regulations in a single summary worksheet. Thus, NHTSA believes that the standardized templates will benefit both the agency and manufacturers by helping to avoid reporting errors, such as data omissions and miscalculations, and will ultimately simplify and streamline reporting. Manufacturers are required to use the standardized

template for all PMY, MMY, and supplementary CAFE reports starting in MY 2023. The template also allowed manufacturers to enter information to generate the required confidential versions of CAFE reports specified in 49 CFR part 537 and to produce automatically the required non-confidential versions by clicking a button within the template.

The standardized CAFE reporting templates were made available on the NHTSA website and through the DOT docket. Since then, manufacturers have downloaded the templates and met with NHTSA to share recommendations for changes, such as allowing the PMY and MMY reporting templates to accommodate different types of alternative fueled vehicles and to clarify and correct the methods for calculating CAFE values. The proposed changes are discussed in the following sections. NHTSA plans to host a series of workshops to implement the templates and to provide an open dialogue for manufacturers to identify any further problems and seek clarifications. NHTSA plans to announce the workshops through the **Federal Register** later this year.

(1) Changes to the CAFE Reporting Template

The changes to the CAFE Reporting Template include several general improvements made to simply the use and the effectiveness for manufacturers. These include, but are not limited to; wording changes, corrections to calculations and codes, and auto-populating fields previously requiring manual entry.

More specifically, NHTSA is proposing to modify the CAFE Reporting Template by adding filters and sorting functions to help manufacturers connect the data definitions to the location of each of the required data fields in the template. Additional information from other parts of the CAFE Reporting Template would be pulled forward to display on the summary tab. For the information that must be included pursuant to 49 CFR 537.7(b)(2), manufacturers can also compare the values the template calculates to their own internally calculated CAFE values. Additionally, we are proposing to expand the CAFE Reporting Template to include more of the required information regarding vehicle classification, and guidance provided to ease manufacturers reporting burden by having them report only the data used for each vehicle's qualification pathway ignoring other possible light truck classification information.

NHTSA is also proposing that the CAFE Reporting Template be modified to combine the footprint attribute information and model type sub-configuration data for the purposes of matching. NHTSA uses this information to match test data directly to fuel economy footprint values for the purposes of modeling fuel economy standards. Features were added to auto-populate redundant information from one worksheet to another. The data gathered and the formulas coded within the proposed worksheets have also been updated for the calculation of fuel economy based on 40 CFR 600.510–12. The changes to the data and formulas will allow data to more accurately represent the fuel economy of electric and other vehicles using alternative fuels. NHTSA considers this information critically important to forming a more complete picture of the performances of dual fuel and alternative fuel vehicles.

We are also proposing several corrections so that manufacturers will submit CAFE data at each of the different sub-configuration levels they test and will combine CO₂ and fuel economy data. As mentioned, manufacturers test approximately 90-percent of their vehicles within each model type. Each sub-configuration variant within a model type has a unique CO₂ and CAFE value. Manufacturers combine other vehicles at the configuration, base level and then finally at the model type level for determining CAFE performance. The CAFE performance data for the sub-configurations have been added to the proposed template. NHTSA determined that this level of data was needed to verify manufacturers reported CAFE values.

Finally, we are proposing corrections to the CAFE Reporting Template to collect information on off-cycle technologies. The proposed changes match the format of the data with the EPA off-cycle database system. For example, manufacturers report to EPA high efficiency lighting as combination packages, so NHTSA is proposing to change its form to reflect this same level of information.

Version 2.21 of the template is available on NHTSA's Public Information Center (PIC) site.

(2) Credit Transactions Reporting Template

NHTSA established mandatory use of the CAFE credit template starting on January 1, 2021. However, manufacturers identified several calculation errors in the version of the credit reporting template available on

⁵¹⁵ Submitting a properly completed template and accompanying transaction letter will satisfy the trading requirements in 49 CFR part 536.

the PIC site. Those calculation errors have been corrected and a new version of the template is available for download on the NHTSA PIC. Starting January 1, 2022, NHTSA will only accept its credit template as the sole source for executing CAFE credit transactions. Until that time, manufacturers can deviate from the generated language in the NHTSA credit trade confirmation by adding qualifications but, at a minimum, must include the core information generated by the template.

(3) Monetary and Non-Monetary Credit Trade Information

Credit trading became permissible in MY 2011.⁵¹⁶ To date, NHTSA has received numerous credit trades from entities, but has only made limited information publicly available.⁵¹⁷ As discussed earlier, NHTSA maintains an online CAFE database with manufacturer and fleetwide compliance information that includes year-by-year accounting of credit balances for each credit holder. While NHTSA maintains this database, the agency's regulations currently state that it will not publish information on individual transactions, and NHTSA has not previously required trading entities to submit information regarding the compensation (whether financial, or other items of value) exchanged for credits.^{518 519} Thus, NHTSA's PIC offers sparse information to those looking to determine the value of a credit.

The lack of information regarding credit transactions means entities wishing to trade credits have little, if any, information to determine the value of the credits they seek to buy or sell. Historically we have assumed that the civil penalty for noncompliance with CAFE standards largely determines the upper value of a credit, because it is logical to assume that manufacturers would not purchase credits if it cost less to pay civil penalties instead, but it is unknown how other factors affect the value. For example, a credit nearing the end of its five-model-year lifespan would theoretically be worth less than a credit within its full five-model-year lifespan. In the latter case, the credit holder would likely value the credit

more, as it can be used for compliance purposes for a longer period of time.

NHTSA adopted requirements in the 2020 final rule requiring manufacturers to submit all credit trade contracts, including cost and transactional information, to the agency starting January 1, 2021. NHTSA also adopted requirements allowing manufacturers to submit the information confidentially, in accordance with 49 CFR part 512.⁵²⁰ As stated in the final rule, NHTSA intended to use this information to determine the true cost of compliance for all manufacturers. This information would allow NHTSA to better assess the impact of its regulations on the industry and provide more insightful information in developing future rulemakings. This confidential information would be held by secure electronic means in NHTSA's database systems. As for public information, NHTSA would include more information on the PIC on aggregated credit transactions, such as the combined flexibilities all manufacturers used for compliance as shown in Figure VII-6, or information comparable to the credit information EPA makes available to the public. In the future, NHTSA will consider what information, if any, can be meaningfully shared with the public on credit transactional details or costs, while accounting for the concerns raised by the automotive industry for protecting manufacturers' competitive sources of information.

However, manufacturers continue to argue that disclosing trading terms may not be as simple as a spot purchase at a given price. As stated in the 2020 final rule, manufacturers contend a number of transactions for both CAFE and CO₂ credits involve a range of complexity due to numerous factors that are reflective of the marketplace, such as the volume of credits, compliance category, credit expiration date, a seller's compliance strategy, and even the CAFE penalty rate in effect at that time. In addition, automakers have a range of partnerships and cooperative agreements with their own competitors. Credit transactions can be an offshoot of these broader relationships, and difficult to price separately and independently.

Since then, NHTSA has identified a series of non-monetary factors that it believes to be important to the costs associated with credit trading in the CAFE program.⁵²¹ The agency believes this information will allow for a better

assessment of the true costs of compliance. NHTSA further notes that greater government oversight is needed over the CAFE credit market and it needs to understand the full range of complexity in transactions, monetary and non-monetary, in addition to the range of partnerships and cooperative agreements between credit account holders—which may impact the price of credit trades.⁵²² Therefore, using the identified series of non-monetary factors, NHTSA has developed a new CAFE Credit Reporting Template (Form 1621) for capturing the monetary and non-monetary terms of credit trading contracts. NHTSA proposes that manufacturers start using the new template starting September 1, 2022. The draft template can be viewed and downloaded from the NHTSA PIC site.

3. What compliance flexibilities and incentives are currently available under the CAFE program and how do manufacturers use them?

Generating, trading, transferring, and applying CAFE credits is governed by statute.⁵²³ Program credits are generated when a vehicle manufacturer's fleet over-complies with its standard for a given model year, meaning its vehicle fleet achieved a higher corporate average fuel economy value than the amount required by the CAFE program for that fleet in that model year. Conversely, if the fleet average CAFE level does not meet the standard, the fleet incurs debits (also referred to as a shortfall or deficit). A manufacturer whose fleet generates a credit shortfall in a given model year can resolve its shortfall using any one or combination of several credits flexibilities, including credit carryback, credit carry-forward, credit transfers, and credit trades, and if all credit flexibilities have been exhausted, then the manufacturer must resolve its shortfall by making civil penalty payments.⁵²⁴

NHTSA has also promulgated compliance flexibilities and incentives consistent with EPCA's provisions regarding calculation of fuel economy levels for individual vehicles and for fleets.⁵²⁵ These compliance flexibilities and incentives, which were first adopted in the 2012 rule for MYs 2017 and later, include A/C efficiency improvement and off-cycle adjustments,

⁵¹⁶ 49 CFR 536.6(c).

⁵¹⁷ Manufacturers may generate credits, but non-manufacturers may also hold or trade credits. Thus, the word "entities" is used to refer to those that may be a party to a credit transaction.

⁵¹⁸ 49 CFR 536.5(e)(1).

⁵¹⁹ NHTSA understands that not all credits are exchanged for monetary compensation. The proposal that NHTSA is adopting in this proposed rule requires entities to report compensation exchanged for credits and is not limited to reporting monetary compensation.

⁵²⁰ See also 49 U.S.C. 32910(c).

⁵²¹ UCS, Detailed Comments, NHTSA-2018-0067-12039; Jason Schwartz, Detailed Comments, NHTSA-2018-0067-12162.

⁵²² Honda, Detailed Comments, NHTSA-2018-0067-11819.

⁵²³ 49 U.S.C. 32903.

⁵²⁴ Manufacturers may elect to pay civil penalties rather than utilizing credit flexibilities at their discretion. For purposes of the analysis, we assume that manufacturers will only pay penalties when all flexibilities have been exhausted.

⁵²⁵ 49 U.S.C. 32904.

and adjustments for advanced technologies in full-size pickup trucks, including adjustments for mild and strong hybrid electric full-size pickup trucks and performance-based incentives in full-size pickup trucks. The fuel consumption improvement benefits of these technologies measured by various testing methods can be used by manufacturers to increase the CAFE performance of their fleets.

(a) Available Credit Flexibilities

Under NHTSA regulations, credit holders (including, but not limited to manufacturers) have credit accounts with NHTSA where they can, hold credits, and use them to achieve compliance with CAFE standards, by carrying forward, carrying back, or transferring credits across compliance categories, subject to several restrictions. Manufacturers with excess credits in their accounts can also trade credits to other manufacturers, who may use those credits to resolve a shortfall currently or in a future model year. A credit may also be cancelled before its expiration date if the credit holder so chooses. Traded and transferred credits are subject to an “adjustment factor” to ensure total oil savings are preserved.⁵²⁶

Credit “carryback” means that manufacturers are able to use recently earned credits to offset a deficit that had accrued in a prior model year, while credit “carry-forward” means that manufacturers can bank credits and use them towards compliance in future model years. EPCA, as amended by EISA, allows manufacturers to carryback credits for up to three model years, and to carry-forward credits for up to five model years.⁵²⁷ Credits expire the model year after which the credits may no longer be used to achieve compliance with fuel economy regulations.⁵²⁸ Manufacturers seeking to use carryback credits must submit a carryback plan to NHTSA, for NHTSA’s review and approval, demonstrating their ability to earn sufficient credits in future MYs that can be carried back to resolve the current MY’s credit shortfall.

Credit “trading” refers to the ability of manufacturers or persons to sell credits to, or purchase credits from, one another while credit “transfer” means the ability to transfer credit between a manufacturer’s compliance fleets to resolve a credit shortfall. EISA gave NHTSA discretion to establish by regulation a CAFE credit trading program, to allow credits to be traded between vehicle manufacturers, now

codified at 49 CFR part 536.⁵²⁹ EISA prohibits manufacturers from using traded credits to meet the minimum domestic passenger car CAFE standard.⁵³⁰

(b) Fuel Savings Adjustment Factor

Under NHTSA’s credit trading regulations, a fuel savings adjustment factor is applied when trading occurs between manufacturers and those credits are used, or when a manufacturer transfers credits between its compliance fleets and those credits are used, but not when a manufacturer carries credits forward or backwards within the same fleet.⁵³¹

NHTSA is including in this proposal a restoration of certain definitions that are part of the adjustment factor equation that had been inadvertently deleted in the 2020 final rule. The 2020 final rule had intended to add a sentence to the adjustment factor term in 49 CFR 536.4(c), simply to make clear that the figure should be rounded to four decimal places. While the 2020 final rule implemented this change, the amendatory instruction for doing so unintentionally deleted several other definitions from that paragraph. NHTSA had not intended to modify or delete those definitions, so they are simply being added back into the paragraph.

(c) VMT Estimates for Fuel Savings Adjustment Factor

NHTSA uses VMT estimates as part of its fuel savings adjustment equation. Including VMT is important as fuel consumption is directly related to vehicle use, and in order to ensure trading credits between fleets preserves oil savings, VMT must be considered.⁵³² For MYs 2017 and later, NHTSA finalized VMT values of 195,264 miles for passenger car credits, and 225,865 miles for light truck credits.⁵³³

(d) Fuel Economy Calculations for Dual and Alternative Fueled Vehicles

As discussed at length in prior rulemakings, EPCA, as amended by EISA, encouraged manufacturers to build alternative-fueled and dual- (or flexible-) fueled vehicles by providing special fuel economy calculations for “dedicated” (that is, 100 percent) alternative fueled vehicles and “dual-fueled” (that is, capable of running on either the alternative fuel or gasoline/diesel) vehicles.

Dedicated alternative-fuel automobiles include electric, fuel cell, and compressed natural gas vehicles, among others. The statutory provisions for dedicated alternative fuel vehicles in 49 U.S.C. 32905(a) state that the fuel economy of any dedicated automobile manufactured after MY 1992 shall be measured “based on the fuel content of the alternative fuel used to operate the automobile. A gallon of liquid alternative fuel used to operate a dedicated automobile is deemed to contain 0.15 gallon of fuel.” There are no limits or phase-out for this special fuel economy calculation within the statute.

EPCA’s statutory incentive for dual-fueled vehicles at 49 U.S.C. 32906 and the measurement methodology for dual-fueled vehicles at 49 U.S.C. 32905(b) and (d) expired after MY 2019. In the 2012 final rule, NHTSA and EPA concluded that it would be inappropriate and contrary to the intent of EPCA/EISA to measure dual-fueled vehicles’ fuel economy like that of conventional gasoline vehicles with no recognition of their alternative fuel capability. The agencies determined that for MY 2020 and later vehicles, the general statutory provisions authorizing EPA to establish testing and calculation procedures provide discretion to set the CAFE calculation procedures for those vehicles. The methodology for EPA’s approach is outlined in the 2012 final rule for MYs 2017 and later at 77 FR 63128 (Oct. 15, 2012).

(e) Flexibilities for Air-Conditioning Efficiency, Off-Cycle Technologies, and Full-Size Pickup Trucks

(1) Incentives for Advanced Technologies in Full-Size Pickup Trucks

Under its EPCA authority for CAFE and under its CAA authority for GHGs, EPA established fuel consumption improvement values (FCIVs) for manufacturers that hybridize a significant quantity of their full-size pickup trucks, or that use other technologies that significantly reduce fuel consumption of these full-sized pickup trucks. More specifically, CAFE FCIVs were made available to manufacturers that produce full-size pickup trucks with Mild HEV or Strong HEV technology, provided the percentage of production with the technology is greater than specified percentages.⁵³⁴ In addition, CAFE FCIVs were made available for manufacturers that produce full-size pickups with other technologies that enable full-size

⁵²⁹ 49 U.S.C. 32903(f).

⁵³⁰ 49 U.S.C. 32903(f)(2).

⁵³¹ See Section III.C for details about carry forward and back credits.

⁵³² See 49 CFR 536.4(c).

⁵³³ 77 FR 63130 (Oct. 15, 2012).

⁵³⁴ 77 FR 62651 (Oct. 15, 2012).

⁵²⁶ See Section VII.B.3.b) for details.

⁵²⁷ 49 U.S.C. 32903(a).

⁵²⁸ 49 CFR 536.3(b).

pickup trucks to exceed their CAFE targets based on footprints by specified amounts (*i.e.*, electric vehicles and other electric components).⁵³⁵ These performance-based incentives create a technology-neutral path (as opposed to the other technology-encouraging path) to achieve the CAFE FCIVs, which would encourage the development and application of new technological approaches.

Large pickup trucks represent a significant portion of the overall light duty vehicle fleet and generally have higher levels of fuel consumption and GHG emissions than most other light duty vehicles. Improvements in the fuel economy and GHG emissions of these vehicles can have significant impact on the overall light-duty fleet fuel use and GHG emissions. NHTSA believes that offering incentives could encourage the deployment of technologies that can significantly improve the efficiency of these vehicles and that also will foster production of those technologies at levels that will help achieve economies of scale, would promote greater fuel savings overall and make these technologies more cost effective and available in the future model years to assist in compliance with CAFE standards.

EPA and NHTSA also established limits on the eligibility for these pickup trucks to qualify for incentives. A truck was required to meet minimum criteria for bed size and towing or payload capacities and meet minimum production thresholds (in terms of a percentage of a manufacturer's full-size pickup truck fleet) in order to qualify for these incentives. Under the provisions, Mild HEVs are eligible for a per-vehicle CO₂ credit of 10 g/mi (equivalent to 0.0011 gallon/mile for a gasoline-fueled truck) during MYs 2017–2021. To be eligible a manufacturer would have to show that the Mild HEV technology is utilized in a specified portion of its truck fleet beginning with at least 20 percent of a company's full-size pickup production in MY 2017 and ramping up to at least 80 percent in MY 2021. Strong HEV pickup trucks are eligible for a 20 g/mi credit (0.0023 gallon/mile) during MYs 2017–2021, and in this rulemaking proposed to be extended through MY 2026, if the technology is used on at least 10 percent of a company's full-size pickups in that model year. EPA and NHTSA also adopted specific definitions for Mild and Strong HEV pickup trucks, based on energy flow to the high-voltage battery during testing.

Furthermore, to incentivize other technologies that can provide significant reductions in GHG emissions and fuel consumption for full-size pickup trucks, EPA also adopted, a performance-based fuel consumption improvement value for full-size pickup trucks. Eligible pickup trucks certified as performing 15 percent better than their applicable CO₂ target receive a 10 g/mi credit (0.0011 gallon/mile), and those certified as performing 20 percent better than their target receive a 20 g/mi credit (0.0023 gallon/mile). The 10 g/mi performance-based credit is available for MYs 2017 to 2021 and, once qualifying; a vehicle model will continue to receive the credit through MY 2021, provided its CO₂ emissions level does not increase. To be eligible a manufacturer would have to show that the technology is utilized in a specified portion of its truck fleet beginning with at least 20 percent of a company's full-size pickup production in MY 2017 and ramping up to at least 80 percent in MY 2021. The 20 g/mi performance-based credit was available for a vehicle model for a maximum of 5 years within the 2017 to 2021 model year period, and in this rulemaking proposed to be extended through MY 2026, provided its CO₂ emissions level does not increase. To be eligible, the technology must be applied to at least 10 percent of a company's full-size pickups in for the model year.

The agencies designed a definition for full-size pickup truck based on minimum bed size and hauling capability, as detailed in 40 CFR 86.1866–12(e). This definition ensured that the larger pickup trucks, which provide significant utility with respect to bed access and payload and towing capacities, are captured by the definition, while smaller pickup trucks with more limited capacities are not covered. A full-size pickup truck is defined as meeting requirements (1) and (2) below, as well as either requirement (3) or (4) below.

(1) Bed Width—The vehicle must have an open cargo box with a minimum width between the wheelhouses of 48 inches. And—

(2) Bed Length—The length of the open cargo box must be at least 60 inches. And—

(3) Towing Capability—the gross combined weight rating (GCWR) minus the gross vehicle weight rating (GVWR) must be at least 5,000 pounds. Or—

(4) Payload Capability—the GVWR minus the curb weight (as defined in 40 CFR 86.1803) must be at least 1,700 pounds.

In the 2020 CAFE rule, the agencies ended the incentives for full-size pickup trucks after the end of model year 2021

believing expanded incentives would likely not result in any further emissions benefits or fuel economy improvements since an increase in sales volume was unanticipated. At the time, no manufacturer had qualified to use the full-size pickup truck incentives since they went into effect in MY 2017. One vehicle manufacturer introduced a mild hybrid pickup truck in MY 2019 but was ineligible for the FCIV because it did not meet the minimum production threshold. Other manufacturers had announced potential collaborations or started designing future hybrid or electric models, but none were expected to meet production requirements within the time period of eligibility for these incentives.

Since the 2020 final rule, many manufacturers have publicly announced several new model types of full-size electric pickup trucks starting in MY 2022. NHTSA notes that historically its goal has always been to promote electric vehicles due to their exceptional fuel saving benefits. For this reason, even given the discontinuation in MY 2019 of AMFA incentives for dual fueled vehicles, NHTSA retained its benefits for alternative dedicated fueled vehicles to focus on the growth of electric vehicles in the market. Therefore, after the careful consideration of this new information and the potential role incentives could play in increasing the production of these technologies, and the associated beneficial impacts on fuel consumption, the agency is proposing to extend the full-size pickup truck incentive through MY 2025 for strong hybrids and for full-size pickup trucks performing 20-percent better than their target. Also, understanding the importance of electric vehicles in the market, NHTSA is proposing to allow manufacturers to combine both the incentives for alternative fueled vehicles and full-size pickup trucks FCIVs when complying with the CAFE program.

(2) Flexibilities for Air Conditioning Efficiency

A/C systems are virtually standard automotive accessories, and more than 95 percent of new cars and light trucks sold in the U.S. are equipped with mobile A/C systems. A/C system usage places a load on an engine, which results in additional fuel consumption; the high penetration rate of A/C systems throughout the light-duty vehicle fleet means that more efficient systems can significantly impact the total energy consumed. A/C systems also have non-CO₂ emissions associated with

⁵³⁵ *Id.*

refrigerant leakage.⁵³⁶ Manufacturers can improve the efficiency of A/C systems though redesigned and refined A/C system components and controls.⁵³⁷ That said, such improvements are not measurable or recognized using 2-cycle test procedures since A/C is turned off during 2-cycle testing. Any A/C system efficiency improvements that reduce load on the engine and improve fuel economy is therefore not measurable on those tests.

The CAFE program includes flexibilities to account for the real-world fuel economy improvements associated with improved A/C systems and to include the improvements for compliance.⁵³⁸ The total A/C efficiency credits is calculated by summing the individual credit values for each efficiency improving technology used on a vehicle, as specified in the A/C credit menu. The total A/C efficiency credit sum for each vehicle is capped at 5.0 grams/mile for cars and 7.2 grams/mile for trucks. Additionally, the off-cycle credit program contains credit earning opportunities for technologies that reduce the thermal loads on a vehicle from environmental conditions (solar loads or parked interior air temperature).⁵³⁹ These technologies are listed on a thermal control menu that provides a predefined improvement value for each technology. If a vehicle has more than one thermal load improvement technology, the improvement values are added together, but subject to a cap of 3.0 grams/mile for cars and 4.3 grams/mile for trucks. Under its EPCA authority for CAFE, EPA calculates equivalent FCIVs and applies them for the calculation of manufacturer's fleet CAFE values. Manufacturers seeking credits beyond the regulated caps must request the added benefit for A/C technology under the off-cycle program discussed in the

⁵³⁶ Notably, manufacturers cannot claim CAFE-related benefits for reducing A/C leakage or switching to an A/C refrigerant with a lower global warming potential. While these improvements reduce GHG emissions consistent with the purpose of the CAA, they generally do not impact fuel economy and, thus, are not relevant to the CAFE program.

⁵³⁷ The approach for recognizing potential A/C efficiency gains is to utilize, in most cases, existing vehicle technology/componentry, but with improved energy efficiency of the technology designs and operation. For example, most of the additional A/C-related load on an engine is because of the compressor, which pumps the refrigerant around the system loop. The less the compressor operates, the less load the compressor places on the engine resulting in less fuel consumption. Thus, optimizing compressor operation with cabin demand using more sophisticated sensors, controls, and control strategies is one path to improving the efficiency of the A/C system.

⁵³⁸ See 40 CFR 86.1868–12.

⁵³⁹ See 40 CFR 86.1869–12(b).

next section. The agency is not proposing to change its A/C efficiency flexibility and will retain its provisions in its current form.

(3) Flexibilities for Off-Cycle Technologies

“Off-cycle” technologies are those that reduce vehicle fuel consumption in the real world, but for which the fuel consumption reduction benefits cannot be fully measured under the 2-cycle test procedures (city, highway or correspondingly FTP, HFET) used to determine compliance with the fleet average standards. The cycles are effective in measuring improvements in most fuel economy improving technologies; however, they are unable to measure or underrepresent certain fuel economy improving technologies because of limitations in the test cycles. For example, off-cycle technologies that improve emissions and fuel economy at idle (such as “stop start” systems) and those technologies that improve fuel economy to the greatest extent at highway speeds (such as active grille shutters which improve aerodynamics) receive less than their real-world benefits in the 2-cycle compliance tests.

In the CAFE rule for MYs 2017–2025, EPA, in coordination with NHTSA, established regulations extending the off-cycle technology flexibility to the CAFE program starting with MY 2017. For the CAFE program, EPA calculates off-cycle fuel consumption improvement values (FCIVs) that are equivalent to the EPA CO₂ credit values, and applies them in the calculation of manufacturer's CAFE compliance values for each fleet instead of treating them as separate credits as for the EPA GHG program.

For determining benefits, EPA created three compliance pathways for the off-cycle program. The first approach allows manufacturers to gain credits using a predetermined approach or “menu” of credit values for specific off-cycle technologies which became effective starting in MY 2014 for EPA.^{540 541} This pathway allows manufacturers to use credit values established by EPA for a wide range of off-cycle technologies, with minimal or no data submittal or testing requirements.⁵⁴² Specifically, EPA

⁵⁴⁰ See 40 CFR 86.1869–12(b). The first approach requires some technologies to derive their predetermined credit values through EPA's established testing. For example, waste heat recovery technologies require manufacturers to use 5-cycle testing to determine the electrical load reduction of the waste heat recovery system.

⁵⁴¹ EPA implemented its off-cycle GHG program starting in MY 2012.

⁵⁴² The Technical Support Document (TSD) for the 2012 final rule for MYs 2017 and beyond

established a menu with a number of technologies that have real-world fuel consumption benefits not measured, or not fully measured, by the two-cycle test procedures, and those benefits were reasonably quantified by the agencies at that time. For each of the pre-approved technologies on the menu, EPA established a menu value or approach that is available without testing verifications. Manufacturers must demonstrate that they are in fact using the menu technology, but not required to submit test results to EPA to quantify the technology's effects, unless they wish to receive a credit larger than the default value. The default values for these off-cycle credits were largely determined from research, analysis, and simulations, rather than from full vehicle testing, which would have been both cost and time prohibitive. EPA generally used conservative predefined estimates to avoid any potential credit windfall.⁵⁴³

For off-cycle technologies not on the pre-defined technology list, EPA created a second pathway which allows manufacturers to use 5-cycle testing to demonstrate off-cycle improvements.⁵⁴⁴ Starting in MY 2008, EPA developed the “five-cycle” test methodology to measure fuel economy for the purpose of improving new car window stickers (labels) and giving consumers better information about the fuel economy they could expect under real-world driving conditions.⁵⁴⁵ As learned through development of the “five-cycle” methodology and prior rulemakings, there are technologies that provide real-world fuel consumption improvements,

provides technology examples and guidance with respect to the potential pathways to achieve the desired physical impact of a specific off-cycle technology from the menu and provides the foundation for the analysis justifying the credits provided by the menu. The expectation is that manufacturers will use the information in the TSD to design and implement off-cycle technologies that meet or exceed those expectations in order to achieve the real-world benefits of off-cycle technologies from the menu.

⁵⁴³ While many of the assumptions made for the analysis were conservative, others were “central.” For example, in some cases, an average vehicle was selected on which the analysis was conducted. In that case, a smaller vehicle may presumably deserve fewer credits whereas a larger vehicle may deserve more. Where the estimates are central, it would be inappropriate for the agencies to grant greater credit for larger vehicles, since this value is already balanced by smaller vehicles in the fleet. The agencies take these matters into consideration when applications are submitted for credits beyond those provided on the menu.

⁵⁴⁴ See 40 CFR 86.1869–12(c). EPA proposed a correction for the 5-cycle pathway in a separate technical amendments rulemaking. See 83 FR 49344 (Oct. 1, 2019). EPA is not approving credits based on the 5-cycle pathway pending the finalization of the technical amendments rule.

⁵⁴⁵ <https://www.epa.gov/vehicle-and-fuel-emissions-testing/dynamometer-drive-schedules>.

but those improvements are not fully reflected on the “two-cycle” test. EPA established this alternative for a manufacturer to demonstrate the benefits of off-cycle technologies using 5-cycle testing. The additional emissions test allows emission benefits to be demonstrated over some elements of real-world driving not captured by the two-cycle CO₂ compliance tests including high speeds, rapid accelerations, hot temperatures, and cold temperatures. Under this pathway, manufacturers submit test data to EPA, and EPA determines whether there is sufficient technical basis to approve the off-cycle credits. No public comment period is required for manufacturers seeking credits using the EPA menu or using 5-cycle testing.

The third pathway allows manufacturers to seek EPA review, through a notice and comment process, to use an alternative methodology other than the menu or 5-cycle methodology for determining the off-cycle technology CO₂ credits.⁵⁴⁶ Manufacturers must provide supporting data on a case-by-case basis demonstrating the benefits of the off-cycle technology on their vehicle models. Manufacturers may also use the third pathway to apply for credits and FCIVs for menu technologies where the manufacturer is able to demonstrate credits and FCIVs greater than those provided by the menu.

(a) The Off-Cycle Process

In meetings with EPA and manufacturers, NHTSA examined the processes for bringing off-cycle technologies into market. Two distinct processes were identified: (1) The manufacturer’s off-cycle pre-production process, and; (2) the manufacturer’s regulatory compliance process. During the pre-production process, the off-cycle program for most manufacturers begins as early as four to 6 years in advance of the given model year. Manufacturers’ design teams or suppliers identify technologies to develop capable of qualifying for off-cycle credits after careful considering of the possible benefits. Manufacturer then identify the opportunities for the technologies finding the most optimal condition for equipping the technology given the availability in the production cycle of either new or multiple platforms capitalizing on any commonalities to increase sales volumes and reduce costs. After establishing their new or series platform development plans, manufacturers have two processes for off-cycle technologies on the pre-defined menu list or using 5-cycle

testing and for those for which benefits are sought using the alternative approval methodology. For those on the menu list or 5-cycle testing, technologies whose credit amounts are defined by EPA regulation, manufacturers confirm that: (1) New candidate technologies meet regulatory definitions; and (2) for qualifying technologies, there is real fuel economy (FE) benefit based on good engineering judgement and/or testing. For these technologies, manufacturers conduct research and testing independently without communicating with EPA or NHTSA. For non-menu technologies, those not defined by regulation, manufacturers pre-production processes include: (1) Determining the credit amounts based on the effectiveness of the technologies; (2) developing suitable test procedures; (3) identifying any necessary studies to support effectiveness; (4) and identifying the necessary equipment or vehicle testing using good engineer judgement to confirm the vehicle platform benefits of the technology.

While for the regulatory compliance process, the first step for manufacturers begins by providing EPA with early notification in their pre-model year GHG reports (*e.g.*, 2025MY Pre-GHG are due in 2023CY) of their intention to generate any off-cycle credits in accordance with 40 CFR 600.514–12. Next, manufacturers present a brief overview of the technology concept and planned model types for their off-cycle technologies as a part of annual pre-certification meetings with EPA. Manufacturers typically hold their pre-certification meetings with EPA somewhere between September through November two years in advance of each model year. These meetings are designed to give EPA a holistic overview of manufacturers planned product offerings for the upcoming compliance model year and since 2012 information on the A/C and off-cycle programs. Thus, a manufacturer complying in the 2023 compliance model year would arrange its pre-certification meeting with EPA in September 2021 and would be required to share information on the A/C and off-cycle technologies its plans to equip during the model year. After this, manufacturers report projected information on off-cycle technologies as a part of their CAFE reports to NHTSA in accordance with 49 CFR part 537 CAFE due by December 31st before the end of the model year.

According to EPA and NHTSA regulations, eligibility to gain benefits for off-cycle technologies only require manufacturers to reporting information

in advance of the model year notifying the agencies of a manufacturer’s intent to claim credits. More specifically, manufacturers must notify EPA in their pre-model year reports, and in their applications for certification, of their intention to generate any A/C and off-cycle credits before the model year, regardless of the methodology for generating credits. Similarly, for NHTSA, manufacturers are also required to provide data in their pre-model year reports required by 49 CFR part 537 including projected information on A/C, off-cycle, and full-size pickup truck incentives. These regulations require manufacturers to report information on factors such as the approach for determining the benefit of the technology, projected production information and the planned model types for equipping the off-cycle technology.

If a manufacturer is pursuing credits for a non-menu off-cycle technology, EPA also encourages manufacturers to seek early reviews for the eligibility of a technology, the test procedure, and the model types for testing in advance of the model year. EPA emphasizes the critical importance for manufacturers to seek these reviews prior to conducting testing or any analytical work. Yet, some manufacturers have decided not to seek EPA’s early reviews which resulted in significant delays in the process as EPA has had to identify and correct multiple testing and analytical errors after the fact. Consequently, EPA’s goal is to provide approvals for manufacturers as early as possible to ensure timely processing of their credit requests. NHTSA shares the same goals and views as EPA for manufacturers submissions but to-date neither agency has created any required deadlines for these reviews. For NHTSA, its only requirement is for manufacturers to submit copies of all information sent to EPA at the same time.

The next step in the credit review process is for manufacturers to submit an analytical plan defining the required testing to derive the exact benefit of a non-menu off-cycle technology before the model year begins and then to start testing. It is noted that some manufacturers failed to seek EPA’s early reviews which delayed finalizing their analytical plans and then the start of their testing. These delays had greater impacts depending upon the required testing for the technology. For example, some manufacturers were required to conduct a four-season testing methodology lasting almost a year to evaluate the performance of a technology during all environmental conditions.

⁵⁴⁶ See 40 CFR 86.1869–12(d).

After completing testing, manufacturers are required to prepare an official application requesting a certain amount of off-cycle credits for the technology. In accordance with EPA regulations, the official application request must include final testing data, details on the methodology used to determine the off-cycle credit value, and the official benefit value requested. EPA anticipated that these submissions would be made prior to the end of the model year where the off-cycle technology was applied.

Each manufacturers' application to EPA must then undergo a public notice and comment process if the manufacturer uses a methodology to derive the benefit of a technology not previously approved by EPA. Once a methodology for a specific off-cycle technology has gone through the public notice and comment process and is approved for one manufacturer, other manufacturers may follow the same methodology to collect data on which to base their off-cycle credits. Other manufacturers are only required to submit applications citing the approved methodology, but those manufacturers must provide their own necessary test data, modeling, and calculations of credit value specific to their vehicles, and any other vehicle-specific details pursuant to that methodology, to assess an appropriate credit value. This is similar to what occurred with the advanced A/C compressor, where one manufacturer applied for credits with data collected through bench testing and vehicle testing, and subsequent to the first manufacturer being approved, other manufacturers applied for credits following the same methodology by submitting test data specific for their vehicle models. Consequently, as long as the testing is conducted using the previously-approved methodology, EPA will evaluate the credit application and issue a decision with no additional notice and comment, since the first application that established the methodology was subject to notice and comment. EPA issues a decision document regarding the manufacturer's official application upon resolution of any public comments to the its **Federal Register** notice and after consultation with NHTSA. Finally, manufacturers submit information after the model year ends on off-cycle technologies and the equipped vehicles in their final CAFE reports due by March 30th and then in their final GHG Averaging, Banking, and Trading (AB&T) reports due to EPA by April 30th.

During the 2020 rulemaking, the agencies and manufacturers both agreed that responding to petitions before the

end of a model year is beneficial to manufacturers and the government. It allows manufacturers to have a better idea of what credits they will earn, and for the government, a timely and less burdensome completion of manufacturers' end-of-the-year final compliance processes. EPA structured the A/C and off-cycle programs to make it possible to complete the processes by the end of the model year so manufacturers could submit their final reports within the required deadline—90 days after the calendar year, when CAFE final reports are due from manufacturers.⁵⁴⁷

However, at the time of the previous rulemaking, manufacturers were submitting retroactive off-cycle petitions for review causing significant delays to review and approval of novel technologies and issuances of **Federal Register** notices seeking public comments, where applicable. As a result, the agencies set a one-time allowance that ended in May 2020 for manufacturers to ask for retroactive credits or FCIVs for off-cycle technologies equipped on previously-manufactured vehicles after the model year had ended. After that time, the agencies denied manufacturers' late submissions requesting retroactive credits. However, manufacturers who properly submitted information ahead of time were allowed to make corrections to resolve inadvertent errors during or after the model year.

Both EPA and NHTSA regulations fail to include specific deadlines for manufacturers to meet in finalizing their off-cycle analytical plans or the official applications to the agencies. The agencies believed that enforcing the existing submission requirements would be the most efficient approach to expedite approvals and set aside adding any new regulatory deadlines or additional requirements in the previous rulemaking. There were also concerns to provide manufacturers with maximum flexibility and due to the uncertainties existing with the non-menu off-cycle process. However, the agencies anticipated that any timeliness problems would resolve themselves as the off-cycle program reached maturity and more manufacturers began requesting benefits for previously approved off-cycle technologies.

Despite the agencies' expectations, the lack of deadlines for test results or the official application has significantly delayed approvals for non-menu off-cycle requests. In many cases, EPA has received off-cycle non-menu application requests either late in the model year or

after the model year. This falls outside the agencies planned strategy for the off-cycle non-menu review process whereas manufacturers would seek approval and submit their official application requests either in advance of the model year or early enough in the model year to allow the agency to approve a manufacturer's credits before the end of the model year.

(b) Proposed Changes to the Off-Cycle Program

(i) Review Process

The current review process for off-cycle technologies is causing significant challenges in finalizing end-of-the-year compliance processes for the agencies. The backlog of retro-active and pending late off-cycle requests have delayed EPA from recalculating NHTSA's MY 2017 finals and from completing those for MYs 2018 and 2019. Fifty-four off-cycle non-menu requests have been submitted to EPA to date. Nineteen of the requests were submitted late and another seven apply retroactively to previous model years starting as early as model year 2015. Since these requests represent potential credits or adjustments that will influence compliance figures, CAFE final results cannot be finalized until all off-cycle requests have been disposed. These factors have so far delayed MY 2017 final CAFE compliance by 28 months, MY 2018 by 15 months, and MY 2019 by 4 months.

These late reports amount to more than just a mere accounting nuisance for the agencies; they are actively chilling the credit market. Until EPA verifies final compliance numbers, manufacturers are uncertain about either how many credits they have available to trade or, conversely, how many credits are necessary for them to cover any shortfalls.

For MY 2017, NHTSA will void manufacturers' previous credit trades pending the revised final calculations. Second, until late requests are approved, credit sellers are unable to make trades with buyers having pending approvals or credits are sold whereas the final balance of credits is unknown. Because credit trades and transfers must be adjusted for fuel savings anytime a change occurs in a manufacturer's CAFE values, the resulting earned or purchased credits must be recalculated. These recalculations are significantly burdensome on the government to administer and places an undue risk on manufacturers involved in CAFE credit trade transactions.

NHTSA met with EPA and manufacturers to better understand the process for reviewing off-cycle non-menu technologies. From these

⁵⁴⁷ 40 CFR 600.512(12).

discussions, NHTSA identified several issues that may be influencing late submissions. First, non-menu requests are becoming more complex and are requiring unique reviews. Previously approved technologies are also becoming more complex and are requiring either new testing, test procedures or have evolved beyond the definitions which at one time previously qualified them. Next, manufacturers identified the lack of standardized test procedures approved by EPA or certainty from EPA on which model types need to be tested as major sources for delays in submitting their analytical plans. In addition, manufacturers claimed there is significant uncertainty surrounding the necessary data sources to substantiate the benefit of the technology. For example, the data sources necessary to substantiate the usage rates certain technologies in the market. Testing or extrapolating test results for variations in model types can also be difficult and a source of delay. Manufacturers are typically uncertain as to what configurations within a model type must be tested and believe further guidance may be needed by EPA. Manufacturers further claim that it is challenging to coordinate the required testing identified by EPA for off-cycle in coordination with other required certification and emissions testing. Several of these issues were addressed in the 2020 final rule. In that rulemaking, the agencies stated that developing a standardized test procedure “toolbox” may not be possible due to the development of new and emerging technologies, and manufacturers’ different approaches for evaluating the benefits of the technologies. However, the agencies committed to considering additional guidance, if feasible, as the programs further matures in the review process of technologies and, if possible, identify consistent methodologies that may help manufacturers analyze off-cycle technologies.

Part of the issue is that the review process begins significantly later than the development of technology. Typically, EPA only learns about a new off-cycle technology during manufacturers’ precertification meetings, months or even years after manufacturers started to develop the technology. NHTSA seeks comments on whether opportunities exist during the initial development of off-cycle technologies for manufacturers to start discussions with the agencies to identify suitable test procedures or approval of the initial concept of a new technology.

After certification meetings, NHTSA also identified that in many cases, manufacturers do not communicate with EPA seeking approvals for their test procedures, test vehicles or credit calculations until anywhere from 3–6 months after the initial development of the technology. Delays in approving a suitable test procedure extends the manufacturers ability to perform testing or to submit its formal request for benefits until after the model year has ended. As mentioned, testing can take up to 12 months after a suitable test procedure and identifying which subconfigurations must be tested.

One manufacturer also stated that set submission deadlines are impossible, agency approvals are variable based on OEM need and reply timing is driven by the EPA. When questioned whether any deadlines could be imposed manufacturers responded believing any deadlines would need to be negotiated between the manufacturer and the government. Please comment on any drawbacks associated with negotiating and enforcing off-cycle process deadlines with manufacturers.

NHTSA is proposing to modify the eligibility requirements for non-menu off-cycle technologies in the CAFE program starting in model year 2024. Manufacturers will be required to finalize their analytical plans by December before the model years and their final official technology credit requests by September during the model year. Manufacturers will also be required to meet the proposed deadlines or be subject an enforcement action. Unless an extension is granted by NHTSA for good cause, a manufacturer will be precluded from claiming any off-menu items not timely submitted. Failure to request extensions or meet negotiated deadlines will be subject to enforcement action in compliance with 49 U.S.C. 32912(a).

To further streamline the process of reviews, NHTSA also proposes to work with EPA to create a quicker process for adding off-cycle technologies to the predetermined menu list if widely approved for multiple manufacturers. For example, the agencies added high-efficiency alternators and advanced A/C compressors to the menu allowing manufacturers to select the menu credit rather than continuing to seek credits through the public approval process. High-efficiency alternators were added to the off-cycle credits menu, and advanced A/C compressors with a variable crankcase valve were added to the menu for A/C efficiency credits. The credit levels are based on data previously submitted by multiple manufacturers through the off-cycle

credits application process. The high efficiency alternator credit is scalable with efficiency, providing an increasing credit value of 0.16 grams/mile CO₂ per percent improvement as the efficiency of the alternator increases above a baseline level of 67 percent efficiency. The advanced A/C compressor credit value is 1.1 grams/mile for both cars and light trucks.⁵⁴⁸

(ii) Safety Assessment

In the 2016 heavy-duty fuel economy rule (81 FR 73478, October 25, 2016), NHTSA adopted provisions preventing manufacturers from receiving credits for technology that impair safety—whether due to a defect, negatively affecting a FMVSS, or other safety reasons.⁵⁴⁹ Additionally, NHTSA clarified that technologies that do not provide fuel savings as intended will also be stripped of credits. To harmonize the light-duty and heavy-duty off-cycle programs, NHTSA is proposing to adopt these provisions for the light-duty CAFE program. While the agency encourages fuel economy innovations, safety remains NHTSA’s primary mission and any technology applied for CAFE-purposes should not impair safety. Furthermore, adopting these requirements for the light-duty fleet will harmonize it with the heavy-duty regulations.

(iii) Menu Credit Cap

Due to the uncertainties associated with combining menu technologies and the fact that some uncertainty is introduced because off-cycle credits are provided based on a general assessment of off-cycle performance, as opposed to testing on the individual vehicle models, EPA established caps that limit the amount of credits a manufacturer may generate using the EPA menu list. Off-cycle technology is capped at 10 grams/mile per year on a combined car and truck fleet-wide average basis. In its concurrent proposal for MYs 2023–2026 GHG standards (86 FR 43726, August 10, 2021), EPA is proposing to increase the off-cycle menu cap from 10 grams CO₂/mile to 15 grams CO₂/mile beginning with MY 2023. EPA also proposes to revise the definitions for passive cabin ventilation and active engine and transmission warm-up beginning in MY 2023, as discussed in the next following sections. Furthermore, EPA is proposing, for MYs

⁵⁴⁸ For additional details regarding the derivation of these credits, see EPA’s Memorandum to Docket EPA–HQ–OAR–2018–0283 (“Potential Off-cycle Menu Credit Levels and Definitions for High Efficiency Alternators and Advanced Air Conditioning Compressors”).

⁵⁴⁹ See 49 CFR 535.7(f)(2)(iii).

2020–2022, to allow manufacturers to use the cap of 15 g/mi if the revised definitions are met for these technologies. NHTSA is proposing to adopt these same provisions for the CAFE programs as a part of this rulemaking. No caps were established for technologies gaining credits through the petitioning or 5-cycle approval methodologies and the agency is not proposing to add caps in these areas.

(iv) Proposal To Update the Menu Technology Definitions

(a) Passive Cabin Ventilation

Some manufacturers have claimed off-cycle credits for passive ventilation cabin technologies based on the addition of software logic to their HVAC system that sets the dash vent to the open position when the power to vehicle is turned off at higher ambient temperatures. The manufacturers have indicated that the opening of the vent allows for the flow of ambient temperature air into the cabin. While ensuring that the interior of the vehicle is open for flow into the cabin, by only opening the dash vent no other action is taken to improve the flow of heated air out of the vehicle. This technology relies on the pressure in the cabin to reach a sufficient level for the heated air in the interior to flow out through body leaks or the body exhausters open and vent heated air out of the cabin.

The credits for passive cabin ventilation were determined based on an National Renewable Energy Laboratory (NREL) study that strategically opened a sunroof to allow for the unrestricted flow of heated air to exit the interior of the vehicle while combined with additional floor openings to provide a minimally restricted entry for cooler ambient air to enter the cabin.⁵⁵⁰ The modifications NREL performed on the vehicle reduced the flow restrictions for both heated cabin air to exit the vehicle and cooler ambient air to enter the vehicle, creating a convective airflow path through the vehicle cabin.

Analytical studies performed by manufacturers to evaluate the performance of the open dash vent demonstrate that while the dash vent may allow for additional airflow of ambient temperature air entering the cabin, it does not reduce the existing restrictions on heated cabin air exiting the vehicle. Opening the dash vent primarily relies on body leaks and

occasional venting of the heated cabin air through the body exhausters for the higher temperature cabin air to be vented from the vehicle. While this does provide some reduction in cabin temperatures this technology is not as effective as the combination of vents used by the NREL researchers to allow additional ambient temperature air to enter the cabin and also to reduce the restriction of heated air exiting the cabin.

As noted in the Joint Technical Support Document: Final Rulemaking for 2017–2025 Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards,⁵⁵¹ pg. 584, “For passive ventilation technologies, such as opening of windows and/or sunroofs and use of floor vents to supply fresh air to the cabin (which enhances convective airflow), (1.7 grams/mile for LDVs and 2.3 grams/mile for LDTs) a cabin air temperature reduction of 5.7 °C can be realized.” The passive cabin ventilation credit values were based on achieving the 5.7 °C cabin temperature reduction.

EPA and NHTSA have decided to revise the passive cabin ventilation definition to make it consistent with the technology used to generate the credit value. NHTSA supports EPA’s proposal to revise the definition of passive cabin ventilation to only include methods which create and maintain convective airflow through the body’s cabin by opening windows or a sunroof, or equivalent means of creating and maintaining convective airflow, when the vehicle is parked outside in direct sunlight.

Current systems claiming the passive ventilation credit by opening the dash vent would no longer meet the updated definition. Manufacturers seeking to claim credits for the open dash vent system will be eligible to petition the agency for credits for this technology using the alternative EPA approved method outlined in § 86.1869–12(d).

(b) Active Engine and Transmission Warmup

NHTSA, in coordination with EPA, is proposing to revise the menu definitions of active engine and transmission warm-up to no longer allow systems that capture heat from the coolant circulating in the engine block prior to the opening of the thermostat to qualify for the Active Engine and Active Transmission warm-up menu credits.

The agency would allow credit for coolant systems that capture heat from a liquid-cooled exhaust manifold if the system is segregated from the coolant loop in the engine block. The agency would also allow system design that captures and routes waste heat from the exhaust to the engine or transmission as this was the basis for these two credits as originally proposed in the NPRM to the 2017 to 2025 GHG rulemaking (76 FR 74854, Dec. 1, 2011).

Manufacturers seeking to utilize their existing systems that capture coolant heat before the engine is fully warmed-up and transfer this heat to the engine oil and transmission fluid would remain eligible to seek credits through the alternative method application process outlined in § 86.1869–12(d). These technologies may provide some benefit, however, as noted above as these system designs remove heat that is needed to warmup the engine may be less effective than those that capture and utilize exhaust waste heat.

VIII. Public Participation

NHTSA requests comments on all aspects of this NPRM. This section describes how you can participate in this process.

How do I prepare and submit comments?

Your comments must be written and in English.⁵⁵² To ensure that your comments are correctly filed in the docket, please include the docket number NHTSA–2021–0053 in your comments. Your comments must not be more than 15 pages long.⁵⁵³ NHTSA established this limit to encourage you to write your primary comments in a concise fashion. However, you may attach necessary additional documents to your comments, and there is no limit on the length of the attachments. If you are submitting comments electronically as a PDF (Adobe) file, we ask that the documents please be scanned using the Optical Character Recognition (OCR) process, thus allowing NHTSA to search and copy certain portions of your submissions.⁵⁵⁴ Please note that pursuant to the Data Quality Act, in order for substantive data to be relied upon and used by the agency, it must meet the information quality standards set forth in the OMB and DOT Data Quality Act guidelines. Accordingly, we encourage you to consult the guidelines in preparing your comments. OMB’s

⁵⁵⁰ Rugh, J., Chaney, L., Lustbader, J., and Meyer, J., “Reduction in Vehicle Temperatures and Fuel Use from Cabin Ventilation, Solar-Reflective Paint, and a New Solar-Reflective Glazing,” SAE Technical Paper 2007–01–1194, 2007.

⁵⁵¹ “Final Rulemaking for 2017–2025 Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards” August 2012. NHTSA and EPA. https://www.nhtsa.gov/sites/nhtsa.gov/files/joint_final_tsd.pdf. Last Accessed June 6, 2021.

⁵⁵² 49 CFR 553.21.

⁵⁵³ *Id.*

⁵⁵⁴ Optical character recognition (OCR) is the process of converting an image of text, such as a scanned paper document or electronic fax file, into computer-editable text.

guidelines may be accessed at <https://www.gpo.gov/fdsys/pkg/FR-2002-02-22/pdf/R2-59.pdf>. DOT's guidelines may be accessed at <https://www.transportation.gov/dot-information-dissemination-quality-guidelines>.

Tips for Preparing Your Comments

When submitting comments, please remember to:

- Identify the rulemaking by docket number and other identifying information (subject heading, **Federal Register** date and page number).
- Explain why you agree or disagree, suggest alternatives, and substitute language for your requested changes.
- Describe any assumptions and provide any technical information and/or data that you used.
- If you estimate potential costs or burdens, explain how you arrived at your estimate in sufficient detail to allow for it to be reproduced.
- Provide specific examples to illustrate your concerns and suggest alternatives.
- Explain your views as clearly as possible, avoiding the use of profanity or personal threats.
- Make sure to submit your comments by the comment period deadline identified in the **DATES** section above.

How can I be sure that my comments were received?

If you submit your comments to NHTSA's docket by mail and wish DOT Docket Management to notify you upon receipt of your comments, please enclose a self-addressed, stamped postcard in the envelope containing your comments. Upon receiving your comments, Docket Management will return the postcard by mail.

How do I submit confidential business information?

If you wish to submit any information any information under a claim of confidentiality, you should submit three copies of your complete submission, including the information you claim to be confidential business information, to the Chief Counsel, NHTSA, at the address given above under **FOR FURTHER INFORMATION CONTACT**. When you send a comment containing confidential business information, you should include a cover letter setting forth the information specified in 49 CFR part 512.

In addition, you should submit a copy from which you have deleted the claimed confidential business information to the Docket by one of the methods set forth above.

Will NHTSA consider late comments?

NHTSA will consider all comments received before the close of business on the comment closing date indicated above under **DATES**. To the extent practicable, we will also consider comments received after that date. If interested persons believe that any information that the agency places in the docket after the issuance of the NPRM affects their comments, they may submit comments after the closing date concerning how the agency should consider that information for the final rule. However, the agency's ability to consider any such late comments in this rulemaking will be limited due to the time frame for issuing a final rule.

If a comment is received too late for us to practicably consider in developing a final rule, we will consider that comment as an informal suggestion for future rulemaking action.

How can I read the comments submitted by other people?

You may read the materials placed in the dockets for this document (e.g., the comments submitted in response to this document by other interested persons) at any time by going to <https://www.regulations.gov>. Follow the online instructions for accessing the dockets. You may also read the materials at the DOT Docket Management Facility by going to the street address given above under **ADDRESSES**.

How do I participate in the public hearings?

NHTSA will hold one virtual public hearing during the public comment period. The agency will announce the specific date and web address for the hearing in a supplemental **Federal Register** notification. The agency will accept oral and written comments to the rulemaking documents and will also accept comments to the Supplemental Environmental Impact Statement (SEIS) at this hearing. The hearing will start at 9 a.m. Eastern standard time and continue until everyone has had a chance to speak.

NHTSA will conduct the hearing informally, and technical rules of evidence will not apply. We will arrange for a written transcript of each hearing to be posted in the dockets as soon as it is available and keep the official record of the hearing open for 30 days following the hearing to allow you to submit supplementary information.

The Draft Supplemental Environmental Impact Statement (SEIS) associated with this proposal has a unique public docket number and is available in Docket No. NHTSA-2021-0054.

Comments on the Draft SEIS can be submitted electronically at <http://www.regulations.gov>, in Docket No. NHTSA-2021-0054. You may also mail or hand deliver comments to Docket Management, U.S. Department of Transportation, 1200 New Jersey Avenue SE, Room W12-140, Washington, DC 20590 (referencing Docket No. NHTSA-2021-0054), between 9 a.m. and 5 p.m., Monday through Friday, except on Federal holidays. To be sure someone is there to help you, please call (202) 366-9322 before coming. All comments and materials received, including the names and addresses of the commenters who submit them, will become part of the administrative record and will be posted on the web at <http://www.regulations.gov>.

IX. Regulatory Notices and Analyses

A. Executive Order 12866, Executive Order 13563

Executive Order 12866, "Regulatory Planning and Review" (58 FR 51735, Oct. 4, 1993), as amended by Executive Order 13563, "Improving Regulation and Regulatory Review" (76 FR 3821, Jan. 21, 2011), provides for making determinations whether a regulatory action is "significant" and therefore subject to the Office of Management and Budget (OMB) review process and to the requirements of the Executive Order. Under these Executive orders, this action is an "economically significant regulatory action" because it is likely to have an annual effect on the economy of \$100 million or more. Accordingly, NHTSA submitted this action to OMB for review and any changes made in response to OMB recommendations have been documented in the docket for this action. The benefits and costs of this proposal are described above and in the Preliminary Regulatory Impact Analysis (PRIA), which is located in the docket and on NHTSA's website.

B. DOT Regulatory Policies and Procedures

This proposal is also significant within the meaning of the Department of Transportation's Regulatory Policies and Procedures. The benefits and costs of the proposal are described above and in the PRIA, which is located in the docket and on NHTSA's website.

C. Executive Order 13990

Executive Order 13990, "Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis" (86 FR 7037, Jan. 25, 2021), directed the immediate review of "The Safer Affordable Fuel-Efficient (SAFE)

Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks” (the 2020 final rule) by July 2021. The Executive order directed that “In considering whether to propose suspending, revising, or rescinding that rule, the agency [*i.e.*, NHTSA] should consider the views of representatives from labor unions, States, and industry.”

This proposal follows the review directed in this Executive order. Promulgated under NHTSA’s statutory authorities, it proposes new CAFE standards for the model years covered by the 2020 final rule for which there is still available lead time to change, and it accounts for the views provided by labor unions, States, and industry.

D. Environmental Considerations

1. National Environmental Policy Act (NEPA)

Concurrently with this NPRM, NHTSA is issuing a Supplemental Environmental Impact Statement (SEIS), pursuant to the National Environmental Policy Act, 42 U.S.C. 4321–4347, and implementing regulations issued by the Council on Environmental Quality (CEQ), 40 CFR part 1500, and NHTSA, 49 CFR part 520. NHTSA prepared the SEIS to analyze and disclose the potential environmental impacts of the proposed CAFE standards and a range of alternatives. The SEIS analyzes direct, indirect, and cumulative impacts and analyzes impacts in proportion to their significance.

The SEIS describes potential environmental impacts to a variety of resources, including fuel and energy use, air quality, climate, land use and development, hazardous materials and regulated wastes, historical and cultural resources, noise, and environmental justice. The SEIS also describes how climate change resulting from global carbon dioxide emissions (including CO₂ emissions attributable to the U.S. light-duty transportation sector under the alternatives considered) could affect certain key natural and human resources. Resource areas are assessed qualitatively and quantitatively, as appropriate, in the SEIS.

NHTSA has considered the information contained in the SEIS as part of developing this proposal. The SEIS is available for public comment; instructions for the submission of comments are included inside the document. NHTSA will simultaneously issue the Final Environmental Impact Statement and Record of Decision, pursuant to 49 U.S.C. 304a(b), unless it is determined that statutory criteria or practicability considerations preclude

simultaneous issuance. For additional information on NHTSA’s NEPA analysis, please see the SEIS.

2. Clean Air Act (CAA) as Applied to NHTSA’s Proposal

The CAA (42 U.S.C. 7401 *et seq.*) is the primary Federal legislation that addresses air quality. Under the authority of the CAA and subsequent amendments, EPA has established National Ambient Air Quality Standards (NAAQS) for six criteria pollutants, which are relatively commonplace pollutants that can accumulate in the atmosphere as a result of human activity. EPA is required to review each NAAQS every five years and to revise those standards as may be appropriate considering new scientific information.

The air quality of a geographic region is usually assessed by comparing the levels of criteria air pollutants found in the ambient air to the levels established by the NAAQS (taking into account, as well, the other elements of a NAAQS: Averaging time, form, and indicator). Concentrations of criteria pollutants within the air mass of a region are measured in parts of a pollutant per million parts (ppm) of air or in micrograms of a pollutant per cubic meter (µg/m³) of air present in repeated air samples taken at designated monitoring locations using specified types of monitors. These ambient concentrations of each criteria pollutant are compared to the levels, averaging time, and form specified by the NAAQS in order to assess whether the region’s air quality is in attainment with the NAAQS.

When the measured concentrations of a criteria pollutant within a geographic region are below those permitted by the NAAQS, EPA designates the region as an attainment area for that pollutant, while regions where concentrations of criteria pollutants exceed Federal standards are called nonattainment areas. Former nonattainment areas that are now in compliance with the NAAQS are designated as maintenance areas. Each State with a nonattainment area is required to develop and implement a State Implementation Plan (SIP) documenting how the region will reach attainment levels within time periods specified in the CAA. For maintenance areas, the SIP must document how the State intends to maintain compliance with the NAAQS. When EPA revises a NAAQS, each State must revise its SIP to address how it plans to attain the new standard.

No Federal agency may “engage in, support in any way or provide financial assistance for, license or permit, or approve” any activity that does not

“conform” to a SIP or Federal Implementation Plan after EPA has approved or promulgated it.⁵⁵⁵ Further, no Federal agency may “approve, accept, or fund” any transportation plan, program, or project developed pursuant to title 23 or chapter 53 of title 49, U.S.C., unless the plan, program or project has been found to “conform” to any applicable implementation plan in effect.⁵⁵⁶ The purpose of these conformity requirements is to ensure that Federally sponsored or conducted activities do not interfere with meeting the emissions targets in SIPs, do not cause or contribute to new violations of the NAAQS, and do not impede the ability of a State to attain or maintain the NAAQS or delay any interim milestones. EPA has issued two sets of regulations to implement the conformity requirements:

(1) The Transportation Conformity Rule⁵⁵⁷ applies to transportation plans, programs, and projects that are developed, funded, or approved under title 23 or chapter 53 of title 49, U.S.C.

(2) The General Conformity Rule⁵⁵⁸ applies to all other Federal actions not covered under transportation conformity. The General Conformity Rule establishes emissions thresholds, or de minimis levels, for use in evaluating the conformity of an action that results in emissions increases.⁵⁵⁹ If the net increases of direct and indirect emissions exceed any of these thresholds, and the action is not otherwise exempt, then a conformity determination is required. The conformity determination can entail air quality modeling studies, consultation with EPA and State air quality agencies, and commitments to revise the SIP or to implement measures to mitigate air quality impacts.

The proposed CAFE standards and associated program activities are not developed, funded, or approved under title 23 or chapter 53 of title 49, U.S.C. Accordingly, this action and associated program activities are not subject to transportation conformity. Under the General Conformity Rule, a conformity determination is required where a Federal action would result in total direct and indirect emissions of a criteria pollutant or precursor originating in nonattainment or maintenance areas equaling or exceeding the rates specified in 40 CFR 93.153(b)(1) and (2). As explained

⁵⁵⁵ 42 U.S.C. 7506(c)(1).

⁵⁵⁶ 42 U.S.C. 7506(c)(2).

⁵⁵⁷ 40 CFR part 51, subpart T, and part 93, subpart A.

⁵⁵⁸ 40 CFR part 51, subpart W, and part 93, subpart B.

⁵⁵⁹ 40 CFR 93.153(b).

below, NHTSA's proposed action results in neither direct nor indirect emissions as defined in 40 CFR 93.152.

The General Conformity Rule defines direct emissions as "those emissions of a criteria pollutant or its precursors that are caused or initiated by the Federal action and originate in a nonattainment area and occur at the same time and place as the action and are reasonably foreseeable."⁵⁶⁰ NHTSA's proposed action would set fuel economy standards for light-duty vehicles. It therefore would not cause or initiate direct emissions consistent with the meaning of the General Conformity Rule.⁵⁶¹ Indeed, the proposal in aggregate reduces emissions, and to the degree the model predicts small (and time-limited) increases, these increases are based on a theoretical response by individuals to fuel economy prices and savings, which are at best indirect.

Indirect emissions under the General Conformity Rule are those emissions of a criteria pollutant or its precursors: That are caused or initiated by the Federal action and originate in the same nonattainment or maintenance area but occur at a different time or place as the action; that are reasonably foreseeable; that the agency can practically control; and for which the agency has continuing program responsibility.⁵⁶² Each element of the definition must be met to qualify as indirect emissions. NHTSA has determined that, for purposes of general conformity, emissions (if any) that may result from the proposed fuel economy standards would not be caused by NHTSA's action, but rather would occur because of subsequent activities the agency cannot practically control. "[E]ven if a Federal licensing, rulemaking, or other approving action is a required initial step for a subsequent activity that causes emissions, such initial steps do not mean that a Federal agency can practically control any resulting emissions."⁵⁶³

As the CAFE program uses performance-based standards, NHTSA cannot control the technologies vehicle manufacturers use to improve the fuel economy of passenger cars and light trucks. Furthermore, NHTSA cannot control consumer purchasing (which

affects average achieved fleetwide fuel economy) and driving behavior (*i.e.*, operation of motor vehicles, as measured by VMT). It is the combination of fuel economy technologies, consumer purchasing, and driving behavior that results in criteria pollutant or precursor emissions. For purposes of analyzing the environmental impacts of the proposal and alternatives under NEPA, NHTSA has made assumptions and estimates regarding all of these factors. The agency's SEIS projects that increases in air toxics and criteria pollutants would occur in some nonattainment areas under certain alternatives in the near term, although over the longer term, all action alternatives see improvements. However, the proposed standards and alternatives do not mandate specific manufacturer decisions, consumer purchasing, or driver behavior, and NHTSA cannot practically control any of them.⁵⁶⁴

In addition, NHTSA does not have the statutory authority to control the actual VMT by drivers. As the extent of emissions depends directly on the operation of motor vehicles, changes in any emissions that could result from NHTSA's proposed standards are not changes the agency can practically control or for which the agency has continuing program responsibility. Therefore, the proposed standards and alternative standards considered by NHTSA would not cause indirect emissions under the General Conformity Rule, and a general conformity determination is not required.

3. National Historic Preservation Act (NHPA)

The NHPA (54 U.S.C. 300101 *et seq.*) sets forth Government policies and procedures regarding "historic properties"—that is, districts, sites, buildings, structures, and objects included on or eligible for the National Register of Historic Places. Section 106 of the NHPA requires Federal agencies to "take into account" the effects of their actions on historic properties.⁵⁶⁵ NHTSA concludes that the NHPA is not applicable to this proposal because the promulgation of CAFE standards for light-duty vehicles is not the type of activity that has the potential to cause effects on historic properties. However, NHTSA includes a brief, qualitative discussion of the impacts of the

alternatives on historical and cultural resources in the SEIS.

4. Fish and Wildlife Conservation Act (FWCA)

The FWCA (16 U.S.C. 2901 *et seq.*) provides financial and technical assistance to States for the development, revision, and implementation of conservation plans and programs for nongame fish and wildlife. In addition, the Act encourages all Federal departments and agencies to utilize their statutory and administrative authorities to conserve and to promote conservation of nongame fish and wildlife and their habitats. NHTSA concludes that the FWCA does not apply to this proposal because it does not involve the conservation of nongame fish and wildlife and their habitats.

5. Coastal Zone Management Act (CZMA)

The Coastal Zone Management Act (16 U.S.C. 1451 *et seq.*) provides for the presentation, protection, development, and (where possible) restoration and enhancement of the Nation's coastal zone resources. Under the statute, States are provided with funds and technical assistance in developing coastal zone management programs. Each participating State must submit its program to the Secretary of Commerce for approval. Once the program has been approved, any activity of a Federal agency, either within or outside of the coastal zone, that affects any land or water use or natural resource of the coastal zone must be carried out in a manner that is consistent, to the maximum extent practicable, with the enforceable policies of the State's program.⁵⁶⁶

NHTSA concludes that the CZMA does not apply to this proposal because it does not involve an activity within, or outside of, the Nation's coastal zones that affects any land or water use or natural resource of the coastal zone. NHTSA has, however, conducted a qualitative review in its SEIS of the related direct, indirect, and cumulative impacts, positive or negative, of all the alternatives on potentially affected resources, including coastal zones.

6. Endangered Species Act (ESA)

Under Section 7(a)(2) of the ESA, Federal agencies must ensure that actions they authorize, fund, or carry out are "not likely to jeopardize the continued existence" of any federally listed threatened or endangered species or result in the destruction or adverse

⁵⁶⁰ 40 CFR 93.152.

⁵⁶¹ *Dep't of Transp. v. Pub. Citizen*, 541 U.S. at 772 ("[T]he emissions from the Mexican trucks are not 'direct' because they will not occur at the same time or at the same place as the promulgation of the regulations.") NHTSA's action is to establish fuel economy standards for MYs 2024–2026 passenger cars and light trucks; an emissions increase, if any, would occur in a different place and well after promulgation of an eventual final rule.

⁵⁶² 40 CFR 93.152.

⁵⁶³ *Id.*

⁵⁶⁴ *See, e.g., Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752, 772–73 (2004); *South Coast Air Quality Management District v. Federal Energy Regulatory Commission*, 621 F.3d 1085, 1101 (9th Cir. 2010).

⁵⁶⁵ Section 106 is codified at 54 U.S.C. 306108. Implementing regulations for the Section 106 process are located at 36 CFR part 800.

⁵⁶⁶ 16 U.S.C. 1456(c)(1)(A).

modification of the designated critical habitat of these species.⁵⁶⁷ If a Federal agency determines that an agency action may affect a listed species or designated critical habitat, it must initiate consultation with the appropriate Service—the U.S. Fish and Wildlife Service of the Department of the Interior and/or the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service of the Department of Commerce, depending on the species involved—in order to ensure that the action is not likely to jeopardize the species or destroy or adversely modify designated critical habitat.⁵⁶⁸ Under this standard, the Federal agency taking action evaluates the possible effects of its action and determines whether to initiate consultation.⁵⁶⁹

Pursuant to Section 7(a)(2) of the ESA, NHTSA has considered the effects of the proposed standards and has reviewed applicable ESA regulations, case law, and guidance to determine what, if any, impact there might be to listed species or designated critical habitat. NHTSA has considered issues related to emissions of CO₂ and other GHGs, and issues related to non-GHG emissions. Based on this assessment, NHTSA determines that the action of setting CAFE standards does not require consultation under Section 7(a)(2) of the ESA. Accordingly, NHTSA has concluded its review of this action under Section 7 of the ESA.

7. Floodplain Management (Executive Order 11988 and DOT Order 5650.2)

These orders require Federal agencies to avoid the long- and short-term adverse impacts associated with the occupancy and modification of floodplains, and to restore and preserve the natural and beneficial values served by floodplains. Executive Order 11988 also directs agencies to minimize the impacts of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains through evaluating the potential effects of any actions the agency may take in a floodplain and ensuring that its program planning and budget requests reflect consideration of flood hazards and floodplain management. DOT Order 5650.2 sets forth DOT policies and procedures for implementing Executive Order 11988. The DOT order requires that the agency determine if a proposed action is within the limits of a base floodplain, meaning it is encroaching on the floodplain, and whether this

encroachment is significant. If significant, the agency is required to conduct further analysis of the proposed action and any practicable alternatives. If a practicable alternative avoids floodplain encroachment, then the agency is required to implement it.

In this proposal, NHTSA is not occupying, modifying, and/or encroaching on floodplains. NHTSA therefore concludes that the orders do not apply to this proposal. NHTSA has, however, conducted a review of the alternatives on potentially affected resources, including floodplains, in its SEIS.

8. Preservation of the Nation’s Wetlands (Executive Order 11990 and DOT Order 5660.1a)

These orders require Federal agencies to avoid, to the extent possible, undertaking or providing assistance for new construction located in wetlands unless the agency head finds that there is no practicable alternative to such construction and that the proposed action includes all practicable measures to minimize harms to wetlands that may result from such use. Executive Order 11990 also directs agencies to take action to minimize the destruction, loss, or degradation of wetlands in “conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities.” DOT Order 5660.1a sets forth DOT policy for interpreting Executive Order 11990 and requires that transportation projects “located in or having an impact on wetlands” should be conducted to assure protection of the Nation’s wetlands. If a project does have a significant impact on wetlands, an EIS must be prepared.

NHTSA is not undertaking or providing assistance for new construction located in wetlands. NHTSA therefore concludes that these orders do not apply to this proposal. NHTSA has, however, conducted a review of the alternatives on potentially affected resources, including wetlands, in its SEIS.

9. Migratory Bird Treaty Act (MTBA), Bald and Golden Eagle Protection Act (BGEPA), Executive Order 13186

The MTBA (16 U.S.C. 703–712) provides for the protection of certain migratory birds by making it illegal for anyone to “pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer for barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for

transportation, carry or cause to be carried, or receive for shipment, transportation, carriage, or export” any migratory bird covered under the statute.⁵⁷⁰

The BGEPA (16 U.S.C. 668–668d) makes it illegal to “take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import” any bald or golden eagles.⁵⁷¹ Executive Order 13186, “Responsibilities of Federal Agencies to Protect Migratory Birds,” helps to further the purposes of the MBTA by requiring a Federal agency to develop a Memorandum of Understanding (MOU) with the Fish and Wildlife Service when it is taking an action that has (or is likely to have) a measurable negative impact on migratory bird populations.

NHTSA concludes that the MBTA, BGEPA, and Executive Order 13186 do not apply to this proposal because there is no disturbance, take, measurable negative impact, or other covered activity involving migratory birds or bald or golden eagles involved in this rulemaking.

10. Department of Transportation Act (Section 4(f))

Section 4(f) of the Department of Transportation Act of 1966 (49 U.S.C. 303), as amended, is designed to preserve publicly owned park and recreation lands, waterfowl and wildlife refuges, and historic sites. Specifically, Section 4(f) provides that DOT agencies cannot approve a transportation program or project that requires the use of any publicly owned land from a public park, recreation area, or wildlife or waterfowl refuge of national, State, or local significance, unless a determination is made that:

(1) There is no feasible and prudent alternative to the use of land, and

(2) The program or project includes all possible planning to minimize harm to the property resulting from the use.

These requirements may be satisfied if the transportation use of a Section 4(f) property results in a de minimis impact on the area.

NHTSA concludes that Section 4(f) does not apply to this proposal because this rulemaking is not an approval of a transportation program nor project that requires the use of any publicly owned land.

⁵⁶⁷ 16 U.S.C. 1536(a)(2).

⁵⁶⁸ See 50 CFR 402.14.

⁵⁶⁹ See 51 FR 9926, 19949 (Jun. 3, 1986).

⁵⁷⁰ 16 U.S.C. 703(a).

⁵⁷¹ 16 U.S.C. 668(a).

11. Executive Order 12898: “Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations”

Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” (Feb. 16, 1994), directs Federal agencies to “promote nondiscrimination in federal programs substantially affecting human health and the environment, and provide minority and low-income communities access to public information on, and an opportunity for public participation in, matters relating to human health or the environment.” E.O. 12898 also directs agencies to identify and consider any disproportionately high and adverse human health or environmental effects that their actions might have on minority and low-income communities and provide opportunities for community input in the NEPA process. CEQ has provided agencies with general guidance on how to meet the requirements of the E.O. as it relates to NEPA. A White House Environmental Justice Interagency Council established under E.O. 14008, “Tackling the Climate Crisis at Home and Abroad,” is expected to advise CEQ on ways to update E.O. 12898, including the expansion of environmental justice advice and recommendations. The White House Environmental Justice Interagency Council will advise on increasing environmental justice monitoring and enforcement.

Additionally, the 2021 DOT Order 5610.2(c), “U.S. Department of Transportation Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” (May 14, 2021), describes the process for DOT agencies to incorporate environmental justice principles in programs, policies, and activities. The DOT’s Environmental Justice Strategy specifies that environmental justice and fair treatment of all people means that no population be forced to bear a disproportionate burden due to transportation decisions, programs, and policies. It also defines the term *minority* and *low-income* in the context of DOT’s environmental justice analyses. *Minority* is defined as a person who is Black, Hispanic or Latino, Asian American, American Indian or Alaskan Native, or Native Hawaiian or other Pacific Islander. *Low-income* is defined

as a person whose household income is at or below the Department of Health and Human Services poverty guidelines. Low-income and minority populations may live in geographic proximity or be geographically dispersed/transient. In 2021, DOT reviewed and updated its environmental justice strategy to ensure that it continues to reflect its commitment to environmental justice principles and integrating those principles into DOT programs, policies, and activities.

Section VI and the SEIS discuss NHTSA’s consideration of environmental justice issues associated with this proposal.

12. Executive Order 13045: “Protection of Children From Environmental Health Risks and Safety Risks”

This action is subject to Executive Order 13045 (62 FR 19885, Apr. 23, 1997) because it is an economically significant regulatory action as defined by E.O. 12866, and NHTSA has reason to believe that the environmental health and safety risks related to this action, although small, may have a disproportionate effect on children. Specifically, children are more vulnerable to adverse health effects related to mobile source emissions, as well as to the potential long-term impacts of climate change. Pursuant to E.O. 13045, NHTSA must prepare an evaluation of the environmental health or safety effects of the planned regulation on children and an explanation of why the planned regulation is preferable to other potentially effect and reasonably feasible alternatives considered by NHTSA. Further, this analysis may be included as part of any other required analysis.

All of the action alternatives would reduce CO₂ emissions relative to the baseline and thus have positive effects on mitigating global climate change, and thus environmental and health effects associated with climate change. While environmental and health effects associated with criteria pollutant and toxic air pollutant emissions vary over time and across alternatives, negative effects, when estimated, are extremely small. This preamble and the SEIS discuss air quality, climate change, and their related environmental and health effects, noting where these would disproportionately affect children. In addition, Section VI of this preamble explains why NHTSA believes that the

proposed standards are preferable to other alternatives considered.

E. Regulatory Flexibility Act

Pursuant to the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*, as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996), whenever an agency is required to publish a notice of proposed rulemaking or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities (*i.e.*, small businesses, small organizations, and small governmental jurisdictions). No regulatory flexibility analysis is required if the head of an agency certifies the rule will not have a significant economic impact on a substantial number of small entities. SBREFA amended the Regulatory Flexibility Act to require Federal agencies to provide a statement of the factual basis for certifying that a rule will not have a significant economic impact on a substantial number of small entities.

NHTSA has considered the impacts of this proposed rule under the Regulatory Flexibility Act and certifies that this proposed rule would not have a significant economic impact on a substantial number of small entities. The following is NHTSA’s statement providing the factual basis for this certification pursuant to 5 U.S.C. 605(b).

Small businesses are defined based on the North American Industry Classification System (NAICS) code.⁵⁷² One of the criteria for determining size is the number of employees in the firm. For establishments primarily engaged in manufacturing or assembling automobiles, as well as light duty trucks, the firm must have less than 1,500 employees to be classified as a small business. This rule would affect motor vehicle manufacturers. As shown in Table IX–1, the agency have identified 13 small manufacturers of passenger cars, light trucks, and SUVs of electric, hybrid, and internal combustion engines. NHTSA acknowledges that some newer manufacturers may not be listed. However, those new manufacturers tend to have transportation products that are not part of the light-duty vehicle fleet and have yet to start production of light-duty vehicles. Moreover, NHTSA does not believe that there are a “substantial number” of these newer companies.⁵⁷³

⁵⁷² Classified in NAICS under Subsector 336—Transportation Equipment Manufacturing for Automobile Manufacturing (336111), Light Truck

(336112), and Heavy Duty Truck Manufacturing (336120). <https://www.sba.gov/document/support-table-size-standards>.

⁵⁷³ 5 U.S.C. 605(b).

Table IX-1 – Small Domestic Vehicle Manufacturers

Manufacturers	Founded	Employees ⁵⁷⁴	Estimated Annual Production ⁵⁷⁵	Sale Price per Unit
Karma Automotive	2014	< 1,000	<100	\$95,000 to \$120,000
BXR Motors	2008	< 10	< 100	\$155,000 to \$185,000
Falcon Motorsports	2009	< 10	< 100	\$300,000 to \$400,000
Lucra Cars	2005	< 50	< 100	\$70,000 to \$220,000
Lyons Motor Car	2012	< 10	< 100	\$1,400,000
Rezvani Motors	2014	< 10	< 100	\$155,000 to \$260,000
Rossion Automotive	2007	< 50	< 100	\$90,000
Saleen	1984	< 200	< 100	\$100,000
Shelby American	1962	< 200	< 100	\$60,000 to \$250,000
Panoz	1988	< 50	< 100	\$155,000 to \$175,000
Faraday Future	2014	< 1,000	0	\$200,000 to \$300,000
SF Motors	2016	< 500	0	N/A
Workhorse Group	2007	< 200	0	\$52,000
Lordstown Motors	2019	<1,000	0	\$52,500

NHTSA believes that the proposed rulemaking would not have a significant economic impact on the small vehicle manufacturers because under 49 CFR part 525, passenger car manufacturers building fewer than 10,000 vehicles per year can petition NHTSA to have alternative standards set for those manufacturers. Listed manufacturers producing ICE vehicles do not currently meet the standard and must already petition the agency for relief. If the standard is raised, it has no meaningful impact on these manufacturers—they still must go through the same process and petition for relief. Given there already is a mechanism for relieving burden on small businesses, which is the purpose of the Regulatory Flexibility Act, a regulatory flexibility analysis was not prepared.

Further, small manufacturers of electric vehicles would not face a significant economic impact. The method for earning credits applies equally across manufacturers and does not place small entities at a significant competitive disadvantage. In any event, even if the rule had a “significant economic impact” on these small EV manufacturers, the amount of these companies is not “a substantial number.”⁵⁷⁶ For these reasons, their existence does not alter the agency’s analysis of the applicability of the Regulatory Flexibility Act.

⁵⁷⁴ Estimated number of employees as of June 2021, source: *LinkedIn.com* and other websites reporting company profiles.

⁵⁷⁵ Rough estimate of light duty vehicle production for model year 2020.

⁵⁷⁶ 5 U.S.C. 605.

F. Executive Order 13132 (Federalism)

Executive Order 13132 requires Federal agencies to develop an accountable process to ensure “meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications. The order defines the term “[p]olicies that have federalism implications” to include regulations that have “substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.” Under the order, agencies may not issue a regulation that has federalism implications, that imposes substantial direct compliance costs, unless the Federal Government provides the funds necessary to pay the direct compliance costs incurred by the State and local governments, or the agencies consult with State and local officials early in the process of developing the proposed regulation. NHTSA has complied with the order’s requirements and consulted directly with the California Air Resources Board in developing a number of elements of this proposal. This proposal would not impose direct compliance costs on State or local governments, because the only entities directly subject to the proposal are vehicle manufacturers.

With regard to the federalism implications of the proposal, NHTSA has spoken to this issue separately at 86 FR 25980 (May 12, 2021), “Corporate Average Fuel Economy (CAFE) Preemption,” notice of proposed rulemaking. Comments on preemption

of State and local laws related to fuel economy standards that are received to *this* NPRM will be deemed late comments to *that* NPRM (the comment period for which has closed) and will be considered as time permits.

G. Executive Order 12988 (Civil Justice Reform)

Pursuant to Executive Order 12988, “Civil Justice Reform” (61 FR 4729, Feb. 7, 1996), NHTSA has considered whether this rulemaking would have any retroactive effect. This proposal does not have any retroactive effect.

H. Executive Order 13175 (Consultation and Coordination With Indian Tribal Governments)

This proposal does not have tribal implications, as specified in Executive Order 13175 (65 FR 67249, Nov. 9, 2000). This proposal, if finalized, would be implemented at the Federal level and would impose compliance costs only on vehicle manufacturers. Thus, Executive Order 13175, which requires consultation with Tribal officials when agencies are developing policies that have “substantial direct effects” on Tribes and Tribal interests, should not apply to this proposal.

I. Unfunded Mandates Reform Act

Section 202 of the Unfunded Mandates Reform Act of 1995 (UMRA) requires Federal agencies to prepare a written assessment of the costs, benefits, and other effects of a proposed or final rule that includes a Federal mandate likely to result in the expenditure by State, local, or Tribal governments, in the aggregate, or by the private sector, of

more than \$100 million in any one year (adjusted for inflation with base year of 1995). Adjusting this amount by the implicit gross domestic product price deflator for 2018 results in \$153 million ($110.296/71.868 = 1.53$).⁵⁷⁷ Before promulgating a rule for which a written statement is needed, section 205 of UMRA generally requires NHTSA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objective of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows NHTSA to adopt an alternative other than the least costly, most cost-effective, or least burdensome alternative if the agency publishes with the rule an explanation of why that alternative was not adopted.

This proposal would not result in the expenditure by State, local, or Tribal governments, in the aggregate, of more than \$153 million annually, but it will result in the expenditure of that magnitude by vehicle manufacturers and/or their suppliers. In developing this proposal, NHTSA considered alternative fuel economy standards both lower and higher than the preferred alternative. NHTSA tentatively concludes that the preferred alternative represents the least costly, most cost-effective, and least burdensome alternative that achieves the objectives of the proposal.

J. Regulation Identifier Number

The Department of Transportation assigns a regulation identifier number (RIN) to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. The RIN contained in the heading at the beginning of this document may be used to find this action in the Unified Agenda.

K. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act (NTTAA) requires NHTSA and EPA to evaluate and use existing voluntary consensus standards in its regulatory activities unless doing so would be inconsistent with applicable law (*e.g.*, the statutory provisions regarding

NHTSA's vehicle safety authority) or otherwise impractical.⁵⁷⁸

Voluntary consensus standards are technical standards developed or adopted by voluntary consensus standards bodies. Technical standards are defined by the NTTAA as "performance-based or design-specific technical specification and related management systems practices." They pertain to "products and processes, such as size, strength, or technical performance of a product, process or material."

Examples of organizations generally regarded as voluntary consensus standards bodies include the American Society for Testing and Materials (ASTM), the Society of Automotive Engineers (SAE), and the American National Standards Institute (ANSI). If NHTSA does not use available and potentially applicable voluntary consensus standards, it is required by the Act to provide Congress, through OMB, an explanation of the reasons for not using such standards. There are currently no consensus standards that NHTSA administers relevant to this proposed CAFE standards.

L. Department of Energy Review

In accordance with 49 U.S.C. 32902(j)(1), NHTSA submitted this rule to the Department of Energy for review. The Department of Energy concluded that the standard would not adversely affect its conservation goals.

M. Paperwork Reduction Act

Under the procedures established by the Paperwork Reduction Act of 1995 (PRA) (44 U.S.C. 3501, *et seq.*), Federal agencies must obtain approval from the OMB for each collection of information they conduct, sponsor, or require through regulations. A person is not required to respond to a collection of information by a Federal agency unless the collection displays a valid OMB control number.

NHTSA is seeking OMB's approval for a revision to NHTSA's existing information collection for its reporting requirements under the Corporate Average Fuel Economy (CAFE) program (OMB control number 2127-0019). These reporting requirements are necessary to ensure compliance with its CAFE program. As described in this NPRM, NHTSA is proposing changes to the CAFE program's standardized reporting templates for manufacturers to submit information to NHTSA on their vehicle production and CAFE credits used to comply with the CAFE standards. These changes, if adopted,

will result in additional burden to respondents.

The Information Collection Request (ICR) for a revision of an existing information collection described below has been forwarded to OMB for review and comment. In compliance with the requirements of the PRA, NHTSA asks for public comments on the following proposed collection of information for which the agency is seeking approval from OMB.

Title: Corporate Average Fuel Economy.

OMB Control Number: 2127-0019.

Form Numbers: NHTSA Form 1474 (CAFE Projections Reporting Template), NHTSA Form 1475 (CAFE Credit Template) and NHTSA Form 1621 (CAFE Credit Trade Template).

Type of Request: Revision of a currently approved collection.

Type of Review Requested: Regular.

Requested Expiration Date of Approval: Three years from date of approval.

Summary of the Collection of Information: As established by Congress under EPCA, and later amended by EISA, and implemented through NHTSA's regulations for automobile manufacturers complying with CAFE standards prescribed in 49 U.S.C. 32902, many types of reporting provisions exist as a part of the CAFE program. These reporting provisions are necessary for NHTSA to ensure manufacturers comply with CAFE standards and other CAFE requirements. Manufacturers are required to submit information on CAFE standards, exemptions, vehicles, technologies, and submit CAFE compliance test results. Manufacturers also provide information on any of the flexibilities and incentives they use during the model year to comply with CAFE standards.

More specifically, the current collection includes burden hours for small volume manufacturers to request exemptions allowing them to comply with lower alternative CAFE standards to accommodate mainly the sale of exotic sportscars. It also includes hours for manufacturers reporting information on corporate mergers and splits. Other required reporting includes manufacturers submitting information to NHTSA on CAFE credit transactions, plans and other documents associated with the costs of credit trades. In the April 30, 2020, final rule, to help manufacturers better organize credit information, NHTSA also issued a new standardized template for manufacturers to report credit transactions and to prepare credit trade documents. The template could generate the necessary documents that both parties would sign

⁵⁷⁷ Bureau of Economic Analysis, National Income and Product Accounts (NIPA), Table 1.1.9 Implicit Price Deflators for Gross Domestic Product. https://bea.gov/iTable/index_nipa.cfm.

⁵⁷⁸ 15 U.S.C. 272.

to facilitate credit trades as well as simplified the organization of other types of credit transactions in addition to correctly performing the necessary mathematical calculations. Finally, the current collection also includes hours for manufacturers to provide pre-model year (PMY) and mid-model year (MMY) CAFE reports to NHTSA and a standardized reporting template adopted in the April 30, 2020, final rule to help manufacturer submit these reports. PMY and MMY reports contain early projections of manufacturers' vehicle and fleet level data demonstrating how they intend to comply with CAFE standards.

As part of this rulemaking, NHTSA is amending its previously approved collection for CAFE-related collections of information. NHTSA is proposing making changes to its reporting template for PMY and MMY reports and adding a new template for reporting the cost of credit trades and is proposing to add the burden hours for these changes to this collection.

Manufacturers identified several changes that were needed to the CAFE reporting template to accommodate different types of vehicles which

NHTSA incorporated along with other functional changes.

Manufacturers have also expressed concern that disclosing trading terms may not be as simple as a spot purchase at a given price. As discussed in the April 30, 2020, final rule, manufacturers contend that a number of transactions for both CAFE and CO₂ credits involve a range of complexity due to numerous factors that are reflective of the marketplace, such as the volume of credits, compliance category, credit expiration date, a seller's compliance strategy, and even the CAFE penalty rate in effect at that time. In addition, manufacturers have a range of partnerships and cooperative agreements with their own competitors. Credit transactions can be an offshoot of these broader relationships, and difficult to price separately and independently. Thus, manufacturers argue that there may not be a reasonable, or even meaningful, presentation of market information in a transaction price. Therefore, NHTSA has developed a new template for capturing the price of credit trades that includes certain monetary and non-monetary terms of credit trading

contracts. NHTSA proposes that manufacturers start using the new template starting September 1, 2022.

Description of the Need for the Information and the Proposed Use of the Information: Regulated entities are required to respond to inquiries covered by this collection. 49 U.S.C. 32907. 49 CFR parts 525, 534, 536, and 537.

Affected Public: Respondents are manufacturers of engines and vehicles within the North American Industry Classification System (NAICS) and use the coding structure as defined by NAICS including codes 33611, 336111, 336112, 33631, 33631, 33632, 336320, 33635, and 336350 for motor vehicle and parts manufacturing.

Frequency of response: Variable, based on compliance obligation. Please see PRA supporting documentation in the docket for more detailed information.

Average burden time per response: Variable, based on compliance obligation. Please see PRA supporting documentation in the docket for more detailed information.

Number of respondents: 23.

1. Estimated Total Annual Burden Hours and Costs

Table IX-2 – Estimated Burden for Reporting Requirements

Applies to:	Manufacturer		Government	
	Hours	Cost	Hours	Cost
Prior Collection	4020.4	\$208,042.23	3,038.00	\$141,246.78
Current Collection	4286.7	\$224,964.52	3,038.00	\$154,490.83
Difference	266.3	\$16,921.98	0	\$13,244.05

Public Comments Invited: You are asked to comment on any aspects of this information collection, including (a) whether the proposed collection of information is necessary for the proper performance of the functions of the Department, including whether the information will have practical utility; (b) the accuracy of the Department's estimate of the burden of the proposed information collection; (c) ways to enhance the quality, utility and clarity of the information to be collected; and (d) ways to minimize the burden of the collection of information on respondents, including the use of automated collection techniques or other forms of information technology.

Please submit any comments, identified by the docket number in the heading of this document, by the methods described in the **ADDRESSES** section of this document to NHTSA and

OMB. Although comments may be submitted during the entire comment period, comments received within 30 days of publication are most useful.

N. Privacy Act

In accordance with 5 U.S.C. 553(c), NHTSA is soliciting comments from the public to inform the rulemaking process better. These comments will post, without edit, to www.regulations.gov, as described in DOT's systems of records notice, DOT/ALL-14 FDMS, accessible through <https://www.transportation.gov/individuals/privacy/privacy-act-system-records-notices>. In order to facilitate comment tracking and response, NHTSA encourages commenters to provide their names or the names of their organizations; however, submission of names is completely optional.

List of Subjects in 49 CFR Parts 531, 533, 536, and 537

Fuel economy, Reporting and recordkeeping requirements.

Regulatory Text

For the reasons discussed in the preamble, the National Highway Traffic Safety Administration proposes to amend 49 CFR chapter V as follows:

- 1. Revise part 531 to read as follows:

PART 531—PASSENGER AUTOMOBILE AVERAGE FUEL ECONOMY STANDARDS

- Sec.
- 531.1 Scope.
- 531.2 Purpose.
- 531.3 Applicability.
- 531.4 Definitions.
- 531.5 Fuel economy standards.
- 531.6 Measurement and calculation procedures.

Appendix A to Part 531—Example of Calculating Compliance Under § 531.5(c)

Authority: 49 U.S.C. 32902; delegation of authority at 49 CFR 1.95.

§ 531.1 Scope.

This part establishes average fuel economy standards pursuant to section 502 (a) and (c) of the Motor Vehicle Information and Cost Savings Act, as amended, for passenger automobiles.

§ 531.2 Purpose.

The purpose of this part is to increase the fuel economy of passenger automobiles by establishing minimum

levels of average fuel economy for those vehicles.

§ 531.3 Applicability.

This part applies to manufacturers of passenger automobiles.

§ 531.4 Definitions.

(a) *Statutory terms.* (1) The terms *average fuel economy*, *manufacture*, *manufacturer*, and *model year* are used as defined in section 501 of the Act.

(2) The terms *automobile* and *passenger automobile* are used as defined in section 501 of the Act and in accordance with the determination in part 523 of this chapter.

(b) *Other terms.* As used in this part, unless otherwise required by the context—

(1) *Act* means the Motor Vehicle Information and Cost Savings Act, as amended by Pub. L. 94–163.

(2) [Reserved]

§ 531.5 Fuel economy standards.

(a) Except as provided in paragraph (f) of this section, each manufacturer of passenger automobiles shall comply with the fleet average fuel economy standards in Table 1 to this paragraph (a), expressed in miles per gallon, in the model year specified as applicable:

Table 1 to Paragraph (a)

Model year	Average fuel economy standard (miles per gallon)
1978	18.0
1979	19.0
1980	20.0
1981	22.0
1982	24.0
1983	26.0
1984	27.0
1985	27.5
1986	26.0
1987	26.0
1988	26.0
1989	26.5
1990 - 2010	27.5

(b) For model year 2011, a manufacturer's passenger automobile

fleet shall comply with the fleet average fuel economy level calculated for that

model year according to Figure 1 to this

paragraph (b) and the appropriate values in Table 2 to this paragraph (b).

Figure 1 to Paragraph (b)

$$Required_Fuel_Economy_Level = \frac{N}{\sum_i \frac{N_i}{T_i}}$$

Where:

N is the total number (sum) of passenger automobiles produced by a manufacturer;

N_i is the number (sum) of the *i*th passenger automobile model produced by the manufacturer; and
T_i is the fuel economy target of the *i*th model passenger automobile, which is

determined according to the following formula, rounded to the nearest hundredth:

$$\frac{1}{\frac{1}{a} + \left(\frac{1}{b} - \frac{1}{a}\right) \frac{e^{(x-c)d}}{1 + e^{(x-c)d}}}$$

Where:

Parameters *a*, *b*, *c*, and *d* are defined in Table 2 of this paragraph (b);
e = 2.718; and

x = footprint (in square feet, rounded to the nearest tenth) of the vehicle model.

Table 2 to Paragraph (b)-Parameters for the Passenger Automobile Fuel Economy Targets

Model year	Parameters			
	<i>a</i> (mpg)	<i>b</i> (mpg)	<i>c</i> (gal/mi/ft ²)	<i>d</i> (gal/mi)
2011	31.20	24.00	51.41	1.91

(c) For model years 2012–2026, a manufacturer’s passenger automobile fleet shall comply with the fleet average

fuel economy level calculated for that model year according to Figure 2 to this

paragraph (c) and the appropriate values in Table 3 to this paragraph (c).

Figure 2 to Paragraph (c)

$$CAFE_{required} = \frac{\sum_i PRODUCTION_i}{\sum_i \frac{PRODUCTION_i}{TARGET_i}}$$

Where:

CAFE_{required} is the fleet average fuel economy standard for a given fleet (domestic passenger automobiles or import passenger automobiles);

Subscript *i* is a designation of multiple groups of automobiles, where each group’s designation, *i.e.*, *i* = 1, 2, 3, etc., represents automobiles that share a unique model type and footprint within

the applicable fleet, either domestic passenger automobiles or import passenger automobiles;
Production_i is the number of passenger automobiles produced for sale in the United States within each *i*th designation, *i.e.*, which share the same model type and footprint; and
TARGET_i is the fuel economy target in miles per gallon (mpg) applicable to the

footprint of passenger automobiles within each *i*th designation, *i.e.*, which share the same model type and footprint, calculated according to Figure 3 to this paragraph (c) and rounded to the nearest hundredth of a mpg, *i.e.*, 35.455 = 35.46 mpg, and the summations in the numerator and denominator are both performed over all models in the fleet in question.

Figure 3 to Paragraph (c)

$$TARGET = \frac{1}{MIN \left[MAX \left(c \times FOOTPRINT + d, \frac{1}{a} \right), \frac{1}{b} \right]}$$

Where:

TARGET is the fuel economy target (in mpg) applicable to vehicles of a given footprint (*FOOTPRINT*, in square feet);

Parameters *a*, *b*, *c*, and *d* are defined in Table 3 to this paragraph (c); and

The *MIN* and *MAX* functions take the minimum and maximum, respectively, of the included values.

**Table 3 to Paragraph (c)—Parameters for the Passenger Automobile Fuel Economy Targets,
MYs 2012-2026**

Model year	Parameters			
	<i>a</i> (mpg)	<i>b</i> (mpg)	<i>c</i> (gal/mi/ft ²)	<i>d</i> (gal/mi)
2012	35.95	27.95	0.0005308	0.006057
2013	36.80	28.46	0.0005308	0.005410
2014	37.75	29.03	0.0005308	0.004725
2015	39.24	29.90	0.0005308	0.003719
2016	41.09	30.96	0.0005308	0.002573
2017	43.61	32.65	0.0005131	0.001896
2018	45.21	33.84	0.0004954	0.001811
2019	46.87	35.07	0.0004783	0.001729
2020	48.74	36.47	0.0004603	0.001643
2021	49.48	37.02	0.000453	0.00162
2022	50.24	37.59	0.000447	0.00159
2023	51.00	38.16	0.000440	0.00157
2024	55.44	41.48	0.000405	0.00144
2025	60.26	45.08	0.000372	0.00133
2026	65.60	49.00	0.000343	0.00122

(d) In addition to the requirements of paragraphs (b) and (c) of this section, each manufacturer shall also meet the

minimum fleet standard for domestically manufactured passenger

automobiles expressed in Table 4 to this paragraph (d):

**Table 4 to Paragraph (d)—Minimum Fuel Economy Standards for Domestically
Manufactured Passenger Automobiles, MYs 2011-2026**

Model year	Minimum standard
2011	27.8
2012	30.7
2013	31.4
2014	32.1
2015	33.3
2016	34.7
2017	36.7
2018	38.0
2019	39.4
2020	40.9
2021	39.9
2022	40.6
2023	41.1
2024	44.4
2025	48.2
2026	52.4

(e) The following manufacturers shall comply with the standards indicated in

paragraphs (e)(1) through (15) of this section for the specified model years:

(1) *Avanti Motor Corporation.*

Table 5 to Paragraph (e)(1)--Average Fuel Economy Standard

Model year	Miles per gallon
1978	16.1
1979	14.5
1980	15.8
1981	18.2
1982	18.2
1983	16.9
1984	16.9
1985	16.9

(2) *Rolls-Royce Motors, Inc.*

Table 6 to Paragraph (e)(1)--Average Fuel Economy Standard

Model year	Miles per gallon
1978	10.7
1979	10.8
1980	11.1

1981	10.7
1982	10.6
1983	9.9
1984	10.0
1985	10.0
1986	11.0
1987	11.2
1988	11.2
1989	11.2
1990	12.7
1991	12.7
1992	13.8
1993	13.8
1994	13.8
1995	14.6
1996	14.6
1997	15.1
1998	16.3
1999	16.3

(3) *Checker Motors Corporation.*

Table 7 to Paragraph (e)(3)--Average Fuel Economy Standard

Model year	Miles per gallon
1978	17.6
1979	16.5
1980	18.5
1981	18.3
1982	18.4

(4) *Aston Martin Lagonda, Inc.*

Table 8 to Paragraph (e)(4)--Average Fuel Economy Standard

Model year	Miles per gallon
1979	11.5
1980	12.1
1981	12.2
1982	12.2
1983	11.3
1984	11.3
1985	11.4

(5) *Excalibur Automobile Corporation.*

Table 9 to Paragraph (e)(5)--Average Fuel Economy Standard

Model year	Miles per gallon
1978	11.5
1979	11.5
1980	16.2
1981	17.9
1982	17.9
1983	16.6
1984	16.6
1985	16.6

(6) *Lotus Cars Ltd.*

Table 10 to Paragraph (e)(6)--Average Fuel Economy Standard

Model year	Miles per gallon
1994	24.2
1995	23.3

(7) *Officine Alfieri Maserati, S.p.A.*

Table 11 to Paragraph (e)(7)--Average Fuel Economy Standard

Model year	Miles per gallon
1978	12.5
1979	12.5

(8) *Lamborghini of North America.*

Table 12 to Paragraph (e)(8)--Average Fuel Economy Standard

Model year	Miles per gallon
1983	13.7
1984	13.7

(9) *LondonCoach Co., Inc.*

Table 13 to Paragraph (e)(9)--Average Fuel Economy Standard

Model year	Miles per gallon
1985	21.0
1986	21.0
1987	21.0

(10) *Automobili Lamborghini S.p.A./
Vector Aeromotive Corporation.*

Table 14 to Paragraph (e)(10)--Average Fuel Economy Standard

Model year	Miles per gallon
1995	12.8
1996	12.6
1997	12.5

(11) *Dutcher Motors, Inc.*

Table 15 to Paragraph (e)(11)--Average Fuel Economy Standard

Model year	Miles per gallon
1986	16.0
1987	16.0
1988	16.0
1992	17.0
1993	17.0
1994	17.0
1995	17.0

(12) *MedNet, Inc.*

Table 16 to Paragraph (e)(12)--Average Fuel Economy Standard

Model year	Miles per gallon
1996	17.0
1997	17.0
1998	17.0

(13) *Vector Aeromotive Corporation.*

Table 17 to Paragraph (e)(13)--Average Fuel Economy Standard

Model year	Miles per gallon
1998	12.1

(14) *Qvale Automotive Group Srl.*

Table 18 to Paragraph (e)(14)--Average Fuel Economy Standard

Model year	Miles per gallon
2000	22.0
2001	22.0

(15) *Spyker Automobielen B.V.*

Table 19 to Paragraph (e)(15)--Average Fuel Economy Standard

Model year	Miles per gallon
2006	18.9
2007	18.9

§ 531.6 Measurement and calculation procedures.

(a) The fleet average fuel economy performance of all passenger automobiles that are manufactured by a manufacturer in a model year shall be determined in accordance with procedures established by the Administrator of the Environmental Protection Agency (EPA) under 49 U.S.C. 32904 and set forth in 40 CFR part 600.

(b) For model years 2017 and later, a manufacturer is eligible to increase the fuel economy performance of passenger cars in accordance with procedures established by the EPA set forth in 40 CFR part 600, subpart F, including any adjustments to fuel economy the EPA allows, such as for fuel consumption improvements related to air conditioning efficiency and off-cycle technologies. Manufacturers must provide reporting on these technologies as specified in 49 CFR 537.7 by the required deadlines.

(1) *Efficient air conditioning technologies.* A manufacturer that seeks to increase its fleet average fuel economy performance through the use of technologies that improve the efficiency of air conditioning systems must follow the requirements in 40 CFR 86.1868–12. Fuel consumption improvement values resulting from the

use of those air conditioning systems must be determined in accordance with 40 CFR 600.510–12(c)(3)(i).

(2) *Off-cycle technologies on EPA’s predefined list or using 5-cycle testing.* A manufacturer that seeks to increase its fleet average fuel economy performance through the use of off-cycle technologies must follow the requirements in 40 CFR 86.1869–12. A manufacturer is eligible to gain fuel consumption improvements for predefined off-cycle technologies in accordance with 40 CFR 86.1869–12(b) or for technologies tested using the EPA’s 5-cycle methodology in accordance with 40 CFR 86.1869–12(c). The fuel consumption improvement is determined in accordance with 40 CFR 600.510–12(c)(3)(ii).

(3) *Off-cycle technologies using the alternative EPA-approved methodology.* A manufacturer is eligible to increase its fuel economy performance through use of an off-cycle technology requiring an application request made to the EPA in accordance with 40 CFR 86.1869–12(d).

(i) *Eligibility under the corporate average fuel economy (CAFE) program requires compliance with paragraphs (b)(3)(i)(A) through (C) of this section.* Paragraphs (b)(3)(i)(A), (B), and (D) of this section apply starting in model year 2024.

(A) A manufacturer seeking to increase its fuel economy performance

using the alternative methodology for an off-cycle technology, if prior to the applicable model year, must submit to EPA a detailed analytical plan and be approved (*i.e.*, for its planned test procedure and model types for demonstration) in accordance with 40 CFR 86.1869–12(d).

(B) A manufacturer seeking to increase its fuel economy performance using the alternative methodology for an off-cycle technology must also submit an official credit application to EPA and obtain approval in accordance with 40 CFR 86.1869–12(e) prior to September of the given model year.

(C) Manufacturer’s plans, applications, and requests approved by the EPA must be made in consultation with the National Highway Traffic Safety Administration (NHTSA). To expedite NHTSA’s consultation with the EPA, a manufacturer must concurrently submit its application to NHTSA if the manufacturer is seeking off-cycle fuel economy improvement values under the CAFE program for those technologies. For off-cycle technologies that are covered under 40 CFR 86.1869–12(d), NHTSA will consult with the EPA regarding NHTSA’s evaluation of the specific off-cycle technology to ensure its impact on fuel economy and the suitability of using the off-cycle

technology to adjust the fuel economy performance.

(D) A manufacturer may request an extension from NHTSA for more time to obtain an EPA approval. Manufacturers should submit their requests 30 days before the deadlines in paragraphs (b)(3)(i)(A) through (C) of this section. Requests should be submitted to NHTSA's Director of the Office of Vehicle Safety Compliance at *cafe@dot.gov*.

(ii) *Review and approval process.* NHTSA will provide its views on the suitability of using the off-cycle technology to adjust the fuel economy performance to the EPA. NHTSA's evaluation and review will consider:

(A) Whether the technology has a direct impact upon improving fuel economy performance;

(B) Whether the technology is related to crash-avoidance technologies, safety critical systems or systems affecting safety-critical functions, or technologies

designed for the purpose of reducing the frequency of vehicle crashes;

(C) Information from any assessments conducted by the EPA related to the application, the technology and/or related technologies; and

(D) Any other relevant factors.

(iii) *Safety.* (A) Technologies found to be defective, or identified as a part of NHTSA's safety defects program, and technologies that are not performing as intended, will have the values of approved off-cycle credits removed from the manufacturer's credit balance or adjusted if the manufacturers can remedy the defective technology. NHTSA will consult with the manufacturer to determine the amount of the adjustment.

(B) Approval granted for innovative and off-cycle technology credits under NHTSA's fuel efficiency program does not affect or relieve the obligation to comply with the Vehicle Safety Act (49 U.S.C. Chapter 301), including the

"make inoperative" prohibition (49 U.S.C. 30122), and all applicable Federal motor vehicle safety standards issued thereunder (FMVSSs) (49 CFR part 571). In order to generate off-cycle or innovative technology credits manufacturers must state—

(1) That each vehicle equipped with the technology for which they are seeking credits will comply with all applicable FMVSS(s); and

(2) Whether or not the technology has a fail-safe provision. If no fail-safe provision exists, the manufacturer must explain why not and whether a failure of the innovative technology would affect the safety of the vehicle.

Appendix A to Part 531—Example of Calculating Compliance Under § 531.5(c)

Assume a hypothetical manufacturer (Manufacturer X) produces a fleet of domestic passenger automobiles in MY 2012 as follows:

TABLE I TO APPENDIX A

Model type				Description	Actual measured fuel economy (mpg)	Volume
Group	Carline name	Basic engine (L)	Transmission class			
1	PC A FWD	1.8	A5	2-door sedan	34.0	1,500
2	PC A FWD	1.8	M6	2-door sedan	34.6	2,000
3	PC A FWD	2.5	A6	4-door wagon	33.8	2,000
4	PC A AWD	1.8	A6	4-door wagon	34.4	1,000
5	PC A AWD	2.5	M6	2-door hatchback	32.9	3,000
6	PC B RWD	2.5	A6	4-door wagon	32.2	8,000
7	PC B RWD	2.5	A7	4-door sedan	33.1	2,000
8	PC C AWD	3.2	A7	4-door sedan	30.6	5,000
9	PC C FWD	3.2	M6	2-door coupe	28.5	3,000
Total						27,500

Note to this Table I: Manufacturer X's required fleet average fuel economy standard level would first be calculated by determining the fuel economy targets applicable to each unique model type and footprint combination for model type groups 1-9 as illustrated in Table II to this appendix:

Manufacturer X calculates a fuel economy target standard for each unique model type and footprint combination.

TABLE II TO APPENDIX A

Model type				Description	Base tire size	Wheelbase (inches)	Track width F&R average (inches)	Footprint (ft ²)	Volume	Fuel economy target standard (mpg)
Group	Carline name	Basic engine (L)	Transmission class							
1	PC A FWD	1.8	A5	2-door sedan	205/75 R14	99.8	61.2	42.4	1,500	35.01
2	PC A FWD	1.8	M6	2-door sedan	215/70 R15	99.8	60.9	42.2	2,000	35.14
3	PC A FWD	2.5	A6	4-door wagon	215/70 R15	100.0	60.9	42.3	2,000	35.08
4	PC A AWD	1.8	A6	4-door wagon	235/60 R15	100.0	61.2	42.5	1,000	35.95
5	PC A AWD	2.5	M6	2-door hatchback	225/65 R16	99.6	59.5	41.2	3,000	35.81
6	PC B RWD	2.5	A6	4-door wagon	265/55 R18	109.2	66.8	50.7	8,000	30.33
7	PC B RWD	2.5	A7	4-door sedan	235/65 R17	109.2	67.8	51.4	2,000	29.99
8	PC C AWD	3.2	A7	4-door sedan	265/55 R18	111.3	67.8	52.4	5,000	29.52

9	PC C	3.2	M6	2-door	225/65	111.3	67.2	51.9	3,000	29.76
	FWD			coupe	R16					
Total									27,500	

Note to this Table II: With the appropriate fuel economy targets determined for each unique model type and footprint combination, Manufacturer X's required fleet average fuel economy standard would be calculated as illustrated in Figure 1 to this appendix:

Figure 1 to Appendix A—Calculation of Manufacturer X's Fleet Average Fuel Economy Standard using Table II to Appendix A

$$\begin{aligned}
 & \text{Fleet Average Fuel Economy Standard} \\
 & = \frac{(\text{Manufacturer's Domestic Passenger Automobile Production for Applicable Model Year})}{\sum_i \left(\frac{\text{Group}_1 \text{ Production}}{\text{Group}_1 \text{ Target Standard}} + \frac{\text{Group}_2 \text{ Production}}{\text{Group}_{12a} \text{ Target Standard}} + \dots + \frac{\text{Group}_9 \text{ Production}}{\text{Group}_9 \text{ Target Standard}} \right)} \\
 & \text{Fleet Average Fuel Economy Standard} \\
 & \quad (27,500) \\
 & = \frac{1500}{35.01} + \frac{2000}{35.14} + \frac{2000}{35.08} + \frac{1000}{35.95} + \frac{3000}{35.81} + \frac{8000}{30.33} + \frac{2000}{29.99} + \frac{5000}{29.52} + \frac{3000}{29.79} = 31.6 \text{ mpg}
 \end{aligned}$$

Figure 2 to Appendix A—Calculation of Manufacturer X's Actual Fleet Average Fuel Economy Performance Level using Table I to Appendix A

$$\begin{aligned}
 & \text{Fleet Average Fuel Economy Performance} \\
 & = \frac{(\text{Manufacturer's Domestic Passenger Automobile Production for Applicable Model Year})}{\sum_i \left(\frac{\text{Group}_1 \text{ Production}}{\text{Group}_1 \text{ Performance}} + \frac{\text{Group}_2 \text{ Production}}{\text{Group}_2 \text{ Performance}} + \dots + \frac{\text{Group}_9 \text{ Production}}{\text{Group}_9 \text{ Performance}} \right)} \\
 & \text{Fleet Average Fuel Economy Performance} \\
 & \quad (27,500) \\
 & = \frac{1500}{34.0} + \frac{2000}{34.6} + \frac{2000}{33.8} + \frac{1000}{34.4} + \frac{3000}{32.9} + \frac{8000}{32.2} + \frac{2000}{33.1} + \frac{5000}{30.6} + \frac{3000}{28.5} = 32.0 \text{ mpg}
 \end{aligned}$$

Note to Figure 2 to this appendix: Since the actual fleet average fuel economy performance of Manufacturer X's fleet is 32.0 mpg, as compared to its required fleet fuel economy standard of 31.6 mpg, Manufacturer X complied with the CAFE standard for MY 2012 as set forth in §531.5(c).

2. Revise part 533 to read as follows:

PART 533—LIGHT TRUCK FUEL ECONOMY STANDARDS

- Sec.
 - 533.1 Scope.
 - 533.2 Purpose.
 - 533.3 Applicability.
 - 533.4 Definitions.
 - 533.5 Requirements.
 - 533.6 Measurement and calculation procedures.
- Appendix A to Part 533—Example of Calculating Compliance Under § 533.5(i)

Authority: 49 U.S.C. 32902; delegation of authority at 49 CFR 1.95.

§ 533.1 Scope.

This part establishes average fuel economy standards pursuant to section 502(b) of the Motor Vehicle Information and Cost Savings Act, as amended, for light trucks.

§ 533.2 Purpose.

The purpose of this part is to increase the fuel economy of light trucks by establishing minimum levels of average fuel economy for those vehicles.

§ 533.3 Applicability.

This part applies to manufacturers of light trucks.

§ 533.4 Definitions.

(a) *Statutory terms.* (1) The terms *average fuel economy*, *average fuel economy standard*, *fuel economy*, *import*, *manufacture*, *manufacturer*, and *model year* are used as defined in section 501 of the Act.

(2) The term *automobile* is used as defined in section 501 of the Act and in accordance with the determinations in part 523 of this chapter.

(3) The term *domestically manufactured* is used as defined in section 503(b)(2)(E) of the Act.

(b) *Other terms.* As used in this part, unless otherwise required by the context—

(1) *Act* means the Motor Vehicle Information Cost Savings Act, as amended by Public Law 94–163.

(2) *Light truck* is used in accordance with the determinations in part 523 of this chapter.

(3) *Captive import* means with respect to a light truck, one which is not domestically manufactured but which is imported in the 1980 model year or

thereafter by a manufacturer whose principal place of business is in the United States.

(4) *4-wheel drive, general utility vehicle* means a 4-wheel drive, general purpose automobile capable of off-highway operation that has a wheelbase of not more than 280 centimeters, and that has a body shape similar to 1977 Jeep CJ–5 or CJ–7, or the 1977 Toyota Land Cruiser.

(5) *Basic engine* means a unique combination of manufacturer, engine displacement, number of cylinders, fuel system (as distinguished by number of carburetor barrels or use of fuel injection), and catalyst usage.

(6) *Limited product line light truck* means a light truck manufactured by a manufacturer whose light truck fleet is powered exclusively by basic engines which are not also used in passenger automobiles.

§ 533.5 Requirements.

(a) Each manufacturer of light trucks shall comply with the following fleet average fuel economy standards, expressed in miles per gallon, in the model year specified as applicable:

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Table 1 to Paragraph (a)

Model year	2-wheel drive light trucks		4-wheel drive light trucks		Limited product line light trucks
	Captive imports	Other	Captive imports	Other	
1979	17.2	15.8			
1980	16.0	16.0	14.0	14.0	14.0
1981	16.7	16.7	15.0	15.0	14.5

Table 2 to Paragraph (a)

Model year	Combined standard		2-wheel drive light trucks		4-wheel drive light trucks	
	Captive imports	Others	Captive imports	Others	Captive imports	Others
1982	17.5	17.5	18.0	18.0	16.0	16.0
1983	19.0	19.0	19.5	19.5	17.5	17.5
1984	20.0	20.0	20.3	20.3	18.5	18.5
1985	19.5	19.5	19.7	19.7	18.9	18.9
1986	20.0	20.0	20.5	20.5	19.5	19.5
1987	20.5	20.5	21.0	21.0	19.5	19.5
1988	20.5	20.5	21.0	21.0	19.5	19.5
1989	20.5	20.5	21.5	21.5	19.0	19.0
1990	20.0	20.0	20.5	20.5	19.0	19.0
1991	20.2	20.2	20.7	20.7	19.1	19.1

Table 3 to Paragraph (a)

Model year	Combined standard	
	Captive imports	Other
1992	20.2	20.2
1993	20.4	20.4
1994	20.5	20.5
1995	20.6	20.6

Table 4 to Paragraph (a)

Model year	Standard
2001	20.7
2002	20.7
2003	20.7
2004	20.7
2005	21.0
2006	21.6
2007	22.2
2008	22.5
2009	23.1
2010	23.5

Figure 1 to Paragraph (a)

$$Required_Fuel_Economy_Level = \frac{N}{\sum_i \frac{N_i}{T_i}}$$

Where:

N is the total number (sum) of light trucks produced by a manufacturer;
 N_i is the number (sum) of the i th light truck model type produced by a manufacturer; and
 T_i is the fuel economy target of the i th light truck model type, which is determined

according to the following formula, rounded to the nearest hundredth:

$$T = \frac{1}{\frac{1}{a} + \left(\frac{1}{b} - \frac{1}{a}\right) \frac{e^{(x-c)d}}{1 + e^{(x-c)d}}}$$

Where:

Parameters a , b , c , and d are defined in Table 5 to this paragraph (a);
 $e = 2.718$; and
 x = footprint (in square feet, rounded to the nearest tenth) of the model type.

Table 5 to Paragraph (a)—Parameters for the Light Truck Fuel Economy Targets for MYs

2008-2011

Model year	Parameters			
	a (mpg)	b (mpg)	c (gal/mi/ft ²)	d (gal/mi)
2008	28.56	19.99	49.30	5.58
2009	30.07	20.87	48.00	5.81
2010	29.96	21.20	48.49	5.50
2011	27.10	21.10	56.41	4.28

Figure 2 to Paragraph (a)

$$CAFE_{required} = \frac{\sum_i PRODUCTION_i}{\sum_i \frac{PRODUCTION_i}{TARGET_i}}$$

Where:

$CAFE_{required}$ is the fleet average fuel economy standard for a given light truck fleet;
 Subscript i is a designation of multiple groups of light trucks, where each

group's designation, *i.e.*, $i = 1, 2, 3$, etc., represents light trucks that share a unique model type and footprint within the applicable fleet;

$PRODUCTION_i$ is the number of light trucks produced for sale in the United States within each i th designation, *i.e.*, which share the same model type and footprint; and

$TARGET_i$ is the fuel economy target in miles per gallon (mpg) applicable to the

footprint of light trucks within each i th designation, *i.e.*, which share the same model type and footprint, calculated according to either Figure 3 or Figure 4 to this paragraph (a), as appropriate, and rounded to the nearest hundredth of a mpg, *i.e.*, $35.455 = 35.46$ mpg, and the summations in the numerator and denominator are both performed over all models in the fleet in question.

Figure 3 to Paragraph (a)

$$TARGET = \frac{1}{\text{MIN} \left[\text{MAX} \left(c \times FOOTPRINT + d, \frac{1}{a} \right), \frac{1}{b} \right]}$$

Where:

$TARGET$ is the fuel economy target (in mpg) applicable to vehicles of a given footprint ($FOOTPRINT$, in square feet);

Parameters a , b , c , and d are defined in Table 6 to this paragraph (a); and

The MIN and MAX functions take the minimum and maximum, respectively, of the included values.

Table 6 to Paragraph (a)—Parameters for the Light Truck Fuel Economy Targets for MYs 2012-2016

Model year	Parameters			
	<i>a</i> (mpg)	<i>b</i> (mpg)	<i>c</i> (gal/mi/ft ²)	<i>d</i> (gal/mi)
2012	29.82	22.27	0.0004546	0.014900
2013	30.67	22.74	0.0004546	0.013968
2014	31.38	23.13	0.0004546	0.013225
2015	32.72	23.85	0.0004546	0.011920
2016	34.42	24.74	0.0004546	0.010413

Figure 4 to Paragraph (a)

TARGET

$$= \text{MAX} \left(\frac{1}{\text{MIN} \left[\text{MAX} \left(c \times \text{FOOTPRINT} + d, \frac{1}{a} \right), \frac{1}{b} \right]}, \frac{1}{\text{MIN} \left[\text{MAX} \left(g \times \text{FOOTPRINT} + h \frac{1}{e} \right), \frac{1}{f} \right]} \right)$$

Where:

TARGET is the fuel economy target (in mpg) applicable to vehicles of a given footprint (*FOOTPRINT*, in square feet);

Parameters *a*, *b*, *c*, *d*, *e*, *f*, *g*, and *h* are defined in Table 7 to this paragraph (a); and

The *MIN* and *MAX* functions take the minimum and maximum, respectively, of the included values.

Table 7 to Paragraph (a)—Parameters for the Light Truck Fuel Economy Targets for MYs 2017-2026

Model year	Parameters							
	<i>a</i> (mpg)	<i>b</i> (mpg)	<i>c</i> (gal/mi/ft ²)	<i>d</i> (gal/mi)	<i>e</i> (mpg)	<i>f</i> (mpg)	<i>g</i> (gal/mi/ft ²)	<i>h</i> (gal/mi)
2017	36.26	25.09	0.0005484	0.005097	35.10	25.09	0.0004546	0.009851
2018	37.36	25.20	0.0005358	0.004797	35.31	25.20	0.0004546	0.009682
2019	38.16	25.25	0.0005265	0.004623	35.41	25.25	0.0004546	0.009603
2020	39.11	25.25	0.0005140	0.004494	35.41	25.25	0.0004546	0.009603
2021	39.71	25.63	0.000506	0.00443	NA	NA	NA	NA
2022	40.31	26.02	0.000499	0.00436	NA	NA	NA	NA
2023	40.93	26.42	0.000491	0.00429	NA	NA	NA	NA
2024	44.48	26.74	0.000452	0.00395	NA	NA	NA	NA
2025	48.35	29.07	0.000416	0.00364	NA	NA	NA	NA
2026	52.56	31.60	0.000382	0.00334	NA	NA	NA	NA

(b)(1) For model year 1979, each manufacturer may:

(i) Combine its 2- and 4-wheel drive light trucks and comply with the average fuel economy standard in paragraph (a) of this section for 2-wheel drive light trucks; or

(ii) Comply separately with the two standards specified in paragraph (a) of this section.

(2) For model year 1979, the standard specified in paragraph (a) of this section for 4-wheel drive light trucks applies only to 4-wheel drive general utility vehicles. All other 4-wheel drive light trucks in that model year shall be included in the 2-wheel drive category for compliance purposes.

(c) For model years 1980 and 1981, manufacturers of limited product line light trucks may:

(1) Comply with the separate standard for limited product line light trucks; or

(2) Comply with the other standards specified in paragraph (a) of this section, as applicable.

(d) For model years 1982–91, each manufacturer may:

(1) Combine its 2- and 4-wheel drive light trucks (segregating captive import and other light trucks) and comply with the combined average fuel economy standard specified in paragraph (a) of this section; or

(2) Comply separately with the 2-wheel drive standards and the 4-wheel drive standards (segregating captive

import and other light trucks) specified in paragraph (a) of this section.

(e) For model year 1992, each manufacturer shall comply with the average fuel economy standard specified in paragraph (a) of this section (segregating captive import and other light trucks).

(f) For each model year 1996 and thereafter, each manufacturer shall combine its captive imports with its other light trucks and comply with the fleet average fuel economy standard in paragraph (a) of this section.

(g) For model years 2008–2010, at a manufacturer’s option, a manufacturer’s light truck fleet may comply with the fuel economy standard calculated for each model year according to Figure 1 to paragraph (a) of this section and the

appropriate values in Table 5 to paragraph (a) of this section, with said option being irrevocably chosen for that model year and reported as specified in § 537.8 of this chapter.

(h) For model year 2011, a manufacturer's light truck fleet shall comply with the fleet average fuel economy standard calculated for that model year according to Figure 1 to paragraph (a) of this section and the appropriate values in Table 5 to paragraph (a) of this section.

(i) For model years 2012–2016, a manufacturer's light truck fleet shall comply with the fleet average fuel economy standard calculated for that model year according to Figures 2 and 3 to paragraph (a) of this section and the appropriate values in Table 6 to paragraph (a) of this section.

(j) For model years 2017–2025, a manufacturer's light truck fleet shall comply with the fleet average fuel economy standard calculated for that model year according to Figures 2 and 4 to paragraph (a) of this section and the appropriate values in Table 7 to paragraph (a) of this section.

§ 533.6 Measurement and calculation procedures.

(a) Any reference to a class of light trucks manufactured by a manufacturer shall be deemed—

(1) To include all light trucks in that class manufactured by persons who control, are controlled by, or are under common control with, such manufacturer; and

(2) To include only light trucks which qualify as non-passenger vehicles in accordance with 49 CFR 523.5 based upon the production measurements of the vehicles as sold to dealerships; and

(3) To exclude all light trucks in that class manufactured (within the meaning of paragraph (a)(1) of this section) during a model year by such manufacturer which are exported prior to the expiration of 30 days following the end of such model year.

(b) The fleet average fuel economy performance of all light trucks that are manufactured by a manufacturer in a model year shall be determined in accordance with procedures established by the Administrator of the Environmental Protection Agency (EPA) under 49 U.S.C. 32904 and set forth in 40 CFR part 600.

(c) For model years 2017 and later, a manufacturer is eligible to increase the fuel economy performance of light trucks in accordance with procedures established by the EPA set forth in 40 CFR part 600, subpart F, including any adjustments to fuel economy the EPA allows, such as for fuel consumption

improvements related to air conditioning efficiency, off-cycle technologies, and hybridization and other performance-based technologies for full-size pickup trucks that meet the requirements specified in 40 CFR 86.1803. Manufacturers must provide reporting on these technologies as specified in 49 CFR 537.7 by the required deadlines.

(1) *Efficient air conditioning technologies.* A manufacturer that seeks to increase its fleet average fuel economy performance through the use of technologies that improve the efficiency of air conditioning systems must follow the requirements in 40 CFR 86.1868–12. Fuel consumption improvement values resulting from the use of those air conditioning systems must be determined in accordance with 40 CFR 600.510–12(c)(3)(i).

(2) *Incentives for advanced full-size light-duty pickup trucks.* The eligibility of a manufacturer to increase its fuel economy using hybridized and other performance-based technologies for full-size pickup trucks must follow 40 CFR 86.1870–12 and the fuel consumption improvement of these full-size pickup truck technologies must be determined in accordance with 40 CFR 600.510–12(c)(3)(iii). Manufacturers may also combine incentives for full size pickups and dedicated alternative fueled vehicles when calculating fuel economy performance values in 40 CFR 600.510–12.

(3) *Off-cycle technologies on EPA's predefined list or using 5-cycle testing.* A manufacturer that seeks to increase its fleet average fuel economy performance through the use of off-cycle technologies must follow the requirements in 40 CFR 86.1869–12. A manufacturer is eligible to gain fuel consumption improvements for predefined off-cycle technologies in accordance with 40 CFR 86.1869–12(b) or for technologies tested using the EPA's 5-cycle methodology in accordance with 40 CFR 86.1869–12(c). The fuel consumption improvement is determined in accordance with 40 CFR 600.510–12(c)(3)(ii).

(4) *Off-cycle technologies using the alternative EPA-approved methodology.* A manufacturer is eligible to increase its fuel economy performance through use of an off-cycle technology requiring an application request made to the EPA in accordance with 40 CFR 86.1869–12(d).

(i) *Eligibility under the corporate average fuel economy (CAFE) program requires compliance with paragraphs (c)(4)(i)(A) through (C) of this section.* Paragraphs (c)(4)(i)(A) through (C) of this section apply starting in model year 2024.

(A) A manufacturer seeking to increase its fuel economy performance using the alternative methodology for an off-cycle technology, if prior to the applicable model year, must submit to EPA a detailed analytical plan and be approved (*i.e.*, for its planned test procedure and model types for demonstration) in accordance with 40 CFR 86.1869–12(d).

(B) A manufacturer seeking to increase its fuel economy performance using the alternative methodology for an off-cycle technology must also submit an official credit application to EPA and obtain approval in accordance with 40 CFR 86.1869–12(e) prior to September of the given model year.

(C) Manufacturer's plans, applications and requests approved by the EPA must be made in consultation with the National Highway Traffic Safety Administration (NHTSA). To expedite NHTSA's consultation with the EPA, a manufacturer must concurrently submit its application to NHTSA if the manufacturer is seeking off-cycle fuel economy improvement values under the CAFE program for those technologies. For off-cycle technologies that are covered under 40 CFR 86.1869–12(d), NHTSA will consult with the EPA regarding NHTSA's evaluation of the specific off-cycle technology to ensure its impact on fuel economy and the suitability of using the off-cycle technology to adjust the fuel economy performance.

(ii) *Review and approval process.* NHTSA will provide its views on the suitability of using the off-cycle technology to adjust the fuel economy performance to the EPA. NHTSA's evaluation and review will consider:

(A) Whether the technology has a direct impact upon improving fuel economy performance;

(B) Whether the technology is related to crash-avoidance technologies, safety critical systems or systems affecting safety-critical functions, or technologies designed for the purpose of reducing the frequency of vehicle crashes;

(C) Information from any assessments conducted by the EPA related to the application, the technology and/or related technologies; and

(D) Any other relevant factors.

(E) NHTSA will collaborate to host annual meetings with EPA at least once by July 30th before the model year begins to provide general guidance to the industry on past off-cycle approvals.

(iii) *Safety.* (A) Technologies found to be defective, or identified as a part of NHTSA's safety defects program, and technologies that are not performing as intended, will have the values of approved off-cycle credits removed from

the manufacturer’s credit balance or adjusted if the manufacturers can remedy the defective technology. NHTSA will consult with the manufacturer to determine the amount of the adjustment.

(B) Approval granted for innovative and off-cycle technology credits under NHTSA’s fuel efficiency program does not affect or relieve the obligation to comply with the Vehicle Safety Act (49 U.S.C. Chapter 301), including the

“make inoperative” prohibition (49 U.S.C. 30122), and all applicable Federal motor vehicle safety standards issued thereunder (FMVSSs) (49 CFR part 571). In order to generate off-cycle or innovative technology credits manufacturers must state—

(1) That each vehicle equipped with the technology for which they are seeking credits will comply with all applicable FMVSS(s); and

(2) Whether or not the technology has a fail-safe provision. If no fail-safe

provision exists, the manufacturer must explain why not and whether a failure of the innovative technology would affect the safety of the vehicle.

Appendix A to Part 533—Example of Calculating Compliance Under § 533.5(i)

Assume a hypothetical manufacturer (Manufacturer X) produces a fleet of light trucks in MY 2012 as follows:

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TABLE I TO APPENDIX A

Model type				Description	Actual measured fuel economy (mpg)	Volume
Group	Carline name	Basic engine (L)	Transmission class			
1	Pickup A 2WD	4	A5	Reg cab, MB	27.1	800
2	Pickup B 2WD	4	M5	Reg cab, MB	27.6	200
3	Pickup C 2WD	4.5	A5	Reg cab, LB	23.9	300

4	Pickup C 2WD	4	M5	Ext cab, MB	23.7	400
5	Pickup C 4WD	4.5	A5	Crew cab, SB	23.5	400
6	Pickup D 2WD	4.5	A6	Crew cab, SB	23.6	400
7	Pickup E 2WD	5	A6	Ext cab, LB	22.7	500
8	Pickup E 2WD	5	A6	Crew cab, MB	22.5	500
9	Pickup F 2WD	4.5	A5	Reg cab, LB	22.5	1,600
10	Pickup F 4WD	4.5	A5	Ext cab, MB	22.3	800
11	Pickup F 4WD	4.5	A5	Crew cab, SB	22.2	800
Total	6,700					

Note to this Table I: Manufacturer X's required fleet average fuel economy standard level would first be calculated by determining the fuel economy targets applicable to each unique model type and footprint combination for model type groups 1-11 as illustrated in Table II to this appendix.

Manufacturer X calculates a fuel economy target standard for each unique model type and footprint combination.

TABLE II TO APPENDIX A

Model type				Description	Base tire size	Wheelbase (inches)	Track width F&R average (inches)	Footprint (ft ²)	Volume	Fuel economy target standard (mpg)
Group	Carline name	Basic engine (L)	Transmission class							
1	Pickup A 2WD	4	A5	Reg cab, MB	235/75R1 5	100.0	68.8	47.8	800	27.30
2	Pickup B 2WD	4	M5	Reg cab, MB	235/75R1 5	100.0	68.2	47.4	200	27.44
3	Pickup C 2WD	4.5	A5	Reg cab, LB	255/70R1 7	125.0	68.8	59.7	300	23.79
4	Pickup C 2WD	4	M5	Ext cab, MB	255/70R1 7	125.0	68.8	59.7	400	23.79
5	Pickup C 4WD	4.5	A5	Crew cab, SB	275/70R1 7	150.0	69.0	71.9	400	22.27
6	Pickup D 2WD	4.5	A6	Crew cab, SB	255/70R1 7	125.0	68.8	59.7	400	23.79
7	Pickup E 2WD	5	A6	Ext cab, LB	255/70R1 7	125.0	68.8	59.7	500	23.79
8	Pickup E 2WD	5	A6	Crew cab, MB	285/70R1 7	125.0	69.2	60.1	500	23.68
9	Pickup F 2WD	4.5	A5	Reg cab, LB	255/70R1 7	125.0	68.9	59.8	1,600	23.76

10	Pickup F 4WD	4.5	A5	Ext cab, MB	275/70R1 7	150.0	69.0	71.9	800	22.27
11	Pickup F 4WD	4.5	A5	Crew cab, SB	285/70R1 7	150.0	69.2	72.1	800	22.27
Total									6,700	

Note to this Table II: With the appropriate fuel economy targets determined for each unique model type and footprint combination, Manufacturer X's required fleet average fuel economy standard would be calculated as illustrated in Figure 1 to this appendix:

Figure 1 to Appendix A--Calculation of Manufacturer X's Fleet Average Fuel Economy Standard using Table II of Appendix A

$$\begin{aligned}
 & \text{Fleet Average Fuel Economy Standard} \\
 & \text{(Manufacturer's light truck Production for Applicable Model Year)} \\
 & = \frac{\sum_i \left(\frac{\text{Group}_i \text{ Production}}{\text{Group}_i \text{ Target Standard}} \right)}{\text{Fleet Average Fuel Economy Standard}} \\
 & \quad (6,700) \\
 & = \frac{800}{27.30} + \frac{200}{27.44} + \frac{300}{23.79} + \frac{400}{23.79} + \frac{400}{22.27} + \frac{400}{23.79} + \frac{500}{23.79} + \frac{500}{23.68} + \frac{1600}{23.76} + \frac{800}{22.27} + \frac{800}{22.27} \\
 & \quad = 23.7 \text{ mpg}
 \end{aligned}$$

FIGURE 2 TO APPENDIX A—CALCULATION OF MANUFACTURER X'S ACTUAL FLEET AVERAGE FUEL ECONOMY PERFORMANCE LEVEL USING TABLE I OF APPENDIX A

$$\begin{aligned}
 & \text{Fleet Average Fuel Economy Performance} \\
 & \text{(Manufacturer's Light Truck Production for Applicable Model Year)} \\
 & = \frac{\sum_i \left(\frac{\text{Group}_i \text{ Production}}{\text{Group}_i \text{ Performance}} \right)}{\text{Fleet Average Fuel Economy Performance}} \\
 & \quad (6,700) \\
 & = \frac{800}{27.1} + \frac{200}{27.6} + \frac{300}{23.9} + \frac{400}{23.7} + \frac{400}{23.5} + \frac{400}{23.6} + \frac{500}{22.7} + \frac{500}{22.5} + \frac{1600}{22.5} + \frac{800}{22.3} + \frac{800}{22.2} = 23.3 \text{ mpg}
 \end{aligned}$$

NOTE TO FIGURE 2 TO THIS APPENDIX: Since the actual fleet average fuel economy performance of Manufacturer X's fleet is 23.3 mpg, as compared to its required fleet fuel economy standard of 23.7 mpg, Manufacturer X did not comply with the CAFE standard for MY 2012 as set forth in §533.5(i).

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■ 3. Revise part 536 to read as follows:

PART 536—TRANSFER AND TRADING OF FUEL ECONOMY CREDITS

Sec.

- 536.1 Scope.
- 536.2 Application.
- 536.3 Definitions.
- 536.4 Credits.
- 536.5 Trading infrastructure.
- 536.6 Treatment of credits earned prior to model year 2011.
- 536.7 Treatment of carryback credits.
- 536.8 Conditions for trading of credits.
- 536.9 Use of credits with regard to the domestically manufactured passenger automobile minimum standard.
- 536.10 Treatment of dual-fuel and alternative fuel vehicles—consistency with 49 CFR part 538.

Authority: 49 U.S.C. 32903; delegation of authority at 49 CFR 1.95.

§ 536.1 Scope.

This part establishes regulations governing the use and application of corporate average fuel economy (CAFE) credits up to three model years before and five model years after the model year in which the credit was earned. It also specifies requirements for manufacturers wishing to transfer fuel economy credits between their fleets and for manufacturers and other persons wishing to trade fuel economy credits to achieve compliance with prescribed fuel economy standards.

§ 536.2 Application.

This part applies to all credits earned (and transferable and tradable) for exceeding applicable average fuel economy standards in a given model year for domestically manufactured passenger cars, imported passenger cars, and light trucks.

§ 536.3 Definitions.

(a) *Statutory terms.* All terms defined in 49 U.S.C. 32901(a) are used pursuant to their statutory meaning.

(b) *Other terms.* As used in the part:
Above standard fuel economy means, with respect to a compliance category, that the automobiles manufactured by a manufacturer in that compliance category in a particular model year have greater average fuel economy (calculated in a manner that reflects the incentives for alternative fuel automobiles per 49 U.S.C. 32905) than that manufacturer's fuel economy standard for that compliance category and model year.

Adjustment factor means a factor used to adjust the value of a traded or transferred credit for compliance purposes to ensure that the compliance value of the credit when used reflects the total volume of oil saved when the credit was earned.

Below standard fuel economy means, with respect to a compliance category, that the automobiles manufactured by a manufacturer in that compliance category in a particular model year have lower average fuel economy (calculated in a manner that reflects the incentives for alternative fuel automobiles per 49 U.S.C. 32905) than that manufacturer's fuel economy standard for that compliance category and model year.

Compliance means a manufacturer achieves compliance in a particular compliance category when:

(1)(i) The average fuel economy of the vehicles in that category exceed or meet the fuel economy standard for that category; or

(ii) The average fuel economy of the vehicles in that category do not meet the fuel economy standard for that category, but the manufacturer proffers a sufficient number of valid credits, adjusted for total oil savings, to cover the gap between the average fuel economy of the vehicles in that category and the required average fuel economy.

(2) A manufacturer achieves compliance for its fleet if the conditions in paragraph (1)(i) or (ii) of this definition are simultaneously met for all compliance categories.

Compliance category means any of three categories of automobiles subject to Federal fuel economy regulations. The three compliance categories recognized by 49 U.S.C. 32903(g)(6) are domestically manufactured passenger automobiles, imported passenger automobiles, and non-passenger automobiles ("light trucks").

Credit holder (or holder) means a legal person that has valid possession of credits, either because they are a manufacturer who has earned credits by exceeding an applicable fuel economy standard, or because they are a designated recipient who has received credits from another holder. Credit holders need not be manufacturers, although all manufacturers may be credit holders.

Credits (or fuel economy credits) means an earned or purchased allowance recognizing that the average fuel economy of a particular manufacturer's vehicles within a particular compliance category and model year exceeds that manufacturer's fuel economy standard for that compliance category and model year. One credit is equal to $\frac{1}{10}$ of a mile per gallon above the fuel economy standard per one vehicle within a compliance category. Credits are denominated according to model year in which they are earned (vintage), originating manufacturer, and compliance category.

Expiry date means the model year after which fuel economy credits may no longer be used to achieve compliance with fuel economy regulations. Expiry dates are calculated in terms of model years: For example, if a manufacturer earns credits for model year 2011, these credits may be used for compliance in model years 2008–2016.

Fleet means all automobiles that are manufactured by a manufacturer in a particular model year and are subject to fuel economy standards under 49 CFR parts 531 and 533. For the purposes of this part, a manufacturer's fleet means all domestically manufactured and imported passenger automobiles and non-passenger automobiles ("light trucks"). "Work trucks" and medium and heavy trucks are not included in this definition for purposes of this part.

Light truck means the same as "non-passenger automobile," as that term is defined in 49 U.S.C. 32901(a)(17), and as "light truck," as that term is defined at 49 CFR 523.5.

Originating manufacturer means the manufacturer that originally earned a particular credit. Each credit earned will be identified with the name of the originating manufacturer.

Trade means the receipt by the National Highway Traffic Safety Administration (NHTSA) of an instruction from a credit holder to place one of its credits in the account of another credit holder. A credit that has been traded can be identified because the originating manufacturer will be a different party than the current credit holder. Traded credits are moved from one credit holder to the recipient credit holder within the same compliance category for which the credits were originally earned. If a credit has been traded to another credit holder and is subsequently traded back to the originating manufacturer, it will be deemed not to have been traded for compliance purposes.

Transfer means the application by a manufacturer of credits earned by that manufacturer in one compliance category or credits acquired be trade (and originally earned by another manufacturer in that category) to achieve compliance with fuel economy standards with respect to a different compliance category. For example, a manufacturer may purchase light truck credits from another manufacturer, and transfer them to achieve compliance in the manufacturer's domestically manufactured passenger car fleet. Subject to the credit transfer limitations of 49 U.S.C. 32903(g)(3), credits can also be transferred across compliance categories and banked or saved in that category to be carried forward or

backwards later to address a credit shortfall.

Vintage means, with respect to a credit, the model year in which the credit was earned.

§ 536.4 Credits.

(a) *Type and vintage.* All credits are identified and distinguished in the accounts by originating manufacturer, compliance category, and model year of origin (vintage).

(b) *Application of credits.* All credits earned and applied are calculated, per 49 U.S.C. 32903(c), in tenths of a mile per gallon by which the average fuel economy of vehicles in a particular compliance category manufactured by a manufacturer in the model year in which the credits are earned exceeds the applicable average fuel economy standard, multiplied by the number of

vehicles sold in that compliance category. However, credits that have been traded between credit holders or transferred between compliance categories are valued for compliance purposes using the adjustment factor specified in paragraph (c) of this section, pursuant to the “total oil savings” requirement of 49 U.S.C. 32903(f)(1).

(c) *Adjustment factor.* When traded or transferred and used, fuel economy credits are adjusted to ensure fuel oil savings is preserved. For traded credits, the user (or buyer) must multiply the calculated adjustment factor by the number of shortfall credits it plans to offset in order to determine the number of equivalent credits to acquire from the earner (or seller). For transferred credits, the user of credits must multiply the calculated adjustment factor by the

number of shortfall credits it plans to offset in order to determine the number of equivalent credits to transfer from the compliance category holding the available credits. The adjustment factor is calculated according to the following formula:

$$A = \left(\frac{VMT_u * MPG_{ae} * MPG_{se}}{VMT_e * MPG_{au} * MPG_{su}} \right)$$

Where:

A = Adjustment factor applied to traded and transferred credits. The quotient shall be rounded to 4 decimal places.

VMT_e = Lifetime vehicle miles traveled as provided in the following table for the model year and compliance category in which the credit was earned.

VMT_u = Lifetime vehicle miles traveled as provided in the following table for the model year and compliance category in which the credit is used for compliance.

Table 1 to Paragraph (c)

Model year	Lifetime Vehicle Miles Traveled (VMT)					
	2012	2013	2014	2015	2016	2017-2025
Passenger Cars	177,238	177,366	178,652	180,497	182,134	195,264
Light Trucks	208,471	208,537	209,974	212,040	213,954	225,865

MPG_{se} = Required fuel economy standard for the originating (earning) manufacturer, compliance category, and model year in which the credit was earned.

MPG_{ae} = Actual fuel economy for the originating manufacturer, compliance category, and model year in which the credit was earned.

MPG_{su} = Required fuel economy standard for the user (buying) manufacturer, compliance category, and model year in which the credit is used for compliance.

MPG_{au} = Actual fuel economy for the user manufacturer, compliance category, and model year in which the credit is used for compliance.

§ 536.5 Trading infrastructure.

(a) *Accounts.* NHTSA maintains “accounts” for each credit holder. The account consists of a balance of credits in each compliance category and vintage held by the holder.

(b) *Who may hold credits.* Every manufacturer subject to fuel economy standards under 49 CFR part 531 or 533 is automatically an account holder. If the manufacturer earns credits pursuant to this part, or receives credits from

another party, so that the manufacturer’s account has a non-zero balance, then the manufacturer is also a credit holder. Any party designated as a recipient of credits by a current credit holder will receive an account from NHTSA and become a credit holder, subject to the following conditions:

(1) A designated recipient must provide name, address, contacting information, and a valid taxpayer identification number or Social Security number;

(2) NHTSA does not grant a request to open a new account by any party other than a party designated as a recipient of credits by a credit holder; and

(3) NHTSA maintains accounts with zero balances for a period of time, but reserves the right to close accounts that have had zero balances for more than one year.

(c) *Automatic debits and credits of accounts.* (1) To carry credits forward, backward, transfer credits, or trade credits into other credit accounts, a manufacturer or credit holder must

submit a credit instruction to NHTSA. A credit instruction must detail and include:

(i) The credit holder(s) involved in the transaction.

(ii) The originating credits described by the amount of the credits, compliance category and the vintage of the credits.

(iii) The recipient credit account(s) for banking or applying the originating credits described by the compliance category(ies), model year(s), and if applicable the adjusted credit amount(s) and adjustment factor(s).

(iv) For trades, a contract authorizing the trade signed by the manufacturers or credit holders or by managers legally authorized to obligate the sale and purchase of the traded credits.

(2) Upon receipt of a credit instruction from an existing credit holder, NHTSA verifies the presence of sufficient credits in the account(s) of the credit holder(s) involved as applicable and notifies the credit holder(s) that the credits will be debited from and/or

credited to the accounts involved, as specified in the credit instruction. NHTSA determines if the credits can be debited or credited based upon the amount of available credits, accurate application of any adjustment factors and the credit requirements prescribed by this part that are applicable at the time the transaction is requested.

(3) After notifying the credit holder(s), all accounts involved are either credited or debited, as appropriate, in line with the credit instruction. Traded credits identified by a specific compliance category are deposited into the recipient's account in that same compliance category and model year. If a recipient of credits as identified in a credit instruction is not a current account holder, NHTSA establishes the credit recipient's account, subject to the conditions described in paragraph (b) of this section, and adds the credits to the newly-opened account.

(4) NHTSA will automatically delete unused credits from holders' accounts when those credits reach their expiry date.

(5) Starting January 1, 2022, manufacturers or credit holders issuing credit instructions or providing credit allocation plans as specified in paragraph (d) of this section, must use and submit the NHTSA Credit Template fillable form (Office of Management and Budget (OMB) Control No. 2127-0019, NHTSA Form 1475). The NHTSA Credit Template is available for download on NHTSA's website. If a credit instruction includes a trade, the NHTSA Credit Template must be signed by managers legally authorized to obligate the sale and/or purchase of the traded credits from both parties to the trade. The NHTSA Credit Template signed by both parties to the trade serves as an acknowledgement that the parties have agreed to trade credits, and does not dictate terms, conditions, or other business obligations of the parties. Manufacturers must submit the template along with other requested information through the CAFE email, *cafe@dot.gov*. NHTSA reserves the right to request additional information from the parties regarding the terms of the trade.

(6) Starting September 1, 2022, manufacturers or credit holders trading credits must use and submit the NHTSA Credit Value Reporting Template fillable form (OMB Control No. 2127-0019, NHTSA Form 1621). The NHTSA Credit Template is available for download on NHTSA's website. The template will provide NHTSA with the price paid for the credits including a description of any other monetary or non-monetary terms affecting the price of the traded credits, such as any technology

exchanged or shared for the credits, any other non-monetary payment for the credits, or any other agreements related to the trade. Manufacturers must submit the template along with other requested information through the CAFE email, *cafe@dot.gov*. NHTSA reserves the right to request additional information from the parties regarding the terms of the trade.

(7) NHTSA will consider claims that information submitted to the agency under this section is entitled to confidential treatment under 5 U.S.C. 552(b) and under the provisions of part 512 of this chapter if the information is submitted in accordance with the procedures of part 512.

(d) *Compliance.* (1) NHTSA assesses compliance with fuel economy standards each year, utilizing the certified and reported CAFE data provided by the Environmental Protection Agency (EPA) for enforcement of the CAFE program pursuant to 49 U.S.C. 32904(e). Credit values are calculated based on the CAFE data from the EPA. If a particular compliance category within a manufacturer's fleet has above standard fuel economy, NHTSA adds credits to the manufacturer's account for that compliance category and vintage in the appropriate amount by which the manufacturer has exceeded the applicable standard.

(2) If a manufacturer's vehicles in a particular compliance category have below standard fuel economy, NHTSA will provide written notification to the manufacturer that it has failed to meet a particular fleet target standard. The manufacturer will be required to confirm the shortfall and must either: Submit a plan indicating how it will allocate existing credits or earn, transfer and/or acquire credits; or pay the appropriate civil penalty. The manufacturer must submit a plan or payment within 60 days of receiving agency notification.

(3) Credits used to offset shortfalls are subject to the three- and five-year limitations as described in § 536.6.

(4) Transferred credits are subject to the limitations specified by 49 U.S.C. 32903(g)(3) and this part.

(5) The value, when used for compliance, of any credits received via trade or transfer is adjusted, using the adjustment factor described in § 536.4(c), pursuant to 49 U.S.C. 32903(f)(1).

(6) Credit allocation plans received from a manufacturer will be reviewed and approved by NHTSA. Starting in model year 2022, use the NHTSA Credit Template and the Credit Trade Cost Template (OMB Control No. 2127-0019,

NHTSA Forms 1475 and 1621) to record the credit transactions and the costs for any credit trades requested in the credit allocation plan. The template is a fillable form that has an option for recording and calculating credit transactions for credit allocation plans. The template calculates the required adjustments to the credits. The credit allocation plan and the completed transaction templates must be submitted to NHTSA. NHTSA will approve the credit allocation plan unless it finds that the proposed credits are unavailable or that it is unlikely that the plan will result in the manufacturer earning sufficient credits to offset the subject credit shortfall. If the plan is approved, NHTSA will revise the respective manufacturer's credit account accordingly. If the plan is rejected, NHTSA will notify the respective manufacturer and request a revised plan or payment of the appropriate fine.

(e) *Reporting.* (1) NHTSA periodically publishes the names and credit holdings of all credit holders. NHTSA does not publish individual transactions, nor respond to individual requests for updated balances from any party other than the account holder.

(2) NHTSA issues an annual credit status letter to each party that is a credit holder at that time. The letter to a credit holder includes a credit accounting record that identifies the credit status of the credit holder including any activity (earned, expired, transferred, traded, carry-forward and carry-back credit transactions/allocations) that took place during the identified activity period.

§ 536.6 Treatment of credits earned prior to model year 2011.

(a) Credits earned in a compliance category before model year 2008 may be applied by the manufacturer that earned them to carryback plans for that compliance category approved up to three model years prior to the year in which the credits were earned, or may be applied to compliance in that compliance category for up to three model years after the year in which the credits were earned.

(b) Credits earned in a compliance category during and after model year 2008 may be applied by the manufacturer that earned them to carryback plans for that compliance category approved up to three years prior to the year in which the credits were earned, or may be held or applied for up to five model years after the year in which the credits were earned.

(c) Credits earned in a compliance category prior to model year 2011 may not be transferred or traded.

§ 536.7 Treatment of carryback credits.

(a) Carryback credits earned in a compliance category in any model year may be used in carryback plans approved by NHTSA, pursuant to 49 U.S.C. 32903(b), for up to three model years prior to the year in which the credit was earned.

(b) For purposes of this part, NHTSA will treat the use of future credits for compliance, as through a carryback plan, as a deferral of penalties for non-compliance with an applicable fuel economy standard.

(c) If NHTSA receives and approves a manufacturer's carryback plan to earn future credits within the following three model years in order to comply with current regulatory obligations, NHTSA will defer levying fines for non-compliance until the date(s) when the manufacturer's approved plan indicates that credits will be earned or acquired to achieve compliance, and upon receiving confirmed CAFE data from EPA. If the manufacturer fails to acquire or earn sufficient credits by the plan dates, NHTSA will initiate compliance proceedings.

(d) In the event that NHTSA fails to receive or approve a plan for a non-compliant manufacturer, NHTSA will levy fines pursuant to statute. If within three years, the non-compliant manufacturer earns or acquires additional credits to reduce or eliminate the non-compliance, NHTSA will reduce any fines owed, or repay fines to the extent that credits received reduce the non-compliance.

(e) No credits from any source (earned, transferred and/or traded) will be accepted in lieu of compliance if those credits are not identified as originating within one of the three model years after the model year of the confirmed shortfall.

§ 536.8 Conditions for trading of credits.

(a) *Trading of credits.* If a credit holder wishes to trade credits to another party, the current credit holder and the receiving party must jointly issue an instruction to NHTSA, identifying the quantity, vintage, compliance category, and originator of the credits to be traded. If the recipient is not a current account holder, the recipient must provide sufficient information for NHTSA to establish an account for the recipient. Once an account has been established or identified for the recipient, NHTSA completes the trade by debiting the transferor's account and crediting the recipient's account. NHTSA will track the quantity, vintage, compliance category, and originator of all credits held or traded by all account-holders.

(b) *Trading between and within compliance categories.* For credits earned in model year 2011 or thereafter, and used to satisfy compliance obligations for model year 2011 or thereafter:

(1) Manufacturers may use credits originally earned by another manufacturer in a particular compliance category to satisfy compliance obligations within the same compliance category.

(2) Once a manufacturer acquires by trade credits originally earned by another manufacturer in a particular compliance category, the manufacturer may transfer the credits to satisfy its compliance obligations in a different compliance category, but only to the extent that the CAFE increase attributable to the transferred credits does not exceed the limits in 49 U.S.C. 32903(g)(3). For any compliance category, the sum of a manufacturer's transferred credits earned by that manufacturer and transferred credits obtained by that manufacturer through trade must not exceed that limit.

(c) *Changes in corporate ownership and control.* Manufacturers must inform NHTSA of corporate relationship changes to ensure that credit accounts are identified correctly and credits are assigned and allocated properly.

(1) In general, if two manufacturers merge in any way, they must inform NHTSA how they plan to merge their credit accounts. NHTSA will subsequently assess corporate fuel economy and compliance status of the merged fleet instead of the original separate fleets.

(2) If a manufacturer divides or divests itself of a portion of its automobile manufacturing business, it must inform NHTSA how it plans to divide the manufacturer's credit holdings into two or more accounts. NHTSA will subsequently distribute holdings as directed by the manufacturer, subject to provision for reasonably anticipated compliance obligations.

(3) If a manufacturer is a successor to another manufacturer's business, it must inform NHTSA how it plans to allocate credits and resolve liabilities per 49 CFR part 534.

(d) *No short or forward sales.* NHTSA will not honor any instructions to trade or transfer more credits than are currently held in any account. NHTSA will not honor instructions to trade or transfer credits from any future vintage (*i.e.*, credits not yet earned). NHTSA will not participate in or facilitate contingent trades.

(e) *Cancellation of credits.* A credit holder may instruct NHTSA to cancel

its currently held credits, specifying the originating manufacturer, vintage, and compliance category of the credits to be cancelled. These credits will be permanently null and void; NHTSA will remove the specific credits from the credit holder's account, and will not reissue them to any other party.

(f) *Errors or fraud in earning credits.* If NHTSA determines that a manufacturer has been credited, through error or fraud, with earning credits, NHTSA will cancel those credits if possible. If the manufacturer credited with having earned those credits has already traded them when the error or fraud is discovered, NHTSA will hold the receiving manufacturer responsible for returning the same or equivalent credits to NHTSA for cancellation.

(g) *Error or fraud in trading.* In general, all trades are final and irrevocable once executed, and may only be reversed by a new, mutually-agreed transaction. If NHTSA executes an erroneous instruction to trade credits from one holder to another through error or fraud, NHTSA will reverse the transaction if possible. If those credits have been traded away, the recipient holder is responsible for obtaining the same or equivalent credits for return to the previous holder.

§ 536.9 Use of credits with regard to the domestically manufactured passenger automobile minimum standard.

(a) Each manufacturer is responsible for compliance with both the minimum standard and the attribute-based standard.

(b) In any particular model year, the domestically manufactured passenger automobile compliance category credit excess or shortfall is determined by comparing the actual CAFE value against either the required standard value or the minimum standard value, whichever is larger.

(c) Transferred or traded credits may not be used, pursuant to 49 U.S.C. 32903(g)(4) and (f)(2), to meet the domestically manufactured passenger automobile minimum standard specified in 49 U.S.C. 32902(b)(4) and in 49 CFR 531.5(d).

(d) If a manufacturer's average fuel economy level for domestically manufactured passenger automobiles is lower than the attribute-based standard, but higher than the minimum standard, then the manufacturer may achieve compliance with the attribute-based standard by applying credits.

(e) If a manufacturer's average fuel economy level for domestically manufactured passenger automobiles is lower than the minimum standard, then the difference between the minimum

standard and the manufacturer's actual fuel economy level may only be relieved by the use of credits earned by that manufacturer within the domestic passenger car compliance category which have not been transferred or traded. If the manufacturer does not have available earned credits to offset a credit shortage below the minimum standard then the manufacturer can submit a carry-back plan that indicates sufficient future credits will be earned in its domestic passenger car compliance category or will be subject to penalties.

§ 536.10 Treatment of dual-fuel and alternative fuel vehicles—consistency with 49 CFR part 538.

(a) Statutory alternative fuel and dual-fuel vehicle fuel economy calculations are treated as a change in the underlying fuel economy of the vehicle for purposes of this part, not as a credit that may be transferred or traded. Improvements in alternative fuel or dual fuel vehicle fuel economy as calculated pursuant to 49 U.S.C. 32905 and limited by 49 U.S.C. 32906 are therefore attributable only to the particular compliance category and model year to which the alternative or dual-fuel vehicle belongs.

(b) If a manufacturer's calculated fuel economy for a particular compliance category, including any statutorily-required calculations for alternative fuel and dual fuel vehicles, is higher or lower than the applicable fuel economy standard, manufacturers will earn credits or must apply credits or pay civil penalties equal to the difference between the calculated fuel economy level in that compliance category and the applicable standard. Credits earned are the same as any other credits, and may be held, transferred, or traded by the manufacturer subject to the limitations of the statute and this part.

(c) For model years (MYs) up to and including MY 2019, if a manufacturer builds enough dual fuel vehicles (except plug-in hybrid electric vehicles) to improve the calculated fuel economy in a particular compliance category by more than the limits set forth in 49 U.S.C. 32906(a), the improvement in fuel economy for compliance purposes is restricted to the statutory limit. Manufacturers may not earn credits nor reduce the application of credits or fines for calculated improvements in fuel economy based on dual fuel vehicles beyond the statutory limit.

(d) For model years 2020 and beyond, a manufacturer must calculate the fuel economy of dual fueled vehicles in accordance with 40 CFR 600.510–12(c).

■ 4. Revise part 537 to read as follows:

PART 537—AUTOMOTIVE FUEL ECONOMY REPORTS

Sec.

- 537.1 Scope.
- 537.2 Purpose.
- 537.3 Applicability.
- 537.4 Definitions.
- 537.5 General requirements for reports.
- 537.6 General content of reports.
- 537.7 Pre-model year and mid-model year reports.
- 537.8 Supplementary reports.
- 537.9 Determination of fuel economy values and average fuel economy.
- 537.10 Incorporating documents into reports.
- 537.11 Public inspection of information.
- 537.12 Confidential information.

Authority: 49 U.S.C. 32907, delegation of authority at 49 CFR 1.95.

§ 537.1 Scope.

This part establishes requirements for automobile manufacturers to submit reports to the National Highway Traffic Safety Administration (NHTSA) regarding their efforts to improve automotive fuel economy.

§ 537.2 Purpose.

The purpose of this part is to obtain information to aid the National Highway Traffic Safety Administration in valuating automobile manufacturers' plans for complying with average fuel economy standards and in preparing an annual review of the average fuel economy standards.

§ 537.3 Applicability.

This part applies to automobile manufacturers, except for manufacturers subject to an alternate fuel economy standard under section 502(c) of the Act.

§ 537.4 Definitions.

(a) *Statutory terms.* (1) The terms *average fuel economy standard*, *fuel*, *manufacture*, and *model year* are used as defined in section 501 of the Act.

(2) The term *manufacturer* is used as defined in section 501 of the Act and in accordance with part 529 of this chapter.

(3) The terms *average fuel economy*, *fuel economy*, and *model type* are used as defined in subpart A of 40 CFR part 600.

(4) The terms *automobile*, *automobile capable of off-highway operation*, and *passenger automobile* are used as defined in section 501 of the Act and in accordance with the determinations in part 523 of this chapter.

(b) *Other terms.* (1) The term *loaded vehicle weight* is used as defined in subpart A of 40 CFR part 86.

(2) The terms *axle ratio*, *base level*, *body style*, *car line*, *combined fuel*

economy, *engine code*, *equivalent test weight*, *gross vehicle weight*, *inertia weight*, *transmission class*, and *vehicle configuration* are used as defined in subpart A of 40 CFR part 600.

(3) The term *light truck* is used as defined in part 523 of this chapter and in accordance with determinations in part 523.

(4) The terms *approach angle*, *axle clearance*, *brakeover angle*, *cargo carrying volume*, *departure angle*, *passenger carrying volume*, *running clearance*, and *temporary living quarters* are used as defined in part 523 of this chapter.

(5) The term *incomplete automobile manufacturer* is used as defined in part 529 of this chapter.

(6) As used in this part, unless otherwise required by the context:

(i) *Act* means the Motor Vehicle Information and Cost Savings Act (Pub. L. 92–513), as amended by the Energy Policy and Conservation Act (Pub. L. 94–163).

(ii) *Administrator* means the Administrator of the National Highway Traffic Safety Administration or the Administrator's delegate.

(iii) *Current model year* means:

(A) In the case of a pre-model year report, the full model year immediately following the period during which that report is required by § 537.5(b) to be submitted.

(B) In the case of a mid-model year report, the model year during which that report is required by § 537.5(b) to be submitted.

(iv) *Average* means a production-weighted harmonic average.

(v) *Total drive ratio* means the ratio of an automobile's engine rotational speed (in revolutions per minute) to the automobile's forward speed (in miles per hour).

§ 537.5 General requirements for reports.

(a) For each current model year, each manufacturer shall submit a pre-model year report, a mid-model year report, and, as required by § 537.8, supplementary reports.

(b)(1) The pre-model year report required by this part for each current model year must be submitted during the month of December (e.g., the pre-model year report for the 1983 model year must be submitted during December, 1982).

(2) The mid-model year report required by this part for each current model year must be submitted during the month of July (e.g., the mid-model year report for the 1983 model year must be submitted during July 1983).

(3) Each supplementary report must be submitted in accordance with § 537.8(c).

(c) Each report required by this part must:

(1) Identify the report as a pre-model year report, mid-model year report, or supplementary report as appropriate;

(2) Identify the manufacturer submitting the report;

(3) State the full name, title, and address of the official responsible for preparing the report;

(4) Be submitted on CD-ROM for confidential reports provided in accordance with § 537.12 and by email for non-confidential (*i.e.*, redacted) versions of reports. The content of reports must be provided in a PDF or MS Word format except for the information required in § 537.7 which must be provided in a MS Excel format. Submit 2 copies of the CD-ROM to: Administrator, National Highway Traffic Administration, 1200 New Jersey Avenue SW, Washington, DC 20590, and submit reports electronically to the following secure email address: cafe@dot.gov;

(5) Identify the current model year;

(6) Be written in the English language; and

(7)(i) Specify any part of the information or data in the report that the manufacturer believes should be withheld from public disclosure as trade secret or other confidential business information.

(ii) With respect to each item of information or data requested by the manufacturer to be withheld under 5 U.S.C. 552(b)(4) and 15 U.S.C. 2005(d)(1), the manufacturer shall:

(A) Show that the item is within the scope of sections 552(b)(4) and 2005(d)(1);

(B) Show that disclosure of the item would result in significant competitive damage;

(C) Specify the period during which the item must be withheld to avoid that damage; and

(D) Show that earlier disclosure would result in that damage.

(d) Beginning with model year 2023, each manufacturer shall generate reports required by this part using the NHTSA CAFE Projections Reporting Template (Office of Management and Budget (OMB) Control No. 2127-0019, NHTSA Form 1474). The template is a fillable form.

(1) *Report type selection.* Select the option to identify the report as a pre-model year report, mid-model year report, or supplementary report as appropriate.

(2) *Required information.* Complete all required information for the manufacturer and for all vehicles produced for the current model year required to comply with corporate

average fuel economy (CAFE) standards. Identify the manufacturer submitting the report, including the full name, title, and address of the official responsible for preparing the report and a point of contact to answer questions concerning the report.

(3) *Report generation.* Use the template to generate confidential and non-confidential reports for all the domestic and import passenger cars and light truck fleet produced by the manufacturer for the current model year. Manufacturers must submit a request for confidentiality in accordance with part 512 of this chapter to withhold projected production sales volume estimates from public disclosure. If the request is granted, NHTSA will withhold the projected production sales volume estimates from public disclosure until all the vehicles produced by the manufacturer have been made available for sale (usually one year after the current model year).

(4) *Report submission.* Submit confidential reports and requests for confidentiality to NHTSA on CD-ROM in accordance with § 537.12. Email copies of non-confidential (*i.e.*, redacted) reports to NHTSA's secure email address: cafe@dot.gov. Requests for confidentiality must be submitted in a PDF or MS Word format. Submit 2 copies of the CD-ROM to: Administrator, National Highway Traffic Administration, 1200 New Jersey Avenue SE, Washington, DC 20590, and submit emailed reports electronically to the following secure email address: cafe@dot.gov.

(5) *Confidentiality requests.* Manufacturers can withhold information on projected production sales volumes under 5 U.S.C. 552(b)(4) and 15 U.S.C. 2005(d)(1). In accordance, the manufacturer must:

(i) Show that the item is within the scope of sections 552(b)(4) and 2005(d)(1);

(ii) Show that disclosure of the item would result in significant competitive damage;

(iii) Specify the period during which the item must be withheld to avoid that damage; and

(iv) Show that earlier disclosure would result in that damage.

(e) Each report required by this part must be based upon all information and data available to the manufacturer 30 days before the report is submitted to the Administrator.

§ 537.6 General content of reports.

(a) *Pre-model year and mid-model year reports.* Except as provided in paragraph (c) of this section, each pre-model year report and the mid-model

year report for each model year must contain the information required by § 537.7(a).

(b) *Supplementary report.* Except as provided in paragraph (c) of this section, each supplementary report for each model year must contain the information required by § 537.7(a)(1) and (2), as appropriate for the vehicle fleets produced by the manufacturer, in accordance with § 537.8(b)(1), (2), (3), and (4) as appropriate.

(c) *Exceptions.* The pre-model year report, mid-model year report, and supplementary report(s) submitted by an incomplete automobile manufacturer for any model year are not required to contain the information specified in § 537.7(c)(4)(xv) through (xviii) and (c)(5). The information provided by the incomplete automobile manufacturer under § 537.7(c) shall be according to base level instead of model type or carline.

§ 537.7 Pre-model year and mid-model year reports.

(a) *Report content.* (1) Provide a report with the information required by paragraphs (b) and (c) of this section for each domestic and import passenger automobile fleet, as specified in part 531 of this chapter, for the current model year.

(2) Provide a report with the information required by paragraphs (b) and (c) of this section for each light truck fleet, as specified in part 533 of this chapter, for the current model year.

(3) For model year 2023 and later, for passenger cars specified in part 531 of this chapter and light trucks specified in part 533 of this chapter, provide the information for pre-model and mid-model year reports in accordance with the NHTSA CAFE Projections Reporting Template (OMB Control No. 2127-0019, NHTSA Form 1474). The required reporting template can be downloaded from NHTSA's website.

(b) *Projected average and required fuel economy.* (1) State the projected average fuel economy for the manufacturer's automobiles determined in accordance with § 537.9 and based upon the fuel economy values and projected sales figures provided under paragraph (c)(2) of this section.

(2) State the projected final average fuel economy that the manufacturer anticipates having if changes implemented during the model year will cause that average to be different from the average fuel economy projected under paragraph (b)(1) of this section.

(3) State the projected required fuel economy for the manufacturer's passenger automobiles and light trucks determined in accordance with

§§ 531.5(c) and 533.5 of this chapter and based upon the projected sales figures provided under paragraph (c)(2) of this section. For each unique model type and footprint combination of the manufacturer's automobiles, provide the information specified in paragraphs (b)(3)(i) and (ii) of this section in tabular form. List the model types in order of increasing average inertia weight from top to bottom down the left side of the table and list the information categories in the order specified in paragraphs (b)(3)(i) and (ii) of this section from left to right across the top of the table. Other formats, such as those accepted by the EPA, which contain all the information in a readily identifiable format are also acceptable. For model year 2023 and later, for each unique model type and footprint combination of the manufacturer's automobiles, provide the information specified in paragraphs (b)(3)(i) and (ii) of this section in accordance with the CAFE Projections Reporting Template (OMB Control No. 2127-0019, NHTSA Form 1474).

(i) In the case of passenger automobiles:

(A) Beginning model year 2013, base tire as defined in § 523.2 of this chapter;

(B) Beginning model year 2013, front axle, rear axle, and average track width as defined in § 523.2 of this chapter;

(C) Beginning model year 2013, wheelbase as defined in § 523.2 of this chapter; and

(D) Beginning model year 2013, footprint as defined in § 523.2 of this chapter.

(E) The fuel economy target value for each unique model type and footprint entry listed in accordance with the equation provided in part 531 of this chapter.

(ii) In the case of light trucks:

(A) Beginning model year 2013, base tire as defined in § 523.2 of this chapter;

(B) Beginning model year 2013, front axle, rear axle, and average track width as defined in § 523.2 of this chapter;

(C) Beginning model year 2013, wheelbase as defined in § 523.2 of this chapter; and

(D) Beginning model year 2013, footprint as defined in § 523.2 of this chapter.

(E) The fuel economy target value for each unique model type and footprint entry listed in accordance with the equation provided in part 533 of this chapter.

(4) State the projected final required fuel economy that the manufacturer anticipates having if changes implemented during the model year will cause the targets to be different from the target fuel economy projected under paragraph (b)(3) of this section.

(5) State whether the manufacturer believes that the projections it provides under paragraphs (b)(2) and (4) of this section, or if it does not provide an average or target under paragraphs (b)(2) and (4), the projections it provides under paragraphs (b)(1) and (3) of this section, sufficiently represent the manufacturer's average and target fuel economy for the current model year for purposes of the Act. In the case of a manufacturer that believes that the projections are not sufficiently representative for the purposes of the preceding sentence, state the specific nature of any reason for the insufficiency and the specific additional testing or derivation of fuel economy values by analytical methods believed by the manufacturer necessary to eliminate the insufficiency and any plans of the manufacturer to undertake that testing or derivation voluntarily and submit the resulting data to the Environmental Protection Agency under 40 CFR 600.509.

(c) *Model type and configuration fuel economy and technical information.* (1) For each model type of the manufacturer's automobiles, provide the information specified in paragraph (c)(2) of this section in tabular form. List the model types in order of increasing average inertia weight from top to bottom down the left side of the table and list the information categories in the order specified in paragraph (c)(2) of this section from left to right across the top of the table. For model year 2023 and later, CAFE reports required by this part, shall for each model type of the manufacturer's automobiles, provide the information in specified in paragraph (c)(2) of this section in accordance with the NHTSA CAFE Projections Reporting Template (OMB Control No. 2127-0019, NHTSA Form 1474) and list the model types in order of increasing average inertia weight from top to bottom.

(2)(i) Combined fuel economy; and

(ii) Projected sales for the current model year and total sales of all model types.

(3) For pre-model year reports only through model year 2022, for each vehicle configuration whose fuel economy was used to calculate the fuel economy values for a model type under paragraph (c)(2) of this section, provide the information specified in paragraph (c)(4) of this section in accordance with the NHTSA CAFE Projections Reporting Template (OMB Control No. 2127-0019, NHTSA Form 1474).

(4)(i) Loaded vehicle weight;

(ii) Equivalent test weight;

(iii) Engine displacement, liters;

(iv) SAE net rated power, kilowatts;

(v) SAE net horsepower;

(vi) Engine code;

(vii) Fuel system (number of carburetor barrels or, if fuel injection is used, so indicate);

(viii) Emission control system;

(ix) Transmission class;

(x) Number of forward speeds;

(xi) Existence of overdrive (indicate yes or no);

(xii) Total drive ratio (N/V);

(xiii) Axle ratio;

(xiv) Combined fuel economy;

(xv) Projected sales for the current model year;

(xvi)(A) In the case of passenger automobiles:

(1) Interior volume index, determined in accordance with subpart D of 40 CFR part 600; and

(2) Body style;

(B) In the case of light trucks:

(1) Passenger-carrying volume; and

(2) Cargo-carrying volume;

(xvii) Frontal area;

(xviii) Road load power at 50 miles per hour, if determined by the manufacturer for purposes other than compliance with this part to differ from the road load setting prescribed in 40 CFR 86.177-11(d); and

(ix) Optional equipment that the manufacturer is required under 40 CFR parts 86 and 600 to have actually installed on the vehicle configuration, or the weight of which must be included in the curb weight computation for the vehicle configuration, for fuel economy testing purposes.

(5) For each model type of automobile which is classified as a non-passenger vehicle (light truck) under part 523 of this chapter, provide the following data:

(i) For an automobile designed to perform at least one of the following functions in accordance with § 523.5(a) of this chapter indicate (by "yes" or "no" for each function) whether the vehicle can:

(A) Transport more than 10 persons (if yes, provide actual designated seating positions);

(B) Provide temporary living quarters (if yes, provide applicable conveniences as defined in § 523.2 of this chapter);

(C) Transport property on an open bed (if yes, provide bed size width and length);

(D) Provide, as sold to the first retail purchaser, greater cargo-carrying than passenger-carrying volume, such as in a cargo van and quantify the value which should be the difference between the values provided in paragraphs (c)(4)(xvi)(B)(1) and (2) of this section; if a vehicle is sold with a second-row seat, its cargo-carrying volume is determined with that seat installed, regardless of whether the manufacturer has described that seat as optional; or

(E) Permit expanded use of the automobile for cargo-carrying purposes or other non-passenger-carrying purposes through:

(1) For non-passenger automobiles manufactured prior to model year 2012, the removal of seats to permit expanded use of the automobile for cargo-carrying purposes or other non-passenger-carrying purposes through means provided by the automobile's manufacturer or with simple tools, such as screwdrivers and wrenches, so as to create a flat, floor level, surface extending from the forward-most point of installation of those seats to the rear of the automobile's interior; or

(2) For non-passenger automobiles manufactured in model year 2008 and beyond, for vehicles equipped with at least 3 rows of designated seating positions as standard equipment, permit expanded use of the automobile for cargo-carrying purposes or other nonpassenger-carrying purposes through the removal or stowing of foldable or pivoting seats so as to create a flat, leveled cargo surface extending from the forward-most point of installation of those seats to the rear of the automobile's interior.

(ii) For an automobile capable of off-highway operation, identify which of the features below qualify the vehicle as off-road in accordance with § 523.5(b) of this chapter and quantify the values of each feature:

(A) 4-wheel drive; or

(B) A rating of more than 6,000 pounds gross vehicle weight; and

(C) Has at least four of the following characteristics calculated when the automobile is at curb weight, on a level surface, with the front wheels parallel to the automobile's longitudinal centerline, and the tires inflated to the manufacturer's recommended pressure. The exact value of each feature should be quantified:

(1) Approach angle of not less than 28 degrees.

(2) Breakover angle of not less than 14 degrees.

(3) Departure angle of not less than 20 degrees.

(4) Running clearance of not less than 20 centimeters.

(5) Front and rear axle clearances of not less than 18 centimeters each.

(6) The fuel economy values provided under paragraphs (c)(2) and (4) of this section shall be determined in accordance with § 537.9.

(7) Identify any air-conditioning (AC), off-cycle, and full-size pick-up truck technologies used each model year to calculate the average fuel economy specified in 40 CFR 600.510–12.

(i) Provide a list of each air conditioning efficiency improvement technology utilized in your fleet(s) of vehicles for each model year. For each technology identify vehicles by make and model types that have the technology, which compliance category those vehicles belong to and the number of vehicles for each model equipped with the technology. For each compliance category (domestic passenger car, import passenger car, and light truck), report the air conditioning fuel consumption improvement value in gallons/mile in accordance with the equation specified in 40 CFR 600.510–12(c)(3)(i).

(ii) Provide a list of off-cycle efficiency improvement technologies utilized in your fleet(s) of vehicles for each model year that is pending or approved by the EPA. For each technology identify vehicles by make and model types that have the technology, which compliance category those vehicles belong to, the number of vehicles for each model equipped with the technology, and the associated off-cycle credits (grams/mile) available for each technology. For each compliance category (domestic passenger car, import passenger car, and light truck), calculate the fleet off-cycle fuel consumption improvement value in gallons/mile in accordance with the equation specified in 40 CFR 600.510–12(c)(3)(ii).

(iii) Provide a list of full-size pickup trucks in your fleet that meet the mild and strong hybrid vehicle definitions as specified in 40 CFR 86.1803–01. For each mild and strong hybrid type, identify vehicles by make and model types that have the technology, the number of vehicles produced for each model equipped with the technology, the total number of full-size pickup trucks produced with and without the technology, the calculated percentage of hybrid vehicles relative to the total number of vehicles produced, and the associated full-size pickup truck credits (grams/mile) available for each technology. For the light truck compliance category, calculate the fleet pickup truck fuel consumption improvement value in gallons/mile in accordance with the equation specified in 40 CFR 600.510–12(c)(3)(iii).

§ 537.8 Supplementary reports.

(a)(1) Except as provided in paragraph (d) of this section, each manufacturer whose most recently submitted semiannual report contained an average fuel economy projection under § 537.7(b)(2) or, if no average fuel economy was projected under that section, under § 537.7(b)(1), that was not

less than the applicable average fuel economy standard and who now projects an average fuel economy which is less than the applicable standard shall file a supplementary report containing the information specified in paragraph (b)(1) of this section.

(2) Except as provided in paragraph (d) of this section, each manufacturer that determines that its average fuel economy for the current model year as projected under § 537.7(b)(2) or, if no average fuel economy was projected under § 537.7(b)(2), as projected under § 537.7(b)(1), is less representative than the manufacturer previously reported it to be under § 537.7(b)(3), this section, or both, shall file a supplementary report containing the information specified in paragraph (b)(2) of this section.

(3) For model years through 2022, each manufacturer whose pre-model or mid-model year report omits any of the information specified in § 537.7(b) or (c) shall file a supplementary report containing the information specified in paragraph (b)(3) of this section.

(4) Starting model year 2023, each manufacturer whose pre-model or mid-model year report omits any of the information shall resubmit the information with other information required in accordance with the NHTSA CAFE Projections Reporting Template (OMB Control No. 2127–0019, NHTSA Form 1474).

(b)(1) The supplementary report required by paragraph (a)(1) of this section must contain:

(i) Such revisions of and additions to the information previously submitted by the manufacturer under this part regarding the automobiles whose projected average fuel economy has decreased as specified in paragraph (a)(1) of this section as are necessary—

(A) To reflect the decrease and its cause; and

(B) To indicate a new projected average fuel economy based upon these additional measures.

(ii) An explanation of the cause of the decrease in average fuel economy that led to the manufacturer's having to submit the supplementary report required by paragraph (a)(1) of this section.

(2) The supplementary report required by paragraph (a)(2) of this section must contain:

(i) A statement of the specific nature of and reason for the insufficiency in the representativeness of the projected average fuel economy;

(ii) A statement of specific additional testing or derivation of fuel economy values by analytical methods believed by the manufacturer necessary to eliminate the insufficiency; and

(iii) A description of any plans of the manufacturer to undertake that testing or derivation voluntarily and submit the resulting data to the Environmental Protection Agency under 40 CFR 600.509.

(3) The supplementary report required by paragraph (a)(3) of this section must contain:

(i) All of the information omitted from the pre-model year report under § 537.6(c)(2); and

(ii) Such revisions of and additions to the information submitted by the manufacturer in its pre-model year report regarding the automobiles produced during the current model year as are necessary to reflect the information provided under paragraph (b)(3)(i) of this section.

(4) The supplementary report required by paragraph (a)(4) of this section must contain:

(i) All information omitted from the pre-model or mid-model year reports under § 537.6(c)(2); and

(ii) Such revisions of and additions to the information submitted by the manufacturer in its pre-model or mid-model year reports regarding the automobiles produced during the current model year as are necessary to reflect the information provided under paragraph (b)(4)(i) of this section.

(c)(1) Each report required by paragraph (a)(1), (2), (3), or (4) of this section must be submitted in accordance with § 537.5(c) not more than 45 days after the date on which the manufacturer determined, or could have determined with reasonable diligence, that the report was required.

(2) [Reserved]

(d) A supplementary report is not required to be submitted by the manufacturer under paragraph (a)(1) or (2) of this section:

(1) With respect to information submitted under this part before the most recent semiannual report submitted by the manufacturer under this part; or

(2) When the date specified in paragraph (c) of this section occurs:

(i) During the 60-day period immediately preceding the day by which the mid-model year report for the current model year must be submitted by the manufacturer under this part; or

(ii) After the day by which the pre-model year report for the model year

immediately following the current model year must be submitted by the manufacturer under this part.

(e) For model years 2008, 2009, and 2010, each manufacturer of light trucks, as that term is defined in 49 CFR 523.5, shall submit a report, not later than 45 days following the end of the model year, indicating whether the manufacturer is opting to comply with 49 CFR 533.5(f) or (g).

§ 537.9 Determination of fuel economy values and average fuel economy.

(a) *Vehicle subconfiguration fuel economy values.* (1) For each vehicle subconfiguration for which a fuel economy value is required under paragraph (c) of this section and has been determined and approved under 40 CFR part 600, the manufacturer shall submit that fuel economy value.

(2) For each vehicle subconfiguration specified in paragraph (a)(1) of this section for which a fuel economy value approved under 40 CFR part 600, does not exist, but for which a fuel economy value determined under 40 CFR part 600 exists, the manufacturer shall submit that fuel economy value.

(3) For each vehicle subconfiguration specified in paragraph (a)(1) of this section for which a fuel economy value has been neither determined nor approved under 40 CFR part 600, the manufacturer shall submit a fuel economy value based on tests or analyses comparable to those prescribed or permitted under 40 CFR part 600 and a description of the test procedures or analytical methods used.

(4) For each vehicle configuration for which a fuel economy value is required under paragraph (c) of this section and has been determined and approved under 40 CFR part 600, the manufacturer shall submit that fuel economy value.

(b) *Base level and model type fuel economy values.* For each base level and model type, the manufacturer shall submit a fuel economy value based on the values submitted under paragraph (a) of this section and calculated in the same manner as base level and model type fuel economy values are calculated for use under subpart F of 40 CFR part 600.

(c) *Average fuel economy.* Average fuel economy must be based upon fuel economy values calculated under

paragraph (b) of this section for each model type and must be calculated in accordance with subpart F of 40 CFR part 600, except that fuel economy values for running changes and for new base levels are required only for those changes made or base levels added before the average fuel economy is required to be submitted under this part.

§ 537.10 Incorporating documents into reports.

(a) A manufacturer may incorporate by reference in a report required by this part any document other than a report, petition, or application, or portion thereof submitted to any Federal department or agency more than two model years before the current model year.

(b) A manufacturer that incorporates by references a document not previously submitted to the National Highway Traffic Safety Administration shall append that document to the report.

(c) A manufacturer that incorporates by reference a document shall clearly identify the document and, in the case of a document previously submitted to the National Highway Traffic Safety Administration, indicate the date on which and the person by whom the document was submitted to this agency.

§ 537.11 Public inspection of information.

Except as provided in § 537.12, any person may inspect the information and data submitted by a manufacturer under this part in the docket section of the National Highway Traffic Safety Administration. Any person may obtain copies of the information available for inspection under this section in accordance with the regulations of the Secretary of Transportation in part 7 of this title.

§ 537.12 Confidential information.

(a) *Granting confidential treatment.* Information made available under § 537.11 for public inspection does not include information for which confidentiality is requested under § 537.5(c)(7), is granted in accordance with section 505 of the Act and section 552(b) of Title 5 of the United States Code and is not subsequently released under paragraph (c) of this section in accordance with section 505 of the Act.

(b) *Denial of confidential treatment.* When the Administrator denies a manufacturer's request under § 537.5(c)(7) for confidential treatment of information, the Administrator gives the manufacturer written notice of the denial and reasons for it. Public disclosure of the information is not made until after the ten-day period

immediately following the giving of the notice.

(c) *Release of confidential information.* After giving written notice to a manufacturer and allowing ten days, when feasible, for the manufacturer to respond, the Administrator may make available for public inspection any information submitted under this part that is relevant to a proceeding under the Act,

including information that was granted confidential treatment by the Administrator pursuant to a request by the manufacturer under § 537.5(c)(7).

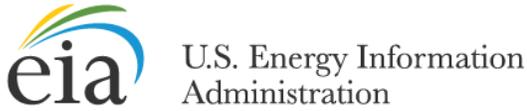
Issued on August 5, 2021, in Washington, DC, under authority delegated in 49 CFR 1.95

Steven S. Cliff,

Acting Administrator.

[FR Doc. 2021-17496 Filed 8-27-21; 4:15 pm]

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PETROLEUM & OTHER LIQUIDS

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Referring Pages:

- [Retail Prices for Gasoline, All Grades](#)
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View History: Weekly Monthly Annual

[Download Data \(XLS File\)](#)

Weekly U.S. All Grades All Formulations Retail Gasoline Prices

DOWNLOAD

Dollars per Gallon



Source: U.S. Energy Information Administration

Chart Tools

no analysis applied

This series is available through the EIA open data API and can be downloaded to Excel or embedded as an interactive chart or map on your website.

Weekly U.S. All Grades All Formulations Retail Gasoline Prices (Dollars per Gallon)

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
1993-Apr	04/05	1.068	04/12	1.079	04/19	1.079	04/26	1.086		
1993-May	05/03	1.086	05/10	1.097	05/17	1.106	05/24	1.106	05/31	1.107
1993-Jun	06/07	1.104	06/14	1.101	06/21	1.095	06/28	1.089		
1993-Jul	07/05	1.086	07/12	1.081	07/19	1.075	07/26	1.069		
1993-Aug	08/02	1.062	08/09	1.060	08/16	1.059	08/23	1.065	08/30	1.062
1993-Sep	09/06	1.055	09/13	1.051	09/20	1.045	09/27	1.047		
1993-Oct	10/04	1.092	10/11	1.090	10/18	1.093	10/25	1.092		
1993-Nov	11/01	1.084	11/08	1.075	11/15	1.064	11/22	1.058	11/29	1.051
1993-Dec	12/06	1.036	12/13	1.018	12/20	1.003	12/27	0.999		
1994-Jan	01/03	0.992	01/10	0.995	01/17	1.001	01/24	0.999	01/31	1.005
1994-Feb	02/07	1.007	02/14	1.016	02/21	1.009	02/28	1.004		
1994-Mar	03/07	1.007	03/14	1.005	03/21	1.007	03/28	1.012		
1994-Apr	04/04	1.011	04/11	1.028	04/18	1.033	04/25	1.037		
1994-May	05/02	1.040	05/09	1.045	05/16	1.046	05/23	1.050	05/30	1.056
1994-Jun	06/06	1.065	06/13	1.073	06/20	1.079	06/27	1.095		
1994-Jul	07/04	1.097	07/11	1.103	07/18	1.109	07/25	1.114		
1994-Aug	08/01	1.130	08/08	1.157	08/15	1.161	08/22	1.165	08/29	1.161
1994-Sep	09/05	1.156	09/12	1.150	09/19	1.140	09/26	1.129		
1994-Oct	10/03	1.120	10/10	1.114	10/17	1.106	10/24	1.107	10/31	1.121
1994-Nov	11/07	1.123	11/14	1.122	11/21	1.113	11/28	1.117		
1994-Dec	12/05	1.127	12/12	1.131	12/19	1.134	12/26	1.125		
1995-Jan	01/02	1.127	01/09	1.134	01/16	1.126	01/23	1.132	01/30	1.131
1995-Feb	02/06	1.124	02/13	1.121	02/20	1.115	02/27	1.121		
1995-Mar	03/06	1.123	03/13	1.116	03/20	1.114	03/27	1.121		
1995-Apr	04/03	1.133	04/10	1.149	04/17	1.163	04/24	1.184		

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
1995-May	05/01	1.194	05/08	1.216	05/15	1.226	05/22	1.244	05/29	1.246
1995-Jun	06/05	1.246	06/12	1.243	06/19	1.236	06/26	1.229		
1995-Jul	07/03	1.222	07/10	1.212	07/17	1.200	07/24	1.191	07/31	1.179
1995-Aug	08/07	1.174	08/14	1.172	08/21	1.171	08/28	1.163		
1995-Sep	09/04	1.160	09/11	1.158	09/18	1.157	09/25	1.156		
1995-Oct	10/02	1.151	10/09	1.144	10/16	1.133	10/23	1.125	10/30	1.115
1995-Nov	11/06	1.112	11/13	1.109	11/20	1.106	11/27	1.107		
1995-Dec	12/04	1.108	12/11	1.110	12/18	1.124	12/25	1.128		
1996-Jan	01/01	1.129	01/08	1.139	01/15	1.145	01/22	1.138	01/29	1.133
1996-Feb	02/05	1.130	02/12	1.126	02/19	1.133	02/26	1.153		
1996-Mar	03/04	1.170	03/11	1.171	03/18	1.181	03/25	1.210		
1996-Apr	04/01	1.223	04/08	1.248	04/15	1.287	04/22	1.301	04/29	1.318
1996-May	05/06	1.321	05/13	1.323	05/20	1.330	05/27	1.321		
1996-Jun	06/03	1.315	06/10	1.307	06/17	1.302	06/24	1.289		
1996-Jul	07/01	1.279	07/08	1.276	07/15	1.273	07/22	1.272	07/29	1.263
1996-Aug	08/05	1.253	08/12	1.248	08/19	1.249	08/26	1.253		
1996-Sep	09/02	1.242	09/09	1.247	09/16	1.250	09/23	1.251	09/30	1.245
1996-Oct	10/07	1.239	10/14	1.248	10/21	1.249	10/28	1.260		
1996-Nov	11/04	1.268	11/11	1.272	11/18	1.282	11/25	1.289		
1996-Dec	12/02	1.287	12/09	1.287	12/16	1.283	12/23	1.278	12/30	1.274
1997-Jan	01/06	1.272	01/13	1.287	01/20	1.287	01/27	1.284		
1997-Feb	02/03	1.282	02/10	1.280	02/17	1.273	02/24	1.270		
1997-Mar	03/03	1.261	03/10	1.253	03/17	1.246	03/24	1.250	03/31	1.246
1997-Apr	04/07	1.248	04/14	1.244	04/21	1.245	04/28	1.240		
1997-May	05/05	1.238	05/12	1.238	05/19	1.247	05/26	1.255		
1997-Jun	06/02	1.258	06/09	1.251	06/16	1.242	06/23	1.232	06/30	1.226
1997-Jul	07/07	1.222	07/14	1.219	07/21	1.222	07/28	1.216		
1997-Aug	08/04	1.237	08/11	1.272	08/18	1.274	08/25	1.288		
1997-Sep	09/01	1.287	09/08	1.288	09/15	1.281	09/22	1.269	09/29	1.255
1997-Oct	10/06	1.254	10/13	1.248	10/20	1.238	10/27	1.228		
1997-Nov	11/03	1.221	11/10	1.222	11/17	1.213	11/24	1.207		
1997-Dec	12/01	1.197	12/08	1.187	12/15	1.176	12/22	1.167	12/29	1.158
1998-Jan	01/05	1.148	01/12	1.140	01/19	1.129	01/26	1.112		
1998-Feb	02/02	1.108	02/09	1.101	02/16	1.085	02/23	1.090		
1998-Mar	03/02	1.075	03/09	1.065	03/16	1.055	03/23	1.047	03/30	1.077
1998-Apr	04/06	1.074	04/13	1.072	04/20	1.075	04/27	1.086		
1998-May	05/04	1.095	05/11	1.109	05/18	1.109	05/25	1.108		
1998-Jun	06/01	1.104	06/08	1.113	06/15	1.104	06/22	1.096	06/29	1.096
1998-Jul	07/06	1.097	07/13	1.092	07/20	1.097	07/27	1.088		
1998-Aug	08/03	1.077	08/10	1.072	08/17	1.065	08/24	1.058	08/31	1.053
1998-Sep	09/07	1.046	09/14	1.042	09/21	1.053	09/28	1.053		
1998-Oct	10/05	1.059	10/12	1.063	10/19	1.058	10/26	1.055		
1998-Nov	11/02	1.050	11/09	1.048	11/16	1.037	11/23	1.030	11/30	1.015
1998-Dec	12/07	0.996	12/14	0.987	12/21	0.986	12/28	0.979		
1999-Jan	01/04	0.977	01/11	0.982	01/18	0.985	01/25	0.977		
1999-Feb	02/01	0.971	02/08	0.968	02/15	0.960	02/22	0.949		
1999-Mar	03/01	0.955	03/08	0.963	03/15	1.017	03/22	1.056	03/29	1.121
1999-Apr	04/05	1.158	04/12	1.179	04/19	1.175	04/26	1.171		
1999-May	05/03	1.176	05/10	1.180	05/17	1.180	05/24	1.166	05/31	1.151
1999-Jun	06/07	1.152	06/14	1.148	06/21	1.163	06/28	1.153		
1999-Jul	07/05	1.165	07/12	1.182	07/19	1.208	07/26	1.232		
1999-Aug	08/02	1.234	08/09	1.246	08/16	1.275	08/23	1.273	08/30	1.273
1999-Sep	09/06	1.282	09/13	1.290	09/20	1.307	09/27	1.302		
1999-Oct	10/04	1.296	10/11	1.290	10/18	1.277	10/25	1.277		
1999-Nov	11/01	1.271	11/08	1.274	11/15	1.292	11/22	1.309	11/29	1.315
1999-Dec	12/06	1.313	12/13	1.315	12/20	1.310	12/27	1.314		
2000-Jan	01/03	1.312	01/10	1.304	01/17	1.318	01/24	1.354	01/31	1.355
2000-Feb	02/07	1.364	02/14	1.394	02/21	1.443	02/28	1.458		
2000-Mar	03/06	1.539	03/13	1.566	03/20	1.569	03/27	1.549		
2000-Apr	04/03	1.543	04/10	1.516	04/17	1.486	04/24	1.478		
2000-May	05/01	1.461	05/08	1.495	05/15	1.531	05/22	1.566	05/29	1.579
2000-Jun	06/05	1.599	06/12	1.664	06/19	1.711	06/26	1.691		
2000-Jul	07/03	1.661	07/10	1.630	07/17	1.586	07/24	1.562	07/31	1.514
2000-Aug	08/07	1.504	08/14	1.489	08/21	1.508	08/28	1.521		
2000-Sep	09/04	1.568	09/11	1.598	09/18	1.599	09/25	1.586		
2000-Oct	10/02	1.563	10/09	1.541	10/16	1.578	10/23	1.588	10/30	1.584
2000-Nov	11/06	1.565	11/13	1.562	11/20	1.550	11/27	1.549		
2000-Dec	12/04	1.526	12/11	1.490	12/18	1.462	12/25	1.453		
2001-Jan	01/01	1.446	01/08	1.465	01/15	1.513	01/22	1.511	01/29	1.500
2001-Feb	02/05	1.483	02/12	1.515	02/19	1.489	02/26	1.471		
2001-Mar	03/05	1.457	03/12	1.453	03/19	1.444	03/26	1.445		
2001-Apr	04/02	1.482	04/09	1.540	04/16	1.610	04/23	1.658	04/30	1.665
2001-May	05/07	1.739	05/14	1.748	05/21	1.724	05/28	1.739		
2001-Jun	06/04	1.715	06/11	1.688	06/18	1.644	06/25	1.583		
2001-Jul	07/02	1.520	07/09	1.484	07/16	1.459	07/23	1.440	07/30	1.428
2001-Aug	08/06	1.419	08/13	1.434	08/20	1.467	08/27	1.523		

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
2001-Sep	09/03	1.579	09/10	1.562	09/17	1.564	09/24	1.522		
2001-Oct	10/01	1.455	10/08	1.393	10/15	1.351	10/22	1.307	10/29	1.277
2001-Nov	11/05	1.249	11/12	1.224	11/19	1.208	11/26	1.168		
2001-Dec	12/03	1.149	12/10	1.136	12/17	1.101	12/24	1.113	12/31	1.137
2002-Jan	01/07	1.152	01/14	1.152	01/21	1.146	01/28	1.142		
2002-Feb	02/04	1.157	02/11	1.148	02/18	1.157	02/25	1.157		
2002-Mar	03/04	1.185	03/11	1.262	03/18	1.328	03/25	1.382		
2002-Apr	04/01	1.412	04/08	1.454	04/15	1.446	04/22	1.446	04/29	1.435
2002-May	05/06	1.437	05/13	1.431	05/20	1.439	05/27	1.429		
2002-Jun	06/03	1.433	06/10	1.417	06/17	1.419	06/24	1.425		
2002-Jul	07/01	1.433	07/08	1.423	07/15	1.435	07/22	1.451	07/29	1.447
2002-Aug	08/05	1.437	08/12	1.435	08/19	1.434	08/26	1.444		
2002-Sep	09/02	1.436	09/09	1.437	09/16	1.442	09/23	1.436	09/30	1.455
2002-Oct	10/07	1.480	10/14	1.481	10/21	1.499	10/28	1.485		
2002-Nov	11/04	1.489	11/11	1.480	11/18	1.451	11/25	1.423		
2002-Dec	12/02	1.408	12/09	1.404	12/16	1.407	12/23	1.443	12/30	1.484
2003-Jan	01/06	1.487	01/13	1.496	01/20	1.502	01/27	1.515		
2003-Feb	02/03	1.569	02/10	1.649	02/17	1.701	02/24	1.699		
2003-Mar	03/03	1.726	03/10	1.752	03/17	1.768	03/24	1.732	03/31	1.692
2003-Apr	04/07	1.673	04/14	1.639	04/21	1.618	04/28	1.600		
2003-May	05/05	1.556	05/12	1.534	05/19	1.539	05/26	1.528		
2003-Jun	06/02	1.514	06/09	1.530	06/16	1.558	06/23	1.537	06/30	1.528
2003-Jul	07/07	1.530	07/14	1.563	07/21	1.566	07/28	1.558		
2003-Aug	08/04	1.576	08/11	1.611	08/18	1.668	08/25	1.787		
2003-Sep	09/01	1.786	09/08	1.758	09/15	1.739	09/22	1.686	09/29	1.635
2003-Oct	10/06	1.617	10/13	1.611	10/20	1.612	10/27	1.584		
2003-Nov	11/03	1.577	11/10	1.547	11/17	1.540	11/24	1.554		
2003-Dec	12/01	1.533	12/08	1.519	12/15	1.509	12/22	1.528	12/29	1.521
2004-Jan	01/05	1.552	01/12	1.603	01/19	1.637	01/26	1.664		
2004-Feb	02/02	1.660	02/09	1.681	02/16	1.690	02/23	1.730		
2004-Mar	03/01	1.758	03/08	1.780	03/15	1.767	03/22	1.785	03/29	1.800
2004-Apr	04/05	1.822	04/12	1.827	04/19	1.853	04/26	1.853		
2004-May	05/03	1.884	05/10	1.979	05/17	2.055	05/24	2.104	05/31	2.092
2004-Jun	06/07	2.075	06/14	2.029	06/21	1.981	06/28	1.965		
2004-Jul	07/05	1.939	07/12	1.959	07/19	1.971	07/26	1.948		
2004-Aug	08/02	1.930	08/09	1.920	08/16	1.917	08/23	1.926	08/30	1.909
2004-Sep	09/06	1.893	09/13	1.889	09/20	1.908	09/27	1.959		
2004-Oct	10/04	1.980	10/11	2.035	10/18	2.077	10/25	2.074		
2004-Nov	11/01	2.076	11/08	2.045	11/15	2.014	11/22	1.992	11/29	1.989
2004-Dec	12/06	1.956	12/13	1.893	12/20	1.861	12/27	1.838		
2005-Jan	01/03	1.824	01/10	1.837	01/17	1.863	01/24	1.896	01/31	1.953
2005-Feb	02/07	1.952	02/14	1.941	02/21	1.948	02/28	1.969		
2005-Mar	03/07	2.040	03/14	2.098	03/21	2.149	03/28	2.194		
2005-Apr	04/04	2.258	04/11	2.321	04/18	2.280	04/25	2.279		
2005-May	05/02	2.277	05/09	2.231	05/16	2.206	05/23	2.169	05/30	2.141
2005-Jun	06/06	2.159	06/13	2.173	06/20	2.204	06/27	2.257		
2005-Jul	07/04	2.268	07/11	2.369	07/18	2.360	07/25	2.333		
2005-Aug	08/01	2.335	08/08	2.410	08/15	2.592	08/22	2.654	08/29	2.653
2005-Sep	09/05	3.117	09/12	3.002	09/19	2.835	09/26	2.851		
2005-Oct	10/03	2.975	10/10	2.896	10/17	2.775	10/24	2.652	10/31	2.528
2005-Nov	11/07	2.424	11/14	2.342	11/21	2.247	11/28	2.200		
2005-Dec	12/05	2.191	12/12	2.228	12/19	2.255	12/26	2.241		
2006-Jan	01/02	2.281	01/09	2.371	01/16	2.366	01/23	2.382	01/30	2.402
2006-Feb	02/06	2.388	02/13	2.331	02/20	2.286	02/27	2.298		
2006-Mar	03/06	2.373	03/13	2.408	03/20	2.548	03/27	2.542		
2006-Apr	04/03	2.631	04/10	2.727	04/17	2.828	04/24	2.960		
2006-May	05/01	2.966	05/08	2.955	05/15	2.992	05/22	2.938	05/29	2.913
2006-Jun	06/05	2.937	06/12	2.951	06/19	2.917	06/26	2.914		
2006-Jul	07/03	2.979	07/10	3.017	07/17	3.033	07/24	3.048	07/31	3.050
2006-Aug	08/07	3.083	08/14	3.047	08/21	2.971	08/28	2.893		
2006-Sep	09/04	2.777	09/11	2.670	09/18	2.549	09/25	2.429		
2006-Oct	10/02	2.360	10/09	2.310	10/16	2.274	10/23	2.255	10/30	2.264
2006-Nov	11/06	2.246	11/13	2.278	11/20	2.285	11/27	2.292		
2006-Dec	12/04	2.342	12/11	2.340	12/18	2.366	12/25	2.387		
2007-Jan	01/01	2.382	01/08	2.354	01/15	2.280	01/22	2.216	01/29	2.213
2007-Feb	02/05	2.237	02/12	2.287	02/19	2.341	02/26	2.428		
2007-Mar	03/05	2.551	03/12	2.605	03/19	2.623	03/26	2.655		
2007-Apr	04/02	2.753	04/09	2.848	04/16	2.922	04/23	2.917	04/30	3.017
2007-May	05/07	3.097	05/14	3.143	05/21	3.258	05/28	3.250		
2007-Jun	06/04	3.200	06/11	3.122	06/18	3.057	06/25	3.029		
2007-Jul	07/02	3.005	07/09	3.026	07/16	3.092	07/23	3.005	07/30	2.926
2007-Aug	08/06	2.888	08/13	2.821	08/20	2.832	08/27	2.796		
2007-Sep	09/03	2.840	09/10	2.862	09/17	2.835	09/24	2.860		
2007-Oct	10/01	2.838	10/08	2.821	10/15	2.813	10/22	2.873	10/29	2.921
2007-Nov	11/05	3.060	11/12	3.158	11/19	3.148	11/26	3.147		
2007-Dec	12/03	3.113	12/10	3.053	12/17	3.050	12/24	3.032	12/31	3.104

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
2008-Jan	01/07	3.159	01/14	3.119	01/21	3.070	01/28	3.030		
2008-Feb	02/04	3.030	02/11	3.011	02/18	3.092	02/25	3.180		
2008-Mar	03/03	3.212	03/10	3.273	03/17	3.332	03/24	3.310	03/31	3.339
2008-Apr	04/07	3.381	04/14	3.438	04/21	3.557	04/28	3.653		
2008-May	05/05	3.663	05/12	3.771	05/19	3.840	05/26	3.986		
2008-Jun	06/02	4.026	06/09	4.090	06/16	4.134	06/23	4.131	06/30	4.146
2008-Jul	07/07	4.165	07/14	4.164	07/21	4.118	07/28	4.010		
2008-Aug	08/04	3.935	08/11	3.864	08/18	3.794	08/25	3.738		
2008-Sep	09/01	3.733	09/08	3.701	09/15	3.887	09/22	3.772	09/29	3.687
2008-Oct	10/06	3.543	10/13	3.213	10/20	2.974	10/27	2.718		
2008-Nov	11/03	2.462	11/10	2.284	11/17	2.132	11/24	1.952		
2008-Dec	12/01	1.870	12/08	1.758	12/15	1.716	12/22	1.710	12/29	1.670
2009-Jan	01/05	1.737	01/12	1.835	01/19	1.898	01/26	1.890		
2009-Feb	02/02	1.944	02/09	1.978	02/16	2.016	02/23	1.963		
2009-Mar	03/02	1.988	03/09	1.993	03/16	1.964	03/23	2.014	03/30	2.097
2009-Apr	04/06	2.090	04/13	2.104	04/20	2.112	04/27	2.102		
2009-May	05/04	2.129	05/11	2.290	05/18	2.360	05/25	2.485		
2009-Jun	06/01	2.572	06/08	2.673	06/15	2.722	06/22	2.743	06/29	2.695
2009-Jul	07/06	2.666	07/13	2.584	07/20	2.519	07/27	2.557		
2009-Aug	08/03	2.610	08/10	2.700	08/17	2.691	08/24	2.682	08/31	2.667
2009-Sep	09/07	2.642	09/14	2.632	09/21	2.607	09/28	2.554		
2009-Oct	10/05	2.523	10/12	2.543	10/19	2.626	10/26	2.727		
2009-Nov	11/02	2.746	11/09	2.720	11/16	2.684	11/23	2.694	11/30	2.684
2009-Dec	12/07	2.689	12/14	2.655	12/21	2.645	12/28	2.662		
2010-Jan	01/04	2.718	01/11	2.804	01/18	2.793	01/25	2.760		
2010-Feb	02/01	2.717	02/08	2.707	02/15	2.664	02/22	2.709		
2010-Mar	03/01	2.756	03/08	2.804	03/15	2.841	03/22	2.870	03/29	2.851
2010-Apr	04/05	2.877	04/12	2.909	04/19	2.911	04/26	2.901		
2010-May	05/03	2.950	05/10	2.958	05/17	2.918	05/24	2.842	05/31	2.784
2010-Jun	06/07	2.780	06/14	2.756	06/21	2.795	06/28	2.809		
2010-Jul	07/05	2.779	07/12	2.771	07/19	2.775	07/26	2.801		
2010-Aug	08/02	2.788	08/09	2.835	08/16	2.798	08/23	2.759	08/30	2.736
2010-Sep	09/06	2.735	09/13	2.772	09/20	2.775	09/27	2.747		
2010-Oct	10/04	2.784	10/11	2.871	10/18	2.887	10/25	2.870		
2010-Nov	11/01	2.861	11/08	2.917	11/15	2.944	11/22	2.931	11/29	2.912
2010-Dec	12/06	3.013	12/13	3.035	12/20	3.037	12/27	3.106		
2011-Jan	01/03	3.124	01/10	3.142	01/17	3.158	01/24	3.163	01/31	3.155
2011-Feb	02/07	3.185	02/14	3.193	02/21	3.243	02/28	3.435		
2011-Mar	03/07	3.572	03/14	3.621	03/21	3.617	03/28	3.650		
2011-Apr	04/04	3.737	04/11	3.843	04/18	3.896	04/25	3.932		
2011-May	05/02	4.014	05/09	4.018	05/16	4.014	05/23	3.904	05/30	3.848
2011-Jun	06/06	3.833	06/13	3.767	06/20	3.708	06/27	3.631		
2011-Jul	07/04	3.634	07/11	3.695	07/18	3.736	07/25	3.754		
2011-Aug	08/01	3.766	08/08	3.730	08/15	3.662	08/22	3.638	08/29	3.682
2011-Sep	09/05	3.727	09/12	3.715	09/19	3.657	09/26	3.568		
2011-Oct	10/03	3.492	10/10	3.476	10/17	3.533	10/24	3.520	10/31	3.511
2011-Nov	11/07	3.482	11/14	3.495	11/21	3.427	11/28	3.368		
2011-Dec	12/05	3.350	12/12	3.346	12/19	3.290	12/26	3.317		
2012-Jan	01/02	3.358	01/09	3.441	01/16	3.451	01/23	3.450	01/30	3.500
2012-Feb	02/06	3.542	02/13	3.584	02/20	3.652	02/27	3.780		
2012-Mar	03/05	3.849	03/12	3.884	03/19	3.923	03/26	3.973		
2012-Apr	04/02	3.996	04/09	3.997	04/16	3.980	04/23	3.929	04/30	3.889
2012-May	05/07	3.849	05/14	3.814	05/21	3.773	05/28	3.728		
2012-Jun	06/04	3.671	06/11	3.629	06/18	3.589	06/25	3.494		
2012-Jul	07/02	3.415	07/09	3.469	07/16	3.485	07/23	3.554	07/30	3.568
2012-Aug	08/06	3.702	08/13	3.779	08/20	3.803	08/27	3.837		
2012-Sep	09/03	3.903	09/10	3.907	09/17	3.939	09/24	3.889		
2012-Oct	10/01	3.866	10/08	3.914	10/15	3.886	10/22	3.756	10/29	3.638
2012-Nov	11/05	3.563	11/12	3.518	11/19	3.497	11/26	3.505		
2012-Dec	12/03	3.463	12/10	3.419	12/17	3.324	12/24	3.328	12/31	3.369
2013-Jan	01/07	3.373	01/14	3.377	01/21	3.386	01/28	3.427		
2013-Feb	02/04	3.604	02/11	3.677	02/18	3.812	02/25	3.851		
2013-Mar	03/04	3.826	03/11	3.779	03/18	3.764	03/25	3.746		
2013-Apr	04/01	3.714	04/08	3.676	04/15	3.611	04/22	3.603	04/29	3.587
2013-May	05/06	3.602	05/13	3.665	05/20	3.729	05/27	3.704		
2013-Jun	06/03	3.705	06/10	3.715	06/17	3.689	06/24	3.645		
2013-Jul	07/01	3.567	07/08	3.563	07/15	3.706	07/22	3.751	07/29	3.716
2013-Aug	08/05	3.701	08/12	3.633	08/19	3.622	08/26	3.623		
2013-Sep	09/02	3.678	09/09	3.658	09/16	3.619	09/23	3.567	09/30	3.499
2013-Oct	10/07	3.441	10/14	3.430	10/21	3.435	10/28	3.372		
2013-Nov	11/04	3.343	11/11	3.274	11/18	3.298	11/25	3.372		
2013-Dec	12/02	3.353	12/09	3.350	12/16	3.321	12/23	3.351	12/30	3.409
2014-Jan	01/06	3.411	01/13	3.406	01/20	3.376	01/27	3.375		
2014-Feb	02/03	3.372	02/10	3.388	02/17	3.457	02/24	3.520		
2014-Mar	03/03	3.553	03/10	3.584	03/17	3.619	03/24	3.622	03/31	3.651

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
2014-Apr	04/07	3.670	04/14	3.725	04/21	3.758	04/28	3.788		
2014-May	05/05	3.761	05/12	3.746	05/19	3.743	05/26	3.750		
2014-Jun	06/02	3.765	06/09	3.749	06/16	3.760	06/23	3.778	06/30	3.778
2014-Jul	07/07	3.753	07/14	3.712	07/21	3.671	07/28	3.617		
2014-Aug	08/04	3.595	08/11	3.582	08/18	3.549	08/25	3.532		
2014-Sep	09/01	3.536	09/08	3.534	09/15	3.485	09/22	3.432	09/29	3.434
2014-Oct	10/06	3.382	10/13	3.292	10/20	3.205	10/27	3.139		
2014-Nov	11/03	3.077	11/10	3.025	11/17	2.978	11/24	2.907		
2014-Dec	12/01	2.864	12/08	2.767	12/15	2.643	12/22	2.496	12/29	2.392
2015-Jan	01/05	2.308	01/12	2.232	01/19	2.157	01/26	2.133		
2015-Feb	02/02	2.154	02/09	2.276	02/16	2.358	02/23	2.415		
2015-Mar	03/02	2.556	03/09	2.570	03/16	2.537	03/23	2.538	03/30	2.531
2015-Apr	04/06	2.499	04/13	2.494	04/20	2.570	04/27	2.656		
2015-May	05/04	2.749	05/11	2.776	05/18	2.827	05/25	2.857		
2015-Jun	06/01	2.863	06/08	2.863	06/15	2.918	06/22	2.895	06/29	2.885
2015-Jul	07/06	2.877	07/13	2.920	07/20	2.888	07/27	2.833		
2015-Aug	08/03	2.779	08/10	2.720	08/17	2.803	08/24	2.726	08/31	2.602
2015-Sep	09/07	2.532	09/14	2.471	09/21	2.425	09/28	2.418		
2015-Oct	10/05	2.415	10/12	2.432	10/19	2.374	10/26	2.326		
2015-Nov	11/02	2.322	11/09	2.335	11/16	2.281	11/23	2.198	11/30	2.165
2015-Dec	12/07	2.159	12/14	2.144	12/21	2.133	12/28	2.141		
2016-Jan	01/04	2.135	01/11	2.104	01/18	2.022	01/25	1.965		
2016-Feb	02/01	1.932	02/08	1.870	02/15	1.834	02/22	1.837	02/29	1.887
2016-Mar	03/07	1.943	03/14	2.062	03/21	2.109	03/28	2.169		
2016-Apr	04/04	2.185	04/11	2.173	04/18	2.240	04/25	2.265		
2016-May	05/02	2.342	05/09	2.325	05/16	2.345	05/23	2.403	05/30	2.440
2016-Jun	06/06	2.482	06/13	2.499	06/20	2.455	06/27	2.432		
2016-Jul	07/04	2.396	07/11	2.359	07/18	2.336	07/25	2.289		
2016-Aug	08/01	2.267	08/08	2.256	08/15	2.256	08/22	2.299	08/29	2.341
2016-Sep	09/05	2.329	09/12	2.310	09/19	2.333	09/26	2.334		
2016-Oct	10/03	2.354	10/10	2.381	10/17	2.367	10/24	2.353	10/31	2.341
2016-Nov	11/07	2.345	11/14	2.298	11/21	2.269	11/28	2.268		
2016-Dec	12/05	2.321	12/12	2.347	12/19	2.375	12/26	2.419		
2017-Jan	01/02	2.485	01/09	2.496	01/16	2.467	01/23	2.436	01/30	2.408
2017-Feb	02/06	2.405	02/13	2.418	02/20	2.414	02/27	2.427		
2017-Mar	03/06	2.452	03/13	2.434	03/20	2.433	03/27	2.428		
2017-Apr	04/03	2.471	04/10	2.534	04/17	2.546	04/24	2.559		
2017-May	05/01	2.522	05/08	2.484	05/15	2.481	05/22	2.510	05/29	2.516
2017-Jun	06/05	2.525	06/12	2.479	06/19	2.433	06/26	2.404		
2017-Jul	07/03	2.376	07/10	2.411	07/17	2.392	07/24	2.426	07/31	2.467
2017-Aug	08/07	2.492	08/14	2.497	08/21	2.474	08/28	2.513		
2017-Sep	09/04	2.794	09/11	2.800	09/18	2.750	09/25	2.701		
2017-Oct	10/02	2.682	10/09	2.622	10/16	2.605	10/23	2.594	10/30	2.602
2017-Nov	11/06	2.673	11/13	2.706	11/20	2.683	11/27	2.648		
2017-Dec	12/04	2.617	12/11	2.601	12/18	2.568	12/25	2.589		
2018-Jan	01/01	2.637	01/08	2.639	01/15	2.673	01/22	2.684	01/29	2.723
2018-Feb	02/05	2.753	02/12	2.724	02/19	2.676	02/26	2.666		
2018-Mar	03/05	2.679	03/12	2.677	03/19	2.716	03/26	2.764		
2018-Apr	04/02	2.817	04/09	2.811	04/16	2.863	04/23	2.914	04/30	2.961
2018-May	05/07	2.960	05/14	2.949	05/21	2.999	05/28	3.039		
2018-Jun	06/04	3.018	06/11	2.989	06/18	2.958	06/25	2.913		
2018-Jul	07/02	2.924	07/09	2.937	07/16	2.943	07/23	2.911	07/30	2.924
2018-Aug	08/06	2.930	08/13	2.921	08/20	2.900	08/27	2.906		
2018-Sep	09/03	2.903	09/10	2.912	09/17	2.921	09/24	2.923		
2018-Oct	10/01	2.947	10/08	2.984	10/15	2.961	10/22	2.925	10/29	2.896
2018-Nov	11/05	2.840	11/12	2.773	11/19	2.700	11/26	2.630		
2018-Dec	12/03	2.544	12/10	2.511	12/17	2.460	12/24	2.413	12/31	2.358
2019-Jan	01/07	2.329	01/14	2.338	01/21	2.340	01/28	2.343		
2019-Feb	02/04	2.341	02/11	2.361	02/18	2.400	02/25	2.471		
2019-Mar	03/04	2.502	03/11	2.549	03/18	2.625	03/25	2.701		
2019-Apr	04/01	2.770	04/08	2.826	04/15	2.912	04/22	2.926	04/29	2.972
2019-May	05/06	2.983	05/13	2.954	05/20	2.939	05/27	2.909		
2019-Jun	06/03	2.893	06/10	2.821	06/17	2.759	06/24	2.741		
2019-Jul	07/01	2.798	07/08	2.827	07/15	2.860	07/22	2.833	07/29	2.798
2019-Aug	08/05	2.772	08/12	2.710	08/19	2.684	08/26	2.661		
2019-Sep	09/02	2.651	09/09	2.638	09/16	2.640	09/23	2.741	09/30	2.737
2019-Oct	10/07	2.742	10/14	2.727	10/21	2.735	10/28	2.692		
2019-Nov	11/04	2.702	11/11	2.711	11/18	2.688	11/25	2.672		
2019-Dec	12/02	2.667	12/09	2.652	12/16	2.627	12/23	2.621	12/30	2.658
2020-Jan	01/06	2.665	01/13	2.657	01/20	2.625	01/27	2.595		
2020-Feb	02/03	2.546	02/10	2.511	02/17	2.518	02/24	2.555		
2020-Mar	03/02	2.514	03/09	2.468	03/16	2.343	03/23	2.217	03/30	2.103
2020-Apr	04/06	2.022	04/13	1.951	04/20	1.910	04/27	1.870		
2020-May	05/04	1.883	05/11	1.941	05/18	1.969	05/25	2.049		
2020-Jun	06/01	2.064	06/08	2.123	06/15	2.185	06/22	2.216	06/29	2.260
2020-Jul	07/06	2.265	07/13	2.283	07/20	2.275	07/27	2.265		

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
2020-Aug	08/03	2.266	08/10	2.256	08/17	2.256	08/24	2.272	08/31	2.311
2020-Sep	09/07	2.302	09/14	2.274	09/21	2.259	09/28	2.259		
2020-Oct	10/05	2.262	10/12	2.257	10/19	2.240	10/26	2.234		
2020-Nov	11/02	2.204	11/09	2.188	11/16	2.202	11/23	2.194	11/30	2.211
2020-Dec	12/07	2.246	12/14	2.247	12/21	2.311	12/28	2.330		
2021-Jan	01/04	2.336	01/11	2.403	01/18	2.464	01/25	2.478		
2021-Feb	02/01	2.495	02/08	2.548	02/15	2.588	02/22	2.717		
2021-Mar	03/01	2.796	03/08	2.857	03/15	2.940	03/22	2.954	03/29	2.941
2021-Apr	04/05	2.945	04/12	2.939	04/19	2.945	04/26	2.962		
2021-May	05/03	2.981	05/10	3.051	05/17	3.118	05/24	3.112	05/31	3.119
2021-Jun	06/07	3.128	06/14	3.161	06/21	3.153	06/28	3.185		
2021-Jul	07/05	3.216	07/12	3.227	07/19	3.247	07/26	3.232		
2021-Aug	08/02	3.256	08/09	3.269	08/16	3.272	08/23	3.243	08/30	3.237
2021-Sep	09/06	3.273	09/13	3.262	09/20	3.280	09/27	3.271		
2021-Oct	10/04	3.285	10/11	3.360	10/18	3.416	10/25	3.476		
2021-Nov	11/01	3.484	11/08	3.505	11/15	3.495	11/22	3.493	11/29	3.478
2021-Dec	12/06	3.440	12/13	3.414	12/20	3.395	12/27	3.375		
2022-Jan	01/03	3.381	01/10	3.394	01/17	3.404	01/24	3.421	01/31	3.464
2022-Feb	02/07	3.538	02/14	3.581	02/21	3.624	02/28	3.701		
2022-Mar	03/07	4.196	03/14	4.414	03/21	4.343	03/28	4.334		
2022-Apr	04/04	4.274	04/11	4.196						

-- = No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data.

Release Date: 4/11/2022

Next Release Date: 4/18/2022

Referring Pages:

- [Retail Prices for Gasoline, All Grades](#)
- [U.S. Gasoline and Diesel Retail Prices](#)

EPA Announces the “Clean Trucks Plan”

Heavy-duty trucks and buses continue to contribute significantly to air pollution at the local, regional, and national level, often disproportionately affecting communities of color and low-income populations.

To ensure the progress needed on cleaning trucks and buses and to harness improvements in vehicle technologies, EPA will issue two major regulations over the next three years—the “Clean Trucks Plan” that will result in decreasing emissions from new heavy-duty vehicles, including long-haul tractors, buses, commercial delivery trucks, and many other types of trucks. These new rules will be major steps towards improving air quality and addressing the climate crisis.

EPA’s Clean Trucks Plan

The Agency is working on the following actions over the next three years.

By December 2022, EPA will propose and finalize new stringent emissions standards to reduce nitrogen oxides (NO_x) pollution from trucks starting in model year 2027. This action will include an update of current greenhouse gas (GHG) standards to capture market shifts to zero-emission technologies in certain segments of the heavy-duty vehicle sector.

EPA is also working on new stringent GHG emissions standards for heavy-duty engines and vehicles starting as soon as model year 2030.

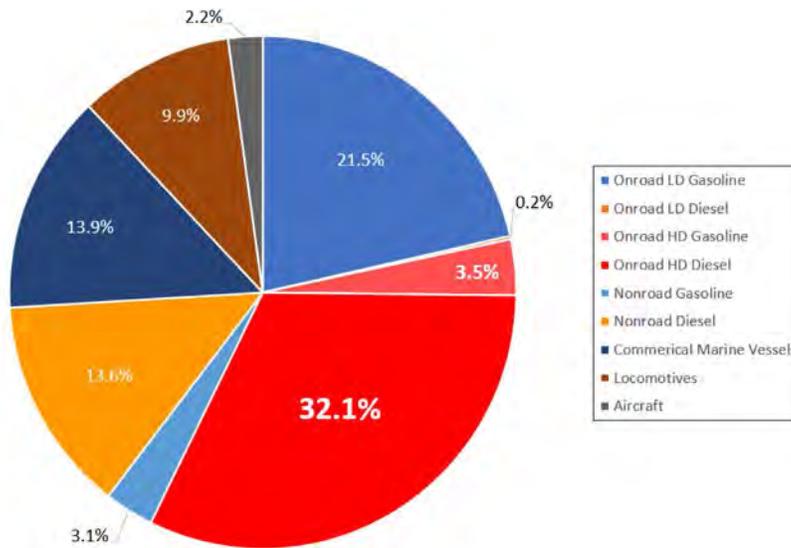
Taken together, these new multi-pollutant standards will improve public health in our communities and set the U.S. on a course to achieve ambitious levels of GHG emissions reductions from commercial highway transportation over the long term.

EPA looks forward to working with all stakeholders as we move forward with these plans.

Air Quality and Health Impacts of Heavy-Duty Vehicles

Pollution from heavy-duty trucks contributes to poor air quality and health across the country, especially in overburdened and underserved communities. Heavy-duty vehicles are the largest contributor (about 32%) to mobile source emissions of NO_x, which react in the atmosphere to form ozone and particulate matter (PM). These pollutants are linked to respiratory and/or cardiovascular problems and other adverse health impacts that lead to increased medication use, hospital admissions, emergency department visits, and premature deaths.

Mobile Source NO_x (2017)



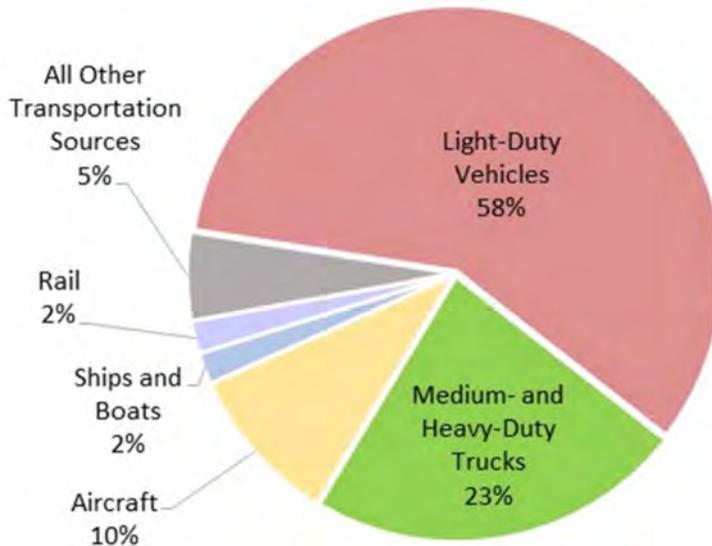
Sources: MOVES3 for onroad and nonroad and 2017 National Emissions Inventory (NEI) for all other mobile sectors.

In addition, pollution from trucks directly affects people who live near roads and other areas of high truck activity like ports. Populations who live, work, or go to school near high-traffic roadways experience higher rates of numerous adverse health effects, and there is substantial evidence that people who live or attend school near major roadways are more likely to be low-income or people of color. NO_x pollution from heavy-duty vehicles also impairs visibility and causes damage to terrestrial and aquatic ecosystems.

Heavy-Duty Vehicles and Climate Change

Transportation is the largest source of GHG emissions in the United States, making up 29 percent of all emissions. Within the transportation sector, heavy-duty vehicles are the second-largest contributor, at 23 percent. Reducing GHG emissions is a critical step in reducing the probability of impacts from climate change, including heat waves, drought, sea level rise, extreme climate and weather events, coastal flooding, and wildfires. Some populations may be especially vulnerable to damages associated with climate change, such as the very young, the elderly, low-income people, the disabled, people of color, and indigenous populations.

Mobile Source GHGs (2019)



Source: “Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019,” EPA 430-R-21-005.

EPA previously took action to reduce GHG emissions from heavy-duty trucks with its Phase 1 and Phase 2 GHG standards. The Phase 2 standards began in model year 2021, with two additional steps of increasing stringency that will take effect in model years 2024 and 2027. The Phase 2 program promotes a new generation of cleaner, more fuel-efficient gasoline and diesel trucks.

Opportunities for Significant Emissions Reductions from Heavy Duty Trucks: The Clean Trucks Plan

By December 2022, EPA will finalize a new standard for NO_x emissions from heavy duty trucks starting with model year 2027. In this action, the agency will also explore updates to the Phase 2 GHG standards for certain heavy-duty fleets that are rapidly shifting toward zero-emission technologies.

EPA last revised the NO_x standards for on-highway heavy-duty trucks and engines in 2001—more than 20 years ago. Although those standards achieved important NO_x reductions, new technologies available today can help achieve the additional reductions we need to improve air quality and health in our communities.

Many state and local agencies across the country have asked the EPA to issue regulations that further reduce NO_x emissions from heavy-duty trucks in order to protect the health of their communities. Such reductions are a critical part of many areas’ strategies to attain and maintain the health-based air quality standards, and to ensure that all communities benefit from improvements in air quality.

One area where technologies can improve emission outcomes relates to trucks operating at what are known as “low loads.” EPA’s analysis of trucking emissions has shown that current NO_x controls are not effective under certain low-load operating conditions, such as when trucks idle, move

slowly, or operate in stop-and-go traffic. Emission control technologies that can help reduce NO_x emissions under low-load conditions now exist, and they represent one area where EPA intends to focus as it develops a new NO_x regulation.

Beyond such low-load NO_x reduction technologies, the trucking sector has also seen advances in zero-emission technologies. In recent years, zero-emission heavy-duty trucks have begun entering the market in volumes that were not foreseen when EPA began the Phase 2 GHG program. Many of these zero-emission technologies are available today, and the number of products available, as well as production volumes, are expected to accelerate in the next few years. EPA will assess the impact that these zero-emission technologies will have on the overall effectiveness of the Phase 2 program and whether targeted adjustments to GHG standards in 2027 may be warranted.

Beyond 2027, heavy-duty truck manufacturers are already signaling a large-scale migration from gasoline and diesel engines to zero-emission technologies in their products. EPA is also working on revising GHG standards for all heavy-duty vehicles and engines. These standards would begin as soon as model year 2030.

For More Information

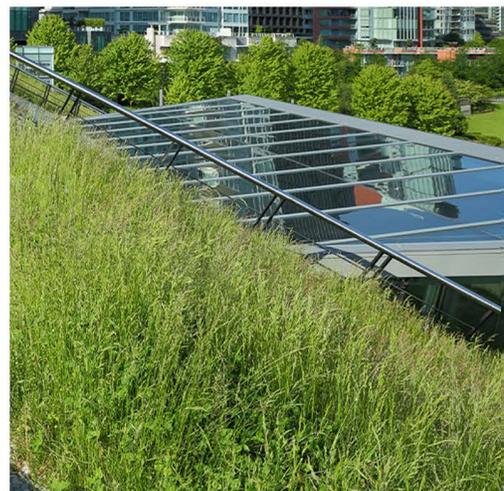
For more information on these actions, please contact the U.S. Environmental Protection Agency, Office of Transportation and Air Quality through our webpage at: <https://www.epa.gov/transportation-air-pollution-and-climate-change/forms/contact-us-about-transportation-air-pollution>.



U.S. ENVIRONMENTAL PROTECTION AGENCY

Climate Adaptation Action Plan

OCTOBER 2021



U.S. Environmental Protection Agency

Climate Adaptation Action Plan



October 2021



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

May 26, 2021

THE ADMINISTRATOR

**U.S. Environmental Protection Agency
Policy Statement on Climate Change Adaptation**

The impacts of climate change are affecting people in every region of the country, threatening lives and livelihoods and damaging infrastructure, ecosystems, and social systems in communities across the nation. Certain communities and individuals are particularly vulnerable to these impacts, including low-income communities and communities of color, children, the elderly, tribes and indigenous people. Climate change can also exacerbate existing pollution problems and environmental stressors. All of these impacts challenge the U.S. Environmental Protection Agency's ability to accomplish its mission of protecting human health and the environment. As your Administrator, I believe we must take the actions necessary to ensure we continue to fulfill our mission even as the climate changes and work with other federal agencies to increase the resilience of the nation.

In his first week in office, President Joe Biden directed all federal agencies to integrate climate adaptation planning into their missions, programs and management functions to ensure their success in enhancing preparedness for and resilience to the climate crisis. For the EPA, this includes evaluating how climate change might affect our efforts to attain environmental standards given heat waves and more intense storms, increased use of pesticides given expanded lifespans and habitat of insects and impacts of rising seas and storm surges on hazardous waste sites and critical water infrastructure. Identifying strategies that deliver co-benefits for mitigation of greenhouse gases and other pollution, public health, economic growth and job creation, national security and environmental justice will be central to building a more resilient future.

In 2014, the EPA developed its first Climate Change Adaptation Plan and began to mainstream adaptation planning into the agency's work. We have partnered with other federal agencies, states, tribes, territories, local governments and international partners to promote climate resilience across the nation and internationally. Nevertheless, more needs to be done given the magnitude of this global challenge.

I am directing my leadership team, including assistant administrators, general counsel, associate administrators and regional administrators, to update the agency's 2014 Plan and to proactively incorporate climate adaptation planning into the agency's programs, policies, rules and operations, while we also work to reduce greenhouse-gas emissions. Specifically, I direct all EPA offices to work with the Office of Policy to complete or update their Implementation Plans, as relevant, to:

1. Integrate climate adaptation planning into EPA programs, policies and rulemaking processes.
2. Consult and partner with states, tribes, territories, local governments, environmental justice organizations, community groups, businesses and other federal agencies to strengthen adaptive capacity and increase the resilience of the nation, with a particular focus on advancing environmental justice.
3. Implement measures to protect the agency's workforce, facilities, critical infrastructure, supply chains and procurement processes from the risks posed by climate change.
4. Modernize EPA financial assistance programs to encourage climate-resilient investments across the nation.

The EPA will actively engage with organizations representing overburdened and underserved communities that are more vulnerable to climate impacts to ensure the EPA's adaptation plans reflect the principles of environmental justice and equity.

The Associate Administrator for the EPA's Office of Policy is designated as the agency's Senior Climate Change Adaptation Official and is responsible for working with EPA programs and regions to develop and carry out the activities described in the Action Plan.

Working together, we will act based on science and seize the opportunities that tackling the climate crisis presents.

A handwritten signature in black ink that reads "Michael S. Regan". The signature is written in a cursive, flowing style.

Michael S. Regan

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1. Introduction

Climate change poses a real and present danger to communities all across the country. Its impacts are already being felt. President Biden’s Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad*, requires federal agencies to develop Climate Action Plans that describe their agency’s climate vulnerabilities and the steps it will take to bolster adaptation and increase resilience to the impacts of climate change.

This 2021 EPA Climate Adaptation Action Plan (“Plan”) builds on a strong foundation. The agency released its first Climate Change Adaptation Plan in June 2014, followed by 17 Climate Change Adaptation Implementation Plans prepared by its National Environmental Program Offices, National Support Offices, and 10 Regional Offices. The 2021 Plan accelerates action and focuses agency attention on priority actions it will take to fulfill our mission and increase human and ecosystem resilience even as the climate changes.

This Plan will be followed by updates to the 17 *Implementation Plans* produced in 2014. Every office will report on its progress since 2014 and identify future actions to address the agency-wide priorities identified in this Plan. EPA offices will engage with states, tribes, territories, local communities, and other stakeholders when updating their plans.

2. Leadership

EPA’s FY 2023-2026 Strategic Plan includes a new goal focused on tackling the climate crisis. The goal includes three objectives that reflect priorities in Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad*:

- Objective 1: Reduce Emissions that Cause Climate Change
- Objective 2: Accelerate Resilience and Adaptation to Climate Change Impacts
- Objective 3: Advance International and Subnational Climate Efforts

The 2021 EPA Climate Adaptation Action Plan contains five agency-wide priority actions and measures for evaluating performance that support Objective 2. The Plan also supports the agency’s and government-wide efforts to advance environmental justice.

The Office of Policy is responsible for the development, management, and execution of this Plan. The Associate Administrator for EPA’s Office of Policy is designated as the agency’s Senior Climate Change Adaptation Official. The official will work with the agency’s Chief Sustainability Officer and with EPA programs and regions to ensure implementation of the agency-wide priority actions and management activities described in this Plan.

The Cross-EPA Work Group on Climate Change Adaptation will support the goals of the Senior Adaptation Official and Chief Sustainability Officer by coordinating the implementation of this Plan across National Programs and Regional Offices. The work group includes representation from every National Environmental Program Office, Regional Office, and National Support Offices. The Senior Advisor for Climate Adaptation in the Office of Policy will chair the work group.

3. Climate Adaptation Vision for EPA

We live in a world in which the climate is changing. According to the U.S. Global Change Research Program, the Earth’s climate is warming and changing faster than at any point in the history of modern civilization, primarily because of emissions of heat-trapping greenhouse gases from fossil fuel combustion, deforestation, and land-use change. The changing climate is affecting people’s health and livelihoods and damaging infrastructure, ecosystems, and social systems in communities in every region of the nation.

In this changing world, the United States Environmental Protection Agency (EPA) is working to fulfill its mission to protect human health and the environment. EPA will take actions necessary to anticipate and plan for future

changes in climate and continue to fulfill its mission while advancing resilience and environmental justice across the nation. EPA will ensure its programs, policies, rules, enforcement and compliance assurance activities, and operations consider current and future impacts of climate change and how those impacts will disproportionately affect certain communities. It will develop and implement measures to protect its workforce, facilities, supply chains, and procurement processes from risks posed by climate change. Through climate change adaptation planning and implementation, EPA will continue to protect human health and the environment by reducing risks from climate change impacts while also working to reduce greenhouse gas emissions.

EPA will also work with its partners across the country to strengthen adaptive capacities and increase the resilience of the nation, with a particular focus on advancing environmental justice, in ways that support attaining the agency’s mission and that are within its statutory authority. States, tribes, territories, and local communities, as well as federal and international partners, share responsibility with EPA for protecting human health and the environment. These partnerships are critical for efficient, effective, and equitable implementation of climate adaptation strategies. EPA will also assist international partners that seek assistance on climate adaptation and capacity building issues.

EPA recognizes the need to holistically address mitigation of greenhouse gas emissions to limit the magnitude and rate of climate change while also adapting to those impacts that are unavoidable. In crafting and implementing its adaptation plan, the agency will identify strategies that deliver co-benefits for mitigation of greenhouse gases and other pollution, public health, economic growth and job creation, national security, and environmental justice—all of which will be central to building a more resilient future.

Of particular concern is that the impacts of climate change within and across U.S. regions and across the world will not be distributed equally. Certain communities and individuals are particularly vulnerable to the impacts of climate change, including low-income communities, children, the elderly, and

Climate Adaptation Vision

EPA continues to fulfill its mission of protecting human health and the environment even as the climate changes and disruptive impacts increase.

communities of color, tribes, and indigenous people. EPA will prioritize the most vulnerable populations with the goal of attaining a more equitable, just, and resilient future within and across communities.

EPA's commitments are part of a larger federal effort to pursue actions at home and abroad to avoid the most catastrophic impacts of climate change. As part of this whole-of-government approach, EPA will closely coordinate with other federal agencies on climate change adaptation challenges that cut across agency jurisdictions to improve the efficiency and effectiveness of the combined federal effort.

4. Vulnerability Assessment

This section briefly describes the vulnerabilities of EPA's mission, facilities, and operations to climate change, and is organized by major program areas. Limitations in the adaptive capacity and resilience of our partners, the disproportionate impacts climate change has on certain communities, and the costs associated with implementing changes are also vulnerabilities for EPA across all program areas.

4.1 Air quality

Although tremendous progress has been made improving air quality across the nation, climate change makes it more difficult to attain air quality standards and protect the quality of the air we breathe, posing higher risks to public health, and especially overburdened and vulnerable populations.

- *Tropospheric ozone levels may increase.* Higher temperatures and changes in circulation patterns, such as increased inversions, can increase tropospheric ozone levels and change the length of the ozone season unless ozone precursor emissions are reduced. This threatens attainment of air quality standards, thus necessitating stricter pollution controls, and increases risks of respiratory illness and premature death, especially in vulnerable populations.
- *Particulate matter (PM) concentrations may increase.* More frequent and severe wildfires due to climate change and windblown dust from regions affected by drought diminish air quality. Climate change increases the frequency of temperature inversions, which can trap particulate matter.

Definitions

Climate change adaptation or climate adaptation means taking action to prepare for and adjust to both the current and projected impacts of climate change.

Adaptive capacity is the ability of a human or natural system to adjust to climate change (including climate variability and extremes) by moderating potential damages, taking advantage of opportunities, or coping with the consequences.

Climate resilience can be generally defined as the capacity of a system to maintain function in the face of stresses imposed by climate change and to adapt the system to be better prepared for future climate impacts.

Climate change mitigation refers to actions limiting the magnitude and rate of future climate change by reducing greenhouse gas emissions.

Increases in ozone due to climate change may make it more difficult to attain or maintain air quality standards.

- *Climate change can worsen indoor air quality.* For example, changes in ambient humidity, and more frequent heavy rainfalls and floods can increase moisture in buildings, leading to higher mold concentrations, dust mites, bacteria, and other biological contaminants indoors. Wildfire smoke, airborne allergens, and other particle pollution from outdoors can infiltrate homes and buildings. More frequent power outages and use of portable generators can increase the risk of carbon monoxide poisoning indoors. Increased indoor pesticide applications in response to geographic shifts in pests and pest-borne disease can lead to higher exposures.
- *Climate change can make stratospheric ozone layer recovery more difficult.* The interactions between the changing climate and stratospheric ozone layer are complex, including changes in chemical transport, atmospheric composition, and temperature. These impacts could pose serious risks to human health, such as increased exposure to extreme heat and UV radiation.
- *Atmospheric deposition of pollutants may harm the environment.* The combination of patterns in the atmospheric deposition of sulfur, nitrogen, and mercury with global climate change has implications for the health of ecosystems, shifts of species, the chemistry of surface waters, and the production of methylmercury and its bioaccumulation in food webs.
- *The ability to measure, communicate, and model air quality may be affected.* Changes in meteorology (*i.e.*, increasing temperatures, changes in circulation, inversions) could alter where maximum concentrations occur, thereby affecting air monitoring network adequacy and EPA’s ability to effectively model future air quality and provide useful information to the public. As the climate becomes less predictable and more dynamic, EPA’s capacity to manage these worsening endpoints will degrade as the likelihood of extreme events increases and predictions become more difficult.

Lower indoor air quality often disproportionately poses health risks to the young, the elderly, and other highly vulnerable people.

4.2 Water quality

The quality of the nation’s water bodies has substantially improved over the last half century but faces climate-related challenges.

- *Climate change degrades water quality through many pathways.* Impacts include lower stream flows or lake levels that concentrate pollutants; higher temperatures that reduce dissolved oxygen levels; higher carbon dioxide concentrations that increase the acidity of waterbodies; increased runoff of nutrients and other pollutants due to heavier precipitation events; more sewer overflows and wastewater bypasses; and, if combined with sufficiently high nutrient levels and temperatures, more harmful algal blooms, pathogens, and water related illnesses.
- *Sea level rise, higher temperatures, increasingly frequent and intense storm events, and acidification are degrading coastal ecosystems and reducing water supplies.* Coastal aquifers are already experiencing higher

Vulnerable and underserved communities may be particularly at risk, from lack of access to clean and safe water as well as from limitations on their ability to prepare for and respond to climate- related events affecting their water infrastructure.

salinity levels because of rising sea levels that intrude into groundwater supplies. Waterlines and coastline areas are shifting, threatening public safety and property. The inland migration of coastal wetlands can be blocked by human-made structures (e.g., levees, seawall), while higher water temperatures and salinity can alter the location of fish and coastal vegetation. These changes also lead to an increasing presence of invasive species.

- *Changes in snowpack and precipitation will affect water supplies.* Shrinking snowpack, earlier snowmelt, higher evaporation, and reduced precipitation can reduce water supplies and lead to more drying that can increase the risk of wildfires. Higher temperatures can also increase demand for water. Such impacts can increase competition for water across uses, including drinking water, agriculture, energy, recreation, and ecosystem protection.
- *Climate change is already harming water infrastructure.* Drinking water and wastewater treatment infrastructure can be overwhelmed or damaged by flooding, sea level rise, higher storm surges, and extreme events. These impacts may impede the functioning of drinking water intakes and wastewater outflows. They will also challenge the functioning and performance of stormwater infrastructure.

4.3 Contaminated sites

Despite ongoing progress in cleaning up contaminated sites and ensuring the safety of industrial facilities, climate change can exacerbate the already toxic conditions at contaminated sites, including polychlorinated biphenyl (PCB) cleanup sites subject to the Toxic Substances Control Act (TSCA), and can disrupt existing cleanup remedies.

- *Wildfire, more intense flooding and coastal storms, and sea level rise, can release pollution from contaminated sites and/or industrial facilities.* Wildfire ash, water inundation, and flooding may transport pollution out of sites, while increased salinity of aquifers from sea level rise may mobilize formerly stable contaminants. Many industrial areas are located near rivers, bays, harbors and other waterbodies, which makes contaminated sites more prone to releases of toxic materials to waters during floods. The release of these pollutants threatens the quality of waterways and groundwater sources of drinking water. It can also affect other services valued by the public, such as recreational opportunities.
- *Increased temperatures and changes in runoff can adversely affect cleanups.* Droughts can reduce water supplies for water-intensive remedies, while runoff from fire-scorched areas can introduce new contaminants to sites. Contaminants may become more volatile with higher temperatures, and climate change-induced changes in vegetation can affect ecological revitalization efforts. Droughts can increase wildfire frequency and intensity, which can damage containment infrastructure.
- *Unexpected, climate-driven conditions can compromise the effectiveness of cleanup remedies selected without those impacts in mind.* Sea level rise, rising groundwater tables, permafrost melt, or storm events may release formerly stable contaminants into groundwater or soil. Treatment

Contaminated sites are often in or near overburdened and underserved communities. These communities are likely to bear greater risks and burdens from climate-driven extreme events and to have a harder time recovering.

systems, caps, and other remedies may be rendered ineffective. For example, Alaskan landfills situated on melting permafrost are contaminating local water supplies and threatening the health of ecosystems and communities.

- *Climate impacts can increase the amount of debris sent to landfills and can also encroach on the landfills.* Climate change is expected to produce more frequent and powerful natural disasters, which will increase the amount of disaster-related wastes.

4.4 Chemical safety and pollution prevention

Rising temperatures, changes in precipitation, runoff, and soil moisture, and shifts in ecosystems can affect the presence and concentration of chemicals in the environment.

Climate change and subsequent alteration of ecosystems will likely result in changes in where crops are grown and in the presence of pests and diseases. As pests move into new areas, pest management practices and application of pesticides may expand. This may lead to more chemicals present in soil and water. Chemical safety may be affected by changing chemical use patterns resulting from climate change. An increase in the frequency of new pest problems could trigger requests for emergency exemptions under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) if currently registered pesticides are ineffective.

4.5 EPA's facilities and operations

The EPA has identified the following vulnerabilities to the agency's continued safe and efficient operations (elaborated on in parts 6 and 7 of the Plan):

Increased frequency and severity of extreme weather events can affect the agency's personnel safety, facilities, physical security, and emergency communications. EPA facilities, particularly in coastal areas, can be damaged by more intense high winds, flooding, or storm surges. More intense or frequent flooding can also block road access to EPA facilities. Long-term environmental monitoring assets can be damaged by more high winds, floods, or lightning, which can also disrupt the supplies of electric power to EPA facilities. In addition, changes in water supply or quality can impair the agency's ability to manage its facilities and conduct important research, particularly in drought-prone areas. These impacts can also pose challenges to the EPA labs, researchers, and companies EPA works with to accomplish their work.

Poor air quality, fires, floods, hurricanes, and other extreme events present risks to EPA employees and contractors engaged in field work, such as sampling, remediation, and inspections.

Flooding and other climate change hazards can damage records or monitoring equipment needed to evaluate compliance with environmental laws. EPA's enforcement and compliance assurance and monitoring activities are based on records and site visits and/or remote monitoring by EPA and regulated facilities. Agency enforcement and compliance systems assurance activities could be compromised if EPA, state, or regulated facilities were damaged.

The planning and management of emergency operations can be limited by increased frequency and severity of extreme weather. Increased extreme weather can reduce availability of the agency's staff and

resources to support the dispatch of emergency management personnel to assess environmental damage and to test sites for air quality, water quality, and other human health and environmental threats.

5. Agency-wide Climate Adaptation Priorities

EPA has identified priority actions it will take to integrate climate change adaptation into its programs, policies, rules, enforcement and compliance assurance activities, and operations. These priorities represent EPA's commitment to address its programs' vulnerabilities to climate change.

The following tables provide detailed information about the work EPA will do in each of the priority areas.

Climate Adaptation Priorities

1. Integrate climate adaptation into EPA programs, policies, rulemaking processes, and enforcement activities.
2. Consult and partner with states, tribes, territories, local governments, environmental justice organizations, community groups, businesses, and other federal agencies to strengthen adaptive capacity and increase the resilience of the nation, with a particular focus on advancing environmental justice.
3. Implement measures to protect the agency's workforce, facilities, critical infrastructure, supply chains, and procurement processes from the risks posed by climate change.
4. Measure and evaluate performance.
5. Identify and address climate adaptation science needs.

Priority Action 1: Integrate climate adaptation into EPA programs, policies, rulemaking processes, and enforcement activities.

Action Description: As much as possible and consistent with its authorities and available resources, the EPA will account for the impacts of climate change and related environmental justice concerns as it designs, implements, and assesses its programs, policies, rules, and enforcement and compliance assurance activities to ensure they are effective and resilient to climate change. The agency will train its management and staff to integrate adaptation into decision-making processes. EPA will develop decision-support tools and provide technical assistance to enable staff to integrate climate adaptation into programs and to identify strategies that will also

yield co-benefits, such as reducing greenhouse gases and other pollution, and advancing environmental justice.

Action Goal: Effectively integrate climate adaptation planning into EPA’s programs, policies, rulemaking processes, and enforcement activities.

Agency Leads: Office of Policy and Office of Enforcement and Compliance Assurance

Risk or Opportunity: The opportunity is to enhance the agency’s ability to fulfill its mission of protecting public health and the environment even as the climate changes.

Scale: The agency will implement this priority across all the Programs and Regional Offices.

Timeframe: The agency will commence these activities in FY 2021. It is anticipated this will be an ongoing process.

Implementation Methods: To successfully achieve this priority action, EPA will:
Integrate climate change adaptation into rulemaking processes
EPA will integrate information about the impacts of climate change into rulemaking processes consistent with its authorities. EPA will consider a variety of “entry points,” including the development of the rule itself; related policy and guidance development; outreach to stakeholders, especially overburdened and underserved communities that are more vulnerable to climate impacts; post-rule permitting; and monitoring and enforcement and compliance assurance activities.

EPA will update guidance on rulemaking processes to include more explicit consideration of climate change. EPA developed this process to guide the agency’s rulemaking activities from the start of the rulemaking process through the analysis of regulatory options to the final publication of a regulation. EPA will integrate climate adaptation into these processes by:

- **Pinpointing process points where climate change adaptation considerations warrant identification and analysis.** The rulemaking process includes opportunities to discuss climate change adaptation considerations, both internally and with stakeholders.
 - **Developing guidance documents and training rule writers to understand the implications of climate change impacts and incorporate these considerations into rulemaking.** EPA will develop a guide for climate change adaptation and provide training in the same
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way it has issued guidance on addressing children’s health and environmental justice for all rulemakings.

- **Engaging the most vulnerable communities from the beginning of the rulemaking process.** Meaningful engagement will help EPA to understand the disproportionate vulnerabilities of certain communities and consider these vulnerabilities throughout the rulemaking process.

Integrate climate adaptation criteria into financial mechanisms

The agency will modernize its financial assistance programs to encourage and support smarter, more climate-resilient investments by states, tribes, territories, and local communities. It will do so by integrating climate adaptation considerations, as appropriate, into discretionary and non-discretionary financial mechanisms. This includes agency grants, cooperative agreements, loans, technical assistance, contracts, and awards where the project’s desired outcomes are sensitive to climate change (*e.g.*, clean air; safe drinking water; site cleanups).

Integrate climate adaptation remedy selection for cleanup sites

EPA will update and develop policies addressing sea level rise in remedy selection for cleanup sites managed by EPA under RCRA and TSCA. EPA will develop guidance on how to address sea level rise in PCB cleanup approvals with input from PCB Regional Coordinators. EPA will update its Guidance on RCRA Corrective Action Decision Documents: Statement of Basis to address sea level rise considerations.

Develop Decision-Support Tools that Enable EPA Staff and Partners to Integrate Climate Adaptation Planning into their Work

Many standard analytical practices may be less effective unless they account for climate change. For example, standard methods used for estimating the probability and expected frequency of floods for flood plain mapping, designing infrastructure, and estimating runoff of pollutants and sediments entering rivers and streams are based on historical data rather than scientifically credible expectations of future conditions. EPA and its partners need to alter their standard practices and decision routines to account for a continuously changing climate and how climate change will disproportionately affect certain communities.

The development of decision-support tools plays a central role in EPA and our stakeholder’s efforts to adapt to climate change. Following the recommendations of the National Research Council, EPA is committed to

developing decision-support tools to improve the quality and efficacy of decisions sensitive to climate change and related environmental justice considerations. These tools will empower EPA staff and their partners to consider climate, as well as changes in social and economic conditions that are influenced by climate change. They will enable staff to integrate climate adaptation and justice considerations into their work and decision-making processes. Priority will be given to the development of tools that support the agency's direct program implementation requirements and benefit multiple end users within and outside EPA.

Update National Program and Regional Office Implementation Plans

Upon publication of this Plan, the EPA National Program Offices and Regional Offices will update their respective Implementation Plans to report on progress they have made integrating climate adaptation into their work and to identify actions they will take to address the five agency-wide priorities identified in the new EPA Climate Action Plan.

The updated Implementation Plans will ensure climate adaptation and resilience are a high priority within the core missions and priorities of the Program and Regional Offices. In addition, the Office of Policy and the Office of Enforcement and Compliance Assurance will develop plans for the first time. All Program and Regional Offices will report annually on progress with implementation efforts.

Performance:

The agency will monitor progress using the following measures:

Long-Term Measure:

- Starting in 2021, EPA will increase integration of climate change adaptation into programs, policies, and rules and is committed to developing and implementing Climate Adaptation Implementation Plans for all EPA Programs and Regions.

Interim Measures:

- Program and Regional offices will develop and implement Climate Adaptation Implementation Plans that contain goals, measures, commitments, and implementation strategies.
 - EPA programs will develop adaptation training for programs and staff.
 - EPA will train managers and staff on how to integrate climate adaptation into their job duties.
 - The number of agency employees who access the internal Adaptation Resource Center and/or the public ARC-X system for programmatic tools and information will increase by 25% per year.
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Intergovernmental Coordination:	EPA will support capacity building for state, tribal, territorial, local, and international partners by working with them to develop and use effective decision-support tools. EPA will coordinate with other Federal agencies on developing decision-support tools with partners, when appropriate.
Resource Implications:	The agency will need additional personnel and funding resources to successfully implement this priority action.
Challenges/Further Considerations:	Management of limited resources (personnel and funding) to support the breadth of climate adaptation activities across all Programs and Regions.
Examples of Accomplishments to Date:	<ul style="list-style-type: none"> • Adaptation training for all new EPA employees. • Training for partners: <i>Local Government Climate Adaptation Training and Understanding Climate Change Impacts on Water Resources</i>. • Visual mapping tool: Region 1 tool to assist EPA in assessing climate impacts on contaminated sites. • Integrating climate change into Superfund cleanup processes: Training and technical support for remedial project managers on conducting site-level risk assessments that incorporate information on potential impacts of climate change effects.

Priority Action 2: Consult and partner with states, tribes, territories, local governments, environmental justice organizations, community groups, businesses, and other federal agencies to strengthen adaptive capacity and increase the resilience of the nation, with a particular focus on advancing environmental justice.

Action Description:	<p>States, tribes, territories, and local governments, in partnership with EPA and other Federal Agencies, share responsibility for increasing resilience and adapting to climate change in a manner that advances environmental justice. These partnerships will be critical for efficient, effective, and equitable implementation of climate adaptation strategies. EPA’s Regional and Program Offices will work with their partners, engage local stakeholders, and use a diversity of approaches to build adaptive capacity and encourage locally relevant climate action.</p> <p>The EPA will support states, tribes, territories, communities, and businesses by producing and delivering the training, tools, technical support, data, and information they need to adapt and increase resilience to climate change. The agency will also support more climate-resilient investments by states, tribes, territories, and local communities and encourage the use of more climate-friendly adaptation measures (<i>e.g.</i>, solutions that reduce, rather than increase, energy use).</p>
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Action Goal:	Build and strengthen the adaptive capacity of states, tribes, territories, communities and businesses.
Agency Lead:	Office of Policy
Risk or Opportunity:	The opportunity is to help increase the resilience of the nation to the impacts of extreme weather events and climate change.
Scale:	The agency will implement this priority across all the Programs and Regional Offices.
Timeframe:	The agency will commence these activities in FY 2021. It is anticipated this will be an ongoing process.
Implementation Methods:	<p>To successfully achieve this priority action, EPA will:</p> <p><u>Implement Mechanisms for Building Adaptive Capacity</u></p> <ul style="list-style-type: none"> • <u>Training</u>: increasing awareness of ways climate change may affect their ability to implement effective programs. • <u>Tools and information</u>: providing access to tools, data, and information to support decision making. • <u>Technical assistance</u>: working with states, tribes, territories, and communities to help develop and implement locally led plans • <u>Financial incentives</u>: supporting climate-resilient investments in communities <p><u>Advance Environmental Justice</u></p> <p>The agency places special emphasis on working with overburdened and vulnerable populations to increase their resilience to climate change. Such populations include communities of color, low-income communities, children, persons with disabilities, the elderly, tribes, and indigenous people. These groups and individuals may be especially vulnerable to climate change impacts due to a variety of factors including, higher pollution burdens, disproportionate exposure to environmental contaminants, lack of financial resources, limited access to quality health care, and other barriers.</p>

For example, the elderly are more vulnerable to heat stress because they are often in poorer health, have chronic diseases, and are less able to regulate their body temperature during periods of extreme heat. Communities of color often face

disproportionate climate risks from the continuing impacts of inequitable treatment and discrimination.

The Agency will support the most overburdened and vulnerable communities to improve their capacity to prepare for, cope with, and recover from climate change impacts.

Climate change poses risks to children's health. It increases children's risk of becoming ill or dying due to extreme heat; decreases lung maturation due to exposure to ground-level ozone and particulate matter; increases asthma and other allergic respiratory diseases from exposure to aeroallergens and ozone, among others; increases illness from harmful algal blooms and other waterborne pathogens; exacerbates adverse impacts on cognitive development and the capacity of the body to regulate emotions; and has the potential to worsen depression, anxiety, phobia, and panic because of exposure to disasters and displacement.

The EPA's efforts to anticipate and adapt to the effects of climate change will help the most vulnerable people and places reduce their exposure to climate change and improve their capacity to prepare for or avoid adverse impacts. For example, EPA will actively engage with community-based organizations from overburdened and underserved communities that are more vulnerable to climate impacts to ensure National Program and Regional Office Implementation Plans reflect the principles of environmental justice and equity.

The agency will make special efforts to work with those who have been historically underrepresented in decision making, such as tribal nations and communities of color, to develop adaptation plans that improve their capacity to prepare for, cope with, and recover from climate change impacts. The agency will also continue to focus on the life stages during which people are most vulnerable to climate change. Development of effective, equitable, and just adaptation plans and strategies will require EPA to identify how pre-existing social inequities limit a community's adaptive capacity and respond accordingly.

Support Tribes and Indigenous Peoples to Increase Adaptive Capacity

EPA recognizes that tribes and indigenous peoples are disproportionately vulnerable to the impacts of climate change, due in part to their dependence on specific geographic areas for their livelihoods; unique

cultural, economic and political characteristics; and limited resources to prepare for, respond to and recover from climate-related hazards.

The agency, in keeping with the Federal Trust Responsibility, will assure that tribal concerns and interests are considered whenever EPA's actions and/or decisions may affect Indian country. Pursuant to EPA's Policy on Consultation and Coordination with Indian Tribes, EPA engages in government-to-government consultation with tribes when actions or decisions may affect their tribal interests. EPA is committed to engaging in timely consultation and coordination on a government-to-government basis to implement this plan and help tribes address their climate adaptation concerns.

The EPA Policy on Environmental Justice for Working with Federally Recognized Tribes and Indigenous Peoples (EJ Tribal/Indigenous Policy) guides how EPA conducts work with federally recognized tribes, indigenous peoples, other federal and state agencies, and other stakeholders in Indian country and throughout the United States to advance environmental justice, such as climate justice. EPA engages and works with indigenous peoples (as defined in the EPA Tribal/Indigenous Policy) separately and differently from our work with federally recognized tribes. Our work with indigenous peoples may include support for community-based climate adaptation efforts.

The agency will support the development of climate science to meet priority research needs and decision-support tools useful to the tribes and indigenous peoples. EPA will work with tribes and indigenous peoples to identify and support the use of climate change relevant traditional ecological knowledge (TEK) in decision making. EPA recognizes that TEK, as an expression of key information that links historical, cultural, and local ecological conditions, may help tribes and indigenous peoples choose how they adapt to climate change while also protecting resources and the uses of those resources important to their culture and livelihood. These efforts will leverage existing EPA partnerships with the tribes, tribal networks, indigenous peoples, and indigenous networks.

On a national level, EPA will work with other Federal agencies to collectively support tribes and indigenous peoples as they assess their vulnerabilities to climate change and plan and implement adaptation actions. Regional Offices will seek opportunities to work together with other Federal agencies' regional offices to provide strong support to tribes and indigenous peoples on their climate change challenges.

Performance:	The agency will monitor progress using the following measures:
	<u>Long-Term Measure:</u>
	<ul style="list-style-type: none"> • EPA will strengthen the adaptive capacity of states, tribes, territories, local governments, environmental justice organizations, community groups, and businesses, with a particular focus on advancing environmental justice, by increasing the number EPA has assisted, through grants or technical assistance, to 1) develop or update their climate resilience/adaption plans and/or 2) implement an action to anticipate, prepare for, and adapt to climate change.
	<u>Interim Measures:</u>
	<ul style="list-style-type: none"> • Increase the number of climate adaptation or community resilience-building planning or implementation efforts in overburdened and underserved communities in which EPA contributes resources, technical assistance, and/or actively participates. • Increase the number of unique and returning external visitors to the ARC-X system. • Increase the number of state-level and regional-level versions of the ARC-X system developed by universities with EPA support. • Include climate adaptation evaluation criteria in Grant Guidance and Requests for Proposals. • Increase the number of states, territories, local governments, environmental justice organizations, community groups, and businesses, with a particular focus on advancing environmental justice, that have incorporated climate change adaptation into the implementation of their environmental programs supported by major EPA financial mechanisms. • Support federally recognized tribes in incorporating climate adaptation into at least one program supported by an EPA grant.
Intergovernmental Coordination:	EPA will consult and partner with states, tribes, territories, environmental justice organizations, community groups, businesses, and other federal agencies to successfully implement this priority action.
Resource Implications:	The agency will need additional personnel and funding resources to successfully implement this priority action.
Challenges/Further Considerations:	Management of limited resources (personnel and funding) to support the breadth of climate adaptation activities across all Programs and Regions.
Examples of Accomplishments to Date:	<ul style="list-style-type: none"> • EPA’s Climate Change Adaptation Resource Center (ARC-X) is an innovative system designed to help all 40,000 communities across the United States anticipate, prepare for, and adapt to the impacts of

climate change (www.epa.gov/arc-x). It provides users with an integrated package of information tailored specifically to their needs.

- EPA has supported the development of state-level and regional-level versions of the ARC-X system by universities. The Indiana University ERIT system is one example (<https://eri.iu.edu/erit/index.html>).
- EPA has modernized the financial assistance programs below to encourage climate-resilient investments. These programs now incorporate specific criteria, allow for adaptation planning, or otherwise encourage communities to anticipate, plan for, and adapt to the changing climate. Examples include:
 - Brownfields grants
 - Indian General Assistance Program
 - Environmental Justice Small Grants Program
 - State Revolving Funds
 - Wetland program grants
- EPA has provided technical support:
 - Support for tribes in the Pacific Northwest and Alaska: New EPA Region 10 webpage providing support to tribal communities on climate adaptation issues in Alaska, Idaho, Oregon, and Washington.
 - Providing adaptation planning assistance to Tribes: Support for the Pala Band of Mission Indians to build Tribal capacity to address the health effects of climate change.
- EPA has provided tools:
 - EJSCREEN: Climate is incorporated into EPA’s environmental justice mapping and screening tool.
 - Climate Resilience Evaluation and Awareness Tool (CREAT): A software tool to assist drinking water and wastewater utility owners and operators in understanding potential climate change threats and in assessing the related risks at their individual utilities.
 - Stormwater Calculator with Climate Assessment Tool: Desktop application that estimates the annual amount of rainwater and frequency of runoff from a specific site anywhere in the United States. The calculator includes future climate vulnerability scenarios.

Priority Action 3: Implement measures to protect the agency’s workforce, facilities, critical infrastructure, supply chains, and procurement processes from the risks posed by climate change.

Action Description: The EPA is committed to the safety of its personnel, the integrity of its buildings, the efficiency of its operations, and the sustainability of the communities in which its facilities are located. However, the impacts of climate change, including more frequent and intense storms, wildfires,

water shortages, and sea level rise, pose risks to meeting these objectives. Climate change could disrupt the operation of the agency’s programs, compromise the safety of its staff, or affect the integrity of its physical infrastructure. Adaptation planning to protect EPA’s workforce, operations, underlying infrastructure, and supply chains is crucial.

Where appropriate, EPA will develop and implement new measures to protect its workforce and increase the resilience of its facilities and operations to climate change. More detailed information about the specific actions the agency will take to ensure climate-ready sites and facilities appears in Part 7 of this Plan. Information about the specific actions the agency will take to ensure a climate-ready supply of products and services appears in Part 8 of this Plan.

Action Goal:	Increase the resilience to climate change of the agency’s facilities and operations, including critical supply chains.
Agency Lead:	As the office within EPA responsible for facilities, transportation, security, health and safety, human resources, grants, and procurement, the Office of Mission Support (OMS) is responsible for ensuring the safe and continued operation of the agency’s facilities, contracts, grants, and human resources programs.
Risk or Opportunity:	Without specific action, climate change may (1) adversely affect critical facilities and assets across the nation, and (2) jeopardize the availability of essential services and supplies.
Scale:	This agency will implement these actions at mission-critical assets across the nation.
Timeframe:	The agency will commence these activities in FY 2021. It is anticipated this will be an ongoing process.
Implementation Methods:	<ul style="list-style-type: none">• Where possible, EPA will enhance the resilience of existing facilities in coastal areas to protect them from severe weather, flood damage, and sea level rise.• The agency will also work with the General Services Administration and other government agencies, including local government agencies, to account for climate change in the location, design, and construction of new facilities, or when new buildings are leased so the agency invests in long-term climate-smart infrastructure and operations.

Performance:

The agency will monitor progress using the following measures:

Long-Term Measure for Facilities:

- EPA will initiate priority climate resiliency projects for EPA-owned facilities within 24 months of a completed facility climate assessment and project prioritization.

Interim Measures for Facilities:

- EPA will 1) define climate resiliency for EPA facilities and 2) conduct a climate assessment of all 20 owned facilities to determine which facilities require investments to protect against climate and weather change.
- EPA may prioritize identified projects based on multiple factors – ability to execute, impact on facility resiliency, cost, etc.
- EPA will initiate 100% of the highest priority projects within 24 months of assessment completion and prioritization.

Interim Measures for Acquisitions:

To further advance a climate-robust supply of goods and services that prioritize climate readiness and prompt innovation in materials, products, and contracting to meet mission needs, EPA will:

- Develop and implement acquisition policy to incorporate climate change considerations in the advance acquisition planning process (requirements and solicitation development for contractor response) through consideration and assessment of climate change risks and climate change innovations associated with the goods and services to be procured.
- Develop and implement a Supply Change Management Program which will include assessment of supply chain risk, with emphasis on climate change risk assessment and mitigation to ensure consistent monitoring.
- Perform an in-depth assessment of climate change supply chain risk for EPA mission critical contracts by applying the “GSA Framework for Managing Climate Risks in Federal Supply Chains” and the seven screening questions provided by CEQ.

Intergovernmental Coordination:

OMS works in close coordination with the Federal Chief Sustainability Officer, the General Services Administration, and other Federal agencies.

Resource Implications:

The agency will need additional personnel and funding resources to successfully implement this priority action.

Challenges/Further Considerations:

Management of limited resources (personnel and funding) to support the breadth of climate adaptation activities across all Programs and Regions.

Examples of Accomplishments to Date:

EPA has made progress in both mitigating greenhouse gas emissions and preparing for climate change. The agency's Strategic Sustainability Performance Plan (SSPP), for example, outlines numerous goals and achievements in reducing the agency's greenhouse gas emissions, energy dependence, water use requirements, solid waste, pollution, and other environmental impacts. EPA also has in place an extensive continuity of operations plan (COOP) designed to prepare for natural disasters and other events that could interrupt agency operations.

Priority Action 4: Using Measurement, Data and Evidence to Evaluate Performance

Action Description:

The EPA recognizes the importance of monitoring and evaluating performance and acting on the lessons learned. The EPA will evaluate its climate change adaptation actions on an ongoing basis to assess its progress toward (1) integrating climate adaptation throughout the agency's programs, policies, rules, enforcement and compliance assurance activities, and operations; (2) modernizing financial assistance programs in ways that encourage climate-resilient investments; (3) providing the information, tools, training, and technical support that communities need to increase resilience and adapt to climate change; and (4) advancing equity and justice to support the needs of the most overburdened and vulnerable communities in responding to climate change. Through ongoing evaluation, the agency will learn how to effectively integrate climate adaptation into its activities. The EPA will evaluate what worked and why, as well as what didn't work and why not. Based on the lessons, the EPA will adjust the way adaptation is integrated into its activities.

The EPA will track and evaluate its progress toward integrating climate adaptation into the agency's programs, policies, rules, enforcement and compliance assurance activities, and operations and its progress in supporting partners to do the same. EPA is committed to building and using data, measurement, and other evidence to evaluate the effectiveness of climate adaptation tools, activities, program management, and policy approaches. Through ongoing evaluation, the agency will learn how to integrate climate adaptation planning more effectively across its programs and across the country.

Adaptation to climate change will happen in stages, and measures should reflect this evolution. The earliest changes in many programs will be changes

in knowledge and awareness (*e.g.*, increase in the awareness of EPA staff and their external partners of the relevance of adaptation planning to their programs). Building on this knowledge, they then will begin to change their behavior (*e.g.*, increase their use of available decision support tools to integrate adaptation planning into their work). Finally, in the long term, adaptation planning efforts will lead to changes in conditions (*e.g.*, percentage of flood-prone communities that have increased their resilience to storm events) to directly support EPA’s mission to protect human health and the environment.

The EPA will establish long-term measures under the agency’s FY 2022-2026 Strategic Plan, as well as supporting annual measures in the FY 2023 Congressional Justification and appropriate internal metrics.

Action Goal: Through ongoing evaluation, the agency will learn how to effectively integrate climate adaptation into its activities.

Agency Lead: Office of Policy

Risk or Opportunity: Limitations on the agency’s ability to use particular data collection techniques (*e.g.*, surveys of local government officials to evaluate the usefulness of EPA tools), will limit its ability to conduct informative evaluations.

Scale: All EPA Programs and Regions.

Timeframe: The agency will commence these activities in FY 2021. It is anticipated this will be an ongoing process.

Implementation Methods: The EPA will use a combination of long-term and interim measures to assess progress. However, it will be an ongoing challenge to measure the direct impact of EPA’s adaptation planning activities on the resilience of its programs and on the human health and environmental outcomes it is striving to attain. Long-term measures assess the climate adaptation outcomes we are ultimately trying to influence, but the results often come months or years after EPA provides support. The interim measures are more immediate actions EPA staff can take (*e.g.*, including adaptation criteria in grant solicitations, training,

EPA will use performance measurement, data analysis, evaluation, and other evidence-building activities to understand which climate adaptation strategies work, what can be improved, and what information gaps exist.

development of decision support tools) to move us closer to achieving our climate adaptation goals.

Performance: The agency will monitor progress using the following measures:

Long-Term Measure:

- EPA will measure its progress on enhancing the adaptive capacity of states, tribes, territories, and communities by creating a robust measurement system that includes both output and outcome measures.

Interim Measures:

- EPA will include Climate Adaptation in its 2022-2026 Strategic Plan and develop both Long-Term Performance Goals and Annual Performance Goals to track progress.
 - EPA will update this plan and report on progress annually.
 - EPA will evaluate progress on its climate adaptation support for overburdened and vulnerable communities.
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Intergovernmental Coordination: The agency will work closely with OMB to seek approval for the use of survey mechanisms.

Resource Implications: The agency will need additional personnel and funding resources to successfully implement this priority action.

Challenges/Further Considerations: Management of limited resources (personnel and funding) to support the breadth of climate adaptation activities across all Programs and Regions.

Examples of Accomplishments to Date:

- Using Google Analytics, EPA has monitored the use of its Climate Change Adaptation Resource Center (ARC-X) from October 2016 through June 2021. Data indicate: (1) a steady increase in annual repeat, unique users of the system, and (2) usage of the system in all 50 states. Desired enhancements to the system have been identified.

Priority Action 5: Identify and address climate adaptation science needs.

Action Description: Implementing effective strategies to adapt to the changing climate requires that decisions be grounded in the best available science on climate change risks, impacts and vulnerabilities, and adaptive management practices. Throughout EPA, there is a growing need for up-to-date information on the existing data and information, models, and tools relevant to climate change adaptation.

EPA has made progress conducting climate-related research and developing models and tools. EPA will support an agency-wide approach to identify and update priority research needs, including social science research, related to climate change adaptation.

EPA's Office of Research and Development will reinforce scientific integrity and coordinate with the Program and Regional Offices to identify and address priority research needs for the entire agency to support the integration of adaptation planning into the agency's activities.

EPA will advance a rigorous exploratory and applied climate adaptation science program by conducting climate-related research in its labs and centers, supporting research through its grants program, conducting policy-relevant assessments, communicating research and assessment results, and delivering innovative and sustainable solutions. EPA will coordinate and collaborate with other agencies and the scientific community to provide access to the best available science, technologies, and practices.

Action Goal: Production and delivery of research results that benefit multiple Programs and Regional Offices across EPA, our partners, and others across the world.

Agency Lead: Office of Research and Development: The EPA Office of Research and Development (ORD) has the primary responsibility for coordinating with the Program and Regional Offices to identify the priority science needs of the agency and its partners. ORD is also EPA's primary representative to the U.S. Global Change Research Program (USGCRP).

Risk or Opportunity: The opportunity is the production of research results that yield benefits to multiple EPA Programs and Regions, as well as partners across the nation.

Scale: ORD will engage all the EPA National Program Offices and the 10 Regional Offices, other federal agencies, and partners across the nation.

Timeframe:	The agency will commence these activities in FY 2021. It is anticipated this will be an ongoing process as new scientific information emerges (<i>e.g.</i> , with the production of the 5 th National Climate Assessment).
Implementation Methods:	<ul style="list-style-type: none"> • A Subgroup of the Cross-EPA Work Group on Climate Adaptation will be established to oversee this priority action. ORD will chair the Subgroup. • The Subgroup will adhere to EPA’s Scientific Integrity Policy. This policy provides a framework intended to ensure scientific integrity throughout the EPA and promote scientific and ethical standards. • To facilitate the ongoing sharing of information, the EPA will establish a central repository of information and EPA tools related to climate adaptation. The repository will also include information (“lessons learned”) about methods for integrating climate adaptation that EPA offices have used that may be applicable to other users within the agency or by EPA’s federal, state, tribal, territorial, or local government partners. EPA will collaborate with other federal agencies to develop and maintain a means to ensure access to climate adaptation data. • ORD resources will be used to establish an EPA Regional Climate Science Network which will address the growing need in each Regional Office for <u>local</u> and <u>region-specific</u> scientific and technical expertise to inform citizens, communities, and agency decision makers in their efforts to anticipate, prepare for, adapt to, and recover from climate-driven extreme events and their impacts to clean air, water, and land.
Performance:	The agency will monitor progress using the following measures: <p data-bbox="505 1136 751 1163"><u>Long-Term Measure:</u></p> <ul style="list-style-type: none"> • EPA will have a rigorous exploratory and applied climate adaptation science program that provides climate-relevant data, tools and information to EPA staff and partners. <p data-bbox="505 1314 721 1341"><u>Interim Measures:</u></p> <ul style="list-style-type: none"> • EPA will assess priority climate adaptation science needs for its Program and Regional Offices and develop a proposal for meeting those needs. • ORD will support EPA Programs and Regions to base climate adaptation decisions on sound science and in alignment with the Scientific Integrity Policy. • EPA will establish a central repository of information and EPA tools related to climate adaptation.
Intergovernmental Coordination:	<ul style="list-style-type: none"> • ORD will play a major role representing EPA’s needs to other federal agencies and in partnering with other organizations, including those based in—or partnering with—overburdened and vulnerable communities, to develop nationally and internationally relevant research and information and the means to deliver that information to users at all levels.

- ORD will coordinate with the U.S. Global Change Research Program (USGCRP) and its 13 member agencies to advance a rigorous exploratory and applied climate adaptation science program and to engage partners across the nations to identify their priority research needs.
- ORD will support development of the 5th National Climate Assessment by contributing to interagency coordination and leadership, authorship, and review.

Resource Implications:

The agency will need additional personnel and funding resources to successfully implement this priority action. Establishment of an EPA Regional Climate Science Network will require significant additional funds and personnel in order to support all 10 EPA Regional Offices.

Challenges/Further Considerations:

Management of limited resources (personnel and funding) to support the breadth of climate adaptation activities across all Programs and Regions.

Examples of Accomplishments to Date:

- Development and updating of EPA’s Scientific Integrity Policy.
- EPA Contributions to the 4th U.S. National Climate Assessment.
- EPA Contributions to the USGCRP report, “The Impacts of Climate Change on Human Health in the United States”
- ORD contributions to the development of numerous decision support tools for climate adaptation, such as the BASINS environmental analysis system designed to help regional, state, and local agencies perform watershed- and water quality-based studies.

6. Enhance Climate Literacy of the EPA Workforce and Our Partners

An organization must craft and adopt new means of achieving its goals as circumstances change. To respond to climate change, EPA needs its personnel and partners to adopt new ways of achieving its mission. EPA will build capacity through ongoing education and training. Equipped with an understanding of projected climate-related changes and adaptation approaches and trained on how to use new decision-support tools, EPA and its partners will be better able to incorporate climate adaptation into their plans and decisions.

EPA’s training, education, and outreach programs focused on climate adaptation are evolving. EPA will develop, update, and expand the existing climate adaptation training modules for its staff and partners. The training will have two primary goals. The first is to increase awareness about the importance of climate adaptation and encourage all EPA staff and partners to consider the changing climate in the normal course of business. The second is to introduce its staff and partners to specific methods and tools for integrating climate adaptation into decision-making processes.

7. Agency Actions to Ensure Climate-ready Sites and Facilities

Climate resiliency has been an integral component of EPA’s site planning and facility support for more than a decade. In preparation for severe weather effects on its buildings, infrastructure, operations, and mission-critical activities, EPA’s Office of Mission Support (OMS) has conducted climate resiliency assessments at several key facilities in coastal, plains, and mountain regions to identify vulnerabilities and opportunities for climate readiness and adaptation. EPA will conduct additional facility climate resiliency assessments to identify new vulnerabilities and determine best practices for withstanding severe weather events, enhancing IT security, ensuring resilient power supplies, and continuing EPA’s mission-related work in the event its buildings or operations are compromised by climate change.

In addition to resiliency assessments, EPA employs a variety of management strategies to ensure its buildings are safe, resilient, and sustainable. The agency will continue to audit its facilities for safety, physical security, and sustainability opportunities such as energy reduction, water conservation, and fleet efficiency to reduce the agency’s greenhouse gas emissions and climate change impacts. EPA will also use its master planning process, which revisits facility plans every five years, to consider renovations and other projects to enhance resilience and reduce the greenhouse gas emissions associated with its operations.

Based on the results of its assessments and the efficiency measures it has reported in the Federal Energy Management Program’s Compliance Tracking System (CTS), EPA will update its master plans with projects that reinforce facilities and operations to withstand and mitigate both short- and long-term climate change impacts. Through its annual Operating Plan, EPA will identify both Buildings and Facilities (B&F) and non-B&F funding, as well as the staff resources necessary to conduct some of the following efforts, where feasible, to enhance building and operational resilience:

- Strategically relocate mechanical equipment, IT infrastructure, and other mission-critical equipment if it can be disrupted by heavy wind, rain, floods, or fires.
- Review site drainage and landscaping to prevent flooding issues from intense storms.
- Commission new buildings and review existing building envelope systems for compliance with updated codes on water and wind resistance.
- Develop drought resiliency strategies for water reuse and reduction in drought-prone areas and consider creating “clear zones” around facilities in areas with wildfire risks.
- Assess and address employee thermal comfort during extreme temperature shifts through design, while also addressing additional burdens on energy and water use during peak utility use periods.
- Harness the power of procurement to ensure that the mechanical and operational equipment for its facilities—as well as materials, furnishings, and fixtures—are resilient to and mitigate the effects of

EPA will work to ensure that its adaptation efforts do not result in adverse impacts on already vulnerable, underserved or pollution-burdened communities. EPA will give priority to addressing the impacts of climate change in and around its facilities located in these communities.

climate change (e.g., windows, roofing, and cladding materials used in coastal areas will be both energy-efficient and able to withstand high-level hurricane winds and floods).

A variety of agency management systems will ensure comprehensive project evaluation and coordination among key real estate, safety, security, and sustainability staff at EPA, as well as with the U.S. General Services Administration (GSA). Each project is assigned a coordination checklist, provided by EPA's Office of Administration, which is currently being updated to incorporate questions about climate resiliency and greenhouse gas mitigation. The coordination checklist supports the required National Environmental Policy Act reviews conducted on all construction projects. EPA also has a GreenCheck process in place to review design drawings, specifications, and construction plans for any new construction or major repair or renovation project; this process will ensure that climate-resilient designs, materials, and methods are incorporated throughout the building process.

OMS has already identified more than 14 large and 120 small projects to enhance EPA facility resilience, support resilient power and water supply, and ensure continuity of operations and computation in the event of severe weather events. EPA will coordinate with local utilities, fire safety officials, GSA, and other stakeholders to implement resiliency best practices and prepare contingency plans as needed.

8. Ensuring a Climate-ready Supply of Products and Services

To advance a climate-robust supply of goods and services that prioritize climate readiness and prompt innovation in materials, products, and contracting to meet mission needs, EPA has done a very general, high-level assessment of potential types of contract work that may be at risk from climate change-related events. Some examples include:

Contracts requiring personnel performing essential work onsite. Many EPA facilities run 24/7 with a minimum number of personnel needed to maintain operations and security, including animal care contractors who must be on site and laboratory testing contractors who must be on site to ensure samples in progress are not affected. Also, some equipment in EPA facilities need to be maintained by technical contracts involving personnel with specialized expertise, such as high-dollar-value boilers for maintaining facilities and nuclear magnetometers, which, if not properly maintained, could cease to function and even destroy the buildings where they are housed. Additionally, EPA contractors maintain emergency response and other equipment in warehouses across the country; a lack of routine maintenance or calibration of that equipment could render it ineffective.

In a climate change-related emergency event, contractor personnel may not be able or willing to come to the facility to perform the essential work, and critical supplies needed to continue their performance may be in jeopardy. Adaptation could possibly include developing an "essential worker" clause for relevant contracts and broadening the scope of acquisition planning to identify and consider alternative sources to supplement or replace reduced or unavailable contractor capabilities and capacities.

Contracts for Superfund remediation and emergency response. Superfund sites that are in the process of clean-up may need to be temporarily closed during a climate change-related event, requiring

contractors to secure the site from further contamination and unauthorized physical access to the site. Adaptation could include assessing the current portfolio of Superfund remediation and emergency response contracts to ensure adequate site coverage.

Contracts for desktops, laptops, and mobile devices. Disruption in the supply chain from increased storms and drought can compromise access to the materials and other components necessary to manufacture these goods domestically and abroad. Adaptation could possibly include increasing the variety of devices that are deemed “Agency Standard” to allow for more flexible sourcing and supply chain diversity.

Contracts involving critical intellectual property. Intellectual property could be rendered inaccessible due to contractor unavailability because of a climate change-driven event. Adaptation could include more extensive market research to identify alternative systems and applications to reduce reliance on custom or proprietary systems, software, and applications.

To further advance a climate-robust supply of goods and services that prioritize climate readiness and prompt innovation in materials, products, and contracting to meet mission needs, EPA will:

- Develop and implement acquisition policy to incorporate climate change considerations in the advance acquisition planning process (requirements and solicitation development for contractor response) through consideration and assessment of climate change risks and climate change innovations associated with the goods and services to be procured.
- Develop and implement a Supply Change Management Program that will include assessment of supply chain risk, with emphasis on climate change risk assessment and mitigation to ensure consistent monitoring.
- Perform an in-depth assessment of climate change supply chain risk for EPA mission critical contracts by applying the “GSA Framework for Managing Climate Risks in Federal Supply Chains” and the seven screening questions provided by the Council on Environmental Quality.

Conclusion: Contribution to a Healthy and Prosperous Nation

The priority placed on integrating climate adaptation within EPA complements efforts to encourage and integrate climate adaptation across the entire federal government. Federal agencies now recognize that climate change poses challenges to their missions, operations, and programs. Ensuring the capacity of federal government agencies to maintain essential services and achieve their missions in the face of climate change is vital to ensuring the resilience of the entire nation. The federal government has an important and unique role in climate adaptation but is only one part of a broader effort that must include public and private partners throughout the country and internationally. Partnerships with states, tribes, territories, local communities, other governments, and international organizations are essential.

EPA’s leadership and commitment to building the nation’s adaptive capacity are vital to its mission of protecting human health and the environment. Working with its partners, EPA will help promote a healthy and prosperous nation that is more resilient to a changing climate.



epa.gov/climateadaptationplan

ENVIRONMENTAL PROTECTION AGENCY

[EPA-HQ-OAR-2021-0257; FRL-9325-01-OAR]

California State Motor Vehicle Pollution Control Standards; Advanced Clean Car Program; Reconsideration of a Previous Withdrawal of a Waiver of Preemption; Notice of Decision

AGENCY: Environmental Protection Agency.

ACTION: Notice of decision.

SUMMARY: The Environmental Protection Agency (EPA) has completed the reconsideration of its 2019 action withdrawing a 2013 Clean Air Act (CAA) waiver of preemption for California's greenhouse gas (GHG) emission standards and zero emission vehicle (ZEV) sale mandate, which are part of California's Advanced Clean Car (ACC) program. This decision rescinds EPA's 2019 waiver withdrawal, thus bringing back into force the 2013 ACC program waiver, including a waiver of preemption for California's ZEV sales mandate and GHG emissions standards. In addition, EPA is withdrawing the interpretive view of CAA section 177 included in its 2019 action, that States may not adopt California's GHG standards pursuant to section 177 even if EPA has granted California a waiver for such standards. Accordingly, other States may continue to adopt and enforce California's GHG standards under section 177 so long as they meet the requirements of that section.

DATES: Petitions for review must be filed by May 13, 2022.

ADDRESSES: EPA has established a docket for this action under Docket ID EPA-HQ-OAR-2021-0257. All documents relied upon in making this decision, including those submitted to EPA by CARB, are contained in the public docket. Publicly available docket materials are available electronically through www.regulations.gov. After opening the www.regulations.gov website, enter EPA-HQ-OAR-2021-0257 in the "Enter Keyword or ID" fill-in box to view documents in the record. Although a part of the official docket, the public docket does not include Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. EPA's Office of Transportation and Air Quality (OTAQ) maintains a web page that contains general information on its review of California waiver and authorization requests. Included on that page are links to prior waiver **Federal Register** notices, some of which are cited in this notice;

the page can be accessed at <https://www.epa.gov/state-and-local-transportation/vehicle-emissions-california-waivers-and-authorizations>.

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I. Executive Summary

CAA section 209(a) generally preempts states from adopting emission control standards for new motor vehicles. But Congress created an important exception from preemption. Under CAA section 209(b), the State of California¹ may seek a waiver of preemption, and EPA must grant it unless the Agency makes one of three statutory findings. California's waiver of preemption for its motor vehicle emissions standards allows other States to adopt and enforce identical standards pursuant to CAA section 177. Since the CAA was enacted, EPA has granted California dozens of waivers of preemption, permitting California to enforce its own motor vehicle emission standards.

Of particular relevance to this action, in 2013, EPA granted California's waiver request for the state's Advanced Clean Car (ACC) program (ACC program waiver).² California's ACC program includes both a Low Emission Vehicle (LEV) program, which regulates criteria pollutants and greenhouse gas (GHG) emissions, as well as a Zero Emission Vehicle (ZEV) sales mandate. These two requirements are designed to control smog- and soot-causing pollutants and GHG emissions in a single coordinated package of requirements for passenger cars, light-duty trucks, and medium-duty passenger vehicles (as well as

¹ The CAA section 209(b) waiver is limited "to any State which has adopted standards . . . for the control of emissions from new motor vehicles or new motor vehicle engines prior to March 30, 1966," and California is the only State that had standards in place before that date. "California" and "California Air Resources Board" (CARB) are used interchangeably in certain instances in this notice when referring to the waiver process under section 209(b).

² 78 FR 2111 (January 9, 2013).

limited requirements related to heavy-duty vehicles). Between 2013 and 2019, twelve other States adopted one or both of California's standards as their own. But in 2019, EPA partially withdrew this waiver as part of a final action entitled "The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program" (SAFE 1), marking the first time the agency withdrew a previously granted waiver.³ In addition, in the context of SAFE 1, EPA provided an interpretive view of CAA section 177 asserting that other states were precluded from adopting California's GHG standards.

As Administrator of the Environmental Protection Agency (EPA), I am now rescinding EPA's 2019 actions in SAFE 1 that partially withdrew the ACC program waiver for California's ACC program. I am rescinding these actions because (1) EPA's reconsideration of the waiver under the particular facts and circumstances of this case was improper; (2) EPA's reconsideration was based on a flawed interpretation of CAA section 209(b); (3) even under that flawed interpretation, EPA misapplied the facts and inappropriately withdrew the waiver; (4) EPA erred in looking beyond the statutory factors in CAA 209(b) to action taken by another agency under another statute to justify withdrawing the waiver; (5) that agency has also since withdrawn the action EPA relied on in any event; and (6) EPA inappropriately provided an interpretive view of section 177.

As a result of this action, EPA's 2013 waiver for the ACC program, specifically the waiver for California's GHG emission standards and ZEV sales mandate requirements for model years (MYs) 2017 through 2025, comes back into force.⁴ I am also rescinding the interpretive view set forth in SAFE 1 that States may not adopt California's GHG standards pursuant to CAA section 177 even if EPA has granted California a section 209 waiver for such standards. Accordingly, States may now adopt and enforce California's GHG standards so long as they meet the requirements of

Section 177, and EPA will evaluate any State's request to include those provisions in a SIP through a separate notice and comment process.

Section II of this action contains a detailed history of EPA's waiver adjudications leading up to this action. In summary, in 2012, CARB submitted the ACC waiver request to EPA, which included ample evidence of the criteria pollution benefits of the GHG standards and the ZEV sales mandate. As it had in all prior waiver decisions with two exceptions (including SAFE 1), in considering the request EPA relied on its "traditional" interpretation of section 209(b)(1)(B), which examines whether California needs a separate motor vehicle program as a whole—not specific standards—to address the state's compelling and extraordinary conditions. In 2013, EPA granted California's waiver request for its ACC program in full. In 2018, however, EPA proposed to withdraw portions of its waiver granted in 2013 based on a new interpretation of section 209(b)(1)(B) that looked at whether the specific standards (the GHG standards and ZEV sales mandate), as opposed to the program as a whole, continued to meet the second and third waiver prongs (found in sections 209(b)(1)(B) and (C)).⁵ In addition, EPA proposed to look beyond the section 209(b) criteria to consider the promulgation of a NHTSA regulation and pronouncements in SAFE 1 that declared state GHG emission standards and ZEV sales mandates preempted under EPCA. In 2019, after granting CARB a waiver for its ACC program in 2013 and after 12 states had adopted all or part of the California standards under section 177, EPA withdrew portions of the waiver for CARB's GHG emission standards and ZEV sales mandates. In SAFE 1, EPA cited changed circumstances and was based on a new interpretation of the CAA and the agency's reliance on an action by NHTSA that has now been repealed.⁶

⁵ EPA's 2018 proposal was jointly issued with the National Highway Traffic Safety Administration (NHTSA), 83 FR 42986 (August 24, 2018) (the "SAFE proposal"). In addition to partially withdrawing the waiver, that proposal proposed to set less stringent greenhouse gas and CAFE standards for model years 2021–2026. NHTSA also proposed to make findings related to preemption under the Energy Policy and Conservation Act (EPCA) and its relationship to state and local GHG emission standards and ZEV sales mandates.

⁶ 84 FR 51310. In SAFE 1, NHTSA also finalized its action related to preemption under EPCA. NHTSA's action included both regulatory text and well as pronouncements within the preamble of SAFE 1. In 2020, EPA finalized its amended and less stringent carbon dioxide standards for the 2021–2026 model years in an action titled "The Safer Affordable Fuel-Efficient (SAFE) Vehicles

On January 20, 2021, President Biden issued Executive Order 13990, directing the Federal Agencies to "immediately review" SAFE 1 and to consider action "suspending, revising, or rescinding" that action by April 2021. On April 28, 2021, EPA announced its Notice of Reconsideration, including a public hearing and an opportunity for public comment.⁷ The Agency stated its belief that there were significant issues regarding whether SAFE 1 was a valid and appropriate exercise of Agency authority, including the amount of time that had passed since EPA's ACC program waiver decision, the approach and legal interpretations used in SAFE 1, whether EPA took proper account of the environmental conditions (*e.g.*, local climate and topography, number of motor vehicles, and local and regional air quality) in California, and the environmental consequences from the waiver withdrawal in SAFE 1. Further, EPA stated it would be addressing issues raised in the related petitions for reconsideration of EPA's SAFE 1 action. In the meantime, having reconsidered its own action, and also in response to Executive Order 13990, NHTSA repealed its conclusion that state and local laws related to fuel economy standards, including GHG standards and ZEV sales mandates, were preempted under EPCA,⁸ and EPA revised and made more stringent the Federal GHG emission standards for light-duty vehicles for 2023 and later model years, under section 202(a).⁹

Section III of this action outlines the principles that govern waiver reconsiderations. It sets forth the statutory background and context for the CAA preemption of new motor vehicle emission standards, the criteria for granting a waiver of preemption, and the ability of other States to adopt and enforce California's new motor vehicle emission standards where a waiver has been issued if certain CAA criteria are met. In brief, CAA section 209(a) generally preempts all States or political subdivisions from adopting and enforcing any standard relating to the control of emissions from new motor vehicles or new motor vehicle engines. But section 209(b) contains an important exception that allows only

Rule for Model Years 2021–2026 Passenger Cars and Light Trucks" (SAFE 2). 85 FR 24174 (April 30, 2020).

⁷ "California State Motor Vehicle Pollution Control Standards; Advanced Clean Car Program; Reconsideration of a Previous Withdrawal of a Waiver of Preemption; Opportunity for Public Hearing and Public Comment." 86 FR 22421 (April 28, 2021).

⁸ 86 FR 74236 (December 29, 2021).

⁹ 86 FR 74434 (December 30, 2021).

³ 84 FR 51310 (September 27, 2019).

⁴ In SAFE 1, EPA did not withdraw the entire 2013 waiver, but instead only withdrew the waiver as it related to California's GHG emission standards and the ZEV sales mandate. The waiver for the low-emission vehicle (LEV III) criteria pollutant standards in the ACC program remained in place. EPA's reconsideration of SAFE 1 and the impact on the ACC waiver therefore relates only to the GHG emission standards and the ZEV sales mandate, although "ACC program waiver" is used in this document. This action rescinds the waiver withdrawal in SAFE 1. In this decision, the Agency takes no position on any impacts this decision may have on state law matters regarding implementation.

California to submit a request to waive preemption for its standards. Importantly, EPA must grant the waiver unless the Administrator makes at least one of three findings: (1) That California's determination that its standards will be, in the aggregate, at least as protective of public health and welfare as applicable Federal standards, is arbitrary and capricious (the "first waiver prong," under section 209(b)(1)(A)); (2) that California does not need such State standards to meet compelling and extraordinary conditions (the "second waiver prong," under section 209(b)(1)(B)); or (3) that California standards are not consistent with section 202(a), which contains EPA's authority to regulate motor vehicles (the "third waiver prong," under section 209(b)(1)(C)). In the 1977 amendments to the CAA, section 177 was added to allow other States that may be facing their own air quality concerns to adopt and enforce the California new motor vehicle emission standards for which California has been granted a waiver under section 209(b) if certain criteria are met.

Section III also provides more context to indicate that Congress intended that, when reviewing a request for a waiver, EPA treat with deference the policy judgments on which California's vehicle emission standards are based. It discusses the history of Congress allowing states to adopt more stringent standards. Ultimately, Congress built a structure in section 209(b) that grants California authority to address its air quality problems, and also acknowledges the needs of other states to address their air quality problems through section 177. Lastly, Section III describes the burden and standard of proof for waiver decisions.

Section IV of this action then discusses EPA's first basis for rescinding the SAFE 1 waiver withdrawal: That EPA did not appropriately exercise its limited authority to withdraw a waiver once granted. Section 209 does not provide EPA with express authority to reconsider and withdraw a waiver previously granted to California. EPA's authority thus stems from its inherent reconsideration authority. In the context of reconsidering a waiver grant, that authority may only be exercised sparingly. EPA believes its inherent authority to reconsider a waiver decision is constrained by the three waiver criteria that must be considered before granting or denying a waiver request under section 209(b). EPA's reconsideration may not be broader than the limits Congress placed on its ability to deny a waiver in the first place. EPA notes further support for limiting its

exercise of reconsideration authority, relevant in the context of a waiver withdrawal, is evidenced by Congress's creation of a state and federal regulatory framework to drive motor vehicle emissions reduction and technology innovation that depends for its success on the stable market signal of the waiver grant—automobile manufacturers must be able to depend reliably on the continuing validity of the waiver grant in order to justify the necessary investments in cleaner vehicle technology. Accordingly, EPA now believes it may only reconsider a previously granted waiver to address a clerical or factual error or mistake, or where information shows that factual circumstances or conditions related to the waiver criteria evaluated when the waiver was granted have changed so significantly that the propriety of the waiver grant is called into doubt. Even then, as with other adjudicatory actions, when choosing to undertake such a reconsideration EPA believes it should exercise its limited authority within a reasonable timeframe and be mindful of reliance interests. EPA expects such occurrences will be rare. The Agency's waiver withdrawal in SAFE 1 was not an appropriate exercise of EPA's limited authority; there was no clerical error or factual error in the ACC program waiver, and SAFE 1 did not point to any factual circumstances or conditions related to the three waiver prongs that have changed so significantly that the propriety of the waiver grant is called into doubt. Rather, the 2019 waiver withdrawal was based on a change in EPA's statutory interpretation, an incomplete assessment of the record, and another agency's action beyond the confines of section 209(b). EPA erred in reconsidering a previously granted waiver on these bases. Accordingly, EPA is rescinding its 2019 withdrawal of its 2013 ACC program waiver.

Sections V and VI further explain why, even if SAFE 1 were an appropriate exercise of EPA's limited authority to reconsider its previously-granted waiver, the Agency would still now rescind its waiver withdrawal.

As discussed in Section V, the Agency's reinterpretation of the second waiver prong in SAFE 1 was flawed. While EPA has traditionally interpreted the second waiver prong, section 209(b)(1)(B), to require a waiver unless the Agency demonstrates that California does not need its own motor vehicle emissions program, to meet compelling and extraordinary conditions, the SAFE 1 waiver withdrawal decision was based on a statutory interpretation that calls for an examination of the need for the specific standard at issue. Section V

explains why EPA believes that its traditional interpretation is, at least, the better interpretation of the second waiver prong because it is most consistent with the statutory language and supported by the legislative history. Accordingly, we reaffirm the traditional interpretation—in which EPA reviews the need for California's motor vehicle program—in this action.

Additionally, Section V explains why even if the focus is on the specific standards, when looking at the record before it, EPA erred in SAFE 1 in concluding that California does not have a compelling need for the specific standards at issue—the GHG emission standards and ZEV sales mandate. In particular, in SAFE 1, the Agency failed to take proper account of the nature and magnitude of California's serious air quality problems, including the interrelationship between criteria and GHG pollution.¹⁰ Section V further discusses EPA's improper substitution in SAFE 1 of its own policy preferences for California's, and discusses the importance of deferring to California's judgment on "ambiguous and controversial matters of public policy" that relate to the health and welfare of its citizens.¹¹ Based on a complete review of the record in this action, EPA now believes that, even under the SAFE 1 interpretation, California needs the ZEV sales mandate and GHG standards at issue to address compelling and extraordinary air quality conditions in the state. EPA's findings in SAFE 1, which were based on the Agency's inaccurate belief that these standards were either not intended to or did not result in criteria emission reductions to address California's National Ambient Air Quality Standard (NAAQS) obligations, are withdrawn.

Section VI discusses SAFE 1's other basis for withdrawing the ACC program waiver, EPCA. In SAFE 1, EPA reached beyond the waiver criteria in section 209(b)(1) and considered NHTSA's regulations in SAFE 1 that state or local regulation of carbon dioxide emission from new motor vehicles (including

¹⁰ As explained herein, the requirements in the ACC program were designed to work together in terms of the technologies that would be used to both lower criteria emissions and GHG emissions. The standards, including the ZEV sales mandate and the GHG emission standards, were designed to address the short- and long-term air quality goals in California in terms of the criteria emission reductions (including upstream reductions) along GHG emission reductions. The air quality issues and pollutants addressed in the ACC program are interconnected in terms of the impacts of climate change on such local air quality concerns such as ozone exacerbation and climate effects on wildfires that affect local air quality.

¹¹ 40 FR 23102, 23104 (May 28, 1975); 58 FR 4166 (January 13, 1993).

California's ZEV sales mandate and GHG standards) are related to fuel economy and as such are preempted under EPCA. NHTSA has since issued a final rule that repeals all regulatory text and additional pronouncements regarding preemption under EPCA set forth in SAFE 1.¹² This action by NHTSA effectively removes the underpinning and any possible reasoned basis for EPA's withdrawal decision based on preemption under EPCA in SAFE 1. Additionally, the Agency has historically refrained from consideration of factors beyond the scope of the waiver criteria in section 209(b)(1) and the 2013 ACC program waiver decision was undertaken consistent with this practice. EPA believes that the consideration of EPCA preemption in SAFE 1 led the Agency to improperly withdraw the ACC program waiver on this non-CAA basis. EPA's explanation that withdrawal on this basis was justified because SAFE 1 was a joint action, and its announcement that this would be a single occurrence, does not justify the ACC waiver withdrawal. Thus, EPA is rescinding the withdrawal of those aspects of the ACC program waiver that were based on NHTSA's actions in SAFE 1.

Section VII addresses SAFE 1's interpretive view of section 177 that States adopting California's new motor vehicle emission standards could not adopt California's GHG standards.¹³ EPA believes it was both unnecessary and inappropriate in a waiver proceeding to provide an interpretive view of the authority of states to adopt California standards when section 177 does not assign EPA any approval role in states' adoption of the standards. Therefore, as more fully explained in Section VII, the Agency is rescinding the interpretive view on section 177 set out in SAFE 1. Section VIII discusses certain other considerations, including the equal sovereignty doctrine and California's deemed-to-comply provision, and concludes that they do not disturb EPA's decision to rescind the 2019 waiver withdrawal action.

Section IX contains the final decision to rescind the withdrawal of the 2013 ACC program waiver. In summary, I find that although EPA has inherent authority to reconsider its prior waiver decisions, that authority to reconsider is limited and may be exercised only when EPA has made a clerical or factual error or mistake, or where information shows that factual circumstances or conditions related to the waiver criteria evaluated

when the waiver was granted have changed so significantly that the propriety of the waiver grant is called into doubt. Further, EPA's reconsideration may not be broader than the limits Congress placed on its ability to deny a waiver in the first place. Even where those conditions are met, I believe that any waiver withdrawal decision should consider other factors such as the length of time since the initial decision and California and others' reliance on the initial decision. Because there were no factual or clerical errors or such significantly changed factual circumstances or conditions necessary to trigger EPA's authority to reconsider its previously granted waiver during the SAFE 1 proceeding, I believe SAFE 1 was not an appropriate exercise of EPA's authority to reconsider. In addition, even if it were an appropriate exercise, EPA should not have departed from its traditional interpretation of the second waiver prong (section 209(b)(1)(B)), which is properly focused on California's need for a separate motor vehicle emission program—not specific standards—to meet compelling and extraordinary conditions. And even under EPA's SAFE 1 interpretation of the second waiver prong, a complete review of the factual record demonstrates that California does need the GHG emission standards and ZEV sales mandate to meet compelling and extraordinary conditions in the State. Therefore, EPA should not have withdrawn the ACC program waiver based upon the second waiver prong in SAFE 1 and rescission of the withdrawal is warranted. Additionally, I find that EPA inappropriately relied on NHTSA's finding of preemption, now withdrawn, to support its waiver withdrawal, and rescind the waiver withdrawal on that basis as well. Finally, independently in this action, I am rescinding the interpretive views of section 177 that were set forth in SAFE 1, because it was inappropriate to include those views as part of this waiver proceeding.

For these reasons, I am rescinding EPA's part of SAFE 1 related to the CAA preemption of California's standards. This rescission has the effect of bringing the ACC program waiver back into force.

II. Background

This section provides background information needed to understand EPA's decision process in SAFE 1, and this decision. This context includes: A summary of California's ACC program including the record on the criteria pollutant benefits of its ZEV sales mandate and GHG emission standards; a review of the prior GHG emission standards waivers in order to explain

EPA's historical evaluation of the second waiver prong; an overview of the SAFE 1 decision; a review of the petitions for reconsideration filed subsequent to SAFE 1; and a description of the bases and scope of EPA's reconsideration of SAFE 1. EPA's sole purpose in soliciting public comment on its reconsideration was to determine whether SAFE 1 was a valid and appropriate exercise of the Agency's authority. In the Notice of Reconsideration, EPA therefore noted that reconsideration was limited to SAFE 1 and that the Agency was not reopening the ACC program waiver decision.

A. California's Advanced Clean Car (ACC) Program and EPA's 2013 Waiver

On June 27, 2012, CARB notified EPA of its adoption of the ACC program regulatory package that contained amendments to its LEV III and ZEV sales mandate, and requested a waiver of preemption under section 209(b) to enforce regulations pertaining to this program.¹⁴ The ACC program combined the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package of requirements for passenger cars, light-duty trucks, and medium-duty passenger vehicles (as well as limited requirements related to heavy-duty vehicles for certain model years).¹⁵

In its 2012 waiver request, CARB noted that the 2012 ZEV amendments would also result in additional criteria pollutant benefits in California in comparison to the earlier ZEV regulations and would likely provide benefits beyond those achieved by

¹⁴ 2012 Waiver Request, EPA-HQ-OAR-2012-0562-0004 (2012 Waiver Request) at 1, 3–6. CARB's LEV III standards include both its criteria emission standards and its GHG emission standards. SAFE 1 did not address the LEV III criteria emission standards and as such the ACC program waiver remained in place. SAFE 1 did address CARB's GHG emission standards and ZEV sales mandate and this action addresses these two standards as well. As noted in CARB's 2012 Waiver Request, these three standards are interrelated and comprehensive in order to address the State's serious air quality problems including its criteria pollutants and climate change challenges.

¹⁵ As noted in CARB's waiver request, “[a]t the December 2009 hearing, the Board adopted Resolution 09–66, reaffirming its commitment to meeting California's long term air quality and climate change reduction goals through commercialization of ZEV technologies. The Board further directed staff to consider shifting the focus of the ZEV regulation to both GHG and criteria pollutant emission reductions, commercializing ZEVs and PHEVs in order to meet the 2050 goals, and to take into consideration the new LEV fleet standards and propose revisions to the ZEV regulation accordingly.” 2012 Waiver Request at 2 (emphasis added). EPA stated in SAFE 1 that California's ZEV standard initially targeted only criteria pollutants. 84 FR at 51329. See also 78 FR at 2118.

¹² 86 FR 74236.

¹³ 84 FR at 51310, 51350.

complying with the LEV III criteria pollutant standard for conventional vehicles only. CARB attributed these benefits not to vehicle emissions reductions specifically, but to increased electricity and hydrogen use that would be more than offset by decreased gasoline production and refinery emissions.¹⁶ CARB's waiver request attributed the criteria emissions benefits to its LEV III criteria pollutant fleet standard and did not include similar benefits from its ZEV sales mandate. According to the request, the fleet would become cleaner regardless of the ZEV sales mandate because the ZEV sales mandate is a way to comply with the LEV III standards and, regardless of the ZEV sales mandate, manufacturers might adjust their compliance response to the standard by making less polluting conventional vehicles. CARB further explained that because upstream criteria and PM emissions are not captured in the LEV III criteria pollutant standard, net upstream emissions are reduced through the increased use of electricity and concomitant reductions in fuel production.¹⁷

On August 31, 2012, EPA issued a notice of opportunity for public hearing and written comment on CARB's request and solicited comment on all aspects of a full waiver analysis for such request under the criteria of section 209(b).¹⁸ Commenters opposing the waiver asked EPA to deny the waiver under the second waiver prong, section 209(b)(1)(B), as it applied to the GHG provisions in the ACC Program, calling on EPA to adopt an alternative interpretation of that provision focusing on California's need for the specific standards. Following public notice and comment and based on its traditional interpretation of section 209(b), on January 9, 2013, EPA granted California's request for a waiver of preemption to enforce the ACC program regulations.¹⁹ The traditional interpretation, which EPA stated is the better interpretation of section 209(b)(1)(B), calls for evaluating California's need for a separate motor vehicle emission program to meet compelling and extraordinary

conditions.²⁰ As explained, EPA must grant a waiver to California unless the Administrator makes at least one of the three statutorily-prescribed findings in section 209(b)(1). Concluding that opponents of the waiver did not meet their burden of proof to demonstrate that California does not have such need, EPA found that it could not deny the waiver under the second waiver prong.²¹

Without adopting the alternative interpretation, EPA noted that, to the extent that it was appropriate to examine the need for CARB's specific GHG standards to meet compelling and extraordinary conditions, EPA had explained at length in its earlier 2009 GHG waiver decision that California does have compelling and extraordinary conditions directly related to regulation of GHGs. This conclusion was supported by additional evidence submitted by CARB in the ACC program waiver proceeding, including reports that demonstrate record-setting wildfires, deadly heat waves, destructive storm surges, and loss of winter snowpack. Many of these extreme weather events and other conditions have the potential to dramatically affect human health and well-being.²² Similarly, to the extent

²⁰ *Id.* at 2128 (“The better interpretation of the text and legislative history of this provision is that Congress did not intend this criterion to limit California’s discretion to a certain category of air pollution problems, to the exclusion of others. In this context it is important to note that air pollution problems, including local or regional air pollution problems, do not occur in isolation. Ozone and PM air pollution, traditionally seen as local or regional air pollution problems, occur in a context that to some extent can involve long range transport of this air pollution or its precursors. This long range or global aspect of ozone and PM can have an impact on local or regional levels, as part of the background in which the local or regional air pollution problem occurs.”).

²¹ Because EPA received comment on this issue during the ACC program waiver proceeding, as it pertained to both CARB's GHG emission standards and ZEV sales mandate, the Agency recounted the interpretive history associated with standards for both GHG emissions and criteria air pollutants to explain EPA's belief that section 209(b)(1)(B) should be interpreted the same way for all air pollutants. *Id.* at 2125–31 (“As discussed above, EPA believes that the better interpretation of the section 209(b)(1)(B) criterion is the traditional approach of evaluating California's need for a separate motor vehicle emission program to meet compelling and extraordinary conditions. Applying this approach with the reasoning noted above, with due deference to California, I cannot deny the waiver.”).

²² *Id.* at 2126–29. Within the 2009 GHG waiver, and again in the 2013 ACC program waiver, EPA explained that the traditional approach does not make section 209(b)(1)(B) a nullity, as EPA must still determine whether California does not need its motor vehicle program to meet compelling and extraordinary conditions as discussed in the legislative history. Conditions in California may one day improve such that it may no longer have a need for its motor vehicle program.

that it was appropriate to examine the need for CARB's ZEV sales mandate, EPA noted that the ZEV sales mandate in the ACC program enables California to meet both its air quality and climate goals into the future. EPA recognized that CARB's coordinated strategies reflected in the ACC program for addressing both criteria pollutants and GHGs and the magnitude of the technology and energy transformation needed to meet such goals.²³ Therefore, EPA determined that, to the extent the second waiver prong should be interpreted to mean a need for the specific standards at issue, CARB's GHG emission standards and ZEV sales mandate satisfy such a finding.

In the context of assessing the need for the specific ZEV sales mandate in the ACC program waiver, EPA noted CARB's intent in the redesign of the ZEV regulation of addressing both criteria pollutants and GHG emissions, and CARB's demonstration of “the magnitude of the technology and energy transformation needed from the transportation sector and associated energy production to meet . . . the goals set forth by California's climate change requirements” and found that the ZEV standards would help California achieve those “long term emission benefits as well as . . . some [short-term] reduction in criteria pollutant emissions.”²⁴

B. Prior Waivers for GHG Standards

For over fifty years, EPA has evaluated California's requests for waivers of preemption under section 209(b), primarily considering CARB's motor vehicle emission program for criteria pollutants.²⁵ More recently, the Agency has worked to determine how

²³ *Id.* at 2131 (“Whether or not the ZEV standards achieve additional reductions by themselves above and beyond the LEV III GHG and criteria pollutant standards, the LEV III program overall does achieve such reductions, and EPA defers to California's policy choice of the appropriate technology path to pursue to achieve these emissions reductions. The ZEV standards are a reasonable pathway to reach the LEV III goals, in the context of California's longer-term goals.”).

²⁴ *Id.* at 2130–31. *See also* 2012 Waiver Request at 15–16; CARB Supplemental Comments, EPA–HQ–OAR–2012–0562–0373 at 4 (submitted November 14, 2012).

²⁵ EPA notes that the 1990 amendments to the CAA added subsection (e) to section 209. Subsection (e) addresses the preemption of State or political subdivision regulation of emissions from nonroad engines or vehicles. Section 209(e)(2)(A) sets forth language similar to section 209(b) in terms of the criteria associated with EPA waiving preemption, in this instance for California nonroad vehicle and engine emission standards. Congress directed EPA to implement subsection (e). *See* 40 CFR part 1074. EPA review of CARB requests submitted under section 209(e)(2)(A)(ii) includes consideration of whether CARB needs its nonroad vehicle and engine program to meet compelling and extraordinary conditions. *See* 78 FR 58090 (September 20, 2013).

¹⁶ 2012 Waiver Request at 6.

¹⁷ *Id.* at 15–16.

¹⁸ 77 FR 53119 (August 31, 2012).

¹⁹ Set forth in the ACC program waiver decision is a summary discussion of EPA's earlier decision to depart from its traditional interpretation of section 209(b)(1)(B) (the second waiver prong) in the 2008 waiver denial for CARB's initial GHG standards for certain earlier model years along with EPA's return to the traditional interpretation of the second prong in the waiver issued in 2009. 78 FR at 2125–31. These interpretations are discussed more fully in Section III.

section 209(b)(1)(B) should be interpreted and applied to GHG standards, including consideration of the relationship of GHG standards to California's historical air quality problems, the public health impacts of GHG emissions on NAAQS pollutants, and the direct impacts of GHG emissions and climate change on California and its inhabitants. While the SAFE 1 withdrawal and revocation of the waiver for CARB's ACC program represents a singular snapshot of this task, it is important to examine EPA's long-standing and consistent waiver practice in general, including EPA's interpretations in prior waiver decisions pertaining to CARB's GHG emission standards, in order to determine whether EPA properly applied the waiver criterion in section 209(b)(1)(B) in SAFE 1.²⁶

Historically, EPA has consistently interpreted and applied the second waiver prong by considering whether California needed a separate motor vehicle emission program as compared to the specific standards at issue to meet compelling and extraordinary conditions.²⁷ At the same time, in response to commenters that have argued that EPA is required to examine the specific standards at issue in the waiver request, EPA's practice has been to nevertheless review the specific standards to determine whether California needs those individual standards to meet compelling and extraordinary conditions.²⁸ This does not mean that EPA has adopted an "alternative approach" and required a demonstration for the need for specific standards; rather, this additional Agency review has been afforded to

²⁶ EPA notes that, in the history of EPA waiver decisions, it has only denied a waiver once (in 2008) and withdrawn a waiver once (in 2019). Each instance was under this second waiver prong in section 209(b)(1)(B).

²⁷ 49 FR 18887, 18890 (May 3, 1984).

²⁸ For example, in EPA's 2009 GHG waiver that reconsidered the 2008 GHG waiver denial, the Agency noted that "Given the comments submitted, however, EPA has also considered an alternative interpretation, which would evaluate whether the program or standards has a rational relationship to contributing to amelioration of the air pollution problems in California. Even under this approach, EPA's inquiry would end there. California's policy judgment that an incremental, directional improvement will occur and is worth pursuing is entitled, in EPA's judgment, to great deference. EPA's consistent view is that it should give deference to California's policy judgments, as it has in past waiver decisions, on California's choice of mechanism used to address air pollution problems. EPA does not second-guess the wisdom or efficacy of California's standards. EPA has also considered this approach with respect to the specific GHG standards themselves, as well as California's motor vehicle emissions program." 74 FR at 32766 (citing to *Motor & Equip. Mfrs. Ass'n, Inc. v. EPA*, 627 F.2d 1095, 1110–11 (D.C. Cir. 1979)).

address commenters' concerns and this secondary analysis has been done to support the Agency's primary assessment. For example, EPA granted an authorization for CARB's In-use Off-road Diesel Standards (Fleet Requirements) that included an analysis under both approaches.²⁹ The only two departures from this traditional approach occurred first in 2008 when EPA adopted an "alternative approach" to the second waiver prong and second in 2019 when EPA adopted the "SAFE 1 interpretation" of the second waiver criterion.

EPA's task of interpreting and applying section 209(b)(1)(B) to California's GHG standards and consideration of the State's historical air quality problems that now include the public health and welfare challenge of climate change began in 2005, with CARB's waiver request for 2009 and subsequent model years' GHG emission standards. On March 6, 2008, EPA denied the waiver request based on a new interpretive finding that section 209(b) was intended for California to enforce new motor vehicle emission standards that address local or regional air pollution problems, and an Agency belief that California could not demonstrate a "need" under section 209(b)(1)(B) for standards intended to address global climate change problems. EPA also employed this new alternative interpretation to state a belief that the effects of climate change in California are not compelling and extraordinary in comparison with the rest of the country. Therefore, in the 2008 waiver denial, EPA did not evaluate whether California had a need for its motor vehicle emission program to meet compelling and extraordinary conditions (the traditional interpretation) but rather focused on the specific GHG emission standard in isolation and not in conjunction with the other motor vehicle emission standards for criteria pollutants.

In 2009, EPA initiated a reconsideration of the 2008 waiver denial. The reconsideration resulted in granting CARB a waiver for its GHG emission standards commencing in the

²⁹ 78 FR at 58090. The United States Court of Appeals for the Ninth Circuit reviewed EPA's grant of a waiver of preemption under the traditional approach, and because of comments seeking an alternative interpretation, an assessment of the need for the standards contained in California's request. *Dalton Trucking v. EPA*, No. 13–74019 (9th Cir. 2021) (finding that EPA was not arbitrary in granting the waiver of preemption under either approach). The court opinion noted that "[t]his disposition is not appropriate for publication and is not precedent except as provided by Ninth Circuit Rule 36–3."

2009 model year.³⁰ In granting the waiver, EPA rejected the Agency's alternative interpretation of the second waiver prong announced in the 2008 waiver denial. Instead, EPA returned to its traditional approach of evaluating California's need for a separate motor vehicle emission program to meet compelling and extraordinary conditions because the Agency viewed it as the better interpretation of the second waiver prong. Under the traditional interpretation, EPA found that the opponents of the waiver had not met their burden of proof to demonstrate that California did not need its motor vehicle emission program to meet compelling and extraordinary conditions. In responding to comments on this issue, EPA also determined that, even if the alternative interpretation were to be applied, the opponents of the waiver had not demonstrated that California did not need its GHG emissions standards to meet compelling and extraordinary conditions.³¹

Since EPA's 2009 GHG waiver decision and before SAFE 1 the Agency applied the traditional interpretation of the second waiver prong in its GHG-related waiver proceedings, including the on-going review of California's GHG emission standards for vehicles. In the first instance, in 2009, CARB adopted amendments to its certification requirements that would accept demonstration to the Federal GHG standards as compliance with CARB's GHG program. This provision is known as a "deemed-to-comply" provision.³² In 2011, EPA determined that this deemed-to-comply provision was within-the-scope of the waiver issued in July 2009, relying on the traditional interpretation of the second waiver prong.³³ As such, in the June 14, 2011

³⁰ 74 FR 32743, 32745 (July 8, 2009).

³¹ 74 FR at 32759–67. For example, EPA noted that the analysis of the need for CARB's GHG standards in the 2008 waiver denial failed to consider that although the factors that cause ozone are primarily local in nature and that ozone is a local or regional air pollution problem, the impacts of global climate change can nevertheless exacerbate this local air pollution problem. EPA noted that California had made a case that its greenhouse gas standards are linked to amelioration of its smog problems. *See also* 76 FR 34693 (June 14, 2011).

³² California Code of Regulations, Title 13 1961(a)(1)(B). Under this provision, automakers could comply with the California GHG standards for model years 2017–2025 by meeting Federal GHG standards for the same model years.

³³ 76 FR 34693. EPA's "within-the-scope" decisions are generally performed when CARB has amended its regulations that were previously waived by EPA under section 209(b)(1) and include an analysis of whether EPA's prior evaluation of the waiver criteria has been undermined by CARB's amendments. EPA received comment during the

within-the-scope decision EPA determined that CARB's 2009 amendments did not affect or undermine the Agency's prior determination made in the 2009 GHG waiver decision, including the technological feasibility findings in section 209(b)(1)(C).³⁴ EPA also acted on two requests for waivers of preemption for CARB's heavy-duty (HD) tractor-trailer GHG emission standards.³⁵ Once again, EPA relied upon its traditional approach of evaluating California's need for a separate motor vehicle emission program to meet compelling and extraordinary conditions and found that no evidence had been submitted to demonstrate that California no longer needed its motor vehicle emission program to meet compelling and extraordinary conditions.³⁶ EPA's

reconsideration of SAFE 1 that questioned whether CARB needed its GHG standards if it was otherwise accepting compliance with the Federal GHG standards. EPA addressed the issue in its final decision (76 FR at 34696–98) and continues to believe EPA's analysis applies. The existence of federal emission standards that CARB may choose to harmonize with or deem as compliance with its own State standards (or that CARB may choose to set more stringent standards) does not on its own render California's as not needed. CARB continues to administer an integrated and comprehensive motor vehicle emission program (including its ZEV sales mandate and GHG emission standards and other applicable emission standards for light-duty vehicles) and this program continues to evolve to address California's serious air quality issues. CARB's decision to select some federal emission standards as sufficient to comply with its own State emission standards does not negate the overall design and purpose of section 209 of the CAA. In the within-the-scope decision issued in 2011, EPA agreed with Global Automakers comment that the deemed-to-comply provision renders emission benefits equally protective as between California and Federal programs. *Id.* at 34696.

³⁴ *Id.* at 34696–97.

³⁵ The first HD GHG emissions standard waiver related to certain new 2011 and subsequent model year tractor-trailers. 79 FR 46256 (August 7, 2014). In this waiver decision EPA responded to comments regarding whether CARB had quantified how the GHG regulations would contribute to attainment of ozone or particulate matter standards by noting that nothing in section 209(b)(1)(B) calls for California to quantify specifically how its regulations would affect attainment of the NAAQS in the State. Rather, EPA noted, the relevant question is whether California needs its own motor vehicle emission program and not whether there is a need for specific standards. The second HD GHG emissions standard waiver related to CARB's "Phase I" regulation for 2014 and subsequent model year tractor-trailers. 81 FR 95982 (December 29, 2016).

³⁶ Relatedly, California explained the need for these standards based on projected "reductions in NO_x emissions of 3.1 tons per day in 2014 and one ton per day in 2020 due to the HD GHG Regulations. California state[d] that these emissions reductions will help California in its efforts to attain applicable air quality standards. California further projects that the HD GHG Regulations will reduce GHG emissions in California by approximately 0.7 million metric tons (MMT) of carbon dioxide equivalent emissions (CO₂e) by 2020." 79 FR at 46261. *See also* 81 FR at 95982.

second waiver for the HD GHG emission standards made a similar finding that California's compelling and extraordinary conditions continue to exist under the traditional approach for the interpretation of the second waiver criterion.³⁷

C. SAFE 1 Decision

In 2018, NHTSA issued a proposal for new Corporate Average Fuel Economy (CAFE) standards that must be achieved by each manufacturer for its car and light-duty truck fleet while EPA revisited its light-duty vehicle GHG emissions standards for certain model years in the SAFE Proposal.³⁸ EPA also proposed to withdraw the waiver for the ACC program GHG emission standards and ZEV sales mandate, referencing both sections 209(b)(1)(B) and (C). EPA posited that since the grant of the initial waiver a reassessment of California's need for its GHG standards and ZEV sales mandate under the second waiver prong, section 209(b)(1)(B), was appropriate. EPA further posited that its own Federal GHG rulemaking in the SAFE proposal raised questions about the feasibility of CARB's standards under the third waiver prong, section 209(b)(1)(C).³⁹ In addition, EPA reasoned that the SAFE proposal presented a unique situation that required EPA to consider the implications of NHTSA's proposed conclusion that California's GHG emission standards and ZEV sales mandate were preempted by EPCA.⁴⁰

³⁷ 81 FR at 95987. At the time of CARB's Board adoption of the HD Phase I GHG regulation, CARB determined in Resolution 13–50 that California continues to need its own motor vehicle program to meet serious ongoing air pollution problems. CARB asserted that "[t]he geographical and climatic conditions and the tremendous growth in vehicle population and use that moved Congress to authorize California to establish vehicle standards in 1967 still exist today. EPA has long confirmed CARB's judgment, on behalf of the State of California, on this matter." *See* EPA Air Docket at [regulations.gov](https://www.regulations.gov) at EPA–HQ–OAR–2016–0179–0012. In enacting the California Global Warming Solutions Act of 2006, the Legislature found and declared that "Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to the marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other health-related problems."

³⁸ The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks, 83 FR at 42986.

³⁹ As explained below, EPA did not make a determination regarding section 209(b)(1)(C) in SAFE 1.

⁴⁰ "To the extent that NHTSA has determined that these standards are void *ab initio* because EPCA

EPA thus also posited that state standards preempted under EPCA cannot be afforded a valid section 209(b) waiver and then proposed that it would be necessary to withdraw the waiver separate and apart from section 209(b)(1)(B) and (C) if NHTSA finalized its interpretation regarding preemption under EPCA.

During the SAFE 1 proceeding, EPA received additional information demonstrating that the ZEV sales mandate plays a role in reducing criteria pollution, including CARB's comments that EPA's prior findings in the ACC program waiver were correct. As noted by a number of States and Cities, "[f]or example, CARB modeled the consequences of the actions proposed in SAFE, which included withdrawing California's waiver for its GHG and ZEV standards and freezing the federal GHG standards at MY 2020 levels. CARB concluded these actions, which would eliminate California's ZEV and GHG standards and leave in place only federal GHG standards at MY 2020 levels, would increase NO_x emissions in the South Coast air basin alone by 1.24 tons per day."⁴¹ The SAFE 1 record also includes information that demonstrates that California is "one of the most climate challenged" regions of North America, and that it is home to some of the country's hottest and driest areas, which are particularly threatened by record-breaking heatwaves, sustained droughts, and wildfire, as a result of GHG emissions.⁴² This record also includes information from the United States *Fourth National Climate Assessment* that documents the impact of climate change in exacerbating California's record-breaking fires seasons, multi-year drought, heat waves, and flood risk, and notes that California faces a particular threat from sea-level rise and ocean acidification and that the State has "the most valuable ocean-based economy in the country."⁴³ EPA

preempts standards that relate to fuel economy, that determination presents an independent basis for EPA to consider the validity of the initial grant of a waiver for these standards, separate and apart from EPA's analysis under the criteria that invalidate a waiver request." 84 FR at 51338.

⁴¹ States and Cities in Support of EPA Reversing Its SAFE 1 Actions (States and Cities), Docket No. EPA–HQ–OAR–2021–0257–0132 at 10 (citing CARB, Docket No. NHTSA–2018–0067–11873 at 287–88, 290–91 (upstream emission impacts), 308).

⁴² States and Cities at 43–47 (citing EPA–HQ–OAR–2018–0283–5481, EPA–HQ–OAR–2018–0283–5683, and EPA–HQ–OAR–2018–0283–5054).

⁴³ *Id.* at 45 (EPA–HQ–OAR–2018–0283–7447—U.S. Global Research Program, *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II*, Chapter 25, 2018). (*E.g.*, "The California coast extends 3,400 miles (5,500 km), 8 with 200,000 people living 3 feet (0.9 m) or less above sea level.9 The seaports of Long

received information during the SAFE 1 public comment period regarding the criteria emission benefits of CARB's ZEV sales mandate and GHG emission standards.⁴⁴

On September 27, 2019, EPA and NHTSA published the final SAFE 1 action that promulgated preemption regulations which supported NHTSA's conclusion that EPCA preempted California's GHG standards and ZEV sales mandate. In the same action, EPA withdrew the waiver of preemption for California to enforce the ACC program GHG and ZEV sales mandate on two grounds.⁴⁵

First, in SAFE 1 the Agency posited that standards preempted under EPCA could not be afforded a valid waiver of preemption under section 209(b). EPA explained that Agency pronouncements in the ACC program waiver decision on the historical practice of disregarding the preemptive effect of EPCA in the context of evaluating California's waiver applications were "inappropriately broad, to the extent it suggested that EPA is categorically forbidden from ever determining that a waiver is inappropriate due to consideration of anything other than the 'criteria' or 'prongs' at section 209(b)(1)(B)(A)–(C)." ⁴⁶ EPA further explained that those pronouncements were made in waiver

Beach and Oakland, several international airports, many homes, and high-value infrastructure lie along the coast. In addition, much of the Sacramento–San Joaquin River Delta is near sea level. California has the most valuable ocean-based economy in the country, employing over half a million people and generating \$20 billion in wages and \$42 billion in economic production in 2014.10 Coastal wetlands buffer against storms, protect water quality, provide habitat for plants and wildlife, and supply nutrients to fisheries. Sea level rise, storm surges, ocean warming, and ocean acidification are altering the coastal shoreline and ecosystems.⁷

⁴⁴ During the current reconsideration proceeding, EPA received additional comment regarding the criteria pollution benefits of California's GHG and ZEV standards. The States and Cities at 10–11. Likewise, CARB notes this connection in comments on the SAFE proposal. Multi-State SAFE Comments, EPA–HQ–OAR–2018–0283–5481 at 24. The States and Cities provided supplemental information in response to the Notice of Reconsideration by submitting California's latest analyses of the criteria pollutant benefits of its GHG standards. For example, CARB estimated those benefits for calendar years by which the South Coast air basin must meet increasingly stringent NAAQS for ozone: 2023, 2031, and 2037. States and Cities app. A at 2–4, app. C at 8–9.

⁴⁵ 84 FR at 51328–29. Parties subsequently brought litigation against EPA on its SAFE 1 decision. See generally *Union of Concerned Scientists, et al. v. NHTSA, et al.*, No. 19–1230 (D.C. Cir. filed Oct. 28, 2019) (on February 8, 2021, the D.C. Circuit granted the Agencies' motion to hold the case in abeyance in light of the reconsideration of the SAFE 1 action). EPA also received three petitions for reconsideration of this waiver withdrawal.

⁴⁶ 84 FR at 51338.

proceedings where the Agency was acting solely on its own in contrast to a joint action with NHTSA such as SAFE 1. Additionally, EPA expressed its intention not to consider factors other than statutory criteria set out in section 209(b)(1)(A)–(C) in future waiver proceedings, explaining that addressing the preemptive effect of EPCA and its implications for EPA's waiver for California's GHG standards and ZEV sales mandate was uniquely called for in SAFE 1 because EPA and NHTSA were coordinating regulatory actions in a single notice.⁴⁷

Second, EPA withdrew the waiver for the GHG standards and ZEV sales mandate under the second waiver prong, section 209(b)(1)(B), on two alternative grounds. Specifically, EPA determined first that California does not need the GHG standards "to meet compelling and extraordinary conditions," under section 209(b)(1)(B), and second, even if California does have compelling and extraordinary conditions in the context of global climate change, California does not "need" the specific GHG standards under section 209(b)(1)(B) because they will not meaningfully address global air pollution problems of the type associated with GHG emissions.⁴⁸ EPA also reasoned that because CARB had characterized the ZEV sales mandate as a compliance mechanism for GHG standards, both were "closely interrelated" given the overlapping compliance regimes for the ACC program, and as a result the ZEV sales mandate was inextricably interconnected with CARB's GHG standards.⁴⁹ In support of its overall determination that the ZEV sales mandate was not needed to meet compelling and extraordinary conditions, EPA relied on a single statement in the ACC program waiver support document where CARB did not attribute criteria emission reductions to the ZEV sales mandate, but rather noted its LEV III criteria pollutant fleet standard was responsible for those emission reductions.⁵⁰ Relying on this reasoning, EPA also withdrew the waiver for the ZEV sales mandate under the second waiver prong finding that California had no "need" for its own ZEV sales mandate.

In withdrawing the waiver, EPA relied on an alternative view of the scope of the Agency's analysis of California waiver requests and posited that reading "such State standards" as

⁴⁷ *Id.*

⁴⁸ *Id.* at 51341–42.

⁴⁹ *Id.* at 51337.

⁵⁰ *Id.* at 51330.

requiring EPA to only and always consider California's entire motor vehicle program would limit the application of this waiver prong in a way that EPA did not believe Congress intended.⁵¹ EPA further noted that the Supreme Court had found that CAA provisions may apply differently to GHGs than they do to traditional pollutants in *UARG v. EPA*, 134 S. Ct. 2427 (2014) (partially reversing the GHG "Tailoring" Rule on grounds that the CAA section 202(a) endangerment finding for GHG emissions from motor vehicles did not compel regulation of all sources of GHG emissions under the Prevention of Significant Deterioration and Title V permit programs). EPA then interpreted section 209(b)(1)(B) as requiring a particularized, local nexus between (1) pollutant emissions from sources, (2) air pollution, and (3) resulting impact on health and welfare.⁵² Interpreting section 209(b)(1)(C) to be limited to the specific standards under the waiver, EPA stated that "such State standards" in sections 209(b)(1)(B) and (C) should be read consistently with each other, which EPA asserted was a departure from the traditional approach where this phrase in section 209(b)(1)(B) is read as referring back to "in the aggregate" in section 209(b)(1).⁵³

In the SAFE proposal, as an additional basis for the waiver withdrawal, EPA proposed to find that CARB's ZEV sales mandate and GHG

⁵¹ In other words, EPA asserted that once it determines that California needed its very first set of submitted standards to meet extraordinary and compelling conditions, EPA would never have the discretion to determine that California did not need any subsequent standards for which it sought a successive waiver. EPA based its reading also on an assertion of ambiguity in the meaning of "such State standards" in section 209(b)(1)(B).

⁵² *Id.* at 51339–40.

⁵³ *Id.* at 51344–45. EPA notes that this SAFE 1 position was taken despite the Agency previously stating in the ACC program waiver that "Similarly, although the Dealers might suggest that EPA only be obligated to determine whether each of CARB's ACC regulatory components, in isolation, is consistent with section 202(a) we believe the better approach is to determine the technological feasibility of each standard in the context of the entire regulatory program for the particular industry category. In this case, we believe CARB has in fact recognized the interrelated, integrated approach the industry must take in order to address the regulatory components of the ACC program. As noted above, the House Committee Report explained as part of the 1977 amendments to the Clean Air Act that California was to be afforded flexibility to adopt a complete program of motor vehicle emission controls (emphasis added). As such, EPA believes that Congress intended EPA to afford California the broadest possible discretion in selecting the best means to protect the health of its citizens and the public welfare.³² EPA believes this intent extends to CARB's flexibility in designing its motor vehicle emission program and evaluating the aggregate effect of regulations within the program." 78 FR at 2217.

standards are not consistent with section 202(a) of the CAA under the third waiver prong, section 209(b)(1)(C).⁵⁴ However, in the final SAFE 1 action, EPA and NHTSA explained they were not finalizing the proposed assessment regarding the technological feasibility of the Federal GHG and CAFE standards for MY 2021 through 2025 in SAFE 1, and thus EPA did not finalize any determination with respect to section 209(b)(1)(C).⁵⁵

In justifying the withdrawal action in SAFE 1, EPA opined that the text, structure, and context of section 209(b) supported EPA's authority to reconsider prior waiver grants. Specifically, EPA asserted that the Agency's authority to reconsider the grant of ACC program waiver was implicit in section 209(b) given that revocation of a waiver is implied in the authority to grant a waiver. The Agency noted that further support for the authority to reconsider could be found in a single sentence in the 1967 legislative history of provisions now codified in sections 209(a) and (b) and the judicial principle that agencies possess inherent authority to reconsider their decisions. According to the Senate report from the 1967 CAA amendments, the Administrator has "the right . . . to withdraw the waiver at any time [if] after notice and an opportunity for public hearing he finds that the State of California no longer complies with the conditions of the waiver."⁵⁶ EPA also noted that, subject to certain limitations, administrative agencies possess inherent authority to reconsider their decisions in response to changed circumstances: "It is well settled that EPA has inherent authority to reconsider, revise, or repeal past decisions to the extent permitted by law so long as the Agency provides a reasoned explanation."⁵⁷ This authority exists in part because EPA's interpretations of the statutes it administers "are not carved in stone."⁵⁸

Finally, in SAFE 1, EPA provided an interpretive view of section 177 as not authorizing other states to adopt California's GHG standards for which EPA had granted a waiver of preemption under section 209(b). Although section 177 does not require states that adopt California's emission standards to

submit such regulations for EPA review and provides no statutory role for EPA in states' decision to adopt California's standards, EPA chose to nevertheless provide an interpretation that this provision is available only to states with approved nonattainment plans. EPA stated that nonattainment designations exist only as to criteria pollutants and GHGs are not criteria pollutants; therefore, states could not adopt GHG standards under section 177. Notably, California in previous waiver requests addressed the criteria pollutant benefits of GHG emissions reductions, specifically related to ground level ozone.

D. Petitions for Reconsideration

After issuing SAFE 1, EPA received three petitions for reconsideration urging the Agency to reconsider the waiver withdrawal of the ACC program's GHG standards and ZEV sales mandate and to rescind part or all of the SAFE 1 action.⁵⁹ The first Petition for Clarification/Reconsideration was submitted by the State of California and a number of States and Cities on October 9, 2019 (California Petition for Clarification).⁶⁰ These Petitioners sought both clarification and reconsideration of the scope of SAFE 1. Citing somewhat contradictory statements in the action, they claimed that SAFE 1 created confusion regarding which model years of the ACC program were affected by the waiver withdrawal.⁶¹ They based their request for reconsideration of the withdrawal on the grounds that the SAFE 1 action relied on analyses and justifications not presented at proposal and, thus, was beyond the scope of the proposal.

A second Petition for Reconsideration was submitted by several non-governmental organizations on

November 25, 2019 (NGOs' Petition).⁶² These Petitioners claimed that EPA's reconsideration of the ACC program waiver was not a proper exercise of agency authority because the Agency failed to consider comments submitted after the formal comment period—which they charged as inadequate—and because the EPA's rationale was a pretextual cover for the Administration's political animosity towards California and the oil industry's influence. The late comments summarized in the Petition address SAFE 1's EPCA preemption and second waiver prong arguments. On EPCA preemption, the summarized comments asserted that EPCA does not preempt GHG standards because GHG emission standards are not the "functional equivalent" of fuel economy standards, as SAFE 1 claimed. On the second waiver prong, the summarized comments asserted both that GHG and ZEV standards do have criteria pollutant benefits, and that the threat of climate change is compelling and extraordinary and will have California-specific impacts. In addition to objections to SAFE 1's EPCA preemption and second waiver prong arguments, the summarized comments asserted that ZEV standards play a key role in SIPs, which were disrupted by SAFE 1. This disruption, Petitioners claimed, violated "conformity" rules prohibiting federal actions from undermining state's air quality plans.⁶³

A third Petition for Reconsideration was submitted by several states and cities on November 26, 2019 (States and Cities' Petition).⁶⁴ These Petitioners sought reconsideration of the withdrawal on the grounds that EPA failed to provide an opportunity to comment on various rationales and determinations, in particular on its authority to revoke argument, flawed re-interpretation and application of the second waiver prong, its flawed new

⁵⁹ The California Petition for Clarification only sought reconsideration of SAFE 1 to the extent it withdrew the ACC program waiver for model years outside those proposed. The other two petitions sought reconsideration of the full SAFE 1 action.

⁶⁰ EPA-OAR-2021-0257-0015.

⁶¹ The California Petition for Clarification notes that, "[i]n the Final Actions, EPA makes statements that are creating confusion, and, indeed, appear contradictory, concerning the temporal scope of its action(s)—specifically, which model years are covered by the purported withdrawal of California's waiver for its GHG and ZEV standards. In some places, EPA's statements indicate that it has limited its action(s) to the model years for which it proposed to withdraw and for which it now claims to have authority to withdraw—namely model years 2021 through 2025. In other places, however, EPA's statements suggest action(s) with a broader scope—one that would include earlier model years." *Id.* at 2. In SAFE 1, EPA withdrew the waiver for California's GHG and ZEV standards for model years 2017–2025 on the basis of EPCA preemption and for model years 2021–2025 on the basis of the second waiver prong.

⁶² EPA-HQ-OAR-2021-0257-0014. This Petition was joined by The Center for Biological Diversity, Chesapeake Bay Foundation, Environment America, Environmental Defense Fund, Environmental Law & Policy Center, Natural Resources Defense Council, Public Citizen, Inc., Sierra Club, and the Union of Concerned Scientists.

⁶³ These "late comments" can be found in the "Appendix of Exhibits" attached to the Petition for Reconsideration. These comments are considered part of EPA's record for purposes of the reconsideration of SAFE 1.

⁶⁴ See EPA-HQ-OAR-2021-0257-0029. This Petition was joined by the States of California, Colorado, Connecticut, Delaware, Hawaii, Illinois, Maine, Maryland, Minnesota, Nevada, New Jersey, New Mexico, New York, North Carolina, Oregon, Rhode Island, Vermont, Washington, Wisconsin, Michigan, the Commonwealths of Massachusetts, Pennsylvania, and Virginia, the District of Columbia, and the Cities of Los Angeles, New York, San Francisco, and San Jose.

⁵⁴ 83 FR at 43240.

⁵⁵ 84 FR at 51350. EPA explained that it may make a determination in connection with a future final action with regard to Federal standards. EPA's subsequent regulation to issue Federal standards did not address this issue. 85 FR 24174.

⁵⁶ 84 FR at 51332 (citing S. Rep. No. 90–403, at 34 (1967)).

⁵⁷ *Id.* at 51333.

⁵⁸ *Chevron U.S.A. Inc. v. NRDC, Inc.*, 467 U.S. 837, 863 (1984).

rationale for considering factors outside section 209(b) (namely, EPA preemption), and its determination that states cannot adopt California's GHG standards under section 177. For example, these Petitioners claimed they did not have an adequate opportunity to comment on EPA's use of equal sovereignty or the endangerment finding as rationales for its new "particularized nexus" interpretation of the second waiver prong. These Petitioners also claimed that EPA's statements concerning the burden of proof applicable to a waiver revocation were either unclear or inaccurate, particularly whether the Agency bears the burden of proof in withdrawing a previously granted waiver and, if not, how and why this burden of proof is different from the burden of proof for denying a waiver request.⁶⁵ Finally, these Petitioners asserted that the Agency failed to consider comments, submitted after the formal comment period, that challenged EPA's interpretation of the second waiver prong, including new evidence of California's need for its GHG emission standards and ZEV sales mandate, and alleged that EPA's rationale was pretextual and based on the Administration's political animosity towards California and on the oil industry's influence.

EPA notified the petitioners in the above-noted Petitions for Reconsideration that the Agency would be considering issues raised in their petitions as part of the proceeding to reconsider SAFE 1. This action addresses these petitions in the broader context of EPA's adjudicatory reconsideration of SAFE 1 commenced in response to a number of significant issues with SAFE 1.

III. Principles Governing This Review

The CAA has been a paradigmatic example of cooperative federalism, under which "States and the Federal Government [are] partners in the struggle against air pollution."⁶⁶ In Title II, Congress authorized EPA to promulgate emission standards for mobile sources and generally preempted states from adopting their own standards.⁶⁷ At the same time, Congress

created an important exception for the State of California.

A. Scope of Preemption and Waiver Criteria Under the Clean Air Act

The legal framework for this decision stems from the waiver provision first adopted by Congress in 1967, and subsequent amendments. In Title II of the CAA, Congress established only two programs for control of emissions from new motor vehicles—EPA emission standards adopted under the CAA and California emission standards adopted under its state law. Congress accomplished this by preempting all state and local governments from adopting or enforcing emission standards for new motor vehicles, while at the same time providing that California could receive a waiver of preemption for its emission standards and enforcement procedures in keeping with its prior experience regulating motor vehicles and its serious air quality problems. Accordingly, section 209(a) preempts states or political subdivisions from adopting or attempting to enforce any standard relating to the control of emissions from new motor vehicles.⁶⁸ Under the terms of section 209(b)(1), after notice and opportunity for public hearing, EPA must waive the application of section 209(a) to California unless the Administrator finds at least one of three criteria to deny a waiver in section 209(b)(1)(A)–(C) has been met.⁶⁹ EPA may thus deny a waiver only if it makes at least one of these three findings based on evidence in the record, including

programs" nationwide. See *Motor & Equip. Mfrs. Ass'n, Inc. v. EPA*, 627 F.2d 1095, 1109 (D.C. Cir. 1979) (*MEMA I*).

⁶⁸ 42 U.S.C. 7543(a)–(a) Prohibition No State or any political subdivision thereof shall adopt or attempt to enforce any standard relating to the control of emissions from new motor vehicles or new motor vehicle engines subject to this part. No State shall require certification, inspection, or any other approval relating to the control of emissions from any new motor vehicle or new motor vehicle engine as condition precedent to the initial retail sale, titling (if any), or registration of such motor vehicle, motor vehicle engine, or equipment.

⁶⁹ 42 U.S.C. 7543(b)(1):

(1) The Administrator shall, after notice and opportunity for public hearing, waive application of this section to any State which has adopted standards (other than crankcase emission standards) for the control of emissions from new motor vehicles or new motor vehicle engines prior to March 30, 1966, if the State determines that the State standards will be, in the aggregate, at least as protective of public health and welfare as applicable Federal standards. No such waiver shall be granted if the Administrator finds that—

(A) the determination of the State is arbitrary and capricious,

(B) such State does not need such State standards to meet compelling and extraordinary conditions, or

(C) such State standards and accompanying enforcement procedures are not consistent with section 7521(a) of this title.

arguments that opponents of the waiver have provided. This framework struck an important balance that protected manufacturers from multiple and different state emission standards and preserved a pivotal role for California in the control of emissions from new motor vehicles. Congress intentionally structured this waiver provision to restrict and limit EPA's ability to deny a waiver and did this to ensure that California had broad discretion in selecting the means it determined best to protect the health and welfare of its citizens in recognition of both the harsh reality of California's air pollution and to allow California to serve as a pioneer and a laboratory for the nation in setting new motor vehicle emission standards and developing control technology.⁷⁰ Accordingly, section 209(b) specifies that EPA must grant California a waiver if California determines that its standards are, in the aggregate, at least as protective of the public health and welfare as applicable Federal standards.

EPA has consistently interpreted the waiver provision as placing the burden on the opponents of a waiver and EPA to demonstrate that one of the criteria for a denial has been met. In this context, since 1970, EPA has recognized its limited discretion in reviewing California waiver requests. For over fifty years, therefore, EPA's role upon receiving a request for waiver of preemption from California has been limited and remains only to determine whether it is appropriate to make any of the three findings specified by the CAA. If the Agency cannot make at least one of the three findings, then the waiver must be granted. The three waiver criteria are also properly seen as criteria for a denial. This reversal of the normal statutory structure embodies and is consistent with the congressional intent of providing deference to California to maintain its own new motor vehicle emission program.

The 1970 CAA Amendments strengthened EPA's authority to regulate vehicular "emission[s] of any air pollutant," while reaffirming the corresponding breadth of California's entitlement to regulate those emissions (amending CAA section 202 and recodifying the waiver provision as section 209(b), respectively). Congress also established the NAAQS program,

⁷⁰ See, e.g., S. Rep. No. 403, 90th Cong., 1st Sess. 33 (1967) (The waiver of preemption is for California's "unique problems and pioneering efforts."); 113 Cong. Rec. 30950, 32478 ("[T]he State will act as a testing agent for various types of controls and the country as a whole will be the beneficiary of this research.") (Statement of Sen. Murphy); *MEMA I*, 627 F.2d 1095, 1111 (D.C. Cir. 1979).

⁶⁵ The applicable burden of proof for a waiver withdrawal is discussed in Section III of this decision.

⁶⁶ *General Motors Corp. v. United States*, 496 U.S. 530, 532 (1990).

⁶⁷ "The regulatory difference [between Titles I and II] is explained in part by the difficulty of subjecting motor vehicles, which readily move across state boundaries, to control by individual states." *Engine Mfrs. Ass'n v. EPA*, 88 F.3d 1075, 1079 (D.C. Cir. 1996). Congress also asserted federal control in this area to avoid "the specter of an anarchic patchwork of federal and state regulatory

under which EPA issues air quality criteria and sets standards for so-called “criteria” pollutants, and states with regions that have not “attained” those federal standards must submit SIPs indicating how they plan to attain the NAAQS (which is often a multi-year, comprehensive plan). With the CAA Amendments of 1977, Congress allowed California to consider the protectiveness of its standards “in the aggregate,” rather than requiring that each standard proposed by the State be as or more stringent than its federal counterpart.⁷¹ Congress also approved EPA’s interpretation of the waiver provision as providing appropriate deference to California’s policy goals and consistent with Congress’s intent “to permit California to proceed with its own regulatory program” for new motor vehicle emissions.⁷²

In previous waiver decisions, EPA has noted that the statute specifies particular and limited grounds for rejecting a waiver and has therefore limited its review to those grounds. EPA has also noted that the structure Congress established for reviewing California’s decision-making is deliberately narrow, which further supports this approach. This has led EPA to reject arguments that are not specified in the statute as grounds for denying a waiver:

The law makes it clear that the waiver requests cannot be denied unless the specific findings designated in the statute can properly be made. The issue of whether a proposed California requirement is likely to result in only marginal improvement in air quality not commensurate with its cost or is otherwise an arguably unwise exercise of regulatory power is not legally pertinent to my decision under section 209, so long as the California requirement is consistent with section 202(a) and is more stringent than applicable Federal requirements in the sense that it may result in some further reduction in air pollution in California. Thus, my consideration of all the evidence submitted concerning a waiver decision is circumscribed by its relevance to those questions that I may consider under section 209(b).⁷³

Given the text, legislative history, and judicial precedent, EPA has consistently interpreted section 209(b) as requiring it to grant a waiver unless opponents of a waiver can demonstrate that one of the criteria for a denial has been met.⁷⁴

The 1977 CAA Amendments additionally demonstrated the significance of California’s standards to the Nation as a whole with Congress’ adoption of a new section 177. Section 177 permits other states addressing their own air pollution problems to adopt and enforce California new motor vehicle standards “for which a waiver has been granted if certain criteria are met.”⁷⁵ Also known as the “opt-in” provision, section 177 of the Act, 42 U.S.C. 7507, provides:

Notwithstanding section 7543(a) of this title, any State which has plan provisions approved under this part may adopt and enforce for any model year standards relating to control of emissions from new motor vehicles or new motor vehicle engines and take such other actions as are referred to in section 7543(a) of this title respecting such vehicles if—

(1) such standards are identical to the California standards for which a waiver has been granted for such model year, and

(2) California and such State adopt such standards at least two years before commencement of such model year (as determined by regulations of the Administrator).

Nothing in this section or in Subchapter II of this chapter shall be construed as authorizing any such State to prohibit or limit, directly or indirectly, the manufacture or sale of a new motor vehicle or motor vehicle engine that is certified in California as meeting California standards, or to take any action of any kind to create, or have the effect of creating, a motor vehicle or motor vehicle engine different that a motor vehicle or engine certified in California under

burden of proving otherwise is on whoever attacks them.”); *Motor & Equip. Mfrs. Ass’n, Inc. v. Nichols*, 142 F.3d 449, 462 (D.C. Cir. 1998) (*MEMA II*) (“[S]ection 209(b) sets forth the only waiver standards with which California must comply. . . . If EPA concludes that California’s standards pass this test, it is obligated to approve California’s waiver application.”).

⁷⁵ This provision was intended to continue the balance, carefully drawn in 1967, between states’ need to meet increasingly stringent federal air pollution limits and the burden of compliance on auto-manufacturers. See, e.g., H.R. Rep. No. 294, 95th Cong., 1st Sess. 309–10 (1977) (“[S]ection 221 of the bill broadens State authority, so that a State other than California . . . is authorized to adopt and enforce new motor vehicle emission standards which are identical to California’s standards. Here again, however, strict limits are applied This new State authority should not place an undue burden on vehicle manufacturers”); *Motor Vehicle Mfrs. Ass’n v. NYS Dep’t of Env’t Conservation*, 17 F.3d 521, 527 (2d Cir. 1994) (“Many states, including New York, are in danger of not meeting increasingly stringent federal air pollution limits It was in an effort to assist those states struggling to meet federal pollution standards that Congress, as noted earlier, directed in 1977 that other states could promulgate regulations requiring vehicles sold in their state to be in compliance with California’s emission standards or to “piggyback” onto California’s preemption exemption. This opt-in authority, set forth in § 177 of the Act, 42 U.S.C. 7507, is carefully circumscribed to avoid placing an undue burden on the automobile manufacturing industry.”).

California standards (a “third vehicle”) or otherwise create such a “third vehicle.”

Any state with qualifying SIP provisions may exercise this option and become a “Section 177 State,” without first seeking the approval from EPA.⁷⁶ Thus, over time, Congress has recognized the important state role, for example, by making it easier (by allowing California to consider its standards “in the aggregate”) and by expanding the opportunity (via section 177) for states to adopt standards different from EPA’s standards.⁷⁷

B. Deference to California

EPA has consistently noted that the text, structure, and history of the California waiver provision clearly indicate both congressional intent and appropriate EPA practice of leaving the decision on “ambiguous and controversial matters of public policy” to California’s judgment. In waiver decisions, EPA has thus recognized that congressional intent in creating a limited review of California waiver requests based on the section 209(b)(1) criteria was to ensure that the federal government did not second-guess the wisdom of state policy. In an early waiver decision EPA highlighted this deference:

It is worth noting * * * I would feel constrained to approve a California approach to the problem which I might also feel unable to adopt at the federal level in my own capacity as a regulator. The whole approach of the Clean Air Act is to force the development of new types of emission

⁷⁶ In 1990 Congress amended the CAA by adding section 209(e) to section 209. Section 209(e) sets forth the terms of CAA preemption for nonroad engines and vehicles and the ability of States to adopt California emissions standards for such vehicles and engines if certain criteria are met. 42 U.S.C. 7543(e)(2)(B) (“Any State other than California which has plan provisions approved under part D of subchapter I may adopt and enforce, after notice to the Administrator, for any period, standards relating to control of emissions from nonroad vehicles or engines . . . if (i) such standards and implementation and enforcement are identical, for the period concerned, to the California standards”). Courts have interpreted these amendments as reinforcing the important role Congress assigned to California. See *Engine Mfrs. Ass’n v. EPA*, 88 F.3d 1075, 1090 (“Given the indications before Congress that California’s regulatory proposals for nonroad sources were ahead of the EPA’s development of its own proposals and the Congressional history of permitting California to enjoy coordinated regulatory authority over mobile sources with the EPA, the decision to identify California as the lead state is comprehensible. California has served for almost 30 years as a ‘laboratory’ for motor vehicle regulation.”); *MEMA I*, 627 F.2d 1095, 1110 (D.C. Cir. 1979) (“Its severe air pollution problems, diverse industrial and agricultural base, and variety of climatic and geographical conditions suit it well for a similar role with respect to nonroad sources.”).

⁷⁷ 40 FR at 23104; see also LEV I waiver at 58 FR 4166, Decision Document at 64.

⁷¹ 42 U.S.C. 7543(b)(1).

⁷² H.R. Rep. No. 95–294, at 301 (1977).

⁷³ 78 FR at 2115 (footnote omitted).

⁷⁴ *MEMA I*, 627 F.2d at 1120–21 (“The language of the statute and its legislative history indicate that California’s regulations, and California’s determination that they comply with the statute, when presented to the Administrator are presumed to satisfy the waiver requirements and that the

control technology where that is needed by compelling the industry to “catch up” to some degree with newly promulgated standards. Such an approach * * * may be attended with costs, in the shape of reduced product offering, or price or fuel economy penalties, and by risks that a wider number of vehicle classes may not be able to complete their development work in time. Since a balancing of these risks and costs against the potential benefits from reduced emissions is a central policy decision for any regulatory agency under the statutory scheme outlined above, I believe I am required to give very substantial deference to California’s judgments on this score.⁷⁸

As noted above, Congress amended the CAA in 1977. Within these amendments, Congress had the opportunity to reexamine the waiver provision and elected to expand California’s flexibility to adopt a complete program of motor vehicle emission controls. The House Committee Report explained that “[t]he amendment is intended to ratify and strengthen the California waiver provision and to affirm the underlying intent of that provision, *i.e.*, to afford California the broadest possible discretion in selecting the best means to protect the health of its citizens and the public welfare.”⁷⁹

SAFE 1 was a departure from congressional intent and EPA’s typical practice of deference to California on matters of state public policy regarding how best to address its serious air quality problems. In SAFE 1, EPA adopted a new interpretation of section 209(b)(1)(B) more than five years after the initial grant of the ACC program waiver and applied it to CARB’s GHG standards and ZEV sales mandate. Specifically, EPA premised its finding on a consideration of California’s “need” for the specific standards, instead of the “need” for a separate motor vehicle emission program to meet compelling and extraordinary conditions, stating that “such State standards” in section 209(b)(1)(B) was ambiguous with respect to the scope of the Agency’s analysis. EPA further determined that California did not need the ZEV sales mandate to meet compelling and extraordinary conditions by relying on a single statement in the ACC program waiver support document taken out of context, where it noted that the ZEV sales

mandate had no criteria emissions benefits in terms of vehicle emissions and its LEV III criteria pollutant fleet standard was responsible for those emission reductions. In response to the SAFE 1 proposal, California had provided further context and additional data on net upstream emissions benefits of the ZEV sales mandate, but EPA did not consider them in arriving at the findings and conclusions in SAFE 1. The final decision in SAFE 1 was not based on the third waiver prong.⁸⁰ EPA also explained in SAFE 1 that the task of interpreting section 209(b)(1)(B) required no deference to California.⁸¹

C. Standard and Burden of Proof

In *Motor and Equipment Manufacturers’ Association v. EPA*, 627 F.2d 1095 (D.C. Cir. 1979) (*MEMA I*), the U.S. Court of Appeals for the District of Columbia stated, with regard to the standard and burden of proof, that the Administrator’s role in a section 209 proceeding is to “consider all evidence that passes the threshold test of materiality and . . . thereafter assess such material evidence against a standard of proof to determine whether the parties favoring a denial of the waiver have shown that the factual circumstances exist in which Congress intended a denial of the waiver.”⁸² The court in *MEMA I* considered the standards of proof under section 209 for the two findings necessary to grant a waiver for an “accompanying enforcement procedure” (as opposed to the standards themselves): (1) Protectiveness in the aggregate and (2) consistency with CAA section 202(a) findings. The court instructed that “the standard of proof must take account of the nature of the risk of error involved in any given decision, and it therefore varies with the finding involved. We need not decide how this standard operates in every waiver decision.”⁸³ The court upheld the Administrator’s position that to deny a waiver, there must be clear and compelling evidence to show that the proposed procedures undermine the protectiveness of California’s standards. The court noted that this standard of proof also accords with the congressional intent to provide California with the broadest possible discretion in setting regulations it finds protective of the public health and

welfare.⁸⁴ With respect to the consistency finding, the court did not articulate a standard of proof applicable to all proceedings but found that the opponents of the waiver were unable to meet their burden of proof even if the standard were a mere preponderance of the evidence.

Although *MEMA I* did not explicitly consider the standards of proof under section 209 concerning a waiver request for “standards,” as compared to accompanying enforcement procedures, there is nothing in the opinion to suggest that the court’s analysis would not apply with equal force to such determinations. EPA’s past waiver decisions have consistently made clear that: “[E]ven in the two areas concededly reserved for Federal judgment by this legislation—the existence of compelling and extraordinary conditions and whether the standards are technologically feasible—Congress intended that the standard of EPA review of the State decision to be a narrow one.”⁸⁵ Although EPA evaluates whether there are compelling and extraordinary conditions in California, the Agency nevertheless accords deference to California on its choices for how best to address such conditions in light of the legislative history of section 209(b).

As noted earlier, the burden of proof in a waiver proceeding is on EPA and the opponents of the waiver. This is clear from the statutory language stating that EPA “shall . . . waive” preemption unless one of three statutory factors is met. This reading was upheld by the D.C. Circuit in *MEMA I*, which concluded that this obligation rests firmly with opponents of the waiver in a section 209 proceeding, holding that: “[t]he language of the statute and its legislative history indicate that California’s regulations, and California’s determinations that they must comply with the statute, when presented to the Administrator are presumed to satisfy the waiver requirements and that the burden of proving otherwise is on whoever attacks them. California must present its regulations and findings at

⁸⁴ *Id.*

⁸⁵ *See, e.g.*, 40 FR at 23102–03. *See also MEMA I*, 627 F.2d at 1109 (“Congress had an opportunity to restrict the waiver provision in making the 1977 amendments, and it instead elected to expand California’s flexibility to adopt a complete program of motor vehicle emissions control. Under the 1977 amendments, California need only determine that its standards will be ‘in the aggregate, at least as protective of public health and welfare than applicable Federal standards,’ rather than the ‘more stringent’ standard contained in the 1967 Act.”) (citing H.R. Rep. No. 294, 95th Cong., 1st Sess. 301–02 (1977), U.S. Code Cong. & Admin. News 1977, p. 1380).

⁷⁸ 40 FR at 23104.

⁷⁹ *MEMA I*, 627 F.2d at 1110 (citing H.R. Rep. No. 294, 95th Cong., 1st Sess. 301–02 (1977)). Congress amended section 209(b)(1)(A) regarding California’s determination that its standards are as at least as protective as applicable Federal standards so that such determination may be done “in the aggregate” looking at the summation of the standards within the vehicle program.

⁸⁰ 84 FR at 51322–33. EPA notes that when reviewing California’s standards under the third waiver prong, the Agency may grant a waiver to California for standards that EPA may choose not to adopt at the federal level due to different considerations. *See* 78 FR at 2133.

⁸¹ 84 FR at 51339–40.

⁸² *MEMA I*, 627 F.2d at 1122.

⁸³ *Id.*

the hearing and thereafter the parties opposing the waiver request bear the burden of persuading the Administrator that the waiver request should be denied.”⁸⁶

The Administrator’s burden, on the other hand, is to make a reasonable evaluation of the information in the record in coming to the waiver decision. As the court in *MEMA I* stated, “Here, too, if the Administrator ignores evidence demonstrating that the waiver should not be granted, or if he seeks to overcome that evidence with unsupported assumptions of his own, he runs the risk of having his waiver decision set aside as ‘arbitrary and capricious.’”⁸⁷ Therefore, the Administrator’s burden is to act “reasonably.”⁸⁸

In this instance, EPA has withdrawn a previously granted waiver and is now reconsidering whether that withdrawal was an appropriate exercise of authority, whether the reinterpretation of the second waiver prong was appropriate, and whether EPA’s evaluation and findings of fact under the second waiver prong meet the applicable burden of proof in the context of deference to California’s policy choices. EPA believes that the same burden that is applicable to those opposed to an initial waiver request from CARB (this applies to any party including the Administrator as explained in *MEMA I*) is also applicable to EPA’s actions in SAFE 1 (e.g., the burden of proof of whether California does not need its standards to meet compelling and extraordinary conditions rests on those opposing a waiver for California).⁸⁹

⁸⁶ *MEMA I*, 627 F.2d at 1121.

⁸⁷ *Id.* at 1126.

⁸⁸ *Id.*

⁸⁹ In EPA’s 2009 evaluation of the 2008 GHG waiver denial the Agency applied a similar test. See 74 FR at 32745 (“After a thorough evaluation of the record, I am withdrawing EPA’s March 6, 2008 Denial and have determined that the most appropriate action in response to California’s greenhouse gas waiver request is to grant that request. I have determined that the waiver opponents have not met their burden of proof in order for me to deny the waiver under any of the three criteria in section 209(b)(1).”). In the context of 2009 GHG waiver that reconsidered the Agency’s 2008 GHG waiver denial, EPA determined it was appropriate to apply the same burden of proof during the reconsideration as would apply at the time of the initial waiver evaluation. EPA received comment suggesting that the entire burden of proof shifts to California in order for the prior 2008 denial to be reversed. EPA, in response, stated that “. . . regardless of the previous waiver denial, once California makes its protectiveness determination the burden of proof falls on the opponents of the waiver This is consistent with the legislative history, which indicates that Congress intended a narrow review by EPA and to preserve the broadest possible discretion for California.” *Id.* at 32749. EPA acknowledges that in SAFE 1 the Agency not

IV. EPA Did Not Appropriately Exercise Its Limited Authority To Reconsider the ACC Program Waiver in SAFE 1

The first question this final action tackles is whether the agency properly exercised its reconsideration authority to withdraw its previously-granted waiver in SAFE 1. EPA concludes that it did not, and on that independent basis rescinds SAFE 1’s waiver withdrawal.

Section 209 does not provide EPA with express authority to reconsider and withdraw a waiver previously granted to California. EPA’s authority thus stems from its inherent reconsideration authority. For several reasons, in the context of reconsidering a waiver grant, that authority may only be exercised sparingly. First, EPA believes its inherent authority to reconsider a waiver decision is constrained by the three waiver criteria that must be considered before granting or denying a waiver request under section 209(b). A contrary approach, which treats reconsiderations as more broadly appropriate, would undermine Congress’ intent that California be able to exercise its policy judgments and develop motor vehicle controls programs to address California’s air pollution problems, and make advances which could be built on by EPA or adopted by other states. Second, EPA believes it may only reconsider a previously granted waiver to address a clerical or factual error or mistake, or where information shows that factual circumstances or conditions related to the waiver criteria evaluated when the waiver was granted have changed so significantly that the propriety of the waiver grant is called into doubt. Even when EPA is acting within the appropriate bounds of its authority to reconsider, during that reconsideration EPA should exercise its limited

only adopted an interpretation of the second waiver prong which was similar to the previously rejected interpretation, but that in doing so also questioned its previous position that the burden of proof in evaluating the need for standards at issue resides with those that oppose the waiver, including EPA. See 84 FR at 51344 n.268. In this action, however, EPA now finds that the historical deference provided to California regarding its policy choices on how best to address its serious air quality conditions also requires that the burden of proof should reside in those seeking to demonstrate that standards are not needed under the second waiver prong regardless of whether the rationale is characterized as a new interpretation or not. The language of section 209(b)(1) requires California to make a protectiveness finding under the first waiver prong. Moreover, nothing in section 209(b) could be read as support for drawing a distinction between the burden of proof when the Agency considers an initial waiver request and one where the Agency reconsiders a waiver decision based on a new interpretation of the statutory criteria. That burden properly resides with opponents of the waiver.

authority within a reasonable timeframe and be mindful of reliance interests.

The Agency’s reconsideration in SAFE 1 was not an appropriate exercise of authority; there was no clerical error or factual error in the ACC program waiver, and SAFE 1 did not point to any factual circumstances or conditions related to the three waiver prongs that had changed so significantly that the propriety of the waiver grant is called into doubt. Rather, the 2019 waiver withdrawal was based on a change in EPA’s statutory interpretation, an incomplete and inaccurate assessment of the record, and another agency’s action beyond the confines of section 209(b). EPA erred in reconsidering a previously granted waiver on these bases. Moreover, in considering the passage of time between the initial waiver and the SAFE 1 action, and the development of reliance interests based on the waiver, EPA finds those factors do not support the reconsideration of the ACC program waiver that occurred in SAFE 1. Accordingly, as explained in detail below, EPA is rescinding SAFE 1’s withdrawal of its 2013 ACC program waiver because it was an inappropriate exercise of reconsideration authority.

A. Comments Received

EPA received several comments in the reconsideration proceeding on the Agency’s authority to reconsider waivers. Comments on explicit authority focused on whether any language in section 209(b)(1), on its face, permits EPA to reconsider a previously granted waiver. Some of these commenters also distinguished between the denial of the 2008 waiver and the reconsideration and grant of the GHG waiver in 2009, and EPA’s grant of the ACC program waiver in 2013 and the reconsideration and withdrawal of the ACC program waiver in 2019.

EPA received comments in support of and against the view that EPA has inherent authority to reconsider waivers. As support for EPA’s implied authority to reconsider, one commenter cited relevant language from the Senate Committee Report from 1967 that stated, “implicit in [§ 209] is the right of [EPA] to withdraw the waiver [if] at any time after notice and an opportunity for public hearing he finds that the State of California no longer complies with the conditions of that waiver.”⁹⁰ According to the commenter because “the waiver authorizes future regulation, which always remains open to change,” EPA must have the authority to reconsider a

⁹⁰ Urban Air Initiative (Urban Air), Docket No. EPA-HQ-OAR-2021-0257-0223 at 22 (quoting S. Rep. 90-403, at 34 (1967)).

waiver. Otherwise, EPA would be unable to monitor CARB's continued compliance with the waiver conditions in light of updated information.⁹¹ The same commenter also argued that an agency generally retains the authority to reconsider and correct any earlier decision unless Congress acts to displace the authority with a process to rectify the Agency's mistakes and that explicit statutory authority to withdraw a waiver is therefore not necessary, because "the power to reconsider is inherent in the power to decide."⁹² The commenter claimed that, under *Chevron*, "[a]n agency has a 'continuing' statutory obligation to consider the 'wisdom of its policy.'" ⁹³

In contrast, several commenters maintained that section 209(b) strongly indicates that EPA's authority to withdraw a previously issued waiver is, at most, limited. Several commenters argued that, absent language in a statute, administrative agencies lack inherent authority to reconsider adjudicatory decisions.⁹⁴ These commenters noted that courts highly scrutinize administrative revocations and are "unwilling[] to wrest a standardless and open-ended revocation authority from a silent statute."⁹⁵ Instead, these commenters argued, EPA may act only with the authorities conferred upon it by Congress, and thus the Agency may only act if the CAA explicitly or

implicitly grants it power to do so.⁹⁶ According to these commenters, section 209(b) is silent on waiver withdrawal, its text indicates that EPA may only consider 209(b)'s three factors before either granting or denying a waiver, and its purpose and structure affords broad deference to California's standards. "Taken together, these factors indicate that EPA may not withdraw a previously-issued waiver based solely upon a reconsideration of its initial judgment."⁹⁷ Commenters suggested that Congress, by listing the three waiver criteria and directing that EPA evaluate such criteria prior to granting the waiver, only authorized EPA to perform the evaluation once and that it "cannot later second-guess the wisdom of legal and policy judgments made as part of that evaluation."⁹⁸ Similarly, commenters noted that section 209 does not textually "provide" EPA any authority nor specify any process by which EPA might revoke the rights given by an earlier-granted waiver.⁹⁹ In response to SAFE 1's claim of inherent

reconsideration authority and the other commenters' reliance on the relevant excerpt from the 1967 Senate Report, these commenters argued that this "single sentence . . . does not establish any withdrawal authority," either generally or for the SAFE 1 withdrawal specifically.¹⁰⁰ That statement, commenters argued, "predate[s] the creation of the NAAQS program and Congress's invitations to development of numerous state reliance interests."¹⁰¹ Moreover, according to these commenters, the statement only discusses authority in the case that "California no longer complies with the conditions of the waiver," which commenters believe means California's "compliance with waiver conditions and, specifically, its cooperation with EPA concerning enforcement and certification procedures," not "redefined waiver criteria."¹⁰²

In response to the argument made by EPA in SAFE 1 that, given the "considerable degree of future prediction" required by the third waiver prong, "where circumstances arise that suggest that such predictions may have been inaccurate, it necessarily follows that EPA has authority to revisit those predictions,"¹⁰³ some commenters claimed that California's standards do not become inconsistent with federal standards simply because they become more stringent than federal standards (in other words, a weakening of the federal standards does not necessarily create an inconsistency). The commenters noted also that EPA did not in fact revise its section 202(a) standards between issuing and withdrawing the waiver at issue, nor did EPA in fact make any final findings under the third waiver prong.¹⁰⁴

Many commenters stated that in order to exercise any implied or inherent authority, an agency must provide a "detailed justification" when departing from a policy that has "engendered serious reliance interests" and should not "rest on mere 'policy changes'"

⁹¹ *Id.* at 21 ("A determination that California's state standards are technologically feasible and appropriate requires complex technical projections at the frontiers of science, which must be continually updated 'if the actual future course of technology diverges from expectation.'" (quoting *NRDC Inc. v. EPA*, 655 F.2d 318, 329 (D.C. Cir. 1981))).

⁹² *Urban Air* at 20 (citing *Ivy Sports Med., LLC v. Burwell*, 767 F.3d 81, 86, 93 (D.C. Cir. 2014)). This commenter also notes that, in EPA's 2009 action to reconsider its prior denial of a GHG waiver in 2008, CARB submitted a letter to EPA stating that "California believes EPA has inherent authority to reconsider the denial and should do so in order to restore the interpretations and applications of the Clean Air Act to continue California's longstanding leadership role in setting emission standards." *Id.*

⁹³ *Id.* at 21.

⁹⁴ Institute for Policy Integrity Amicus Brief at 4 ("Lacking textual support, EPA invokes so-called 'inherent authority'—'more accurately[] label[ed] . . . 'statutorily implicit' authority," *HTH Corp. v. NLRB*, 823 F.3d 668, 679 (D.C. Cir. 2016)—to justify its action. 84 FR at 51,331. But this Court is 'unwilling[] to wrest a standardless and open-ended revocation authority from a silent statute,' *Am. MethyI*, 749 F.2d 826, 837 (D.C. Cir. 1984), and EPA fails to justify the implicit authority it claims."); Twelve Public Interest Organizations app 1 at 32 (citing *Am. MethyI* for "rejecting 'implied power' as 'contrary to the intention of Congress and the design of' the Act and quoting *HTH Corp.*'s statement that agencies, as creatures of statute, lack inherent authority); States and Cities at 16 (also citing *Am. MethyI*).

⁹⁵ Institute for Policy Integrity at 1 (citing *Am. MethyI*).

⁹⁶ States and Cities at 15 (citing *HTH Corp. v. NLRB*, 823 F.3d 668, 679 (D.C. Cir. 2016)); Twelve Public Interest Organizations, Docket No. EPA-HQ-OAR-2021-0257-0277 app. 1 at 28 ("The Clean Air Act preserves state authority to regulate emissions unless expressly 'provided' otherwise. 42 U.S.C. 7416. In statutes like this where preemption is the exception, only Congress's 'precise terms' can produce preemption. *CTS Corp. v. Waldburger*, 573 U.S. 1, 12–13 (2014)."); National Coalition for Advanced Transportation (NCAT), Docket No. EPA-HQ-OAR-2021-0257-0131 at 7–8 ; Institute for Policy Integrity at New York University School of Law (Institute for Policy Integrity), Docket No. EPA-HQ-OAR-2021-0257-0115 at 2, citing its Final Brief of the Institute for Policy Integrity at New York University School of Law as *Amicus Curiae* in Support of Petitioners (Institute for Policy Integrity Amicus Brief) at 4, *Union of Concerned Scientists, et al. v. NHTSA, et al.*, No. 19–1230 (D.C. Cir. filed Oct. 28, 2019), reprinted in the Institute's comments on the 2021 Notice of Reconsideration.

⁹⁷ Institute for Policy Integrity at 2, citing its Amicus Brief at 6–11.

⁹⁸ *Id.* at 7. See also Twelve Public Interest Organizations app. 1 at 28–29 ("Section 209(b)(1)'s precise terms mandate that EPA "shall" grant California a waiver unless EPA finds one of the three specified bases for denial. This language charges EPA "with undertaking a single review in which [the Administrator] applies the deferential standards set forth in Section 209(b) to California and either grants or denies a waiver." *Ford Motor Co. v. EPA*, 606 F.2d 1293, 1302 (D.C. Cir. 1979). It evinces no intent to provide EPA with the different and greater authority to withdraw a previously granted waiver, thereby arresting the State's ongoing implementation of its own laws.")

⁹⁹ See South Coast Air Quality Management District (SCAQMD), Docket No. EPA-HQ-OAR-2021-0257-0228 at 3. This commenter argued that section 116 of the CAA (which explicitly references section 209) provides that there needs to be a textual basis for any exercise of authority to deny California the right (which it achieved via the 2013 waiver) to enforce its emission standards. Thus, the commenter continued, because there is no language in section 209 that gives any authority nor specifies any process for EPA to revoke the rights/waiver previously granted then EPA may not do so by the terms of section 116.

¹⁰⁰ States and Cities at 16. See also Twelve Public Interest Organizations app. 1 at 33–34.

¹⁰¹ States and Cities at 16; See also Twelve Public Interest Organizations app. 1 at 33–34.

¹⁰² Twelve Public Interest Organizations app. 1 at 34. See also States and Cities at 16 (arguing that, although EPA proposed to withdraw the waiver on multiple grounds, such as the third waiver prong, "EPA's final action was based entirely on its own changed policy positions, namely its interpretation of Section 209(b)(1) to create a categorical bar against state regulation of vehicular GHG emissions and its decision to rely on another agency's newly articulated views of a different statute [EPCA].")

¹⁰³ 84 FR at 51332.

¹⁰⁴ Institute for Policy Integrity at 2.

alone.¹⁰⁵ Thus, supporters and opponents of SAFE 1 also provided comments on whether, assuming EPA did have authority to reconsider the ACC program waiver—either because of language in the CAA or because of its inherent authority to reevaluate decisions because of changed conditions—it was appropriate to exercise that authority in SAFE 1. Some commenters summarized precedent as requiring that the Agency consider reliance interests that have attached to its original decision, that reversals of informal adjudications occur within a reasonable time after the original decision, and that the reversal is not for the sole purpose of applying some change in administrative policy.¹⁰⁶ Opponents and supporters of SAFE 1 did, however, disagree on the significance of each of these factors.¹⁰⁷

Commenters who argued that reliance interests were relevant to EPA's authority to reconsider also offered evidence of reliance interests that had accrued over the five years the ACC program waiver had been in effect, with several commenters providing specific details regarding their reliance on the GHG and ZEV standards. As commenters noted, California's standards are incorporated into plans and regulations aimed at achieving state and federal air pollution goals. These plans can be complex and cannot "change on a dime."¹⁰⁸ According to one commenter "[w]ithout the full Waiver, past decision-making was blighted and planned-for reductions to meet Air District goals need to be reassessed. The emission reductions are

¹⁰⁵ States and Cities at 21–22 (quoting *FCC v. Fox*, 556 U.S. 502, 515 (2009)).

¹⁰⁶ *Id.* at 17 (citing *Am. Methyl*, 749 F.2d at 835; *Chapman v. El Paso Nat. Gas Co.*, 204 F.2d 46, 53–54 (D.C. Cir. 1953); *DHS v. Regents of the Univ. of California*, 140 S. Ct. 1891, 1914 (2020); *United States v. Seatrains Lines Inc.*, 329 U.S. 424, 429 (1947)).

¹⁰⁷ Urban Air at 21 (arguing that agencies need only provide a "detailed justification" to overcome reliance interests); Competitive Enterprise Institute (CEI), Docket No. EPA–HQ–OAR–2021–0257–0398 (correction to an earlier comment by the same commenter, which can be found at Docket No. EPA–HQ–OAR–2021–0257–0140) at 9 ("As for reliance interests, all costly wasteful, or otherwise defective government programs create reliance interests. Usurpations of power do as well. If the creation of reliance interests is enough to legitimize bad or unlawful policies, anything goes."). *Compare* to States and Cities at 17–18 (citing their comments on SAFE 1 at 130–31 and citing *Ctr. for Sustainable Econ. v. Jewell*, 779 F.3d 588, 595 (D.C. Cir. 2015)) (describing reliance interests as "weighty," stating that "[t]he Clean Air Act and long-standing Executive branch policy both place substantial importance on States' interests in implementing the plans and laws they have determined best meet the needs of their States"—plans and laws such as SIPs, which can and do include California standards).

¹⁰⁸ Twelve Public Interest Organizations app. 1 at 29.

key to combatting climate change, curbing ozone formation, preventing additional wildlife impacts, and attaining California [air quality goals] and [NAAQS]."¹⁰⁹ Revoking a waiver and disrupting existing air quality plans, they argue, also has "far-reaching ripple effects" because "businesses operating in California base their own long-term plans on the State's policies" and, if California cannot reduce emissions from the automobile sector, it will have to "consider requiring further reductions from other sectors of the economy."¹¹⁰ Additionally, they said that by the time of the SAFE proposal, twelve states had already adopted at least one or both of the California standards under section 177.¹¹¹ Several of these states submitted comments attesting to their need for these standards to achieve both greenhouse gas and criteria emission reductions.¹¹² Like the reliance interests of Californian air districts, several of these section 177

¹⁰⁹ Bay Area Air Quality Management District (BAAQMD), Docket No. EPA–HQ–OAR–2021–0257–0278 at 2.

¹¹⁰ Twelve Public Interest Organizations app. 1 at 29.

¹¹¹ States and Cities at 17. With these state adoptions, auto-manufacturers would then need to meet program requirements in these states.

¹¹² See, e.g., Delaware Department of Natural Resources and Environmental Control (Delaware), Docket No. EPA–HQ–OAR–2021–0257–0109 at 1 ("The GHG program allowed by the waiver is vitally important, as it enables long-term plans and yields critical emission reductions that will contribute significantly to Delaware's ability to attain and maintain the health-based National Ambient Air Quality Standards (NAAQS) for criteria pollutants."); Connecticut Department of Transportation and Connecticut Department of Energy and Environmental Protection (Connecticut), Docket No. EPA–HQ–OAR–2021–0257–0104 at 2 ("These programs enable long-term planning and yield critical emission reductions that are critical to meeting Connecticut's climate goals as well as our statutory obligations to reach attainment with the ozone NAAQS."); Minnesota Pollution Control Agency and Minnesota Department of Transportation (Minnesota), Docket No. EPA–HQ–OAR–2021–0257–0113 at 2 ("The MPCA is in the process of adopting the LEV and ZEV standards in Minnesota as allowed under section 177 of the CAA. These rules are vitally important in helping our state achieve our GHG emission reduction goals and reduce other harmful air pollutants. . . ."); Maine Department of Environmental Protection (Maine), Docket No. EPA–HQ–OAR–2021–0257–0130 at 1, 3 ("While the LEV program was initially created to help attain and maintain the health-based [NAAQS] for criteria pollutants, the California GHG and ZEV standards will contribute significantly to states' abilities to meet their emission reduction goals. . . . [T]he transportation sector is the largest source of ozone forming pollution in Maine . . . and California's ability to set ZEV standards under the [CAA] is an essential tool for addressing both criteria pollutants and GHGs."); Virginia Department of Environmental Quality (Virginia), Docket No. EPA–HQ–OAR–2021–0257–0112 at 2 ("These standards provide important and necessary reductions in both GHG and criteria pollutant emissions needed to meet state and local air quality goals and address federal CAA requirements.")

states and other opponents of SAFE 1 claim that "reliance interests in State Implementation Plans are particularly acute" because "they set expectations for extended periods of time and for many sectors of the economy, making it challenging (if not impossible) to change them quickly."¹¹³ These commenters note that "planning failures can carry significant consequences, including the imposition of federal plans that limit local flexibility and control, as well as penalties such as loss of highway funds."¹¹⁴ Some automakers and industry groups also discussed their reliance interests.¹¹⁵ For example, the National Coalition for Advanced

¹¹³ Twelve Public Interest Organizations app. 1 at 30; Delaware at 3 (explaining that, without the California standards, adopted into Delaware's SIP, the State will not be able to meet air quality goals). These reliance interests, one commenter argued, are another reason to doubt the implicit authority of EPA to reconsider an already granted waiver: "It would be quite surprising, then, for EPA to have implicit authority to upend this multi-actor, multi-step scheme by pulling the rug out from under it after the fact." States and Cities at 16 (citing *Am. Methyl*, 749 F.2d at 840).

¹¹⁴ Twelve Public Interest Organizations app. 1 at 30–31 (citing 42 U.S.C. 7410(c)(1) (establishing triggers for imposition of federal plan), 7509 (outlining sanctions for state planning failures)).

¹¹⁵ See Ford Motor Company (Ford), Docket No. EPA–HQ–OAR–2021–0257–0028 at 1 ("Ford supports EPA's rescission of its SAFE 1 action, which withdrew California's waiver for zero emission vehicle (ZEV) mandate and greenhouse gas (GHG) emission standards within California's Advanced Clean Car (ACC) program. Ford does not believe this previous action was appropriate. Ford firmly supports recognition of California's authority to implement ZEV and GHG standards in support of its air quality targets pursuant to its 2012 waiver application. We have relied on California's actions pursuant to the waiver and California's related pronouncements in negotiating and agreeing to the California Framework Agreement, and in the development of our own product and compliance plans. Ultimately, Ford considered EPA's and NHTSA's rationales and California's statements regarding SAFE 1 and took action in the best interests of the company and of the environment."). See also Tesla, Docket No. EPA–HQ–OAR–2021–0257–0136 at 4 ("Because of the sizeable investments required to develop alternative fuel and advanced technology vehicles, regulatory stability is vital for ensuring the level of manufacturer and investor confidence necessary to facilitate innovation.") and at n.5 (quoting comments from several automakers and auto industry groups about reliance interests on the waiver from the MTE). See also Toyota, Docket No. EPA–HQ–OAR–2021–0381 ("Should EPA reinstate California's waiver, we request it be reinstated as it was originally granted, including the "deemed-to-comply" provision that was so important in establishing One National Program (ONP) over a decade ago. . . . Reinstatement of California's waiver for model years 2021 and 2022 poses significant lead time challenges considering that 2021 model year is well underway, and 2022 model year vehicles are generally already designed, sourced, certified to various regulatory requirements, and ready to begin production. Some manufacturers may have already begun production of 2022 model year vehicles. As a result, a reinstatement of California's waiver by EPA should apply prospectively to model years 2023 and later.")

Transportation, an industry coalition group, stated “NCAT members have invested billions of dollars with the well-founded expectation that increased demand for electric vehicles would be propelled by California and the section 177 States’ continued ability to drive technology innovation and emission reductions.”¹¹⁶ EPA also received comment from CARB, by and through the comments of the States and Cities, that provided data on manufacturer compliance.¹¹⁷

According to commenters, these reliance interests were compounded by the considerable passage of time between the granting of the ACC program waiver in 2013 and SAFE 1’s withdrawal in 2019. Commenters also remarked that the more than five years that had passed was too long a delay and well beyond the “weeks, not years” sometimes referenced as guidance for reasonableness.¹¹⁸ SAFE 1, they noted “comes years after the waiver was granted, years after multiple sovereign States adopted California’s standards, and years into long-term plans States developed in reliance on anticipated emission reductions from those standards—including, but not limited to, multiple EPA approved State Implementation Plans.”¹¹⁹

Other commenters argued that SAFE 1 did not upend reliance interests and was not untimely. They agreed with the SAFE 1 decision that the 2018 Mid-Term Evaluation (MTE), which was agreed to in 2013, prevented any reliance interests from accruing.¹²⁰ Although this MTE was for the federal GHG standards for MYs 2022–2025, not the California GHG standards approved under the ACC program waiver, these commenters argued that the two were linked through the “deemed to comply”

provision approved in the ACC program waiver, which allowed manufacturers to comply with the California standards by meeting the federal standards.¹²¹ They also noted that California separately agreed to a 2016 mid-term evaluation of its own state standards for the same model years.¹²² Therefore, they argued, because the initial grant of the waiver was contingent on two subsequent mid-term evaluations, no one could have reasonably believed the ACC program waiver was “set in stone.” Additionally, at least one commenter argued that California and other states’ purported reliance interests were further undermined because they “have known for years that NHTSA’s longstanding position is that state carbon dioxide regulations and zero-emissions vehicle mandates are related to average fuel economy standards and therefore preempted by CAFE” and “could not have reasonably believed that EPA would continue to ignore NHTSA’s view of the law in perpetuity.”¹²³

Some commenters also argued that even if reliance interests are relevant, automakers and industry groups have reliance interests of their own affected by CARB’s 2018 deemed to comply amendments and the SAFE 1 action itself. One commenter wrote that “CARB tossed automakers’ reliance interests out the window when it refused to be bound by the results of the EPA and NHTSA’s Mid-Term Evaluation (MTE) . . . and refused to honor its ‘deemed to comply’ pledge to automakers unless they complied with the standards set by the EPA in 2012 and 2017.”¹²⁴ Another commenter noted that “[w]hatever ‘reliance interests’ are disturbed when EPA reverses a waiver grant are no more real, and no more serious for the parties involved, than the reliance interests upended by reversal of a waiver denial.”¹²⁵

Some commenters also argued that SAFE 1 was timely, disputing opponents’ claims that a “reasonable” amount of time is measured in “weeks, not years.” Commenters noted that “courts have not reached consensus on the amount of time that is reasonable.”¹²⁶ Moreover, one commenter argued that “timeliness depends on reliance interests” and, because those could not have accrued prior to the MTE, the time period at issue is only four months (between the conclusion of the MTE and the reconsideration of the ACC program waiver, starting in 2018).¹²⁷ This “short time,” the commenter claimed, “lies in the acceptable range given the intervening events.”¹²⁸ Another commenter argued that, if “time elapsed” is a factor to be considered in the appropriateness of an action, it cuts in favor of SAFE 1, as thirty years passed between EPCA’s enactment in 1975 and California’s first request for a “waiver implicitly authorizing the State to regulate fuel economy.”¹²⁹ Even if the time period at issue was nearly six years between the grant of the ACC program and the final SAFE 1 action, that commenter wrote, such a length of time is not unreasonable, since “[i]f six years locks a policy in place and puts it beyond revision or repeal by the next administration, elections no longer matter.”¹³⁰

In addition to reliance interests and timeliness, some commenters claimed that EPA’s authority to revoke, if it existed, requires the Agency to have a purpose other than “applying some . . . change in administrative policy.”¹³¹ SAFE 1, they argued, did not meet this requirement. Instead, in SAFE 1, EPA “chose to *sua sponte* reconsider its 2013 Waiver Grant for the sole purpose of applying new policy determinations,” specifically “NHTSA’s views of EPCA preemption” and “new interpretations

decision,’ the grant of a waiver is as liable to change as the denial of a waiver. No greater reliance interests attach to the grant of a waiver authorizing regulation than to the denial of a waiver preventing regulation, so reliance interests provide no support for California’s ratchet argument.”)

¹²⁶ Urban Air at 23–24.

¹²⁷ *Id.* at 24. Another commenter disagreed with this accounting of time, stating that “timeliness for reconsidering an adjudication is measured from the date of the agency’s decision, not from the date of activity resulting from that decision. *E.g., Am. Methyl*, 749 F.2d at 835 (tethering timeliness to period for appeal of agency decision).” Twelve Public Interest Organizations app. 1 at 38.

¹²⁸ Urban Air at 23–24.

¹²⁹ CEI at 8 (calling “time elapsed” a “frivolous objection.”).

¹³⁰ *Id.*

¹³¹ States and Cities at 17 (quoting *Chapman v. El Paso Nat. Gas Co.*, 204 F.2d 46, 53–54 (D.C. Cir. 1953)).

¹¹⁶ NCAT at 13; Rivian as a member of NCAT (Rivian), Docket No. EPA–HQ–OAR–2021–0135.

¹¹⁷ States and Cities at 55–57, including app. D and app. E.

¹¹⁸ *Id.* at 17 (citing *Mazaleski v. Treusdell*, 562 F.2d 701, 720 (D.C. Cir. 1977)). Twelve Public Interest Organizations app. 1 at 73. In addition, this commenter notes that the time period for seeking judicial review of the ACC program waiver had run long ago and that no one had sought that review (citing *Am. Methyl Corp.*, 749 F.2d at 835); NCAT at 14–15.

¹¹⁹ Twelve Public Interest Organizations app. 1 at 58.

¹²⁰ America Fuel & Petrochemical Manufacturers, EPA–HQ–OAR–2021–0257–0139 (AFPM) at 26 (“And no reliance interests derive from this decision because one could not reasonably expect that the standards approved in that waiver would remain untouched. As part of the 2013 waiver decision, EPA and CARB committed to a 2018 mid-term evaluation of the federal standards for MYs 2022–2025.”); Urban Air at 22; NADA at 6 (“as discussed at length repeatedly in EPA’s 2013 CAA preemption waiver rule, a coordinated mid-term evaluation (MTE) involving EPA and NHTSA’s MY 2022–2025 rules was expected to be conducted.”).

¹²¹ AFPM at 26 (“Because California’s deemed-to-comply provision linked those standards to compliance with its own state program, any change in federal standards from the mid-term review would have required an equal overhaul of California’s emissions program for those future MYs.”); Urban Air at 22–23 (“The 2018-re-evaluation is relevant because California’s deemed-to-comply provision allowed a manufacturer to satisfy state GHG standards simply by complying with federal standards.”); NADA at 6 (“[A]s noted above, CA’s GHG mandates included both a “deem-to-comply” rule enabling vehicle manufacturers to meet those mandates by complying with applicable federal rules, and a commitment on the part of the state to conduct a mid-term evaluation of its own GHG standards.”).

¹²² AFPM at 26–27; Urban Air at 22; NADA at 6.

¹²³ Urban Air at 23.

¹²⁴ CEI at 9.

¹²⁵ AFPM at 27. See also Urban Air at 20–21 (“And under the presumption that ‘an agency retains authority to reconsider and correct an earlier

[of section 209(b)(1)(B)] that served only to categorically bar state standards that reduce vehicular GHG emissions.”¹³² Still, another commenter disagreed, arguing that EPA’s reconsideration was an appropriate reevaluation of the legal interpretation and facts upon which the initial waiver determination was based because—“reconsideration determinations do not become ‘policy’ decisions simply because they address substantive errors.”¹³³

EPA also received comment on whether EPA’s actions were inappropriate because the Agency failed to satisfy the “requirements of reasoned decision-making.” Some commenters noted that EPA had taken the position in SAFE 1 that “reducing criteria pollution is of overriding importance” yet failed to “consider[] the criteria-pollution and SIP consequences of its Waiver Withdrawal and Section 177 Determination.”¹³⁴ Similarly, EPA received comments claiming that the decision to apply a new approach to the ACC program waiver section 209(b)(1)(B) was both unnecessary and unjustified because, as EPA acknowledged in SAFE 1, the Agency has consistently posited that section 209(b)(1)(B) calls for determining whether the State needs its own regulatory program, separate from that of the federal government, not whether the State needs each specific standard or package of standards for which it seeks a waiver.¹³⁵ One of these commenters pointed out that EPA also acknowledged that the phrase “such State standards” could reasonably remain the program-level interpretation (EPA’s traditional interpretation) yet the Agency chose to adopt a new interpretation and apply it to the more than five-year old ACC program waiver, impacting expectations and reliance interests.

The Agency also received comments on whether NHTSA’s finding of preemption under EPCA in the joint action granted EPA authority to reconsider the ACC program waiver. Commenters argued that NHTSA is charged with interpreting and

implementing EPCA and that its finding “that Congress prohibited California’s standards” in the same action cannot be ignored.¹³⁶ Still other commenters pointed to the language of section 209(b)(1) itself, where only three criteria are provided by which EPA can deny a waiver. As such, they argued, EPA cannot have broad, implicit authority to revoke a waiver on entirely different grounds than by which it may deny a waiver.¹³⁷ The commenters also argued that the joint context of the action did not grant the Agency special authority to reconsider, explaining that “[w]hat Congress directed EPA to consider when it wrote Section 209(b)(1) does not change depending on whether EPA acts alone or with another agency.”¹³⁸ Some commenters also pointedly noted that SAFE 1’s distinction between single-agency and joint actions is arbitrary and capricious and therefore not a valid basis for reconsideration because EPA stated it “does not intend in future waiver proceedings concerning submissions of California programs in other subject areas to consider factors outside the statutory criteria in section 209(b)(1)(A)–(C),”¹³⁹ and because NHTSA and EPA now consider SAFE 1 as “two severable actions.”¹⁴⁰

B. Analysis: EPA Inappropriately Exercised Its Limited Authority To Reconsider

EPA finds it does have authority to reconsider waivers, although its reconsideration of previously-granted waivers is limited and circumscribed. In the context of adjudicatory decisions (as contrasted to rulemakings), administrative law principles and case law support limited reconsideration authority for waiver proceedings. For example, in *Ivy Sports Med., LLC v. Burwell*, 767 F.3d 81, 86, 93 (D.C. Cir. 2014), the D.C. Circuit noted that where a statute “does not contain an express provision granting [the agency] authority to reconsider,” “administrative agencies are assumed to possess at least some inherent authority to revisit prior decisions, at least if done in a timely fashion,” noting the baseline limitations of such inherent authority. And in *Chapman v. El Paso Nat. Gas Co.*, 204 F.2d 46, 53–54 (D.C. Cir. 1953), the D.C. Circuit made clear that once concluded, an adjudicatory decision

granting a right “may not be repudiated for the sole purpose of applying some quirk or change in administrative policy.”¹⁴¹ These precedents suggest that, while agencies do generally possess some inherent authority to reconsider previous adjudicatory decisions, that authority is limited in scope.

Section 209 does not provide EPA with express authority to reconsider and withdraw a waiver previously granted to California. EPA’s authority thus stems from its inherent reconsideration authority. The 1967 legislative history provides some indication of congressional intent to preserve some implied authority for EPA to reconsider previous waiver decisions, but also to place limitations on it. This legislative history explains: “[i]mplicit in this provision is the right of the [Administrator] to withdraw the waiver at any time [if] after notice and an opportunity for public hearing he finds that the State of California no longer complies with the conditions of the waiver.”¹⁴² Thus, from the earliest days of the program it has been understood that any withdrawal of a waiver should be tied to the statutory criteria and California’s compliance with them. This legislative history must be taken into account along with Congress’s intent expressed in the 1977 legislative history, which, as discussed previously, sought to ensure deference to California and to strengthen that state’s role in driving emissions-reducing technological innovation. Congress was also mindful to ensure the ability of other states to adopt California’s standards.¹⁴³ Ultimately, EPA concludes it has authority to reconsider previously-granted waivers, but that this authority may only be exercised sparingly. As discussed below, there are several considerations that support narrow authority to reconsider waiver grants.

First and most important, EPA believes its inherent authority to reconsider a waiver decision is

¹³² *Id.* at 8, 19 (“No statute compelled EPA to reconsider the 2013 waiver at all, let alone to apply new policies to that long-settled decision rather than to new waiver requests.”); Twelve Public Interest Organizations app. 1 at 35 (“EPA relied exclusively on its purported discretion to reinterpret Section 209(b)(1)(B) of the Clean Air Act . . . and its purported discretion to consider factors not enumerated in Section 209(b)(1).”). See also SCAQMD at 3 (“Because the 2013 waiver decision was not pending judicial review in 2019 and was a long-closed matter, the EPA could not rightfully reopen its adjudication.”).

¹³³ Urban Air at 24 (citing *Civil Aeronautics Bd. v. Delta Air Lines*, 367 US 316, 321 (1961)).

¹³⁴ States and Cities at 8–9, 12.

¹³⁵ *Id.* at 22.

¹³⁶ See, e.g., CEI at 11.

¹³⁷ States and Cities at 16–17.

¹³⁸ *Id.* at 20. See also Twelve Public Interest Organizations app. 1 64–65.

¹³⁹ Northeast States for Coordinated Air Use Management (NESCAUM), Docket No. EPA–HQ–OAR–2021–0257–0126 at 3; Twelve Public Interest Organizations app. 1 64–65; States and Cities at 20.

¹⁴⁰ SCAQMD at 7 (citing 86 FR at 22439 n.40).

¹⁴¹ See also *Am. Methyl*, 749 F.2d 826, 835 (D.C. Cir. 1984) (“We have held that agencies have an inherent power to correct their mistakes by reconsidering their decisions within the period available for taking an appeal.”); *Mazaleski v. Treusdell*, 562 F.2d 701, 720 (D.C. Cir. 1977) (“We have many times held that an agency has the inherent power to reconsider and change a decision if it does so within a reasonable period of time.”) (quoting *Gratehouse v. United States*, 512 F.2d 1104, 1109 (Ct. Cl. 1975)); *Albertson v. FCC*, 182 F.2d 397, 399 (D.C. Cir. 1950) (“in the absence of any specific limitation,” reconsideration available “within the period for taking an appeal”). See generally Daniel Bress, Note, Administrative Reconsideration, 91 VA. L. REV. 1737 (2005).

¹⁴² S. Rep. No. 90–403, at 34 (1967).

¹⁴³ See *supra* Section III.B.

constrained by the three waiver criteria that must be considered before granting or denying a waiver request under section 209(b). It would be inappropriate and inconsistent with congressional intent for EPA to reconsider and withdraw a waiver on a ground outside the limited scope of those which Congress specified for EPA to consider when reviewing a waiver in the first place.¹⁴⁴ In the few instances where the Agency reconsidered prior waiver decisions prior to SAFE 1, EPA focused its review on the section 209(b) statutory waiver criteria.¹⁴⁵

A circumscribed approach to reconsideration of waivers is consistent with the deference to California's policy judgment that Congress built into the waiver process.¹⁴⁶ Congress explicitly required that EPA "shall" grant the waiver unless one of three limited criteria are met. The use of the word "shall" (versus "may") was heavily debated by the enacting Congress, with the successful proponents of "shall" explaining that such language would "guarantee" that California could regulate with the burden placed on EPA to demonstrate why California should not be allowed to go beyond federal limitations.¹⁴⁷ Congress's legislative enactments since its creation of the waiver program—including adding section 177 to allow other states to adopt California's standards in 1977 and section 209(e)(2)(A) to create parallel deference for nonroad engines and vehicles in 1990—reinforce the important role it envisioned for, and deference it afforded to, California.¹⁴⁸

In SAFE 1, EPA argued instead that deference to California was not merited where the Agency was interpreting its "own statute."¹⁴⁹ But in Title II of the Clean Air Act, Congress envisioned two standards—California and Federal.¹⁵⁰

Congress recognized California's early attempts to address motor vehicle emissions intended to address its extraordinary environmental conditions as well as being a laboratory for motor vehicle emissions control.¹⁵¹ Congress called for EPA deference to California in implementing section 209(b) by not only limiting EPA review of California waiver requests to three specific criteria but also instructing that EPA is "to afford California the broadest possible discretion in selecting the best means to protect the health of its citizens and the public welfare."¹⁵² Similarly, "[t]he Administrator, . . . is not to overturn California's judgment lightly. Nor is he to substitute his judgment for that of the State."¹⁵³ Additionally, the D.C. Circuit has explained that "Congress consciously chose to permit California to blaze its own trail with a minimum of federal oversight" and "[t]he statute does not provide for any probing substantive review of the California standards by federal officials."¹⁵⁴ Further, "[t]here is no indication in either the statute or the legislative history that . . . the Administrator is supposed to determine whether California's standards are in fact sagacious and beneficial."¹⁵⁵ Thus, early in the waiver program's history, EPA explained the deference that Congress intended for the Agency's review of waiver requests by noting that it would feel constrained to approve a California approach to a problem that the EPA Administrator might not feel able to adopt at the federal level as a regulator. EPA explained that the balancing of risks and costs against potential benefits from reduced emissions is a central policy decision for any regulatory agency and substantial deference should be provided to California's judgement on such matters.¹⁵⁶

In addition, limiting reconsideration of waivers undergirds Congress' intent that California would be a laboratory for the country driving emissions-reducing

technological innovation when it created the program in the first place. As the D.C. Circuit explained in *MEMA I*: "The history of congressional consideration of the California waiver provision, from its original enactment up through 1977, indicates that Congress intended the State to continue and expand its pioneering efforts at adopting and enforcing motor vehicle emission standards different from and in large measure more advanced than the corresponding federal program; in short, to act as a kind of laboratory for innovation."¹⁵⁷ Indeed, broad authority to reconsider waiver grants could undermine the very structure that Congress built in Title II. Specifically, while EPA does not consider section 177 when reviewing waiver requests under section 209, Congress built a structure wherein EPA must grant California a waiver under section 209 unless one of the three statutory criteria are met, and then other states may adopt California's standards under section 177 as part of their overall air quality programs. Limited inherent authority to reconsider previously-granted waivers as described in this action is important to the success of Congress's structure.

Finally, even the sentence in the legislative history that suggests EPA has inherent reconsideration authority in the first place, and which SAFE 1 relied on for its assertion of inherent reconsideration authority, lends weight to the view that this authority is limited. According to the Senate report from the 1967 CAA amendments, the Administrator has "the right . . . to withdraw the waiver at any time [if] after notice and an opportunity for public hearing he finds that the State of California no longer complies with the conditions of the waiver."¹⁵⁸ That specific circumstance—where California does not comply with the conditions of a waiver—should not be expanded to include a gaping hole for discretionary administrative policy changes.

Given all of the above considerations, several principles emerge. EPA's authority to reconsider a grant of a waiver, which is an adjudicatory action by the Administrator, is not open-ended. Any reconsideration is constrained to the criteria that Congress set out in section 209(b). Even within those statutory criteria, considering all of the factors that weigh in favor of a narrow interpretation of the Agency's authority and the importance of not disrupting Congress's scheme, EPA believes reconsideration is limited to situations where the Agency has made

¹⁴⁴ See *MEMA I*, 627 F.2d at 1115 (noting that section 209(b) creates "a narrowly circumscribed proceeding requiring no broad policy judgments").

¹⁴⁵ EPA initiated reconsideration of certain motorcycle standards, under the third waiver prong, section 209(b)(1)(C), in order to "vacate that portion of the waiver previously granted under section 209(b)." 47 FR 7306, 7309 (February 18, 1982). EPA affirmed the grant of the waiver in the absence of "findings necessary to revoke California's waiver of Federal preemption for its motorcycle fill-pipe and fuel tank opening regulations." *Id.* at 7310.

¹⁴⁶ See *MEMA I*, 627 F.2d at 1124–25 (describing Congress's intent to defer to California's judgments regarding its motor vehicle program).

¹⁴⁷ H.R. Rep. No. 90–728 ("Are we now to tell California that we don't quite trust her to run her own program, that big government should do it instead?").

¹⁴⁸ 40 FR 23104; 58 FR 4166.

¹⁴⁹ 84 FR at 51344 n.268.

¹⁵⁰ Motor vehicles are "either 'federal cars' designed to meet the EPA's standards or 'California cars' designed to meet California's standards." *Engine Mfrs. Ass'n v. EPA*, 88 F.3d 1075, 1079–80,

1088 (D.C. Cir. 1996) ("Rather than being faced with 51 different standards, as they had feared, or with only one, as they had sought, manufacturers must cope with two regulatory standards.")

¹⁵¹ See, e.g., S. Rep. No. 403, 90th Cong., 1st Sess. 33 (1967) (The waiver of preemption is for California's "unique problems and pioneering efforts."); 113 Cong. Rec. 30950, 32478 ("[T]he State will act as a testing agent for various types of controls and the country as a whole will be the beneficiary of this research.") (Statement of Sen. Murphy).

¹⁵² H.R. Rep. No. 95–294, at 301–02 (1977).

¹⁵³ H.R. Rep. No. 95–294, at 302 (1977), reprinted in 1977 U.S.C.A.N. at 1381).

¹⁵⁴ *Ford Motor Co. v. EPA*, 606 F.3d 1293, 1297, 1300 (D.C. Cir. 1979).

¹⁵⁵ *Id.* at 1302.

¹⁵⁶ 40 FR at 23104.

¹⁵⁷ *MEMA I*, 627 F.2d at 110–11.

¹⁵⁸ S. Rep. No. 90–403, at 34 (1967).

a clerical or factual error or mistake, or where information shows that factual circumstances or conditions related to the waiver criteria evaluated when the waiver was granted have changed so significantly that the propriety of the waiver grant is called into doubt.

Even if the bases for EPA's reconsideration did satisfy one of the foregoing conditions such that reconsideration may be appropriate, during that reconsideration EPA believes it should consider the passage of time and reliance interests. In the context of CAA waiver grants in general, and the 2013 ACC program waiver grant in particular, California is relying on its standards to meet short- and long-term emission reduction goals.¹⁵⁹ In addition, by the time the SAFE proposal was published, twelve states had already adopted at least one or both of the GHG and ZEV standards.¹⁶⁰ Several of these states incorporated these adopted standards into their SIPs.¹⁶¹ Several automakers and industry groups have also indicated reliance on these standards.¹⁶²

Reconsideration thus must carefully consider the factors noted and should not be undertaken where immense degrees of uncertainty are introduced in settled expectations of California, other states, and regulated industry or to allow for the continual questioning of EPA's decisions, thus impairing needed finality. Such reconsideration could frustrate congressional intent in designing the waiver program and ultimately discourage reliance by the recipient of EPA's waiver decision (CARB), states that may have adopted CARB's regulations under the terms of section 177 (and are permitted to enforce the regulations once EPA grants

a waiver to California) as well as the regulated industry.

We now turn to whether the reconsideration in SAFE 1 was a proper exercise of EPA's inherent reconsideration authority. As an initial matter, SAFE 1 did not assert that any clerical or factual error or mistake was made in the 2013 ACC program waiver. Nor did SAFE 1 point to any evidence showing that factual circumstances or conditions related to the waiver criteria evaluated when the waiver was granted have changed so significantly that the propriety of the waiver grant is called into doubt. For example, SAFE 1 did not assert that California was not complying with the terms of the waiver. Instead, SAFE 1's reconsideration was premised on retroactive application of discretionary policy changes. Therefore, EPA believes it did not appropriately exercise its inherent authority in SAFE 1 to reconsider the prior ACC program waiver. Upon reconsideration, and as further shown in Sections V and VI, EPA now believes that SAFE 1 amounted to an improper exercise of the Agency's limited inherent authority to reconsider.¹⁶³

SAFE 1 gave two primary reasons for withdrawing the 2013 ACC program waiver. Neither was an appropriate basis for reconsideration. First, SAFE 1 premised the revocation on its interpretation of the second waiver prong, section 209(b)(1)(B), that called for the Agency's scrutiny of specific standards under the waiver rather than California's program as a whole. As explained in detail in Section V of this final action, that statutory interpretation is flawed, and EPA does not believe a new statutory interpretation should be

the basis of reconsidering the grant of a waiver.

SAFE 1 premised the withdrawal of the ACC program waiver under section 209(b)(1)(B) on the perceived lack of record support on the causal link between GHG emission standards and air quality conditions in California.¹⁶⁴ Yet, the underlying record from the ACC program waiver, and the record of SAFE 1, have shown that CARB's ZEV sales mandate and GHG emission standards are designed to address California's serious air quality problems, including both its NAAQS pollutants and a variety of climate impacts from GHG emissions. As discussed in greater detail in Section V, EPA has since at least 2009 recognized that greenhouse gas pollution exacerbates criteria pollution, and climate change impacts on California's air quality conditions (*e.g.*, heat exacerbation of ozone).¹⁶⁵ The ACC program was especially designed to

¹⁶⁴ "California's approach in its ACC program waiver request differed from the state's approach in its waiver request for MY 2011 and subsequent heavy-duty tractor-trailer GHG standards, where California quantified NO_x emissions reductions attributed to GHG standards and explained that they would contribute to PM and ozone NAAQS attainment." 84 FR at 51337 n.252 (citing 79 FR at 46256, 46257 n.15, 46261, 46262 n.75).

¹⁶⁵ The first HD GHG emissions standard waiver related to certain new 2011 and subsequent model year tractor-trailers. 79 FR 46256 (August 7, 2014). CARB projected, for example, "reductions in NO_x emissions of 3.1 tons per day in 2014 and one ton per day in 2020" in California. *Id.* at 46261. The second HD GHG emissions standard waiver related to CARB's "Phase I" regulation for 2014 and subsequent model year tractor-trailers. 81 FR 95982 (December 29, 2016).

CARB also noted the scientific findings since EPA's 2009 GHG waiver including the report titled "Our Changing Climate 2012 Vulnerability & Adaptation to the Increasing Risks from Climate Change in California." The summary report highlights new insights for the energy, water, agriculture, public health, coastal, transportation, and ecological resource sectors that are vital to California residents and businesses. The study also predicts that peak concentrations of dangerous airborne particles will increase in the San Joaquin Valley because of climate change on wind patterns. This study provides further evidence of what is known as the "climate penalty," where rising temperatures increase ground-level ozone and health-damaging particles, despite the reductions achieved by successful programs targeting smog-forming emissions from cars, trucks, and industrial sources. *Id.* at 8–9. *See also* "The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment" Chapter 3 Air Quality Impacts—Key Finding ("Climate change will make it harder for any given regulatory approach to reduce ground-level ozone pollution in the future as meteorological conditions become increasingly conducive to forming ozone over most of the United States. Unless offset by additional emissions reductions, these climate-driven increases in ozone will cause premature deaths, hospital visits, lost school days, and acute respiratory symptoms.") at <https://health2016.globalchange.gov/air-quality-impacts/>; Chapter 13: Air Quality, Fourth National Climate Assessment at <https://nca2018.globalchange.gov/chapter/13/>.

¹⁵⁹ States and Cities at 17–18.

¹⁶⁰ *Id.* at 17.

¹⁶¹ *Id.* at 10; Wisconsin Department of Natural Resources (Wisconsin), Docket No. EPA–HQ–OAR–2021–0257–0095 at 1 ("These standards provide important and necessary reductions in both GHG and criteria pollutant emissions needed to meet state and local air quality goals and address federal CAA requirements."); Connecticut at 2 ("These programs enable long-term planning and yield critical emission reductions that are critical to meeting Connecticut's climate goals as well as our statutory obligations to reach attainment with the ozone NAAQS."); Delaware 2 ("Delaware adopted the California LEV regulation and incorporated the LEV and GHG standards into the State Implementation Plan. . . . Delaware will not meet air quality goals without more protective vehicle emission standards."); Maine at 1 ("[T]he LEV program was initially created to help attain and maintain the health-based National Ambient Air Quality Standards (NAAQS) . . . The California ZEV and GHG programs enable long-term planning for both the states and the regulated community and have been drivers of technological change across the industry.').

¹⁶² *E.g.*, Ford at 1; Tesla at n.5, 4; Rivian (as a member of NCAT) at 13–14.

¹⁶³ EPA acknowledges that, in the SAFE 1 proceedings, it had noted that at the time of proposal that CARB had given notice that it was considering amending its "deemed to comply" provision and that by the time of SAFE 1, California had entered into agreements with several automobile manufacturers to accept less stringent standards than the California program or the Federal standards as promulgated in 2012. As noted in SAFE 1, EPA believed that neither of these matters were necessary for EPA's action in SAFE 1, but that they provided further support for the action. 84 FR at 51334 n.230. By this action, EPA finds that neither of these matters amounted to a change in circumstances or conditions associated with the three waiver criteria and EPA's evaluation of the criteria in the ACC program waiver. EPA did not predicate its ACC program waiver on CARB's deemed-to-comply provision or any changes to the deemed-to-comply provision. (EPA does not take a position as to whether that provision has changed in its purpose as a result of CARB's 2018 amendment). Further, to the extent CARB utilized a deemed-to-comply provision or uses non-regulatory mechanisms to achieve its air quality objectives, this had no bearing on EPA's assessment of whether CARB has a need for its standards under the second waiver prong at the time of SAFE 1 or now.

address both criteria and GHG pollution, including the effects of GHG pollution on criteria pollution in California.¹⁶⁶ As also further discussed in Section V, in SAFE 1 the Agency dismissed the criteria pollutant benefits of California's ZEV sales mandate requirements based on a snippet from the 2012 waiver request, taken out of context.¹⁶⁷ This was also remarkable considering EPA's prior waivers for ZEV sales mandate requirements that demonstrated criteria pollutant emissions reduction benefits.¹⁶⁸ The record also includes information that demonstrates that a withdrawal of the waiver for the GHG emission standards and ZEV sales mandate (and leaving the Federal GHG standards at the 2020 levels as proposed in SAFE) would increase NOx emissions in the South Coast air basin alone by 1.24 tons per day.¹⁶⁹ In sum, EPA opted to elide the available ample technical support from the ACC program waiver proceedings. EPA's factual predicates in SAFE 1—that there was no criteria pollutant benefit of the GHG standards and ZEV sales mandate—for reconsideration based on the second waiver prong were simply inaccurate and inappropriate. Reconsideration was thus improper on this basis because there were no factual errors in the ACC program waiver and EPA should not be exercising authority to reconsider prior valid waivers that present no factual errors based on different statutory interpretations.

Second, SAFE 1 premised its revocation on NHTSA's finding of preemption under EPCA. This, too, was an inappropriate ground for reconsideration. As earlier noted, EPA believes its inherent authority to reconsider a waiver decision is constrained by the three waiver criteria that must be considered before granting or denying a waiver request under section 209(b). Preemption under EPCA is not one of these criteria and was not considered in CARB's ACC program

¹⁶⁶ 2012 Waiver Request at 1, 9–11, 15–17 (“[A]s detailed below, the ACC program will result in reductions of both criteria pollutants and GHG emissions that, in the aggregate, are more protective than the federal standards that exist.”). 78 FR at 2122 ([T]he ACC program will result in reductions of both criteria pollutants and GHG emissions.”).

¹⁶⁷ 84 FR at 51337 (quoting CARB's statement that “[t]here is no criteria emissions benefit from including the ZEV proposal in terms of vehicle (tank-to-wheel or TTW) emissions.”). As explained in more detail below, this statement merely reflected how CARB attributed pollution reductions between its different standards and compliance mandates, not the reality of how those standards and mandates actually drive pollution reductions.

¹⁶⁸ 58 FR 4156, 71 FR 78190 (December 28, 2006); 75 FR 11878 (March 12, 2010) and 76 FR 61095 (October 3, 2011).

¹⁶⁹ States and Cities at 10.

waiver request or in EPA's granting of that waiver. In fact, in its waiver grant, the Agency expressly found that consideration of preemption under EPCA would be inappropriate and unnecessary. In SAFE 1, the Agency did not premise its consideration of preemption under EPCA on any of the three statutory criteria. Therefore, EPA believes that SAFE 1 was not a proper exercise of the authority to reconsider on this basis, and any subsequent action in SAFE 1 to withdraw the ACC program waiver was inappropriate.

Although SAFE 1 was an inappropriate exercise of inherent authority given that the Agency did not correct a factual error and there was no change in factual circumstances so significant that the propriety of the waiver would be called into doubt, it is nevertheless relevant to note that SAFE 1 did not give appropriate consideration to the passage of time and the reliance interests that had developed between the granting and the revocation of the ACC program waiver. Several automakers and industry groups have also indicated reliance on these standards, as previously discussed.¹⁷⁰ California and section 177 states were, by the time of the reconsideration, into the long-term plans they had developed relying on the ACC program waiver standards.¹⁷¹ California and other states

¹⁷⁰ *E.g.*, Ford at 1; Tesla at n.5, 4; Rivian (as a member of NCAT) at 13–14. EPA notes that it received limited comment on whether reliance interests had formed since the issuance of SAFE 1 but nothing to demonstrate error in the findings regarding section 209(b)(1)(C) made within the ACC program waiver. See Toyota, Docket No. EPA–HQ–OAR–2021–0381 (“Reinstatement of California's waiver for model years 2021 and 2022 poses significant lead time challenges considering that 2021 model year is well underway, and 2022 model year vehicles are generally already designed, sourced, certified to various regulatory requirements, and ready to begin production.”). Further, as discussed elsewhere, the short passage of time since the promulgation of SAFE 1 and ongoing litigation over that action has, as automakers have noted in that briefing, prevented automakers from relying on the waiver revocation. See also Twelve Public Interest Organizations at 11 (noting filings by automakers suggesting lack of reliance on the waiver withdrawal).

¹⁷¹ *E.g.*, States and Cities at 17 (the length between the waiver grant and reconsideration was too long “by any measure.”); Twelve Public Interest Organizations at app. 36. EPA acknowledges the commenter who argued that “timeliness depends on reliance interests” and, because the standards were not final before the MTE, the time period at issue is the four months between the MTE and the SAFE 1 proposal. Urban Air at 24. EPA also received comment that disagreed with this accounting of time stating that timeliness for reconsidering an adjudication is measured from the date of the agency's decision, not from the date of activity resulting from that decision. *E.g.*, Am. Methyl, 749 F.2d at 835 (tethering timeliness to period for appeal of agency decision.” Twelve Public Interest Organizations app. 1 at 38. EPA believes it is not necessary to resolve the

rely on waivers that EPA has approved to meet short- and long-term emission reduction goals.¹⁷² In addition, by the time the SAFE proposal was published, twelve states had already adopted at least one or both of the GHG and ZEV standards.¹⁷³ Several of these states incorporated these adopted standards into their SIPs.¹⁷⁴

SAFE 1 barely mentioned these reliance interests, explaining only that the Agency “will consider whether and how to address SIP implications of this action, to the extent that they exist, in separate actions; EPA believes that it is not necessary to resolve those implications in the course of this action.”¹⁷⁵ EPA now believes that,

permissible amount of time, or the existence or lack of a bright line, that may pass before reconsideration of its prior adjudication is no longer appropriate. However, EPA did not “condition” its ACC program waiver on any subsequent actions, including the MTE, which explicitly applied to the federal standards. See 78 FR at 2137. EPA expects its waiver adjudications to be final and that appropriate reliance may flow to affected parties. Moreover, in this instance EPA did not make any final determination regarding the third waiver prong at section 209(b)(1)(C). EPA notes that it has administered the California waiver program for a number of decades and acknowledges that emission standards continue to evolve at the California and the federal levels. This evolution in the standards has rested on regulatory certainty and the enforceability of CARB's emission standards once a waiver has been issued by EPA under section 209(b) of the CAA. As for the inclusion of the deemed-to-comply provision in the California standards, California provided documentation demonstrating that the deemed-to-comply provision was reliant upon the federal standards having a certain level of stringency, a fact that EPA had recognized. See States and Cities at 18–19 n. 14, 57–60. EPA found that the California standards were feasible even without the deemed-to-comply provision, 78 FR at 2138, making it irrelevant to the waiver grant. California's own actions with respect to its standards, such as its independent review of the ACC program, cannot disturb California's or other state's reliance on the federal waiver.

¹⁷² States and Cities at 17–18.

¹⁷³ *Id.* at 17.

¹⁷⁴ *Id.* at 10; Wisconsin Department of Natural Resources (Wisconsin), Docket No. EPA–HQ–OAR–2021–0257–0095 at 1 (“These standards provide important and necessary reductions in both GHG and criteria pollutant emissions needed to meet state and local air quality goals and address federal CAA requirements.”); Connecticut at 2 (“These programs enable long-term planning and yield critical emission reductions that are critical to meeting Connecticut's climate goals as well as our statutory obligations to reach attainment with the ozone NAAQs.”); Delaware 2 (“Delaware adopted the California LEV regulation and incorporated the LEV and GHG standards into the State Implementation Plan. . . . Delaware will not meet air quality goals without more protective vehicle emission standards.”); Maine at 1 (“[T]he LEV program was initially created to help attain and maintain the health-based National Ambient Air Quality Standards (NAAQS). . . . The California ZEV and GHG programs enable long-term planning for both the states and the regulated community and have been drivers of technological change across the industry.”).

¹⁷⁵ *Id.* at 51324 n.167.

when exercising its inherent authority to reconsider the 2013 waiver decision, it was inappropriate to ignore these possible reliance interests and to “resolve” any potential implications at a later time. In the SAFE 1 context, while it was not necessary to resolve the status of every SIP, it was inappropriate to not even consider the reliance interests raised by the adoption of California standards by section 177 states (including, but not limited to, their adoption into SIPs). EPA has consistently recognized the importance of long-term planning in the attainment and maintenance of NAAQS.¹⁷⁶ Given the long-term nature of these plans, it is “challenging (if not impossible) to change them quickly,” and any changes in one part of a SIP can affect multiple sectors of the economy.¹⁷⁷

As noted above, EPA also received other comments regarding reliance interests, including those noting that the midterm evaluation (MTE) was an indication that the technological feasibility of the GHG emission standards was not a settled matter and hence no certainty or reliance could accrue. EPA, however, did not “condition” its ACC program waiver on any subsequent actions, including the

¹⁷⁶ EPA is responsible for approving SIPs and SIP amendments, which span years. *See, e.g.*, 82 FR 42233 (September 7, 2017) (approval of Maine’s SIP revision including updates to be consistent with California’s updated LEV program); 80 FR 13768 (March 17, 2015) (approval of Connecticut’s SIP revision, including the adoption of elements of California’s LEV program). For example, states with areas that achieve attainment for any air pollutant must submit for EPA approval a revised SIP that sets out the State’s plan for maintaining attainment for at least ten years after the redesignation. At the end of that ten-year period, the State must submit another ten-year maintenance plan to EPA for approval. 42 U.S.C. 7505a.

¹⁷⁷ Twelve Public Interest Organizations app. 1 at 29, 30. Several states also commented, during this reconsideration, that they rely on the California GHG standards and ZEV sales mandate to reach their own state emission reduction goals. *E.g.*, Connecticut at 2 (“Reducing GHG emissions from the transportation sector is required to achieve Connecticut’s economy-wide targets of at least 45 percent below 2001 levels by 2030 and 80 percent below 2001 levels by 2050, as required by the 2008 Global Warming Solutions Act (GWSA) and the 2018 Act Concerning Climate Change Planning and Resiliency.”); Minnesota at 2 (“[California’s standards] are vitally important in helping our state achieve our GHG emission reduction goals and reduce other harmful air pollutants, especially in communities of color and lower-income communities, which are disproportionately impacted by vehicle pollution. The MPCA found that these rules are needed to address GHG emissions in our state and take steps towards achieving Minnesota’s statutory Next Generation Energy Act GHG reduction goals. On May 7, 2021, an independent Administrative Law Judge affirmed the MPCA findings.”); Maine at 1 n.3 (“Maine statute at 38 M.R.S 576–A establishes tiered GHG emission reduction requirements culminating in gross annual reductions of at least 80% from 1990 baseline levels.”).

MTE.¹⁷⁸ EPA expects its waiver adjudications to be final and that appropriate reliance may flow to affected parties. Moreover, in this instance EPA did not make any final determination regarding the third waiver prong at section 209(b)(1)(C). EPA notes that it has administered the California waiver program for a number of decades and acknowledges that emission standards continue to evolve at the California and the federal levels. This evolution in the standards has rested on regulatory certainty and the enforceability of CARB’s emission standards once a waiver has been issued by EPA under section 209(b) of the CAA.

EPA’s historic practice of properly affording broad discretion to California has meant that in almost fifty years of administering the California waiver program the Agency had never withdrawn any waiver prior to SAFE 1. And while SAFE 1 cited prior reconsideration actions as support for the Agency’s authority to reconsider prior waiver decisions, as previously noted, EPA has historically limited reconsideration of prior waived standards to statutory criteria and most important, none of these prior reconsideration actions resulted in a revocation.¹⁷⁹ As further shown in Sections V and VI, SAFE 1 was the result of a “probing substantive review of the California standards,” with the Agency substituting its own judgment for California’s contrary to both congressional exhortation of deference to California and the Agency’s review practice.

This present reconsideration is an appropriate exercise of the Agency’s reconsideration authority. It is not at all clear that the reasons for limiting reconsideration of waiver grants apply to the same degree to reconsideration of waiver denials and withdrawals. However, EPA need not resolve the question in this action, because this action falls well within the bounds of even the limited authority this action concludes the Agency possesses for reconsideration of waiver grants. First, this action corrects factual errors made in the SAFE 1 waiver withdrawal. Specifically, even under SAFE 1’s flawed interpretation of section 209(b)(1)(B), SAFE 1 ignored facts demonstrating that California does need the specific standards at issue to meet compelling and extraordinary

¹⁷⁸ *See* 78 FR at 2137.

¹⁷⁹ *See, e.g.*, 43 FR at 7310 (affirming the grant of the waiver in the absence of “findings necessary to revoke California’s waiver of Federal preemption for its motorcycle fill-pipe and fuel tank opening regulations.”).

conditions. Second, in this reconsideration EPA properly constrains its analysis to whether SAFE 1 made one of the three statutory findings necessary to deny a waiver. Third, this reconsideration is timely with respect to the finalization of SAFE 1 and limited, if any, reliance interests have developed as a result of SAFE 1 (which has been subject to judicial review since its promulgation).

C. Conclusion

In SAFE 1, EPA inappropriately exercised its limited inherent authority to reconsider the ACC program waiver for several reasons. EPA believes its exercise of reconsideration authority to reinterpret the language of section 209(b)(1)(B) was not taken to correct any factual or clerical error or based upon factual circumstances or conditions related to the waiver criteria evaluated when the waiver was granted that have changed so significantly that the propriety of the waiver grant is called into doubt. Rather, as discussed in detail in Section V, it was based upon a flawed statutory interpretation and a misapplication of the facts under that interpretation. Likewise, EPA’s decision to reconsider the ACC program waiver based on NHTSA’s rulemaking within SAFE 1, which raised issues beyond the statutory waiver criteria, was inappropriate. For these reasons EPA now believes it is appropriate to rescind its actions within SAFE 1.

V. The SAFE 1 Interpretation of Section 209(b)(1)(B) was Inappropriate and, in any Event, California met its Requirements

Even if SAFE 1’s reconsideration of the 2013 program waiver grant was appropriate, EPA concludes for two independent reasons that its waiver withdrawal in SAFE 1 based upon its new statutory interpretation was flawed. First, EPA concludes that the SAFE 1 interpretation of the second waiver prong was not an appropriate reading of that second waiver prong, section 209(b)(1)(B). It bears noting that the traditional interpretation is, at least, the better interpretation. Informed by but separate from the factual analysis discussed next, the Agency finds that the new interpretation set out in SAFE 1 was inconsistent with congressional intent and contrary to the purpose of section 209(b). Under the traditional interpretation of the second waiver prong, California’s need for its own motor vehicle program, including its GHG emission standards and ZEV sales mandate, to meet compelling and extraordinary conditions is clear and the

waiver should not have been withdrawn.

Second, even if the interpretation in SAFE 1 were appropriate, EPA concludes that SAFE 1 incorrectly found that California did not have a need for its specific standards. EPA has evaluated California's need for both requirements by applying both the traditional and the SAFE 1 interpretations of section 209(b)(1)(B). In doing so, EPA reviewed the record from the ACC program waiver proceedings, including CARB's ACC program waiver request and supporting documents, as well as the comments received as part of the SAFE 1 proceeding and the comments received under the present reconsideration of SAFE 1.¹⁸⁰ The record review focused on salient pronouncements and findings in the ACC program waiver decision, such as the relationship of both criteria and GHG pollutants and the impacts of climate change on California's serious air quality conditions. For example, the effects of climate change and the heat exacerbation of tropospheric ozone is well established. California's ACC program is established, in part, to address this. California's program, including its GHG emission standards, is also designed to address upstream criteria emission pollutants. The review did so primarily because SAFE 1 premised the withdrawal of the GHG standards at issue on the lack of a causal link between GHG standards and air quality conditions in California. The review included EPA's prior findings regarding heat exacerbation of ozone, a serious air quality issue recognized by EPA as presenting compelling and extraordinary conditions under the second waiver prong.

On completion of this review, EPA finds no basis for discounting the ample record support on California's need for both the GHG standards and the ZEV sales mandate to address compelling and extraordinary conditions in California when using both the

traditional and SAFE 1 interpretation to the second waiver prong. Additionally, because of the way CARB's motor vehicle emission standards operate in tandem and are designed to reduce both criteria and GHG pollution and the ways in which GHG pollution exacerbates California's serious air quality problems, including the heat exacerbation of ozone, the Agency in SAFE 1 should not have evaluated California's specific "need" for GHG standards. In sum, in reconsidering SAFE 1, and after having now reviewed and evaluated the complete factual record, EPA reaffirms that California needs the GHG standards and ZEV sales mandate at issue to "meet compelling and extraordinary conditions."

A. Historical Practice

Under section 209(b)(1)(B), EPA shall not grant a waiver if California "does not need such State standards to meet compelling and extraordinary conditions." For nearly the entire history of the waiver program, EPA has read the phrase "such State standards" in section 209(b)(1)(B) as referring back to standards "in the aggregate," in the root paragraph of section 209(b)(1), which calls for California to make a protectiveness finding for its standards. EPA has interpreted the phrase "in the aggregate" as referring to California's program as a whole, rather than each State standard, and as such not calling for the Agency's standard-by-standard analysis of California's waiver request.¹⁸¹ EPA has thus reasoned that both statutory provisions must be read together so that the Agency reviews the same standards that California considers in making its protectiveness determination and to afford California discretion.¹⁸² The D.C. Circuit has also stated that "[t]he expansive statutory language gives California (and in turn EPA) a good deal of flexibility in assessing California's regulatory needs. We therefore find no basis to disturb

EPA's reasonable interpretation of the second criterion."¹⁸³

In addressing the Agency's reading of section 209(b)(1)(B), for example, in the 1983 LEV waiver request EPA explained that:

This approach to the "need" criterion is also consistent with the fact that because California standards must be as protective as Federal standards in the aggregate, it is permissible for a particular California standard or standards to be less protective than the corresponding Federal standard. For example, for many years, California chose to allow a carbon monoxide standard for passenger cars that was less stringent than the corresponding Federal standard as a "trade-off" for California's stringent nitrogen oxide standard. Under a standard of review like that proposed by MVMA/AIAM, EPA could not approve a waiver request for only a less stringent California standard because such a standard, in isolation, necessarily could be found to be contributing to rather than helping, California's air pollution problems.¹⁸⁴

In 1994, EPA again had cause to explain the Agency's reading of section 209(b)(1)(B) in the context of California's particulate matter standards waiver request:

[T]o find that the 'compelling and extraordinary conditions' test should apply to each pollutant would conflict with the amendment to section 209 in 1977 allowing California to select standards 'in the aggregate' at least as protective as federal standards. In enacting that change, Congress explicitly recognized that California's mix of standards could 'include some less stringent than the corresponding federal standards.' See H.R. Rep. No. 294, 95th Cong., 1st Sess. 302 (1977). Congress could not have given this flexibility to California and simultaneously assigned to the state the

¹⁸⁰ EPA notes that it reviewed the factual record within the ACC program waiver proceeding and finds there was no factual error in its evaluation of whether CARB's standards satisfied the second waiver prong. EPA also notes, merely as confirming the finding it made at the time of the ACC program waiver but not for purposes of making a new factual finding from that made at the time of the ACC program waiver decision, that the record and information contained in the SAFE 1 proceeding as well as the record and information contained in the Agency's reconsideration of SAFE 1 (including late comments submitted during the SAFE 1 proceeding and, in some cases, resubmitted during the Agency's reconsideration of SAFE 1) at each point in time clearly demonstrates the need of California's standards (whether evaluated as a program or as specific standards) to meet compelling and extraordinary conditions within California.

¹⁸¹ "The interpretation that my inquiry under (b)(1)(B) goes to California's need for its own mobile source program is borne out not only by the legislative history, but by the plain meaning of the statute as well." 49 FR at 18890.

¹⁸² 74 FR at 32751 n. 44; 32761 n.104. EPA cited *Entergy Corp. v. Riverkeeper, Inc.*, 129 S. Ct. 1498 (2009) ("That view governs if it is a reasonable interpretation of the statute—not necessarily the only possible interpretation, nor even the interpretation deemed most reasonable by the courts"), and *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 843–844 (1984). ("It seems to us, therefore, that the phrase 'best available,'" even with the added specification "for minimizing adverse environmental impact," does not unambiguously preclude cost-benefit analysis."). See also 78 FR at 2126–2127 n. 78.

¹⁸³ *Am. Trucking Ass'n v. EPA*, 600 F.3d 624, 627 (D.C. Cir. 2010) (*ATA v. EPA*). See also *Dalton Trucking v. EPA*, No. 13–74019 (9th Cir. 2021) ("The EPA was not arbitrary and capricious in declining to find that 'California does not need such California standards to meet compelling and extraordinary conditions,' § 7543(e)(2)(A)(ii), under the alternative version of the needs test, which requires 'a review of whether the Fleet Requirements are per se needed to meet compelling and extraordinary conditions,' 78 FR at 58,103. The EPA considered 'the relevant factors,' *Motor Vehicle Mfrs. Ass'n of U.S. v. State Farm Mut. Auto. Ins. Co., Inc.*, 463 U.S. 29, 42–43 (1983), including statewide air quality, 78 FR 58,104, the state's compliance with federal National Ambient Air Quality standards for ozone and PM_{2.5} on a statewide basis, *id.* at 58,103–04, the statewide public health benefits, *id.* at 58,104, and the utility of the Fleet Requirements in assisting California to meet its goals, *id.* at 58,110. Contrary to Dalton's argument, the EPA did not limit its review to two of California's fourteen air quality regions. The EPA examined the relevant data provided by CARB, and it articulated a 'satisfactory explanation for its action including a rational connection between the facts found and the choice made.' See *Motor Vehicle Mfrs. Ass'n of U.S., Inc.*, 463 U.S. at 43, 103 S.Ct. 2856 (cleaned up).")

¹⁸⁴ 58 FR 4166, LEV Waiver Decision Document at 50–51.

seemingly impossible task of establishing that ‘extraordinary and compelling conditions’ exist for each standard.¹⁸⁵

Congress has also not disturbed this reading of section 209(b)(1)(B) as calling for EPA review of California’s whole program. With two noted exceptions described below, EPA has consistently interpreted this provision as requiring the Agency to consider whether California needs a separate motor vehicle emission program as compared to the specific standards in the waiver request at issue to meet compelling and extraordinary conditions.

Congress intended to allow California to address its extraordinary environmental conditions and foster its role as a laboratory for motor vehicle emissions control. The Agency’s long-standing practice therefore has been to evaluate CARB’s waiver requests with the broadest possible discretion to allow California to select the means it determines best to protect the health and welfare of its citizens in recognition of both the harsh reality of California’s air pollution and to serve as a pioneer and a laboratory for the nation in setting new motor vehicle emission standards and developing control technology.¹⁸⁶ EPA notes that “the statute does not provide for any probing substantive review of the California standards by federal officials.”¹⁸⁷

As a general matter, EPA has applied the traditional interpretation in the same way for all air pollutants, criteria and GHG pollutants alike.¹⁸⁸ As discussed in Section II, there have only been two exceptions to this practice: one in 2008 and one in 2019. In 2008, EPA for the first time analyzed California’s waiver request under an alternative approach and denied CARB’s waiver request. EPA concluded that section 209(b) was intended to allow California to promulgate state standards applicable to emissions from new motor vehicles to address air pollution problems that are local or regional, but that section 209(b)(1)(B) was not intended to allow California to promulgate state standards for emissions from new motor vehicles designed to address global climate change problems. Or, in the alternative,

EPA concluded that effects of climate change in California were not compelling and extraordinary compared to the effects in the rest of the country.¹⁸⁹ EPA rejected this view a little over a year later in 2009 by applying the traditional interpretation in granting California’s waiver request for the same GHG standard, finding no support in the statute or congressional intent for the alternative application of the statute.¹⁹⁰

In evaluating the ACC program waiver in 2013, EPA applied the traditional interpretation to the ACC program waiver request and found that the Agency could not deny the waiver request under the second waiver prong.¹⁹¹ Further, without adopting the alternative interpretation that had been applied in the 2008 GHG waiver denial, EPA assessed California’s need for the GHG standards at issue and found that the Agency could not deny the ACC program waiver request, even applying the alternative interpretation. EPA noted that to the extent that it was appropriate to examine the CARB’s need for the GHG standards at issue to meet compelling and extraordinary conditions, the Agency had discussed at length in the 2009 GHG waiver decision that California has compelling and extraordinary conditions directly related to regulations of GHGs.¹⁹² Similarly,

¹⁸⁹ 73 FR at 12160–64.

¹⁹⁰ 74 FR at 32744, 32746, 32763 (“The text of section 209(b) and the legislative history, when viewed together, lead me to reject the interpretation adopted in the March 6, 2008 Denial, and to apply the traditional interpretation to the evaluation of California’s greenhouse gas standards for motor vehicles. If California needs a separate motor vehicle program to address the kinds of compelling and extraordinary conditions discussed in the traditional interpretation, then Congress intended that California could have such a program. Congress also intentionally provided California the broadest possible discretion in adopting the kind of standards in its motor vehicle program that California determines are appropriate to address air pollution problems and protect the health and welfare of its citizens. The better interpretation of the text and legislative history of this provision is that Congress did not use this criterion to limit California’s discretion to a certain category of air pollution problems, to the exclusion of others. EPA concluded that even under this alternative approach California GHG standards were intended at least in part to address a local or regional problem because of the ‘logical link between the local air pollution problem of ozone and GHG.’”).

¹⁹¹ 78 FR at 2129 (“CARB has repeatedly demonstrated the need for its motor vehicle program to address compelling and extraordinary conditions in California. As discussed above, the term compelling and extraordinary conditions ‘does not refer to the levels of pollution directly.’ Instead, the term refers primarily to the factors that tend to produce higher levels of pollution—geographical and climatic conditions (like thermal inversions) that, when combined with large numbers and high concentrations of automobiles, create serious air pollution problems. California still faces such conditions.”).

¹⁹² *Id.* at 2129–30.

EPA explained that to the extent it was appropriate to examine California’s need for the ZEV sales mandate, these requirements would enable California to meet both air quality and climate goals into the future.¹⁹³ Additionally, EPA recognized CARB’s coordinated strategies reflected in the technologies envisioned to meet the ACC program requirements and in turn addressing both criteria pollutants and GHGs and the magnitude of the technology and energy transformation needed to meet such goals.¹⁹⁴

¹⁹³ *Id.* at 2129 (“[A]s EPA discussed at length in its 2009 GHG waiver decision, California does have compelling and extraordinary conditions directly related to regulations of GHG. EPA’s prior GHG waiver contained extensive discussion regarding the impacts of climate change in California. In addition, CARB has submitted additional evidence in comment on the ACC waiver request that evidences sufficiently different circumstances in California. CARB notes that “Record-setting fires, deadly heat waves, destructive storm surges, loss of winter snowpack—California has experienced all of these in the past decade and will experience more in the coming decades. California’s climate—much of what makes the state so unique and prosperous—is already changing, and those changes will only accelerate and intensify in the future. Extreme weather will be increasingly common as a result of climate change. In California, extreme events such as floods, heat waves, droughts and severe storms will increase in frequency and intensity. Many of these extreme events have the potential to dramatically affect human health and well-being, critical infrastructure and natural systems.” (footnotes omitted)).

¹⁹⁴ *Id.* at 2130–31 (“As CARB notes in its waiver request, the goal of the CARB Board in directing CARB staff to redesign the ZEV regulation was to focus primarily on zero emission drive—that is BEV, FCV, and PHEVs in order to move advanced, low GHG vehicles from demonstration phase to commercialization. CARB also analyzed pathways to meeting California’s long term 2050 GHG reduction targets in the light-duty vehicle sector and determined that ZEVs would need to reach nearly 100 percent of new vehicle sales between 2040 and 2050. CARB also notes that the “critical nature of the LEV III regulation is also highlighted in the recent effort to take a coordinated look at strategies to meet California’s multiple air quality and climate goals well into the future. This coordinated planning effort, Vision for Clean Air: A Framework for Air Quality and Climate Planning (Vision for Clean Air) demonstrates the magnitude of the technology and energy transformation needed from the transportation sector and associated energy production to meet federal standards and the goals set forth by California’s climate change requirements. . . . The Vision for Clean Air effort illustrates that in addition to the cleanup of passenger vehicles (at issue here) as soon as possible as required in the LEV III regulation, transition to zero- and near-zero emission technologies in all on- and off-road engine categories is necessary to achieve the coordinated goals. Therefore, EPA believes that CARB’s 2018 and later MY ZEV standards represent a reasonable pathway to reach these longer term goals. Under EPA’s traditional practice of affording CARB the broadest discretion possible, and deferring to CARB on its policy choices, we believe there is a rational connection between California ZEV standards and its attainment of long term air quality goals. Whether or not the ZEV standards achieve additional reductions by themselves above and beyond the LEV III GHG and criteria pollutant standards, the LEV III program overall does achieve

¹⁸⁵ 49 FR at 18887, 18890.

¹⁸⁶ *See, e.g.*, S. Rep. No. 403, 90th Cong., 1st Sess. 33 (1967) (The waiver of preemption is for California’s “unique problems and pioneering efforts.”); 113 Cong. Rec. 30950, 32478 (“[T]he State will act as a testing agent for various types of controls and the country as a whole will be the beneficiary of this research.”) (Statement of Sen. Murphy).

¹⁸⁷ *Ford Motor Co., v. EPA*, 606 F.2d 1293, 1300 (D.C. Cir. 1979).

¹⁸⁸ 74 FR at 32763–65; 76 FR 34693; 79 FR 46256; 81 FR 95982.

The only other exception to the application of the traditional interpretation was in SAFE 1, when EPA again used a standard-specific level of review and focused on California's need for GHG standards at issue under the waiver. There, EPA posited that section 209(b)(1)(B) called for a "particularized nexus" for California's motor vehicle standards: "Congress enacted the waiver authority for California under section 209(b) against the backdrop of traditional, criteria pollutant environmental problems, under which all three links in this chain bear a particularized nexus to specific local California features: (1) Criteria pollutants are emitted from the tailpipes of the California motor vehicle fleet; (2) those emissions of criteria pollutants contribute to air pollution by concentrating locally in elevated ambient levels, which concentration, in turn; (3) results in health and welfare effects (e.g., from ozone) that are extraordinarily aggravated in California as compared to other parts of the country, with this extraordinary situation being attributable to a confluence of California's peculiar characteristics, e.g., population density, transportation patterns, wind and ocean currents, temperature inversions, and topography."¹⁹⁵ As support for the nexus test, EPA, for the first time in waiver decisions, relied on section 202(a) and its own terms of authority to inform interpretation of the second waiver prong.¹⁹⁶ In addition, EPA relied on legislative history to interpret "compelling and extraordinary" conditions as a reference to "peculiar local conditions" and "unique problems" in California.¹⁹⁷

such reductions, and EPA defers to California's policy choice of the appropriate technology path to pursue to achieve these emissions reductions." (footnote omitted).

¹⁹⁵ 84 FR at 51339.

¹⁹⁶ *Id.* at 51339–40.

¹⁹⁷ *Id.* at 51342 (quoting S. Rep. No. 403, 90th Cong. 1st Sess., at 32 (1967)) ("Congress discussed 'the unique problems faced in California as a result of its climate and topography.' H.R. Rep. No. 728, 90th Cong. 1st Sess., at 21 (1967). See also Statement of Cong. Holifield (CA), 113 Cong. Rec. 30942–43 (1967). Congress also noted the large effect of local vehicle pollution on such local problems. See, e.g., Statement of Cong. Bell (CA) 113 Cong. Rec. 30946. As explained at proposal, Congress focus was on California's ozone problem, which is especially affected by local conditions and local pollution. See Statement of Cong. Smith (CA) 113 Cong. Rec. 30940–41 (1967); Statement of Cong. Holifield (CA), *id.*, at 30942. See also, MEMA I, 627 F.2d 1095, 1109 (D.C. Cir. 1979) (noting the discussion of California's 'peculiar local conditions' in the legislative history). In sum and as explained at proposal, conditions that are similar on a global scale are not 'extraordinary,' especially where 'extraordinary' conditions are a predicate for a local deviation from national standards, under section 209(b). 83 FR 43247.'").

Accordingly, EPA reasoned that California must demonstrate "compelling and extraordinary circumstances sufficiently different from the nation as a whole to justify standards on automobile emissions which may, from time to time, need to be more stringent than national standards."¹⁹⁸

In SAFE 1, EPA then posited that the nexus test should be applied to California's GHG standards specifically, rather than California's program "as a whole" under the traditional "aggregate" approach, "to ensure that such standard is linked to local conditions that giv[e] rise to the air pollution problem, that the air pollution problem is serious and of a local nature, and that the State standards at issue will meaningfully redress that local problem."¹⁹⁹ As support for the GHG-specific scrutiny, EPA reasoned that "[t]he Supreme Court's opinion in *UARG v. EPA*, 134 S. Ct. 2427 (2014), instructs that Clean Air Act provisions cannot necessarily rationally be applied identically to GHG as they are to traditional pollutants."²⁰⁰

Applying the nexus test, EPA concluded that California did not need its GHG standards to meet "compelling and extraordinary conditions" because they were missing a particularized nexus to specific local features. EPA in the alternative posited that "even if California does have compelling and extraordinary conditions in the context of global climate change, California does not 'need' these standards under section 209(b)(1)(B) because they will not meaningfully address global air pollution problem of the sort associated with GHG emissions."²⁰¹ EPA also dismissed the 2009 GHG waiver conclusion on deleterious effects of GHG emissions on ozone (e.g., how increases in ambient temperature are conducive to ground-level ozone formation), stating that such a relationship "does not satisfy this requirement for a particularized nexus, because to allow such attenuated effects to fill in the gaps would eliminate the function of requiring such a nexus in the first place."²⁰²

B. Notice of Reconsideration of SAFE 1 and Request for Comment

In the Notice of Reconsideration of SAFE 1, EPA noted its interest in any new or additional information or comments regarding whether it

appropriately interpreted and applied section 209(b)(1)(B) in SAFE 1. The Agency noted that EPA's finding in SAFE 1, that such standards were only designed to address climate change and a global air pollution problem, led EPA to a new interpretation of section 209(b)(1)(B). EPA solicited views on whether it was permissible to construe section 209(b)(1)(B) as calling for a consideration of California's need for a separate motor vehicle program where criteria pollutants are at issue as well as California's specific standards where GHG standards are at issue.

The Notice of Reconsideration also set forth that EPA's decision to withdraw the ACC program waiver as it relates to California's ZEV sales mandate was based on the same new interpretation and application of the second waiver prong and rested heavily on the conclusion that California only adopted the ZEV sales mandate requirement for purposes of achieving GHG emission reductions. EPA recognized that this conclusion in turn rested solely on a specific reading of a single sentence in CARB's ACC program waiver request.²⁰³ EPA requested comment on these specific conclusions and readings as well as whether the withdrawal of the ACC program waiver, within the context of California's environmental conditions and as applied to the GHG standards and ZEV sales mandate requirement, was permissible and appropriate.

C. Comments Received

EPA received multiple comments on its decision to evaluate California's need for its GHG standards separate from its need for a separate motor vehicle emission program as a whole. Some commenters agreed that EPA could evaluate waiver requests for the specific GHG standards under the waiver along the lines of the Agency's pronouncements in SAFE 1. Additionally, commenters pointed to the method of EPA's review in SAFE 1—evaluating the standards individually, as they are received, rather than in the aggregate—as evidence of the flaw in the traditional interpretation.²⁰⁴ Some commenters also echoed SAFE 1's concern that "once EPA had determined that California needed its very first set of submitted standards to meet extraordinary and compelling conditions, EPA would never have the

¹⁹⁸ *Id.*

¹⁹⁹ *Id.* at 51345.

²⁰⁰ *Id.* at 51340.

²⁰¹ *Id.* at 51349.

²⁰² *Id.*

²⁰³ *Id.* at 51330 ("Regarding the ACC program ZEV mandate requirements, CARB's waiver request noted that there was no criteria emissions benefit in terms of vehicle (tank-to-wheel—TTW) emissions because its LEV III criteria pollutant fleet standard was responsible for those emission reductions.'").

²⁰⁴ CEI at 13–14.

discretion to determine that California did not need any subsequent standards.”²⁰⁵

Under this analysis of the specific standards at issue under the waiver, these commenters continued, California could not demonstrate that its GHG and ZEV standards were, on their own, compelling and extraordinary. These commenters agreed with SAFE 1’s “particularized nexus” interpretation of “compelling and extraordinary,” arguing that the words required unique consequences in order to give adequate meaning to the words themselves and in order to overcome equal sovereignty implications.²⁰⁶ Using this interpretation, these commenters concluded that, because “GHG concentrations are essentially uniform throughout the globe, and are not affected by California’s topography and meteorology,” and because the entire nation would be affected by climate change, neither the effects of the regulations on climate change, nor the impacts of climate change on California could be considered “compelling and extraordinary.”²⁰⁷ Some commenters also argued that these standards were unnecessary given California’s “deemed to comply” provision, which would theoretically allow all automobile manufacturers to comply with California’s standards by meeting the less stringent Federal GHG standards.²⁰⁸

In contrast, other commenters asked that EPA reverse its SAFE 1 section 209(b)(1)(B) determination by reverting to EPA’s long-standing “program-level” approach to the “need” inquiry, where “EPA considers California’s need for its own mobile-source-emissions program as a whole, not whether California needs a particular standard for which it has requested a waiver.”²⁰⁹ These

commenters noted the long tradition of interpreting California’s need in the aggregate, an interpretation that SAFE 1 acknowledged was reasonable.²¹⁰ This interpretation, they argued, best aligned with the text, legislative history, and purpose of the waiver program.²¹¹ For example, some commenters argued that, because feasibility was evaluated under an aggregate approach, it would be unreasonable for California’s need for the program to be evaluated under a more restrictive approach.²¹² These commenters also argued that Congress had expressed approval of this aggregate approach, citing legislative history from 1977 and 1990.²¹³ This approach, they continued, aligns with the Waiver Program’s broad deference to California to create an entire regulatory program, which is comprised of regulations that interact with and affect each other.²¹⁴ One commenter also responded directly to the question EPA posed in its Notice of Reconsideration, whether it was “permissible for EPA to construe section 209(b)(1)(B) as calling for consideration of California’s need for a separate motor vehicle program where criteria pollutants are at issue and consideration of California’s individual standards where GHG standards are at issue.”²¹⁵ According to the commenter, “The Supreme Court has rejected this ‘novel interpretive approach’ of assigning different meanings to the same statutory text in the same provision, depending on the application, because it ‘would render every statute a chameleon.’”²¹⁶

²¹⁰ Twelve Public Interest Organizations at 7 (“The Trump EPA in turn acknowledged that this longstanding interpretation of Section 209(b)(1)(B) was a reasonable one, 84 FR at 51,341 . . .”).

²¹¹ States and Cities at 22 (citing 84 FR at 51341); Tesla at 11 (“The plural reference to ‘such State standards’ requires that the standards be considered in the aggregate as a group. This language stands in stark contrast to alternate phrasing that was available to Congress and that would have permitted a non-aggregate determination, such as: ‘such State does not need a State standard to meet compelling and extraordinary conditions.’ Indeed, alternative language referencing individual standards is present in subsection (b)(2), which references ‘each State standard.’”).

²¹² States and Cities at 25–26; Twelve Public Interest Organizations at 8 (“An aggregate approach to the consistency inquiry also makes sense under Section 209(b)(1)(C) because technological feasibility is effectively evaluated on a program basis. The feasibility of a new standard cannot be evaluated on its own if there are interactions with pre-existing standards. Such interactions between standards are what prompted Congress to add the “in the aggregate” phrase to section 209 in the first place.”).

²¹³ States and Cities at 26–27; Ozone Transport Commission (OTC), Docket No. EPA–HQ–OAR–2021–0257–0283 at 4.

²¹⁴ States and Cities at 27–28.

²¹⁵ 86 FR at 22429.

²¹⁶ States and Cities at 24 (quoting *Clark v. Martinez*, 543 U.S. 371, 382 (2005) and citing *U.S. v. Santos*, 553 U.S. 507, 522 (2008); *U.S. Dep’t of*

These commenters also asked EPA to revert to the traditional interpretation of “compelling and extraordinary” instead of SAFE 1’s “particularized nexus” formulation. Commenters noted the SAFE 1 requirement appears nowhere in the text of the statute.²¹⁷ Because of this absence, they continued, EPA’s references to the legislative history from 1967 have no “tether” to the statutory text and cannot justify the nexus requirement.²¹⁸ Further, commenters argued that EPA’s reliance on the equal sovereignty doctrine improperly informed how EPA should interpret the phrase “compelling and extraordinary conditions” in the second waiver prong, and therefore requiring such conditions to be sufficiently different or unique among states, was inappropriate.²¹⁹ Commenters argued that the equal sovereignty doctrine was inapplicable to the second waiver prong. They explained that the Supreme Court has only applied the “rarely invoked” doctrine of equal sovereignty in the “rare instance where Congress undertook ‘a drastic departure from basic principles of federalism’ by authorizing ‘federal intrusion into sensitive areas of state and local policymaking.’”²²⁰ Congress’s exercise of its Commerce Clause power in regulating air pollution from new motor vehicles, commenters continued, is not such an “intrusion.” Moreover, they wrote, applying the equal sovereignty doctrine in this instance would actually “diminish most States’ sovereignty” because it would “reduce the regulatory options available to California and to other [section 177] States.” This diminished sovereignty, they argued, would not “enhance[e] the sovereignty of any State” or “alleviate” any unjustified burden because “Section 209(b)(1) imposes no such burden.”²²¹

the Treasury v. FLRA, 739 F.3d 13,21 (D.C. Cir. 2014)). The commenter notes that in the SAFE 1 brief, EPA claimed that its new approach to section 209(b)(1)(B) would apply “for all types of air pollutants” but EPA could point to nowhere in SAFE 1 decision where this was said. *Id.* at 25. And “only two sentences later,” EPA acknowledged that its review under this second prong would change “depending upon which ‘air quality concerns’ were implicated.” *Id.*

²¹⁷ States and Cities at 34 (noting the lack of the words “nexus,” “particularized,” “peculiar,” and “local” anywhere in sections 209(b) or 202(a)(1)).

²¹⁸ *Id.* at 35.

²¹⁹ *Id.* at 41–43; Twelve Public Interest Organizations at 4–6.

²²⁰ States and Cities at 42 (quoting *Shelby Cnty. v. Holder*, 570 U.S. 529, 535, 545 (2013)).

²²¹ *Id.* at 43; Twelve Public Interest Organizations at 5 (“Clean Air Act Section 209(b) places no extraordinary burden or disadvantage on one or more States. Rather, the statute benefits California by allowing the exercise of its police power authority to address its particular pollution control needs”).

²⁰⁵ 84 FR at 51341. See, e.g., NADA at 5; Urban Air at 25, 29–33; AFPM at 22–23.

²⁰⁶ AFPM at 12; Urban Air at 4.

²⁰⁷ CEI at 14–16 (“The resulting “global pool” of GHG emissions is not any more concentrated in California than anywhere else. . . . [E]ven if one assumes “compelling and extraordinary conditions” can refer to climate change impacts, such as heat waves, drought, and coastal flooding, California’s vulnerability is not “sufficiently different” from the rest of the nation to merit waiving federal preemption of state emission standards. Thus, California is not “extraordinary” in regard to either the “causes” of the “effects” of global climate change.”); NADA at 5 (“while vehicle GHG emissions also were, by definition, local, their impact on serious local air quality concerns could not be shown.”); AFPM at 11–14 (“Neither the causes nor effects of GHG emissions are compelling and extraordinary conditions, as they are global rather than local conditions, and California’s GHG standards and ZEV mandate will not meaningfully address the causes or effects of these GHG emissions.”).

²⁰⁸ NADA at 4–5; Urban Air at 33.

²⁰⁹ States and Cities at 22 n.16.

Similarly, commenters rebutted SAFE 1's use of words like "peculiar" and "unique" to further define "compelling and extraordinary." These words, they noted, appear nowhere in the text of section 209(b)(1)(B) and do not align with the plain meaning of the word "extraordinary."²²² Further, they argued, this narrow interpretation "would render the waiver provision unworkable" as, "for any given air pollutant, it is possible to identify other areas of the country that suffer from a similar pollution problem."²²³ In fact, they continued, this argument was rejected in the 1967 legislative history and in 1984, "when EPA thoroughly rebutted the assertion that California could not receive a waiver if individual pollutant levels were 'no worse than some other areas of the country.'"²²⁴ Moreover, they argued, the existence of section 177 necessarily acknowledges that other states may have the same or similar air pollution problems as California.²²⁵

Other commenters argued that California needed GHG standards to address "compelling and extraordinary" conditions in California even under the SAFE 1 interpretation of the second waiver prong. These commenters argued that GHG and ZEV standards produce both GHG and criteria pollution benefits, pointing to language in the ACC program waiver that acknowledged these dual benefits and to subsequent SIP approvals that incorporated the California standards in order to achieve criteria emission reductions.²²⁶ In

²²² States and Cities at 38–39 (explaining that the existence of those words in the legislative history "simply highlight that Congress did not codify [them] in Section 209(b)(1)(B)" and that plain meaning of "extraordinary" is "out of the ordinary"); Twelve Public Interest Organizations app. 1 at 49 ("Congress understood, even in 1967, that '[o]ther regions of the Nation may develop air pollution situations related to automobile emissions which will require standards different from those applicable nationally.' S. Rep. No. 90–403, at 33.").

²²³ Tesla at 9.

²²⁴ *Id.* (quoting 49 FR at 18887, 18891) (stating that EPA explained that "there is no indication in the language of section 209 or the legislative history that California's pollution problem must be the worst in the country, for a waiver to be granted.")).

²²⁵ Twelve Public Interest Organizations app. 1 at 49; States and Cities at 38–39.

²²⁶ States and Cities at 9–14, 30–31; Center for Biological Diversity, Docket No. EPA–HQ–OAR–2021–0257–0358 at 2 ("The Trump EPA improperly separated California's need for greenhouse gas regulations from its need for criteria pollutant standards. In reality, these two goals are tightly linked, and both are critical to the Clean Air Act's goals of safeguarding public health and welfare."); San Joaquin Valley Air Pollution Control District (SJVAPCD), Docket No. EPA–HQ–OAR–2021–0257–0105 at 3 ("The District's 2016 Plan for the 2009 9-Hour Ozone Standard adopted June 16, 2016, and 2018 Plan for the 1997, 2006, and 2012 PM 2.5 Standards, adopted November 15, 2018, both rely on emission reductions from California's Advanced

particular, commenters explained that the 2012 California waiver request established that the ZEV standard would reduce criteria pollution both "by reducing emissions associated with the production, transportation, and distribution of gasoline" and "by driving the commercialization of zero-emission-vehicle technologies necessary to reduce future emissions and achieve California's long-term air quality goals."²²⁷ As for the GHG standards, commenters noted that, as acknowledged in the ACC program waiver, "global warming exacerbates criteria pollution and makes it harder to meet air pollution standards."²²⁸ Thus, they argue, "EPA expressly and improperly limited its Determination to consideration of the 'application of section 209(b)(1)(B) to California's need for a GHG climate program.'"²²⁹ Given EPA's consistent acceptance that "California's criteria pollution 'conditions' are 'extraordinary and

Clean Cars regulation and other mobile source measures to support the Valley's attainment of the federal health-based NAAQS."); NCAT at 11 ("In addition, California's ZEV standards are intended to and do achieve significant incremental reductions of NOx and other non-GHG emissions."); Tesla at 10–11 ("In comments submitted to the EPA in 2009 regarding a preemption waiver, [California] explained that it 'specifically designed its GHG standards for criteria pollutants.' It also emphasized that it has 'frequently referenced the science to support GHG standards as a necessary method for controlling ozone and particulate matter pollution' and has 'consistently recognized that the State's ability to reduce nonattainment days for ozone and wildfire-caused particulate matter depends on its ability to reduce GHG emissions. . . . EPA also has repeatedly expressed its own understanding that GHG standards should be viewed as a strategy to help control criteria pollutants to address National Ambient Air Quality Standards nonattainment."); Twelve Public Interest Organizations at 5 ("For example, atmospheric heating due to global warming can increase the production of ground-level ozone in California, which suffers from extraordinary amounts of locally reacting nitrogen oxides and volatile organic compounds.").

²²⁷ Center for Biological Diversity at 2–3. In contrast, some commenters, echoing SAFE 1, argued that these upstream emission benefits should not be considered in determining the criteria pollutant benefits of these standards. CEI at 16 ("Although NHTSA and EPA are required to consider all relevant factors when determining CAFE and tailpipe CO2 standards, it is inappropriate to elevate stationary source criteria pollutant emissions into a make-or-break factor in waivers for mobile source programs. The Clean Air Act already provides the EPA with ample authorities to regulate stationary sources, including the NAAQS program, New Source Performance Standards program, Prevention of Significant Deterioration of Air Quality program, Acid Rain program, and Regional Haze program. If Congress wanted NHTSA's CAFE program and EPA's mobile source program to prioritize reductions of indirect stationary source emissions, it could easily have said so. The indirect effects on stationary source emissions are not even mentioned.").

²²⁸ Center for Biological Diversity at 3.

²²⁹ States and Cities at 28 (citing 84 FR at 51339 (emphasis added)) (limiting section 209(b)(1)(B) consideration to "the case of GHG emissions.").

compelling' and that the record demonstrates that California's GHG and ZEV standards reduce criteria emissions in California," EPA should "reverse its SAFE 1 section 209(b)(1)(B) determination and the waiver withdrawal that rested on it—regardless of whether EPA reverts to its traditional, program-level approach."²³⁰

Regardless of the emissions benefits of the standards, some commenters argued that California's plan to address both long-term and short-term climate and criteria pollutant reduction goals is entitled to deference. Thus, even if "the mandate truly added nothing to the emission benefits of California's standards for vehicular emissions of criteria and greenhouse gas pollutants," commenters claimed, "the mandate would simply constitute the State's choice of means for automakers to comply with its standards."²³¹ These commenters further argued that section 209(b)(1)(B) "does not authorize EPA to inquire into whether the means to comply with California emission standards, as opposed to the actual standards themselves, are needed to meet compelling and extraordinary conditions."²³² Commenters also claimed that EPA's argument, that California cannot need the GHG and ZEV standards because those standards alone would not "meaningfully address global air pollution problems" posed by climate change, "lacks merit" and "is illogical."²³³ Such an approach, they

²³⁰ States and Cities at 29. The commenter notes that EPA never considered whether California needed those criteria emission reductions from its ZEV and GHG standards because it refused to consider those criteria reductions at all: "EPA attempted to justify disregarding record evidence and its own prior findings concerning the criteria emission benefits of these California standards by mischaracterizing CARB's 2012 waiver request. . . . But, having chosen to *sua sponte* reopen the question whether California continues to need standards it has been implementing for six years, . . . EPA could not limit its consideration to what the standards were intended to achieve when they were originally designed or presented. . . . CARB (and others) asserted clearly in SAFE 1 comments that both the GHG and ZEV standards produce criteria pollution benefits upon which California and other States rely to improve air quality." *Id.* at 29–30.

²³¹ Twelve Public Interest Organizations at 9–10.

²³² *Id.* (citing *MEMA I*, 627 F.2d 1095, 1111–14 (D.C. Cir. 1979)).

²³³ States and Cities at 40, 49–50; NCAT at 11 ("EPA's argument that California does not 'need' vehicle standards that reduce GHG emissions because such standards alone cannot meaningfully reduce the impacts of climate change in California lacks merit. 84 FR at 51,346–47. EPA's approach in SAFE 1 read requirements into the statute that Congress did not choose to impose: That a single standard be sufficient to resolve an environmental problem caused by multiple and diverse sources. Instead, need should be defined by reference to the underlying problem, and California's standards are

Continued

explained “amounts to a conclusion that California is forbidden from acting precisely because climate change is a global threat—when in fact the global aspect of this problem demonstrates the need for California to take action,” a conclusion, they noted, that was rejected by the Supreme Court in *Massachusetts v. EPA*.²³⁴ Even if there was some merit to the argument, one commenter argued, SAFE 1’s assertion that the regulations “would have only a *de minimis* effect on climate change understates the impact that collective action by California and the Section 177 states can have on GHG emissions.”²³⁵ The commenter noted that “[w]ith a total population of over 140 million people, these 19 jurisdictions collectively account for more than 42 percent of the U.S. population . . . and more than 40 percent of the U.S. new car market.”²³⁶

Finally, these commenters also argued that climate change and its impacts are, themselves, “extraordinary and compelling” conditions. They provided evidence of increased weather events, agricultural effects, and wildfires, amongst other impacts of climate change, which have already begun to severely affect California.²³⁷

one important element of the broader response.”); Tesla at 8–9 (citing *Massachusetts v. EPA*, 549 U.S. 497, 525–26 (2007)) (“Nor is it dispositive that developing countries such as China and India are poised to increase greenhouse gas emissions substantially over the next century: A reduction in domestic emissions would slow the pace of global emissions increases, no matter what happens elsewhere.”).

²³⁴ Tesla at 8–9 (“Indeed, the Supreme Court rejected this logic in *Massachusetts v. EPA*, 549 U.S. 497 (2007), explaining: “Because of the enormity of the potential consequences associated with man-made climate change, the fact that the effectiveness of a remedy might be delayed during the (relatively short) time it takes for a new motor-vehicle fleet to replace an older one is essentially irrelevant.”); States and Cities at 41.

²³⁵ NESCAUM at 7.

²³⁶ *Id.*

²³⁷ States and Cities at 43–48; Twelve Public Interest Organizations at 5; Center for Biological Diversity at 3; Tesla at 8–9. States and Cities at 43–48; Twelve Public Interest Organizations at 5–6; Center for Biological Diversity at 3 (“California *also* experiences uniquely dangerous effects from increases in greenhouse gases. For example, the California legislature has found that global warming will cause adverse health impacts from increased air pollution and a projected doubling of catastrophic wildfires. Many of the state’s most extreme weather events have occurred in the last decade, including a severe drought from 2012–2016, an almost non-existent Sierra Nevada winter snowpack in 2014–2015, three of the five deadliest wildfires in state history, and back-to-back years of the warmest average temperatures on record. These ongoing disasters demonstrate California’s status as ‘one of the most ‘climate-challenged’ regions of North America.’”).

D. Analysis: California Needs the ACC Program GHG Standards and ZEV Sales Mandate To Address Compelling and Extraordinary Conditions Under Section 209(b)(1)(B)

In this action, EPA first finds that the Agency should not have reinterpreted section 209(b)(1)(B) in evaluating California’s “need” for GHG standards and ZEV sales mandate requirements at issue. The analysis below walks through the statutory language and history associated with this provision. As part of this discussion, the relationship of this provision and California’s authority and deference is highlighted. The two interpretations of the waiver prong are then reviewed, presenting the Agency’s rationale for its findings of the inappropriate SAFE 1 interpretation and support for its conclusion about the better interpretation. Second, as shown below, the factual record before the Agency at the time of SAFE 1 supports the GHG standards and ZEV sales mandate requirements at issue under either the traditional or SAFE 1 interpretation of section 209(b)(1)(B).

1. EPA Is Withdrawing the SAFE 1 Section 209(b)(1)(B) Interpretation

Except for two short-lived exceptions in the context of the 2008 waiver denial and SAFE 1, EPA has consistently recognized that reading the “needs” test of the second waiver prong as calling for a standard-specific evaluation would be inconsistent with congressional intent given the text of section 209(b)(1) legislative history, as well as the way the different standards in the ACC program work together to reduce criteria and GHG pollution and spur innovation. As further explained below, all of these aspects lend support to the Agency practice of not subjecting California’s waiver requests to review of the specific standards under the second waiver prong, and we agree that the traditional interpretation of section 209(b) is, at least, the better interpretation.

Under section 209(b)(1)(B), EPA must grant a waiver request unless the Agency finds that California “does not need such State standards to meet compelling and extraordinary conditions.” EPA has historically read the phrase “such State standards” in section 209(b)(1)(B) as referring back to standards “in the aggregate” in section 209(b)(1), which addresses the protectiveness finding that California must make for its waiver requests. In addition, as EPA has explained in the past, reading the provision otherwise would conflict with Congress’s 1977 amendment to the waiver provision to allow California’s standards to be “at

least as protective” as the federal standards “in the aggregate.” This amendment must mean that some of California’s standards may be weaker than federal standards counterbalanced by others that are stronger. If, however, a waiver can only be granted if each standard on its own meets a compelling need, then California could never have a standard that is weaker than the federal standard, rendering Congress’s 1977 amendment inoperative. Congress would not have created the option for California’s individual standards to be at least as protective “in the aggregate” and then taken that option away in the second waiver prong’s “compelling need” inquiry.

In addition, EPA has reasoned that giving effect to section 209(b)(1) means that both subparagraph (b)(1)(B) and paragraph (b)(1) must be read together such that the Agency reviews the same standards that California considers in making its protectiveness determination. “§ 209 (formerly § 208) was amended to require the U.S. Environmental Protection Agency (EPA) to consider California’s standards as a package, so that California could seek a waiver of preemption if its standards ‘in the aggregate’ protected public health at least as well as federal standards.”²³⁸

EPA has thus explained the reasoning for the reading of “such State standards” for instance, as follows:

[I]f Congress had intended a review of the need for each individual standard under (b)(1)(B), it is unlikely that it would have used the phrase “. . . does not need such state standards,” which apparently refers back to the phrase “State standards . . . in the aggregate,” as used in the first sentence of section 209(b)(1), rather than to the particular standard being considered. The use of the plural, *i.e.*, “standards,” further confirms that Congress did not intend EPA to review the need for each individual standard in isolation.²³⁹

EPA has also explained that “to find that the ‘compelling and extraordinary conditions’ test should apply to each pollutant would conflict with the amendment to section 209 made in 1977 allowing California to select standards ‘in the aggregate’ at least as protective as federal standards. In enacting that change, Congress explicitly recognized that California’s mix of standards could include some less stringent than the corresponding federal standards.”²⁴⁰ This is in accord with *MEMA I*, where the D.C. Circuit explained that:

The intent of the 1977 amendment was to accommodate California’s particular concern

²³⁸ *Motor Vehicle Mfrs. Ass’n v. NYS Dep’t of Env’t Conservation*, 17 F.3d 521, 525 (2d Cir. 1994).

²³⁹ 49 FR at 18890.

²⁴⁰ *Id.* at 18890 n.24.

with oxides of nitrogen, which the State regards as a more serious threat to public health and welfare than carbon monoxide. California was eager to establish oxides of nitrogen standards considerably higher than applicable federal standards, but technological developments posed the possibility that emission control devices could not be constructed to meet both the high California oxides of nitrogen standard and the high federal carbon monoxide standard.²⁴¹

EPA has further explained that the crucial consequence of the 1977 Amendment was to require waiver grants for California's specific standards that are part of the State's overall approach to reducing vehicle emissions to address air pollution even if those specific standards might not be needed to address compelling and extraordinary conditions.²⁴² For instance, EPA has previously granted a waiver for what was then described as "harmless emissions constituents such as methane" while reminding objectors of "EPA's practice to leave the decisions on controversial matters of public policy, such as whether to regulate methane emissions, to California."²⁴³ Similarly, in the 1984 p.m. standards waiver decision, EPA also discussed California's "need" for its own standards at length in response to comments that California must have worse air quality problems than the rest of the country to qualify for a waiver.²⁴⁴ There, EPA explained that California need not "have a 'unique' particulate problem, *i.e.*, one that is demonstrably worse than in the rest of the country [because], there is no indication in the language of section 209 or the legislative history that California's pollution problem must be the worst in the country, for a waiver to be granted."²⁴⁵ Indeed, the word "unique" is not contained in the statutory provision. EPA further explained that "even if it were true that California's total suspended particulate problem is, as certain manufacturers argue, no worse than some other areas of the country, this does not mean that diesel

particulates do not pose a special problem in California."²⁴⁶

As explained at length earlier, EPA believes Congress intended the Agency to grant substantial deference to California on its choice of standards that are appropriate to meet its needs. EPA has explained that "Congress has made it abundantly clear that the manufacturers would face a heavy burden in attempting to show 'compelling and extraordinary conditions' no longer exist: The Administrator, thus, is not to overturn California's judgment lightly. Nor is he to substitute his judgment for that of the State. There must be "clear and compelling evidence that the State acted unreasonably in evaluating the relative risks of various pollutants in light of the air quality, topography, photochemistry, and climate in that State, before EPA may deny a waiver."²⁴⁷ Likewise, the House Committee Report explained for instance that "[t]he [1977] amendment is intended to ratify and strengthen the California waiver provision and to affirm the underlying intent of that provision, *i.e.*, to afford California the *broadest possible discretion* in selecting the best means to protect the health of its citizens and the public welfare."²⁴⁸ EPA's past practice prior to SAFE 1, except for one instance, was consistent with this deferential stance.

In enacting section 209(b)(1), Congress struck a deliberate balance first in 1967 when it acknowledged California's serious air quality problems as well as its role as a laboratory for emissions control technology for the country,²⁴⁹ and again, in the 1977 Amendments that allowed for California to seek and obtain waivers for standards that are less stringent than the federal standards (by amending section

²⁴⁶ *Id.*

²⁴⁷ *Id.* at 18890 n.25 (citing H.R. Rep. No. 95–294, 95th Cong., 1st Sess. 302 (1977)).

²⁴⁸ *MEMA I*, 627 F.2d at 1110 (citing H.R. Rep. No. 294, 95th Cong., 1st Sess. 301–02 (1977)) (emphasis added). Congress amended section 209(b)(1)(A) so that California's determination that its standards are as at least as protective as applicable Federal standards so that such determination may be done "in the aggregate" looking at the summation of the standards within the vehicle program.

²⁴⁹ The CAA has been a paradigmatic example of cooperative federalism, under which "States and the Federal Government [are] partners in the struggle against air pollution." *General Motors Corp. v. United States*, 496 U.S. 530, 532 (1990). Motor vehicles "must be either 'federal cars' designed to meet the EPA's standards or 'California cars' designed to meet California's standards." *Engine Mfrs.*, 88 F.3d at 1079–80, 1088 ("Rather than being faced with 51 different standards, as they had feared, or with only one, as they had sought, manufacturers must cope with two regulatory standards."). See also *MEMA II*, 142 F.3d at 463.

209(b)(1)(A)) and also added section 177 to acknowledge that states may have air quality problems similar to California's by allowing states, subject to certain conditions, to adopt California's new motor vehicle standards once waived by EPA.²⁵⁰ These provisions struck a balance between having only one national standard and having 51 different state standards by settling on two standards—a federal one and a California one that other states may also adopt. Since 1967, in various amendments to section 209, Congress has also not disturbed this reading of section 209(b)(1)(B) as calling for the review of the standards as a whole program. Likewise, Congress has also not placed any additional constraints on California's ability to obtain waivers beyond those now contained in section 209(b)(1). The Agency has thus viewed the text, legislative history, and structure of section 209(b)(1) as support for the program-level review of waiver requests as well for the conclusion that California's air quality need not be worse than the rest of the country for EPA to grant a waiver of preemption. In addition, to the extent that SAFE 1 was intended to preclude California's regulation of all greenhouse gases from light-duty vehicles, the SAFE 1 interpretation creates a structural conflict within the relevant CAA provisions and could also create an inability for California to address GHG emissions and its contribution to the serious air quality problems within the State. There is a fundamental relationship between sections 209(a) and 209(b). Section 209(a) preempts states from adopting or enforcing new motor vehicle emission standards, and section 209(b) calls for EPA to waive that preemption for California vehicular emission standards unless EPA finds that one or more of the waiver criteria set out therein are not met. Nothing on the face of the CAA or applicable legislative history indicates that the scope of section 209(b)—the pollutants for which California may obtain a waiver—is more limited than the scope of section 209(a).²⁵¹ The D.C. Circuit has

²⁵⁰ "§ 177 . . . permitted other states to 'piggyback' onto California's standards, if the state's standards 'are identical to the California standards for which a waiver has been granted for such model year.'" *Motor Vehicle Mfrs. Ass'n v. New York State Dep't of Envtl. Conservation*, 17 F.3d 521, 525 (2d Cir. 1994).

²⁵¹ EPA believes that, to the extent the SAFE 1 interpretation has the practical effect of defining or implementing the scope of section 209(b) differently depending on the pollutants involved, the interpretation is contrary to legislative intent and the Agency's historic practice given the criteria emission benefits of CARB's GHG emission

²⁴¹ *MEMA I*, 627 F.2d 1095, 1110 n.32 (D.C. Cir. 1979).

²⁴² 74 FR at 32761 ("Congress decided in 1977 to allow California to promulgate individual standards that are not as stringent as comparable federal standards, as long as the standards are 'in the aggregate, at least as protective of public health and welfare as applicable federal standards.'"); "[T]he 1977 amendments significantly altered the California waiver provision." *Ford Motor Co.*, 606 F.2d 1293, 1302 (D.C. Cir. 1979).

²⁴³ 43 FR at 25735.

²⁴⁴ It bears note that these are the same kinds of comments that EPA received in the context of the ACC program waiver proceedings on California's need for GHG standards.

²⁴⁵ 49 FR at 18891.

already held as much as to section 209(a): “whatever is preempted [by section 209(a)] is subject to waiver under subsection (b).”²⁵² As demonstrated by EPA’s review of the record in this decision, California’s GHG emission standards at issue meet the SAFE 1 interpretation of the second waiver prong. Nevertheless, to the extent that SAFE 1 was intended to preclude all California regulation of greenhouse gases, EPA believes it improper to exclude entirely a pollutant from a waiver under section 209(b) that is otherwise preempted by section 209(a).

In addition, Congress has cited California’s GHG standards and ZEV sales mandate in subsequent legislation. Federal procurement regulations direct the EPA to issue guidance identifying the makes and models numbers of vehicles that are low GHG emitting vehicles.²⁵³ In a clear reference to California’s motor vehicle GHG standards, Congress has required EPA when identifying those vehicles to “take into account the most stringent standards for vehicle greenhouse gas emissions applicable to and enforceable against motor vehicle manufacturers for vehicles sold anywhere in the United States.”²⁵⁴ And in its State Implementation Plan provision regarding fleet programs required for certain non-attainment areas relating to issuing credits for cleaner vehicles, Congress stated that the “standards established by the Administrator under this paragraph . . . shall conform as closely as possible to standards which are established for the State of California for ULEV and ZEV vehicles in the same class.”²⁵⁵ Congress would not likely have adopted California’s standards into its own legislation if it believed those standards to be preempted.

EPA also disagrees with SAFE 1’s related argument that the statutory criteria must be interpreted in the context of the constitutional doctrine of “equal sovereignty.” As explained in detail in Section VIII, waiver requests should be reviewed based solely on the criteria in section 209(b)(1) and the Agency should not consider constitutional issues in evaluating waiver requests.²⁵⁶ The constitutionality of section 209 is not one of the three statutory criteria for reviewing waiver

standards and ZEV sales requirements as well as the impacts of climate change on California’s local and regional air quality.

²⁵² *MEMA I*, 627 F.2d 1095, 1106–08 (D.C. Cir. 1979).

²⁵³ 42 U.S.C. 13212(f)(3).

²⁵⁴ *Id.*

²⁵⁵ 42 U.S.C. 7586(f)(4).

²⁵⁶ 78 FR at 2145.

requests. However, because the Agency asserted in SAFE 1 that the equal sovereignty doctrine formed a gloss on its statutory interpretation of the three criteria, EPA addresses that argument here briefly. In short, in SAFE 1, EPA stated that because section 209(b)(1) provides “extraordinary treatment” to California, the second waiver prong should be interpreted to require a “state-specific” and “particularized” pollution problem.²⁵⁷ But section 177’s grant of authority to other states to adopt California’s standards undermines the notion that the regulatory scheme treats California in an extraordinary manner. Indeed, if section 209(b) is interpreted to limit the types of air pollution that California may regulate, it would diminish the sovereignty of California and the states that adopt California’s standards pursuant to section 177 without enhancing any other state’s sovereignty. Nor does section 209(b) impose any burden on any state. For these reasons, EPA agrees with commenters who argued that the Supreme Court’s decision in *Shelby County* is inapposite. In section 209(b), Congress did not authorize “federal intrusion into sensitive areas of state and local policymaking.”²⁵⁸ Rather, it underscored a foundational principle of federalism—allowing California to be a laboratory for innovation. Nor is section 209(b) an “extraordinary departure from the traditional course of relations between the States and the Federal Government.”²⁵⁹ To the contrary, it is just one of many laws Congress passes that treat States differently, and where, as discussed more fully below, Congress struck a reasonable balance between authorizing one standard and authorizing 51 standards in deciding to authorize two. SAFE 1’s invocation of the rarely used equal sovereignty principle as an aid in interpreting the second waiver prong simply does not fit section 209.

SAFE 1 dismissed the Agency’s traditional interpretation of the second waiver prong under which EPA reviews the same standards that California considers in making its protectiveness determination, asserting that the practical implications of reviewing standards in the “aggregate” compared to specific standards presented in a waiver request meant that the Agency would never have the discretion to determine that California did not need any subsequent standards. But nothing in section 209(b)(1)(B) can be read as

²⁵⁷ 84 FR 51340, 51347.

²⁵⁸ *Shelby County v. Holder*, 570 U.S. 529, 535, 45 (2013).

²⁵⁹ *Id.*

calling for scrutinizing the specific California standards under the waiver.²⁶⁰ Under section 209(b)(1)(B), EPA is to grant a waiver unless California does not need “such State standards” (plural). EPA interprets section 209(b)(1)(B) to refer back to the phrase “in the aggregate” in section 209(b)(1), which was added in the 1977 CAA Amendments when Congress removed the stringency requirements for waiver of California standards allowing instead for standards that are not as stringent as comparable federal standards, so long as the standards were “in the aggregate, at least as protective of public health and welfare as applicable Federal standards.” EPA believes that referring back to section 209(b)(1) is appropriate given that it precedes the language prior to section 209(b)(1)(B) and is in accord with the deference Congress intended by the 1977 Amendments.²⁶¹ Conversely, EPA believes that under the SAFE 1 interpretation California would, of necessity, be required to make a protectiveness finding for each of the specific standards, and the Agency believes this would be an inappropriate outcome from SAFE 1. Under the 1977 Amendments, California can “include some less stringent [standards] than the corresponding federal standards.”²⁶² As previously explained, “Congress could not have given this flexibility to California and simultaneously assigned to the state the seemingly impossible task of establishing that ‘extraordinary and compelling conditions’ exist for each standard.”²⁶³

SAFE 1 further argued that its interpretation read the use of “such standards” consistently between the second and third waiver prongs,

²⁶⁰ In the 2009 GHG waiver, and again in the 2013 ACC program waiver, EPA explained that the traditional approach does not make section 209(b)(1)(B) a nullity, as EPA must still determine whether California does not need its motor vehicle program to meet compelling and extraordinary conditions as discussed in the legislative history. Conditions in California may one day improve such that it may no longer have a need for its motor vehicle program, or a program designed for a particular type of air pollution problem, if the underlying specific air pollutant is no longer at issue.

²⁶¹ EPA had applied the traditional interpretation of the second waiver prong prior to the 1977 Amendments.

²⁶² See H.R. Rep. No. 294, 95th Cong., 1st Sess. 302 (1977); “In further amendments to the Act in 1977, § 209 (formerly § 208) was amended to require the U.S. Environmental Protection Agency (EPA) to consider California’s standards as a package, so that California could seek a waiver from preemption if its standards ‘in the aggregate’ protected public health at least as well as federal standards.” *Motor Vehicle Mfrs. Ass’n v. NYS Dep’t of Env’t Conservation*, 17 F.3d at 525.

²⁶³ 49 FR at 18890 n.24.

sections 209(b)(1)(B) and (C).²⁶⁴ It is true that section 209(b)(1)(C) employs the same phrase “such State standards” as employed in section 209(b)(1)(B), and it similarly uses that phrase to refer to standards in the aggregate. Indeed, section 209(b)(1)(C) involves an analysis of feasibility that can take more than the feasibility and impacts of the new standards into account. The feasibility assessment conducted for a new waiver request focuses on the standards in that request but builds on the previous feasibility assessments made for the standards already in the program and assesses any new feasibility risks created by the interaction between the standards in the petition and the existing standards.²⁶⁵

In sum, EPA now views as inconsistent with congressional intent the SAFE 1 interpretation, which was a flawed interpretation and also a significant departure from the traditional interpretation under which the Agency reviews California’s need for the same standards as those that the State determines are “in the aggregate” as protective of public health and welfare, under section 209(b)(1).²⁶⁶ EPA

²⁶⁴ Section 209(b)(1)(C) provides that no such waiver shall be granted if the Administrator finds that “such State standards and accompanying enforcement procedures are not consistent with section 7521(a) [202(a)] of this title.”

²⁶⁵ For example, in the 2013 ACC waiver that contains CARB’s LEV III criteria pollutant standards and GHG emission standards, as well as the ZEV sales mandate, EPA assessed information submitted by CARB regarding the technological feasibility, lead time available to meet the requirements, and the cost of compliance and the technical and resource challenges manufacturers face in complying with the requirements to simultaneously reduce criteria and GHG emissions. 78 FR at 2131.

²⁶⁶ 84 FR at 51345. EPA notes that in SAFE 1 the following rationale was used to interpret both 209(b)(1)(C) and then connect it with 209(b)(1)(B): “[B]ecause both sections 209(b)(1)(B) and (C) employ the term ‘such state standards,’ it is appropriate for EPA to read the term consistently between prongs (B) and (C). Under section 209(b)(1)(C), EPA conducts review of standards California has submitted to EPA for the grant of a waiver to determine if they are consistent with section 202(a). It follows then that EPA must read ‘such state standards’ in section 209(b)(1)(B) as a reference to the same standards in subsection (C).” Although the Agency has not pointed to 209(b)(1)(C) as a basis of statutory construction to support the traditional interpretation of 209(b)(1)(B), EPA nevertheless believes it is supportive. EPA notes that the term “such state standards” in 209(b)(1)(C) allows the Agency, in appropriate circumstances, to review the consistency of CARB’s suite of standards, for a particular vehicle category, with section 202(a). For example, EPA evaluated all of the standards (LEV III criteria pollutant, ZEV sales mandate, and GHG standards) of the ACC program in recognition of the aggregate costs and lead time associated with CARB’s standards as well as technologies that may be employed to meet more than one standard. 78 FR 2131–45. EPA’s assessment under 209(b)(1)(C) is not in practice a standard-by-standard review. EPA believes it appropriate to read the entirety of 209 together, along with its purposes, in order to

believes the traditional interpretation is, at least, the better reading of the statute.

As previously explained, in reviewing waiver requests EPA has applied the traditional interpretation in the same way for all air pollutants, criteria and GHG pollutants alike.²⁶⁷ In SAFE 1, however, EPA reinterpreted section 209(b)(1)(B) and further set out a particularized nexus test and applied this test separately to GHG standards at issue. SAFE 1 then concluded that no nexus exists for GHG emissions in California.²⁶⁸ SAFE 1 further posited that California must demonstrate “compelling and extraordinary circumstances sufficiently different from the nation as a whole to justify standards on automobile emissions which may, from time to time, need to be more stringent than national standards.”²⁶⁹ This has resulted in potentially different practical results depending on whether GHG standards or criteria emission pollutants are at issue, a distinction neither found in nor supported by the text of section 209(b)(1)(B) and legislative history. Specifically, SAFE 1 would have the ACC program MYs 2017–2025 criteria pollutants standards subject to review under the traditional interpretation while GHG standards at issue would be subject to review under the SAFE 1 particularized nexus test or individualized scrutiny.²⁷⁰ This uneven application is even more irreconcilable given that California’s motor vehicle emission program includes two GHG standards for highway heavy-duty vehicles that EPA previously reviewed under the traditional approach.²⁷¹ EPA

properly interpret its components such as 209(b)(1)(B).

²⁶⁷ 74 FR at 32763–65; 76 FR at 34693; 79 FR at 46256; 81 FR at 95982.

²⁶⁸ SAFE 1 also relied on *UARG v. EPA*, 134 S. Ct. 2427 (2014), where the Supreme Court disagreed with the Agency’s decision to regulate all sources of GHG under Titles I and V as the consequence of the Agency’s section 202(a) endangerment finding for motor vehicle GHG emissions. In EPA’s view upon reconsideration of SAFE 1, *UARG* is distinguishable because here the Agency is acting under a specific exemption to section 202(a) that allows for California to set its own standards for motor vehicle GHG standards under California state law, and thus, regulate major sources of GHG emissions within the State. California’s authority to promulgate standards is neither contingent nor dependent on the Agency’s section 202(a) endangerment finding for GHG. *See* 74 FR at 32778–80; 79 FR at 46262. Moreover, as discussed above, EPA’s waiver authority under section 209(b) is coextensive with preemption under section 209(a). *See MEMA I*, 627 F.2d at 1107. *UARG* is inapplicable to the scope of preemption under section 209(a).

²⁶⁹ 84 FR at 51341.

²⁷⁰ *Id.* at 51337.

²⁷¹ The first HD GHG emissions standard waiver related to certain new 2011 and subsequent model year tractor-trailers. 79 FR 46256 (August 7, 2014).

acknowledges that ascribing different meanings to the same statutory text in the same provision here, depending on its application, “would render every statute a chameleon.”²⁷² Nothing in either section 209 or the relevant legislative history can be read as calling for a distinction between criteria pollutants and GHG standards and thus, the individualized scrutiny under the SAFE 1 particularized nexus test.²⁷³ Nothing in section 209(b) can be read as calling for EPA to waive preemption only if California seeks to enforce criteria pollutant standards. The Administrator is required to waive the preemption in section 209(a) unless California “does not need *such State standards to meet compelling and extraordinary conditions.*”²⁷⁴ This is in stark contrast to, for example, section 211(c)(4)(C), which calls for a waiver of preemption only if a state demonstrates that a fuel program is “necessary” to achieve the NAAQS.²⁷⁵ Moreover, as previously noted, “[I]f Congress had intended a review of the need for each individual standard under (b)(1)(B), it is unlikely that it would have used the phrase “. . . does not need *such state standards*” (emphasis in original), which apparently refers back to the phrase “State standards . . . in the aggregate as used in the first sentence of section 209(b)(1), rather than the particular standard being considered.”²⁷⁶ EPA has also explained that an individualized review of standards would mean that Congress “g[ave] flexibility to California and simultaneously assigned to the state the seemingly impossible tasks of establishing that ‘extraordinary and compelling conditions’ exist for each less stringent standard.”²⁷⁷

The second HD GHG emissions standard waiver related to CARB’s “Phase I” regulation for 2014 and subsequent model year tractor-trailers. 81 FR 95982 (December 29, 2016).

²⁷² *See* States and Cities at 24 (quoting *Clark v. Martinez*, 543 U.S. 371, 382 (2005) and citing *U.S. v. Santos*, 553 U.S. 507, 522 (2008); *U.S. Dep’t of the Treasury v. FLRA*, 739 F.3d 13, 21 (D.C. Cir. 2014)). The commenter notes that in the SAFE 1 brief, EPA claimed that its new approach to section 209(b)(1)(B) would apply “for all types of air pollutants” but EPA could point to nowhere in SAFE 1 decision where this was said. *Id.* at 25. And “only two sentences later,” EPA acknowledged that its review under this second prong would change “depending upon which ‘air quality concerns’ were implicated.” *Id.*

²⁷³ H.R. Rep. No. 294, 95th Cong., 1st Sess. 302 (1977); 49 FR at 18890 n.24.

²⁷⁴ CAA section 209(b)(1)(B) (emphasis added).

²⁷⁵ Section 211(c)(4)(C) allows EPA to waive preemption of a state fuel program respecting a fuel characteristic or component that EPA regulates through a demonstration that the state fuel program is necessary to achieve a NAAQS.

²⁷⁶ 49 FR at 18890.

²⁷⁷ *Id.* at 18890 n.24.

Similarly, nothing in either section 209 or legislative history can be read as requiring EPA to grant GHG standards waiver requests only if California's GHG pollution problem is the worst in the country.²⁷⁸ "There is no indication in either the statute or the legislative history that . . . the Administrator is supposed to determine whether California's standards are in fact sagacious and beneficial."²⁷⁹ And most certainly, nothing in either section 209 or the legislative history can be read as calling for EPA to draw a comparison between California's GHG pollution problem and the rest of the country (or world) when reviewing California's need for GHG standards. Instead, the crucial consequence of the 1977 Amendment was to require waiver grants for California's specific standards that are part of the State's overall approach to reducing vehicle emissions to address air pollution even if those specific standards might not be needed to address compelling and extraordinary conditions.²⁸⁰ Thus, "even if it were true that California's [GHG] problem is, . . . no worse than some other areas of the country, this does not mean that [GHG] do not pose a special problem in California."²⁸¹ Rather, "EPA's practice [is] to leave the decisions on controversial matters of public policy, such as whether to regulate [GHG] emissions, to California."²⁸²

In addition, in Title II, Congress established only two programs for control of emissions from new motor vehicles: EPA emission standards adopted under the Clean Air Act and California emission standards adopted under its state law. And states other than California may not "tak[e] any action that has the effect of creating a car different from those produced to meet either federal or California emission standards, a so-called 'third vehicle.'" ²⁸³

As previously explained, and noted in the Notice of Reconsideration, since the grant of the initial GHG waiver request in 2009, the Agency has applied the

²⁷⁸ *Id.* at 18891.

²⁷⁹ *Ford Motor Co. v. EPA*, 606 F.2d 1293, 1302 (D.C. Cir. 1979).

²⁸⁰ 74 FR at 32761 ("Congress decided in 1977 to allow California to promulgate individual standards that are not as stringent as comparable federal standards, as long as the standards are 'in the aggregate, at least as protective of public health and welfare as applicable federal standards.');" "[T]he 1977 amendments significantly altered the California waiver provision." *Ford Motor Co.*, 606 F.2d 1293, 1302 (D.C. Cir. 1979).

²⁸¹ 49 FR at 18891.

²⁸² 43 FR at 25735.

²⁸³ *Motor Vehicle Mfrs. Ass'n v. NYS Dep't of Env't Conservation*, 17 F.3d 521, 526, 528 (2d Cir. 1994).

traditional interpretation in granting two additional waivers for CARB's Heavy-Duty Vehicle GHG emission standards and these GHG standards are now part of California's motor vehicle program, but EPA did not address these waivers in SAFE 1.²⁸⁴ It also bears note that, given the limited analysis and application of the SAFE 1 interpretation of the second waiver prong, it is uncertain whether the traditional interpretation remains otherwise applicable to earlier model year GHG standards under prior waivers. Ambiguity also applies to SAFE 1's interpretation of this prong in respect to all criteria pollutant standards in the ACC program. While SAFE 1 stated it was only applicable to the GHG standards at issue, in at least one instance the Agency indicated that the SAFE 1 interpretation could also be applicable to future evaluation of waiver requests for criteria pollutant standards.²⁸⁵ This uncertainty between these statements in SAFE 1 further highlights the inappropriateness of the new interpretation of the second prong.

In sum, for the reasons noted above, EPA is withdrawing the SAFE 1 interpretation and reinstating certain aspects of the ACC program waiver that were earlier granted under the traditional interpretation and approach. EPA concludes it erred by not properly evaluating the statutory interpretation of section 209, the associated legislative history including the policy deference that should be afforded to California to address its serious air quality problems and to serve as a laboratory for the country, and because the "need" for a motor vehicle emission program and

²⁸⁴ 79 FR 46256 (August 7, 2014); 81 FR 95982 (December 29, 2016).

²⁸⁵ 84 FR at 51341 n.263. "EPA determines in this document that GHG emissions, with regard to the lack of a nexus between their State-specific sources and their State specific impacts, and California's GHG standard program, are sufficiently distinct from criteria pollutants and traditional, criteria pollutant standards, that it is appropriate for EPA to consider whether California needs its own GHG vehicle emissions program. *EPA does not determine in this document and does not need to determine today how this determination may affect subsequent reviews of waiver applications with regard to criteria pollutant control programs.*" (Emphasis added). *See also id.* at 51344 n.268 ("EPA is adopting an interpretation of CAA section 209(b)(1)(B), specifically its provision that no waiver is appropriate if California does not need standards "to meet compelling and extraordinary conditions," similar to the interpretation that it adopted in the 2008 waiver denial but abandoned in the 2009 and 2013 waiver grants, and applying that interpretation to determine to withdraw the January 2013 waiver for California's GHG and ZEV program for model years 2021 through 2025"), and at 51346 ("EPA therefore views this interpretation and application of CAA section 209(b)(1)(B) set forth here as, at minimum, a reasonable one that gives appropriate meaning and effect to this provision.").

related standards within the program are necessarily better viewed as a comprehensive and interrelated effort to address the range of air quality problems facing California.²⁸⁶ At the same time, EPA notes that the traditional interpretation is reasonable and consistent with the text, structure and congressional intent and purpose of section 209(b) and EPA is thus confirming that the traditional interpretation of section 209(b)(1)(B) was appropriate and is, at least, the better interpretation.²⁸⁷

2. California Needs the GHG Standards and ZEV Sales Mandate Even Under the SAFE 1 Interpretation

Even if the SAFE 1 interpretation of section 209(b)(1)(B) was appropriate, the record of both the ACC program waiver and SAFE 1 proceeding demonstrate that California has a need for the GHG standards and ZEV sales mandate at issue under the SAFE 1 interpretation as well. The opponents of the waiver (including EPA in SAFE 1) did not meet their burden of proof to demonstrate that California does not need its GHG emission standards and ZEV sales mandate, whether individually or as part of California's motor vehicle emission program, to meet compelling and extraordinary conditions.²⁸⁸

²⁸⁶ As noted previously, in the context of evaluating the "need" for California's motor vehicle emission standards the Agency is informed by the legislative history from 1967 and 1977, whereby California is properly viewed as a laboratory for the country and that its policy decisions on how best to address its serious air quality issues, and that deference on the question of "need" is in order. Therefore, EPA believes it misapplied the concept of deference in the context of the second waiver prong application in SAFE 1. *See e.g.*, 84 FR at 51344 n.268. While EPA believes it appropriate to not defer when it is interpreting its own statute, the Agency nevertheless determines that California's policy choices in term of its "need" in how best to address compelling and extraordinary conditions in California requires deference by the Agency. This is consistent with EPA's longstanding waiver practice and its integration of the legislative history behind section 209. In any event, EPA would reach the same conclusions regarding the second waiver prong even if it did not defer to California regarding the nature of its air quality problems. 86 FR at 74489 ("The 2009 Endangerment Finding further explained that compared with a future without climate change, climate change is expected to increase tropospheric ozone pollution over broad areas of the U.S., including in the largest metropolitan areas with the worst tropospheric ozone problems, and thereby increase the risk of adverse effects on public health (74 FR 66525)."). *See also* 86 FR at 74492.

²⁸⁷ "The interpretation that my inquiry under (b)(1)(B) goes to California's need for its own mobile source program is borne out not only by the legislative history, but by the plain meaning of the statute as well." 49 FR at 18890.

²⁸⁸ EPA notes that by this action it is rescinding the interpretation of section 209(b)(1)(B) as set forth in SAFE 1. Nevertheless, EPA believes it appropriate to address comments received that suggest the SAFE 1 interpretation was not only

As previously explained, the 1977 CAA Amendments allow California to promulgate standards that might not be considered needed to meet compelling and extraordinary circumstances but would nevertheless be part of California's overall approach of reducing vehicle emissions to address air pollution in California.²⁸⁹ Thus, CARB may now design motor vehicle emission standards, individually, that might sometimes not be as stringent as federal standards but collectively with other standards would be best suited for California air quality problems because under the 1977 Amendments, California can "include some less stringent [standards] than the corresponding federal standards."²⁹⁰ And EPA is "required to give very substantial deference to California's judgments on this score."²⁹¹

Indeed, as EPA noted in the ACC program waiver, Congress intentionally provided California the broadest possible discretion in adopting the kind of standards in its motor vehicle program that California determines are appropriate to address air pollution problems that exist in California, whether or not those problems are only local or regional in nature, and to protect the health and welfare of its citizens:

Congress did not intend this criterion to limit California's discretion to a certain category of air pollution problems, to the exclusion of others. In this context it is important to note that air pollution problems, including local or regional air pollution problems, do not occur in isolation. Ozone and PM air pollution, traditionally seen as local or regional air pollution problems, occur in a context that to some extent can involve long range transport of this air pollution or its precursors. This long range or global aspect of ozone and PM can have an impact on local or regional levels, as part of the background in which the local or regional air pollution problem occurs.²⁹²

correct, but that the factual record supported the SAFE 1 withdrawal of the ACC waiver based on this interpretation.

²⁸⁹ See *Ford Motor Co., v. EPA*, 606 F.2d 1293, 1296–97 (D.C. Cir. 1979); See H.R. Rep. No. 294, 95th Cong., 1st Sess. 302 (1977).

²⁹⁰ 43 FR 25729, 25735 (June 14, 1978). See *Ford Motor Co.*, 606 F.2d at 1296–97.

²⁹¹ 40 FR at 23104. See also LEV I (58 FR 4166 (January 13, 1993)) Decision Document at 64.

²⁹² 78 FR at 2128–29. See "Our Changing Climate 2012 Vulnerability & Adaptation to the Increasing Risks from Climate Change in California." Publication # CEC–500–2012–007. Posted: July 31, 2012; available at https://ucanr.edu/sites/Jackson_Lab/files/155618.pdf at 4 ("Higher temperatures also increase ground-level ozone levels.

Furthermore, wildfires can increase particulate air pollution in the major air basins of California. Together, these consequences of climate change could offset air quality improvements that have successfully reduced dangerous ozone concentrations. Given this "climate penalty," as it

In the context of implementing section 209(b)(1)(B) and assessing the "need" for California's standards even under the SAFE 1 interpretation, EPA sees no reason to distinguish between "local or regional" air pollutants versus other pollutants that may be more globally mixed. Rather, it is appropriate to acknowledge that all pollutants and their effects may play a role in creating air pollution problems in California and that EPA should provide deference to California in its comprehensive policy choices for addressing them. Again, even if a new interpretation of section 209(b)(1)(B) were appropriate in SAFE 1, and EPA believes it is not, it is important to note that historically, criteria pollutant reductions have been relevant to section 209(b)(1)(B). As previously noted, nothing in section 209(b) can be read as calling for EPA to waive preemption only if California seeks to enforce criteria pollutant standards. The Administrator is required to waive the preemption in section 209(a) unless California "does not need *such State standards to meet compelling and extraordinary conditions.*"²⁹³ As also previously noted this is in stark contrast to, for example, section 211(c)(4)(C), which calls for a waiver of preemption only if a state demonstrates that a fuel program will result in criteria pollutant reductions that will enable achievement of applicable NAAQS.

The first section below focuses on criteria pollution reduction, which has long been relevant to section 209(b)(1)(B). EPA has never put in doubt that California's serious criteria air pollution problems (such as NAAQS nonattainment and the factors that give rise to those conditions, including the geographic and climate conditions in the State, the number of motor vehicles in California, and local and regional air quality) are "compelling and extraordinary," or that California "needs" regulations that address such emissions in order to achieve every fraction of criteria pollutant emissions it can achieve.²⁹⁴ The factual record before the Agency in 2013 and again in 2019 includes ample documentation of criteria emission reductions from California's GHG standards and ZEV

is commonly called, air quality improvement efforts in many of California's air basins will need to be strengthened as temperatures increase in order to reach existing air quality goals."

²⁹³ CAA section 209(b)(1)(B) (emphasis added).

²⁹⁴ In SAFE 1, EPA found that California's criteria pollution conditions remain "compelling and extraordinary and that California needs standards to produce any and all reductions in criteria pollutant emissions." 84 FR at 51344, 51346.

sales mandate.²⁹⁵ Nothing in the record is sufficient to demonstrate that California does not need the ACC program (or the motor vehicle emission program) or, in the context of the SAFE 1 interpretation, the specific GHG emission standards and the ZEV sales mandate to meet compelling needs related to criteria pollution. These benefits have a clear connection to California's "need" for its specific GHG standards and ZEV sales mandate, at issue under the waiver. The second section below focuses on the GHG reduction benefits of California's GHG standards and ZEV sales mandate. EPA acknowledges that California is particularly impacted by climate change, including increasing risks from record-setting fires, heat waves, storm surges, sea-level rise, water supply shortages and extreme heat, and that climate-change impacts in California are therefore "compelling and extraordinary conditions" for which California needs the GHG standards and ZEV sales mandate.

a. GHG Standards and ZEV Sales Mandates Have Criteria Emission Benefits

As shown below, criteria pollutant reductions are demonstrably connected to California's "need" for its GHG standards and ZEV sales mandate at issue under the waiver.²⁹⁶ EPA first concluded that there is a "logical link between the local air pollution problem

²⁹⁵ When California originally adopted a ZEV sales mandate into its regulations, a significant factor in support of its action was addressing criteria pollutant emissions. In SAFE 1 EPA acknowledged that California's ZEV mandate initially targeted only criteria pollution. 84 FR at 51329. EPA's 2013 waiver grant recognized that with California's ACC program California had shifted to relying on the ZEV requirements to reduce both criteria and GHG pollution. 78 FR at 2114.

²⁹⁶ In response to comments arguing that upstream emission benefits should not be considered in determining the criteria pollutant benefits of CARB's standards or that it is inappropriate to elevate stationary source criteria pollutant emissions into a make-or-break factor in waivers for motor vehicle emission programs, EPA believes it appropriate to reiterate the air quality problems facing California, as evidenced by NAAQS attainment challenges. Waiver practice and applicable case law, as previously noted, afford California wide deference in its policy and regulatory approaches in addressing these challenges. Therefore, EPA believes that to the degree a nexus between CARB's standards and addressing its serious air quality problems is required, that it is reasonable to base the need on related criteria emission impacts. EPA notes that, in setting its federal light-duty vehicle GHG standards, it is afforded discretion under the CAA to consider upstream emission impacts and does include such consideration in its own rulemakings. 77 FR 62624, 62819 (October 15, 2012) (taking fuel related upstream GHG emissions into account in setting compliance values for vehicle GHG emissions standards).

of ozone and GHGs” in the 2009 California GHG waiver by explaining, for instance, that “the impacts of global climate change can nevertheless exacerbate this local air pollution problem.”²⁹⁷ Moreover, as previously explained, in two additional GHG waiver requests and associated EPA waiver decisions since the 2009 GHG waiver, EPA acknowledged that CARB had demonstrated the need for GHG standards to address criteria pollutant concentrations in California. In the 2014 HD GHG waiver request, CARB projected, for example, “reductions in NO_x emissions of 3.1 tons per day in 2014 and one ton per day in 2020” in California.²⁹⁸

In SAFE 1, EPA distinguished prior GHG waivers from the ACC program GHG waiver solely on grounds of how CARB attributed the pollution benefits in its waiver request. EPA explained that CARB had linked those prior waived GHG standards to criteria pollutant benefits but had not done so in the ACC program waiver request: “California’s *approach* in its ACC program waiver request differed from the state’s approach in its waiver request for MY 2011 and subsequent heavy-duty tractor-trailer GHG standards, where California quantified NO_x emissions reductions attributed to GHG standards and explained that they would contribute to PM and ozone NAAQS attainment.”²⁹⁹ Moreover, how CARB attributes the pollution reductions for accounting purposes from its various standards does not reflect the reality of how the standards deliver

²⁹⁷ 74 FR at 32763. According to California, “California’s high ozone levels—clearly a condition Congress considered—will be exacerbated by higher temperatures from global warming . . . [T]here is general consensus that temperature increases from climate change will exacerbate the historic climate, topography, and population factors conducive to smog formation in California, which were the driving forces behind Congress’s inclusion of the waiver provision in the Clean Air Act.” *Id.* (quoting comments submitted by CARB during the 2009 reconsideration). CARB also explained that “the factors that cause ozone are primarily local in nature and [] ozone is a local or regional air pollution problem, the impacts of global climate change can nevertheless exacerbate this local air pollution problem. Whether or not local conditions are the primary cause of elevated concentrations of greenhouse gases and climate change, California has made a case that its greenhouse gas standards are linked to amelioration of California’s smog problems There is a logical link between the local air pollution problem of ozone and California’s desire to reduce GHGs as one way to address the adverse impact that climate change may have on local ozone conditions.” *Id.*

²⁹⁸ 79 FR at 46261. See also 81 FR at 95985–86 n.27 (referencing Resolution 13–50’s statements supporting California’s continued need for its own motor vehicle program in order to meet serious ongoing pollution problems).

²⁹⁹ 84 FR at 51337 n.252 (citing 79 FR at 46256, 46257 n.15, 46261, 46262 n.75).

emissions reductions and should not drive whether or not a waiver can be withdrawn. EPA believes, based on its historical deference to CARB in waiver proceedings, that CARB is entitled to this discretion.

EPA also believes that prior waiver decisions indicate that the “approach” taken by California in its waiver requests needs to be carefully assessed and understood by the Agency before discounting the benefits of its mobile source emission standards. The characterization of CARB’s “approach,” as not calling out criteria emissions benefits (such as upstream criteria emission benefits) of GHG standards, was incorrect and should not have undermined EPA’s findings and grant of the initial ACC program waiver request for the following reasons: (1) As previously noted, the ACC program standards are interrelated and all serve to reduce both criteria and GHG pollution; (2) CARB conducted a combined emissions analysis of the elements of the ACC program because the program was designed to work as an integrated whole; and (3) EPA has always considered California’s standards as a whole or “in the aggregate” under the traditional interpretation of section 209(b)(1)(B).³⁰⁰ EPA noted the associated criteria pollutant and GHG emissions benefits for the whole ACC program: “the ACC program will result in reductions of both criteria pollutants and GHG emissions that, in the aggregate, are more protective than the pre-existing federal standards.”³⁰¹ EPA also made the requisite finding that California’s protectiveness finding for the ACC program was not arbitrary and capricious, under section 209(b)(1)(A), by explaining that “California’s ZEV and GHG emission standards are an addition to its LEV program.”³⁰²

In SAFE 1, EPA further asserted that “California’s responses to the SAFE proposal do not rebut the Agency’s views that the ZEV standards for MY 2021–2025 are inextricably interconnected with the design and purpose of California’s overall GHG reduction strategy.”³⁰³ For the following reasons, however, EPA was also incorrect in the assessment of criteria emission benefits of CARB’s ZEV sales mandate. EPA focused on only the following snippet from one salient paragraph in CARB’s 2012

³⁰⁰ ZEV ISOR, EPA–HQ–OAR–2012–0562–0008 at 72; CARB Supplemental Comments, EPA–HQ–OAR–2012–0562–0373 at 3.

³⁰¹ 74 FR at 2122.

³⁰² *Id.* at 2125.

³⁰³ 84 FR at 51337.

waiver request as support for the lack of criteria emissions benefits: “There is no criteria emissions benefit from including the ZEV proposal in terms of vehicle (tank-to-wheel or TTW) emissions. The LEV III criteria pollutant fleet standard is responsible for those emission reductions in the fleet; the fleet would become cleaner regardless of the ZEV regulation because manufacturers would adjust their compliance response to the standard by making less polluting conventional vehicles.”³⁰⁴ But, as discussed above, that was merely an attribution of benefits and did not reflect the practical reality of how California’s standards work. Moreover, the paragraph in its entirety goes on to explain that CARB’s ZEV sales mandate would achieve criteria emission reductions: “However, since upstream criteria and PM emissions are not captured in the LEV III criteria pollutant standard, net upstream emissions are reduced through the increased use of electricity and concomitant reductions in fuel production.”³⁰⁵

It bears note that this attribution of criteria pollutant reductions was similar to the one that CARB made almost a decade ago for the 2009 GHG waiver request.³⁰⁶ For example, CARB provided “extensive evidence of its current and serious air quality problems and the increasingly stringent health-based air quality standards and federally required state planning efforts to meet those standards firmly.”³⁰⁷ The States and Cities also commented that “the attribution CARB made as part of its waiver request was never intended to, and did not, establish the absence of any

³⁰⁴ *Id.* at 51337, 51330, 51337, 51353–54, 51356, 51358.

³⁰⁵ 2012 Waiver Request at 15–16. CARB also noted that criteria and PM emission benefits will vary by region throughout the State depending on the location of emission sources. Refinery emission reductions will occur primarily in the east Bay Area and South Coast region where existing refinery facilities operate. As refinery operations reduce production and emissions, the input and output activities, such as truck and ship deliveries, will also decline. This includes crude oil imported through the Los Angeles and Oakland ports, as well as pipeline and local gasoline truck distribution statewide. EPA again notes that in its light-duty vehicle GHG rulemaking in 2012 it also noted the upstream emission impacts. 77 FR at 62819.

³⁰⁶ “The establishment of greenhouse gas emission standards will result in a reduction in upstream emissions (emission due to the production and transportation of the fuel used by the vehicle) of greenhouse gas, criteria and toxic pollutants due to reduced fuel usage.” EPA–HQ–OAR–2006–0173–0010.107 at 8.

³⁰⁷ CARB, EPA–HQ–OAR–2012–0562–0371. CARB estimated benefits of the ZEV and GHG standards for calendar years by which the South Coast air basin must meeting increasingly stringent NAAQS for ozone: 2023, 2031, and 2037. States and Cities app. A at 2–4, app. C at 8–9.

vehicular emission benefits from the ZEV standard.” EPA believes that CARB’s statement was merely a “simplification that distinguished the standards based on the *primary* objectives of the two, complementary standards.”³⁰⁸ EPA agrees that the record from 2013, and 2019, demonstrates that CARB’s attribution of short-term emissions benefits did not undercut the long-term vehicular emission benefits of the ZEV standards. Thus, regardless of how the emissions reductions are attributed, the GHG standards and ZEV sales mandate drive reductions in criteria pollution.

EPA has also consistently explained that “consideration of all the evidence submitted concerning a waiver decision is circumscribed by its relevance to those questions . . . consider[ed] under section 209(b).”³⁰⁹ And so, as earlier noted, any reconsideration of a prior waiver decision must comport with criteria in section 209(b)(1) as well as have record support. Moreover, in prior waiver requests for ZEV sales mandate requirements, CARB has discussed criteria pollutant emissions reductions because of the mandate for sale of vehicles that have zero emissions.³¹⁰ CARB’s 2012 waiver request also indicated the clear intent regarding the evolution of the ZEV program and California’s decision to focus both on criteria pollutant and GHG reductions.³¹¹ EPA’s reading of and reliance on the snippet from CARB’s waiver request describing the ZEV sales mandate requirements in the ACC program was both incorrect and improper, as well as contrary to congressional intent and EPA’s historic practice of affording broad discretion to California in selecting the best means for addressing the health and welfare of its citizens.

b. California Needs Its Standards To Address the Impacts of Climate Change in California

Under section 209(b)(1)(B), EPA is to grant a waiver request unless California

does not need the standards at issue to address “compelling and extraordinary conditions.” In applying the traditional approach, EPA has consistently reasoned that “compelling and extraordinary conditions” refers primarily to the factors that tend to produce higher levels of pollution in California—geographical and climatic conditions (like thermal inversions) that, when combined with large numbers and high concentrations of automobiles, create serious air pollution problems.³¹² These conditions continue to exist in California and CARB, since the initial 2009 GHG waiver, has consistently drawn attention to the existential crisis that California faces from climate change and maintained that air quality issues associated with GHG emissions have exacerbated this crisis and have yet to attenuate.³¹³

EPA now recognizes that CARB, as part of its original waiver request and in comments in response to SAFE 1, submitted ample evidence of multiple ways California is particularly impacted by climate change, including increasing risks from record-setting fires, heat waves, storm surges, sea-level rise, water supply shortages and extreme heat; in other words that GHG emissions contribute to local air pollution, and that climate-change impacts in California are “compelling and extraordinary conditions.” For example, CARB noted that “[r]ecord-setting fires, deadly heat waves, destructive storm surges, loss of winter snowpack—California has experienced all of these in the past decade and will experience more in the coming decades. California’s climate—much of what makes the State so unique and prosperous—is already changing, and those changes will only accelerate and intensify in the future. Extreme weather will be increasingly common as a result of climate change. In California, extreme events such as floods, heat waves, droughts and severe storms will increase in frequency and intensity. Many of these extreme events have the potential to dramatically affect human health and well-being, critical infrastructure and natural systems.”³¹⁴

³¹² 49 FR at 18890 (citing legislative history).

³¹³ 2012 Waiver Request at 1.

³¹⁴ CARB supplemental comment at EPA–HQ–OAR–2012–0562–0371. CARB notes that EPA’s reasoning that the “compelling and extraordinary conditions” criteria should be viewed as a “program as a whole” was upheld as “eminently reasonable” in *ATA v. EPA*, 600 F.3d 624, 627–29 (D.C. Cir. 2010), and that the ACC program appropriately integrates the passenger vehicle program to address multiple pollutant types, which also reflects the intent of Congress in 1977 to broaden California’s discretion to adjust its program as needed (*Ford Motor Co. v. EPA*, 606 F.2d at

Within the ACC waiver request, CARB provided a summary report on the third assessment from the California Climate Change Center (2012), which described dramatic sea level rises and increases in temperatures in California and associated impacts on local air quality and other conditions in California.³¹⁵

To the extent that SAFE 1 relied on the premise that GHG emissions from motor vehicles located in California become globally-mixed as part of global climate change, and therefore do not pose a local air quality issue (placing aside the impacts of heat on ozone as

1294). This comment extensively lays out the compelling and extraordinary conditions associated with California’s air quality challenges and the need to reduce criteria emissions and greenhouse gas emissions associated with CARB’s ZEV sale mandate and GHG standards. *Id.* at 5 (“The critical nature of the LEV III regulation is also highlighted in the recent effort to take a coordinated look at strategies to meet California’s multiple air quality and climate goals well into the future. This coordinated planning effort, Vision for Clean Air: A Framework for Air Quality and Climate Planning (Vision for Clean Air) demonstrates the magnitude of the technology and energy transformation needed from the transportation sector and associated energy production to meet federal standards and the goals set forth by California’s climate change requirements.”).

³¹⁵ 78 FR at 2129 (“To the extent that it is appropriate to examine the need for CARB’s GHG standards to meet compelling and extraordinary conditions, as EPA discussed at length in its 2009 GHG waiver decision, California does have compelling and extraordinary conditions directly related to regulations of GHG. EPA’s prior GHG waiver contained extensive discussion regarding the impacts of climate change in California. In addition, CARB has submitted additional evidence in comment on the ACC waiver request that evidences sufficiently different circumstances in California. CARB notes that ‘Record-setting fires, deadly heat waves, destructive storm surges, loss of winter snowpack—California has experienced all of these in the past decade and will experience more in the coming decades. California’s climate—much of what makes the state so unique and prosperous—is already changing, and those changes will only accelerate and intensify in the future. Extreme weather will be increasingly common as a result of climate change. In California, extreme events such as floods, heat waves, droughts and severe storms will increase in frequency and intensity. Many of these extreme events have the potential to dramatically affect human health and well-being, critical infrastructure and natural systems.’”) (“Our Changing Climate 2012 Vulnerability & Adaptation to the Increasing Risks from Climate Change in California. Publication # CEC–500–2012– 007. Posted: July 31, 2012; available at <http://www.climatechange.ca.gov/adaptation/third-assessment/>”). EPA also noted that “the better interpretation of the text and legislative history of this provision is that Congress did not intend this criterion to limit California’s discretion to a certain category of air pollution problems, to the exclusion of others. In this context it is important to note that air pollution problems, including local or regional air pollution problems, do not occur in isolation. Ozone and PM air pollution, traditionally seen as local or regional air pollution problems, occur in a context that to some extent can involve long range transport of this air pollution or its precursors. This long-range or global aspect of ozone and PM can have an impact on local or regional levels, as part of the background in which the local or regional air pollution problem occurs.” 78 FR at 2128.

³⁰⁸ States and Cities at 31 (original emphasis).

³⁰⁹ 74 FR at 32748. See also 78 FR at 2115.

³¹⁰ 71 FR 78190 (December 28, 2006); 75 FR 11878 (March 12, 2010) and 76 FR 61095 (October 3, 2011).

³¹¹ See 2012 Waiver Request at 2. At the December 2009 hearing, the Board adopted Resolution 09–66, reaffirming its commitment to meeting California’s long term air quality and climate change reduction goals through commercialization of ZEV technologies. The Board further directed staff to consider shifting the focus of the ZEV regulation to both GHG and criteria pollutant emission reductions, commercializing ZEVs and PHEVs in order to meet the 2050 goals, and to take into consideration the new LEV fleet standards and propose revisions to the ZEV regulation accordingly.

well as air quality impacts from the dramatic increase in wildfires), EPA notes that in addition to the record from the ACC waiver proceeding noted above, the SAFE 1 record contains sufficient and unrefuted evidence that there can be locally elevated carbon dioxide concentrations resulting from nearby carbon dioxide emissions.³¹⁶ This can have local impacts on, for instance, the extent of ocean acidification.³¹⁷ Thus, like criteria pollution, emissions of GHGs can lead to locally elevated concentrations with local impacts, in addition to the longer-term global impacts resulting from global increases in GHG concentrations.

Finally, in demonstrating the need for GHG standards at issue, CARB attributed GHG emissions reductions to vehicles in California. For instance, “CARB project[ed] that the standards will reduce car CO₂ emissions by approximately 4.9%/year, reduce truck CO₂ emissions by approximately 4.1%/year (the truck CO₂ standard target curves move downward at

³¹⁶ CARB comment at EPA–HQ–OAR–2018–0283–5054 at 305–06 (California’s Fourth Climate Assessment; https://www.energy.ca.gov/sites/default/files/2019-12/Governance_External_Ekstrom_ada.pdf).

³¹⁷ See, for example, reports from California’s Fourth Climate Change Assessment, “California Mussels as Bio-indicators of Ocean Acidification,” available at https://www.energy.ca.gov/sites/default/files/2019-12/Oceans_CCCA4-CNRA-2018-003_ada.pdf (“Because of the coupling between natural (upwelling-driven) and anthropogenic (CO₂ emission-driven) processes, California waters are already experiencing declines in pH that are not expected in other areas of the world’s oceans for decades (Feely et al. 2008; Chan et al. 2017). These perturbations to seawater chemistry join others associated with changing seawater temperatures (García-Reyes and Largier 2010) and reductions in ocean oxygenation (Bograd et al. 2008; Chan et al. 2008). Therefore, marine communities along the coast of California are increasingly subjected to a suite of concurrent environmental stressors. Substantial impetus exists to understand, quantify, and project biological and ecological consequences of these stressors, which current work suggests may be pervasive and diverse (Kroeker et al. 2010, 2013; Gaylord et al. 2015).”). Further, evidence in the record from a 2019 study demonstrated that locally enhanced carbon dioxide concentrations above Monterey Bay, California, fluctuate by time of day likely because of the magnitude of nearby urban carbon dioxide pollution and the effects of topography on offshore winds, and that this fluctuation increases the expected rate of acidification of the Bay. See Northcott, et al., *Impacts of urban carbon dioxide emissions on sea-air flux and ocean acidification in nearshore waters*, PLoS ONE (2019). For decades, the monthly average carbon dioxide concentrations off California’s coast have been consistently higher and more variable than those at Mauna Loa (which are commonly used as the global measurements). In fact, another more recent study shows that the waters of the California Current Ecosystem, off the coast of Southern California, have already acidified more than twice as much as the global average. E.g., Cal. Office of Environmental Health Hazard Assessment, *Atmospheric Greenhouse Gas Concentrations* (Feb. 11, 2019).

approximately 3.5%/year through the 2016–2021 period and about 5%/year from 2021–2025), and reduce combined light-duty CO₂ emissions by approximately 4.5%/year from 2016 through 2025.”³¹⁸ CARB also projected that its GHG emissions standards for MYs 2017–2025 will reduce fleet average CO₂ levels by about 34 percent from MY 2016 levels of 251 g/mile down to about 166 g/mile, based on the projected mix of vehicles sold in California.”³¹⁹ CARB further noted that there might be a GHG emission deficit if only the Federal GHG standards were implemented in California.³²⁰ The GHG emissions from California cars, therefore, are particularly relevant to both California’s air pollution problems and GHG standards at issue.

In SAFE 1, EPA dismissed California’s “need” for the GHG standards at issue because their impact on GHG emissions would be too small to “meaningfully address global air pollution problems of the sort associated with GHG emissions”: “[T]he most stringent regulatory alternative considered in the 2012 final rule and [Final Regulatory Impact Analysis] . . . , which would have required a seven percent average annual fleetwide increase in fuel economy for MYs 2017–2025 compared to MY 2016 standards, was forecast to decrease global temperatures by only 0.02 °C in 2100.”³²¹ EPA also received similar comments in response to the Notice of Reconsideration. But since the inception of the waiver program, EPA has never applied a test to determine whether a California waiver request under 209(b)(1) would independently solve a pollution problem. EPA has never applied a *de minimis* exemption authority to California waiver request under section 209(b)(1).³²² EPA believes there is no basis for exercise of such a test under section 209(b), considering that CARB continues to maintain that emissions reductions in California are essential for meeting the NAAQS.³²³ EPA has reiterated that “California’s policy judgment that an incremental, directional improvement will occur and is worth pursuing is entitled, in EPA’s

³¹⁸ 78 FR at 2139.

³¹⁹ *Id.* at 2135.

³²⁰ *Id.* at 2122.

³²¹ 84 FR at 51349.

³²² See, e.g., 74 FR at 32766 (“As noted by the Supreme Court in *Massachusetts v. EPA*, while it is true that regulating motor vehicle GHG emissions will not by itself reverse global warming, a reduction in domestic automobile emissions would slow the pace of global emissions increase no matter what happens with regard to other emissions.”).

³²³ See *Alabama Power Co. v. Costle*, 636 F.2d 323, 360–66, n.89 (D.C. Cir. 1979).

judgment, to great deference.”³²⁴ As the Supreme Court has recognized, “[a]gencies, like legislatures, do not generally resolve massive problems in one fell regulatory swoop. . . . They instead whittle away at them over time, refining their preferred approach as circumstances change and as they develop a more nuanced understanding of how best to proceed.”³²⁵ And so, in the ACC program waiver decision, EPA also explained that “[t]he issue of whether a proposed California requirement is likely to result in only marginal improvement in air quality not commensurate with its cost or is otherwise an arguably unwise exercise of regulatory power is not legally pertinent to my decision under section 209.”³²⁶

Further, nothing in either section 209 or the legislative history could be read as requiring EPA to grant GHG standards waiver requests only if California’s GHG pollution problem is the worst in the country.³²⁷ CARB further demonstrated a “need” for its GHG standards by projecting GHG emissions reductions deficits from implementation of only the Federal GHG program in California. “[I]f a National Program standard was theoretically applied only to California new vehicle sales alone, it might create a GHG deficit of roughly two million tons compared to the California standards.”³²⁸

3. California’s ZEV Sales Mandate as Motor Vehicle Control Technology Development

Congress also envisioned that California’s other role under section 209(b) would be an innovative laboratory for motor vehicle emission

³²⁴ 74 FR at 32766 (“Under this approach, there is no need to delve into the extent to which the GHG standards at issue here would address climate change or ozone problems. That is an issue appropriately left to California’s judgment. . . . Given the comments submitted, however, EPA has also considered an alternative interpretation, which would evaluate whether the program or standards has a rational relationship to contributing to amelioration of the air pollution problems in California. Even under this approach, EPA’s inquiry would end there. California’s policy judgment that an incremental, directional improvement will occur and is worth pursuing is entitled, in EPA’s judgment, to great deference.”).

³²⁵ *Massachusetts v. EPA*, 549 U.S. 497, 524 (2007).

³²⁶ 78 FR at 2134.

³²⁷ 49 FR at 18891.

³²⁸ 78 FR at 2122 (citing EPA–HQ–OAR–2012–0562–0374 at 3). CARB also noted that “to the extent a manufacturer chooses not to exercise their National Program compliance option in California this would actually provide additional GHG benefits in California, so compliance in California can never yield fewer cumulative greenhouse gas reductions from the industry wide fleet certified in California.” *Id.* at 2122 n.61.

standards and control technology. California is to serve as “a kind of laboratory for innovation”³²⁹ and to “blaze its own trail with a minimum of federal oversight.”³³⁰ California’s “unique [air pollution] problems and [its] pioneering efforts justifi[ed] a waiver of the preemption section.”³³¹ Congress stressed that California should serve the Nation as a “testing area” for more protective standards.³³² In the 2009 GHG waiver, for example, EPA explained that “the basic nature of the compromise established by Congress [is that] California could act as the laboratory for the nation with respect to motor vehicle emission control, and manufacturers would continue to face just two sets of emissions standards—California’s and EPA’s.”³³³ California’s ZEV sales mandates have so far supported development of technologies such as battery electric and fuel cell vehicles that embody the pioneering efforts Congress envisaged. EPA acknowledged this important role in the ACC program waiver by explaining that California needs the ZEV sales mandate requirement to ensure the development and commercialization of technology required for the future, deeper vehicular emission reductions California will have to attain to meet its NAAQS obligations as well as achieve other long-term emission goals of new vehicle sales between 2040 and 2050.³³⁴ In SAFE 1, however, EPA did not consider this additional role carved out in section 209(b)(1) for California as a proven ground for motor vehicle control emissions technology.³³⁵

In sum, while nothing in section 209 or the legislative history limits EPA’s waiver authority to standards that reduce criteria pollution,³³⁶ analyses in this section again recognize the way the different requirements in the ACC program work together to reduce criteria

and GHG pollution and spur technological innovation. These analyses conclude that GHG pollution exacerbates tropospheric ozone pollution, worsening California’s air quality problems, and the manner in which GHG and criteria pollutant standards work together to reduce both forms of pollution. Ample record support exists on California’s need for both GHG standards and ZEV sales mandate at issue to address compelling and extraordinary conditions in California. As noted above, in SAFE 1 EPA, however, relied on an excerpt of the ACC program waiver record to determine the lack of criteria emission benefits of GHG emission standards and ZEV sales mandate at issue. In doing so, EPA did not evaluate the complete record from the ACC waiver proceeding and the nature of California’s air quality problem, including the relationship of climate change to California’s ability to achieve the ozone NAAQS in the assessment of California’s need for these requirements.³³⁷

As noted above, in SAFE 1, EPA established a new test under section 209, requiring a particularized, local nexus between (1) pollutant emissions from sources, (2) air pollution, and (3) resulting impact on health and welfare, a test that would exclude GHG pollution from the scope of the waiver.³³⁸ But this test is found nowhere in the text of section 209—the statute does not contain this requirement, or even use these terms.

EPA’s review of the complete record confirms the Agency’s conclusions in the ACC program waiver that California needs the GHG standards at issue to meet a compelling and extraordinary conditions regardless of whether the Agency focuses on criteria or greenhouse gas pollution reduction.

This review also indicates that opponents of the waiver (including EPA in SAFE 1) did not meet the burden of proof necessary to demonstrate that California did not have a need for the GHG standards, including under the nexus test applied in SAFE 1. It also bears note that EPA’s longstanding practice, based on the statutory text, legislative history, and precedent calls for deference to California in its approach to addressing the interconnected nature of air pollution within the state and is not limited to criteria pollutant problems. Critically, EPA is not to engage in “probing substantive review” of waiver requests,³³⁹ but rather “afford California the broadest possible discretion in selecting the best means to protect the health of its citizens and the public welfare.”³⁴⁰

E. Conclusion

Considering the text, legislative history, and precedent that support the Agency’s historical practice of interpreting section 209(b)(1)(B) as calling for a program-level evaluation of waiver requests, as well as the uncertainty in settled expectations created by the SAFE 1 interpretation, EPA rescinds its actions in SAFE 1 regarding both the interpretation of section 209(b)(1)(B) and the findings regarding California’s need for the GHG standards and ZEV sales mandate. EPA believes that the burden of proof had not been met in SAFE 1, based on the complete factual record, to demonstrate that California did not have a need for the GHG standards and ZEV sales mandate under the SAFE 1 interpretation of the second waiver prong nor had the burden been met to support a finding that the ample evidence in the record at the time of the ACC waiver decision did not demonstrate that California had a need for its standards to meet compelling and extraordinary conditions. As noted above, the result of the rescission of the SAFE 1 action is the reinstatement of the ACC program waiver. EPA confirms the traditional interpretation of section 209(b)(1)(B) was appropriate and continues to be, at least, a better interpretation regardless of the rescission of the SAFE 1 interpretation of this criterion.³⁴¹

³²⁹ *MEMA I*, 627 F.2d 1095, 1111 (D.C. Cir. 1979).

³³⁰ *Ford Motor Co. v. EPA*, 606 F.2d 1293, 1297 (D.C. Cir. 1979).

³³¹ S. Rep. No. 90–403, at 33 (1967).

³³² *Id.*

³³³ 74 FR at 32763.

³³⁴ 78 FR at 2123, 2130–31.

³³⁵ 84 FR at 51343 (“[I]n a statute designed to address public health and welfare, it certainly cannot mean standards that allow a state to be “a laboratory for innovation” in the abstract, without any connection to a need to address pollution problems.”).

³³⁶ The Agency again notes that, unlike provisions of the CAA such as section 211(c)(4)(C) which allows EPA to waive preemption of a state fuel program respecting a fuel characteristic or component that EPA regulates through a demonstration that the state fuel program is necessary to achieve a NAAQS, section 209(b) makes no mention of NAAQS pollutants or otherwise indicates that air pollutants should be treated differently.

³³⁷ For example, CARB’s ISOR for its ZEV standards identifies at Table 6.2 the well to wheel emission benefits of the ZEV program compared to the LEV III program. ZEV ISOR, EPA–HQ–OAR–2012–0562–0008 at 78. See also 2012 Waiver Request at 16. CARB noted in its comments on the SAFE proposal that “Rising temperatures exacerbate California’s ozone problem by increasing ground-level ozone concentrations.” CARB, EPA–HQ–OAR–2018–0283–5054 at 371–72 (citing the 2012 Waiver Request). In addition, “Several studies indicate that a warming climate is expected to exacerbate surface ozone in California’s two major air basins: South Coast Air Basin and San Joaquin Valley. *Id.* at 372 (citing Jacob & Winner, *Effect of Climate Change on Air Quality*, 43:1 ATMOS. ENVIRON. 51 (Jan. 2009); Wu, et al., *Effects of 2000–2050 Global Change on Ozone Air Quality in the United States*, 113, D06302, J. GEOPHYS. RES.–ATMOS. (Mar. 19, 2008), available at <https://doi.org/10.1029/2007JD008917>; Rasmussen, et al., *The Ozone-climate Penalty: Past, Present, and Future*, 47:24 ENVTL. SCI. & TECH. 14258 (Dec. 17, 2013), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3990462/>).

³³⁸ 84 FR at 51339–40.

³³⁹ *Ford Motor Co. v. EPA*, 606 F.2d 1293, 1300 (D.C. Cir. 1979).

³⁴⁰ *MEMA II*, 142 F.3d 449, 453 (D.C. Cir. 1998).

³⁴¹ See 84 FR at 51344 n.269.

VI. EPA Inappropriately Considered Preemption Under the Energy Policy and Conservation Act (EPCA) in Its Waiver Decision

SAFE 1's other justification for withdrawing the ACC program waiver was that California's GHG standards and ZEV sales mandate were preempted under EPCA. As explained in detail in Section IV, EPA believes this basis for reconsideration was outside the appropriate bounds of EPA's authority to reconsider previously granted waivers. In particular, if EPA could reconsider and withdraw a waiver based on a factor not contained in the specified criteria for denial in section 209(b)(1), EPA could circumvent the specified criteria for denial via reconsideration of previously granted waiver.

Even if it were appropriate for EPA to reconsider a previously granted waiver based on non-statutory factors, in this action, EPA concludes that it was inappropriate to rely on preemption under EPCA as a basis for withdrawing certain aspects of the ACC program waiver. In SAFE 1, a joint action between NHTSA and EPA, NHTSA concluded that state or local regulations of tailpipe carbon dioxide emissions are "related to fuel economy standards" and are therefore preempted under EPCA.³⁴² As a direct result of NHTSA's codified text and pronouncements on preemption set forth in SAFE 1, EPA withdrew the ACC program waiver for California's GHG standards and ZEV sales mandate on grounds that they were preempted under EPCA. In SAFE 1, EPA believed it was appropriate to consider the effect of NHTSA's actions, including the view that California cannot enforce standards that are void *ab initio*, and thus EPA stated that "to the extent that administrative action is necessary on EPA's part to reflect that state of affairs, EPA hereby withdraws that prior grant of a waiver on this basis."³⁴³ NHTSA has since issued a

³⁴² 49 U.S.C. 32919(a) ("When an average fuel economy standard prescribed under this chapter is in effect, a State or a political subdivision of a State may not adopt or enforce a law or regulation related to fuel economy standards or average fuel economy standards for automobiles covered by an average fuel economy standard under this chapter."). NHTSA noted that a law or regulation having the direct or substantial effect of regulating or prohibiting tailpipe carbon dioxide emissions from automobiles or automobile fuel economy is a law or regulation related to fuel economy standards and expressly preempted under 49 U.S.C. 32919(a). 84 FR at 51317–18. NHTSA's rule was codified at 49 CFR 531.7 ("Preemption") and 533.7 ("Preemption"), as well as each Appendix B in 49 CFR part 531 ("APPENDIX B TO PART 531—PREEMPTION") and Part 533 ("APPENDIX B TO PART 533—PREEMPTION").

³⁴³ 84 FR at 51338.

new final rule that formally repeals the codified text and pronouncements regarding preemption under EPCA found in SAFE 1. Upon reconsideration, EPA now believes that, given NHTSA's repeal of its regulation and pronouncements in SAFE 1, preemption under EPCA cannot serve as a basis for the withdrawal of the ACC program waiver as it did in SAFE 1—if it could ever legitimately serve as such basis. EPA thus believes it is appropriate to rescind the portion of the waiver withdrawal that was based on preemption under EPCA.

In addition, given the unique consideration of preemption under EPCA in SAFE 1 and its effect on an otherwise validly issued waiver under the CAA, EPA believes it is helpful to provide additional information regarding the Agency's historical practice and views to demonstrate why consideration of preemption under EPCA was inappropriate. Consideration of preemption under EPCA is beyond the statutorily prescribed criteria for EPA in section 209(b)(1). Preemption under EPCA was not a factor that California addressed under the applicable waiver criteria in its initial request nor was it a factor that EPA considered in granting the ACC program waiver. Until SAFE 1, the Agency consistently refrained from reviewing waiver requests against factors beyond the statutorily listed criteria under section 209(b)(1). Thus, EPA also believes that in the reconsideration of a waiver where EPA had previously declined to consider preemption under EPCA, SAFE 1 was contrary to congressional intent and the Agency's historic practice of hewing to section 209(b)(1) statutory criteria in reviewing waiver requests. Given this backdrop, EPA believes that the joint rulemaking context of SAFE 1 was an improper basis to deviate from EPA's long held belief to not consider factors outside the scope of section 209(b)(1), especially given that the Agency indicated it would only be a singular occurrence. EPA continues to view the text and congressional intent of the statute, as well as subsequent case law, as best supporting a limited scope of review for waiver requests under section 209(b)(1)—irrespective of whether a waiver proceeding is undertaken either solely by EPA or in unison with another agency. Therefore, based on EPA's historical practice of not considering factors outside of the section 209(b)(1) criteria and because EPA believes the "joint-action" premise was improper, the Agency is rescinding its withdrawal

of the ACC program waiver based on preemption under EPCA.

A. Historical Practice and Legislative History

Historically, in reviewing California's waiver requests, EPA has refrained from the consideration of factors beyond those criteria set out in section 209(b)(1).³⁴⁴ EPA has generally explained that the text, structure, and purpose of the California waiver provision indicate congressional intent for EPA to provide significant deference to California's judgment, especially on "ambiguous and controversial matters of public policy."³⁴⁵ In section 209(a), Congress generally preempted state standards relating to the control of emissions from new motor vehicles and engines, but, in section 209(b), Congress carved out an exception for California, directing EPA to grant California a waiver of section 209(a) unless the Agency can make a finding under section 209(b). Congress recognized that California's "compelling and extraordinary circumstances," and its historical practice of regulating in the area, were sufficient "to justify standards on automobile emissions which may, from time to time, need be more stringent than national standards."³⁴⁶ In creating the waiver program, Congress intended not only for California to be able to meet its own emission reduction needs, but also for California to act as "a kind of laboratory for innovation" for motor vehicle standards and control technology.³⁴⁷

³⁴⁴ See, e.g., 43 FR at 32184 (rejecting objections to the procedures at state level, objections that section 207(c)(3)(A) establishes field protection, and constitutional objections all as beyond the "narrow" scope of the Administrator's review); 74 FR at 32783 (rejecting comments asking for the consideration of EPCA because it is not one of the three statutorily prescribed criteria); 78 FR at 2145 (again rejecting comments asking for the consideration of EPCA because it is outside the statutory criteria); 79 FR at 46265 (rejecting the argument that the HD GHG Regulations "impermissibly regulate fuel economy" because, like the commerce clause and Federal Aviation Administration Authorization Act of 1994 (FAAAA) issues, this issue is "outside the proper scope of review since it is not among the criteria listed under section 209(b).").

³⁴⁵ 78 FR at 2112, 2115; 40 FR at 23103–04; 58 FR 4166.

³⁴⁶ H.R. Rep. No. 90–728, 90th Cong., 1st Sess. 21 (1967); S. Rep. No. 403, 90th Cong., 1st Sess. 33 (1967) ("The waiver of preemption is for California's 'unique problems and pioneering efforts.'").

³⁴⁷ *MEMA I*, 627 F.2d 1095, 1111 (D.C. Cir. 1979); 113 Cong. Rec. 30950, 32478 (Statement of Sen. Murphy) ("The United States as a whole will benefit by allowing California to continue setting its own more advanced standards for control of motor vehicle emissions. . . [The] State will act as a testing agent for various types of controls and the country as a whole will be the beneficiary of this research.").

Thus “Congress consciously chose to permit California to blaze its own trail with a minimum of federal oversight.”³⁴⁸

Legislative history makes clear that the Administrator must “presume” that the California standards “satisfy the waiver requirements” and that the burden of proving otherwise rests on the Administrator or other parties favoring denial of the waiver.³⁴⁹ Further, according to the House Committee Report for the 1977 amendments that strengthened California’s waiver provisions, EPA is “to afford California the broadest possible discretion in selecting the best means to protect the health of its citizens and the public welfare.”³⁵⁰ According to the House Report, “The Administrator, thus, is not to overturn California’s judgment lightly. Nor is he to substitute his judgment for that of the State. There must be “clear and compelling evidence that the State acted unreasonably in evaluating the relative risks of various pollutants in light of the air quality, topography, photochemistry, and climate in that State, before EPA may deny a waiver.”³⁵¹ EPA’s historic practice of considering only listed criteria is thus in keeping with the highly deferential review of waiver requests that Congress intended in carving out the exception from preemption of new motor vehicle and engine standards in section 209(a).³⁵²

Courts have generally agreed with the Agency’s consideration of only listed CAA criteria in reviewing waiver requests, also pointing to the statute’s lack of any indication of the ability to consider non-statutory criteria as well as the waiver program’s significant deference to California. The D.C. Circuit has stated that, under the text of the statute, the section 209(b) criteria are “the only waiver standards with which California must comply” and that, therefore, “[i]f EPA concludes that California’s standards [meet section 209(b)], it is obligated to approve California’s waiver application.”³⁵³ The D.C. Circuit has repeatedly described EPA’s waiver approval role as “limited” and “narrow.” In *MEMA I*, for example, the court explained that “the Administrator has consistently held

since first vested with the waiver authority, [that] his inquiry under section 209 is modest in scope. He has no ‘broad and impressive’ authority to modify California regulations.”³⁵⁴ The court further noted that “there is no such thing as a ‘general duty’ on an administrative agency to make decisions based on factors other than those Congress expressly or impliedly intended the agency to consider.”³⁵⁵ Similarly, the court has stated that “[t]he statute does not provide for any probing substantive review of the California standards by federal officials” and that “EPA’s only role is to review California’s proposed rules under a narrowly defined set of statutory criteria.”³⁵⁶ Thus, the court has consistently rejected arguments requiring EPA to consider factors outside of the statutory criteria. In *MEMA I*, the court rejected a constitutional objection to a waiver, explaining that, because “the Administrator operates in a narrowly circumscribed proceeding requiring no broad policy judgments on constitutionally sensitive matters,” “[n]othing in section 209 requires him to consider the constitutional ramifications of the regulations for which California requests a waiver . . . although nothing in section 209 categorically forbids” it.³⁵⁷ In the same case, the court also rejected an antitrust objection as outside the scope of the Administrator’s review.³⁵⁸ The court again upheld EPA’s decision to not consider constitutional objections in *American Trucking Association (ATA) v. EPA*, stating, “We agree with EPA that ATA is seeking ‘improperly to engraft a type of constitutional Commerce Clause analysis onto EPA’s [s]ection 7543(e) waiver decisions that is neither present in nor authorized by the statute.”³⁵⁹

It is against this backdrop that EPA has reviewed waiver requests by evaluating them solely under the criteria of section 209(b). For instance, prior to SAFE 1, EPA had solicited comment, in the context of the 2008 and 2009 GHG notices for comment on CARB’s first waiver request for GHG emission

standards, as to whether the EPCA fuel economy preemption provisions were relevant to EPA’s consideration of CARB’s authority to implement its motor vehicle GHG regulations.³⁶⁰ In both instances, EPA declined to consider preemption under EPCA.³⁶¹ In the 2009 waiver, EPA explained that “section 209(b) of the Clean Air Act limits our authority to deny California’s requests for waivers to the three criteria therein.”³⁶² EPA further pointed to its historic practice of “refrain[ing] from denying California’s requests for waivers based on any other criteria,” which had been reviewed and upheld by the Court of Appeals for the District of Columbia Circuit.³⁶³ In the 2013 review of the ACC program waiver request, the Agency again declined to consider factors outside the statutory criteria, explaining that “EPA may only deny waiver requests based on the criteria in section 209(b), and inconsistency with EPCA is not one of those criteria.”³⁶⁴ A year later, EPA yet again declined to consider constitutionality claims, preemption under EPCA, and the implications of the Federal Aviation Administration Authorization Act of 1994 (FAAAA).³⁶⁵ EPA explained that section 209(b) limits the Agency’s authority to deny California’s requests for waivers to the three criteria therein and that the Agency has consistently refrained from denying California’s requests for waivers based on any other criteria.³⁶⁶

In SAFE 1, EPA changed course, reasoning instead that the Agency pronouncement in the ACC program waiver decision on factors EPA could consider in denying a waiver request “was inappropriately broad, to the extent it suggested that EPA is categorically forbidden from ever determining that a waiver is inappropriate due to consideration of anything other than the ‘criteria’ or ‘prongs’ at section 209(b)(1)(B)(A)–

³⁶⁰ 73 FR at 12159.

³⁶¹ *Id.*; 74 FR at 32783.

³⁶² 74 FR at 32783.

³⁶³ *Id.* (citing *MEMA I*, 627 F.2d at 1111, 1114–20, and *MEMA II*, 142 F.3d 449, 466–67 (D.C. Cir. 1998)).

³⁶⁴ 78 FR at 2145.

³⁶⁵ HD GHG Regulations for certain model year sleeper-cab tractors and dry-van and refrigerated-van trailers. 79 FR at 46256, 46264.

³⁶⁶ *Id.* In rejecting the commerce clause objection, the decision cited *MEMA I*’s statement that “[t]he waiver proceeding produces a forum ill-suited to the resolution of constitutional claims.” *Id.* (citing *MEMA I*, 627 F.2d at 1114–20). Thus, the decision concluded, “Constitutional challenges to the HD GHG Regulations [were] more appropriately addressed by a legal challenge directly against the state.” *Id.*

³⁵⁴ *MEMA I*, 627 F.2d at 1119 (internal citations omitted).

³⁵⁵ *Id.* at 1116–17.

³⁵⁶ *Ford Motor Co. v. EPA*, 606 F.2d 1293, 1300 (D.C. Cir. 1979), and *ATA v. EPA*, 600 F.3d 624, 628 (2010), respectively.

³⁵⁷ *MEMA I*, 627 F.2d at 1115 (declining to consider whether California standards are constitutional).

³⁵⁸ *Id.* at 1117 (“[N]othing in section 209 or elsewhere in the Clean Air Act can fairly be read to imply a duty on the Administrator to deny a waiver on the basis of the antitrust implications of California regulations.”).

³⁵⁹ *ATA v. EPA*, 600 F.3d at 628.

³⁴⁸ *Ford Motor Co. v. EPA*, 606 F.2d 1293, 1297 (D.C. Cir. 1979).

³⁴⁹ *MEMA I*, 627 F.2d at 1121–22 (citing, for example, S. Rep. No. 403, 90th Cong., 1st Sess. 33 (1967)).

³⁵⁰ *MEMA II*, 142 F.3d 449, 453 (D.C. Cir. 1998) (quoting H.R. Rep. No. 95–294, at 301–02 (1977)).

³⁵¹ H.R. Rep. No. 95–294, at 302 (1977), reprinted in 1977 U.S.C.A.N. at 1381.

³⁵² See, e.g., 74 FR at 32783; 78 FR at 2145.

³⁵³ *MEMA II*, 142 F.3d at 463.

(C).³⁶⁷ EPA explained that this statement and EPA's historical practice of not considering preemption under EPCA "were made in the context of EPA acting on its own to administer section 209(b) in considering such applications."³⁶⁸ Further, EPA distinguished these previous single-agency actions from its SAFE 1 joint action context by explaining that ignoring NHTSA's determination of preemption in the same action, "would place the United States Government in the untenable position of arguing that one federal agency can resurrect a State provision that, as another federal agency has concluded and codified, Congress has expressly preempted and therefore rendered void *ab initio*."³⁶⁹ At the same time, EPA expressed intentions not to consider factors outside the statutory criteria in future waiver proceedings.³⁷⁰ EPA then concluded that NHTSA's determination of preemption in the same action "renders EPA's prior grant of a waiver for those aspects of California's regulations that EPCA preempts invalid, null, and void" because "California cannot enforce standards that are void *ab initio*."³⁷¹

B. Notice of Reconsideration of SAFE 1 and Request for Comment

In its April 28, 2021, Notice of Reconsideration, EPA acknowledged that SAFE 1's consideration of NHTSA's finding of preemption under EPCA deviated from its historic practice of "declin[ing] to look beyond the waiver criteria in section 209(b) when deciding the merits of a waiver request from CARB."³⁷² EPA sought comment on whether "EPA properly considered and withdrew portions of the ACC program waiver pertaining to GHG standards and the ZEV sales mandate based on NHTSA's EPCA preemption action, including whether EPA had the authority to withdraw an existing waiver based on a new action beyond the scope of section 209."³⁷³ Given EPA's reliance on NHTSA's preemption findings as a basis of waiver withdrawal in SAFE 1, EPA also sought comment on how the repeal of SAFE 1, should NHTSA take final action to do so, would

affect its own reconsideration of SAFE 1.

C. Comments Received

EPA received comments in support of and against the consideration of preemption under EPCA in reviewing requests for waivers by California. Multiple comments related to the Agency's use of the joint action with NHTSA as a justification for deviating from the Agency's practice of reviewing waiver requests under the specific statutory criteria. Some commenters agreed that the context of a joint action necessitated consideration of preemption under EPCA because NHTSA was the agency charged with interpreting and implementing EPCA and so EPA must consider its findings in the same action.³⁷⁴ One commenter also argued that the joint rulemaking of SAFE 1 would be consistent with pronouncements in *Massachusetts v. EPA* (2007) on the agencies' respective statutory obligations and the need to avoid inconsistency and so, "[o]nce NHTSA proposed to finalize a determination that EPCA preempts California's GHG motor vehicle standards, it would be unreasonable for the EPA to refuse to take NHTSA's action into account."³⁷⁵

Other commenters argued that the context of the rulemaking, whether joint or not, was irrelevant. One commenter stated emphatically that "what Congress directed EPA to consider when it wrote Section 209(b)(1) does not change depending on whether EPA acts alone or with another agency."³⁷⁶ Some commenters also argued that the context of the rulemaking was a particularly insufficient justification for revoking the waiver given language in SAFE 1 that allowed for inconsistent consideration of EPCA preemption. Several commenters noted that EPA constrained the future applicability of SAFE 1 by explaining that the Agency would not consider factors outside statutory criteria in future waiver reviews in other subject areas.³⁷⁷ Another commenter also noted that "the action purported to be 'joint,' and yet as now acknowledged, SAFE Part 1 'is properly considered as two severable actions, a rulemaking by NHTSA and a final informal adjudication by EPA.'" ³⁷⁸ These inconsistencies, they argued, made SAFE 1's distinction between single-

agency and joint actions arbitrary and capricious.

Commenters also argued for and against consideration of factors outside the statutory criteria—including, but not limited to, preemption under EPCA—regardless of the kind of agency action, although EPA did not make this argument in SAFE 1. Commenters argued that EPA's authority to look outside the statutory criteria at EPCA was at least permissive, if not mandatory. According to one commenter, "EPA exaggerates the Court's position" in *MEMA I* in its Reconsideration notice: "[T]he court did not say that the EPA is *forbidden* to take constitutional ramifications into consideration, only that it is *not required* to do so."³⁷⁹ Another commenter agreed that *MEMA I* and *MEMA II* "do not preclude EPA from considering" preemption under EPCA but then went further, saying that "EPA is *required* to consider EPCA preemption."³⁸⁰ The commenter argued that *MEMA I* rejected petitioners' constitutional objections to a waiver under an institutional competence line of reasoning, concluding that "[t]he waiver proceeding produces a forum ill-suited to the resolution of constitutional claims."³⁸¹ In contrast, they continued, the waiver proceeding is an appropriate forum for determining whether emission standards "relate to" fuel economy because this issue is "within the agency's competence, as this relationship is mathematical and based in science rather than understandings of Constitutional law and precedent."³⁸² However, the other commenter, who agreed that EPA is not "forbidden" from considering preemption under EPCA, also noted that EPA "has no special competence to interpret EPCA."³⁸³

Several commenters also argued that EPA could not reinstate the waiver because NHTSA concluded that EPCA preempts the standards, such standards were void *ab initio*, and therefore "the state mandates referenced in CA's petition for reconsideration are not even eligible to be considered for a CAA waiver of preemption."³⁸⁴ To ignore

³⁷⁹ CEI at 10 (original emphasis).

³⁸⁰ AFPM at 5–6.

³⁸¹ *Id.* at 6 (quoting *MEMA I*, 627 F.2d 1095, 1114–15 (DC Cir. 1979)).

³⁸² *Id.*

³⁸³ CEI at 11.

³⁸⁴ NADA at 3–4; *See also* AFPM at 3 ("Since California's GHG tailpipe standards and ZEV mandate are related to fuel economy, they are not lawfully adopted and void *ab initio*—and there is nothing for EPA to reinstate."); Urban Air at 47–48; CEI at 2 ("But EPCA preemption is the proverbial elephant in the room. If SAFE 1's EPCA preemption argument is correct, the EPA could not grant a valid CAA preemption waiver for California's tailpipe

³⁶⁷ A complete discussion of preemption under EPCA in SAFE 1 can be found at 84 FR at 51337–38.

³⁶⁸ *Id.*

³⁶⁹ *Id.* Citing *Massachusetts v. EPA*, the Agency also asserted that the consideration of EPCA was supported by the Supreme Court's holding because it ensured consistency between NHTSA and EPA's programs. *Id.*

³⁷⁰ 84 FR at 51338.

³⁷¹ *Id.*

³⁷² 86 FR at 22429.

³⁷³ *Id.*

³⁷⁴ *See, e.g.*, CEI at 11–12; AFPM at 2, 6.

³⁷⁵ CEI at 11.

³⁷⁶ States and Cities at 20. *See also* Twelve Public Interest Organizations app. 1 64–65.

³⁷⁷ NESCAUM at 3; Twelve Public Interest Organizations at app. 1 64–65; States and Cities at 20.

³⁷⁸ SCAQMD at 7 (quoting 86 FR at 22439, n.40).

this, they claimed, would violate the Supremacy Clause of the Constitution. EPA, therefore, must look outside the statutory criteria to consider preemption under EPCA because it cannot “reasonably claim that the lawfulness and constitutionality of state actions over which it has supervision are issues outside the scope of its responsibility[.]”³⁸⁵

In contrast, other commenters pointed to EPA’s historical practice of evaluating waiver requests under the section 209 statutory criteria, the text of the statute, and the policy implications of looking outside the statutory criteria, to support a return to EPA’s traditional narrow approach. Most commenters argued that EPA’s traditional interpretation was consistent with the text of section 209(b), which has no reference to preemption under EPCA or any other factors outside the three statutory criteria.³⁸⁶ Not only does EPA have “no grounds to read EPCA preemption considerations into the statute,”³⁸⁷ these commenters argued, but to consider non-statutory criteria would actually be “arbitrary and capricious”³⁸⁸ and contrary to “precedent respecting separation of powers and federalism principles.”³⁸⁹ Yet another commenter stated that the narrow interpretation “provides a safeguard from the capricious injection of outside-the-scope argumentation” because “[w]hen the adjudication is permitted to stray from the statutory criteria, prospects for a fair hearing can be derailed, and the EPA Administrator may be more prone to overstep and

CO₂ standards and ZEV mandates, because EPCA had already turned those policies into legal phantoms—mere proposals without legal force or effect.”)

³⁸⁵ CEI at 11.

³⁸⁶ See, e.g., States and Cities at 20 (“EPA’s traditional understanding of its limited role is entirely consistent with the text of Section 209(b)(1) and precedent interpreting it.”); NCAT at 12 (“As EPA has stated in several prior waiver decisions, there is no reference in Section 209(b) to EPCA preemption nor anything that could be construed to address this issue. Section 209(b) is unambiguous in this regard, and EPA has no grounds to read EPCA preemption considerations into the statute.”).

³⁸⁷ NCAT at 12.

³⁸⁸ NESCAUM at 7 (“As the D.C. Circuit has explained in the context of Section 209(b), ‘there is no such thing as a general duty’ on an administrative agency to make decisions based on factors other than those Congress expressly or impliedly intended the agency to consider.’ It is a basic principle of administrative law that an agency action is ‘arbitrary and capricious if the agency has relied on factors which Congress has not intended it to consider.’”).

³⁸⁹ States and Cities at 20 (“It is likewise entirely consistent with precedent respecting separation of powers and federalism principles and holding that ‘a federal agency may pre-empt state law only when and if it is acting within the scope of its congressionally delegated authority.’ *Louisiana Pub. Serv. Comm’n v. FCC*, 476 U.S. 355, 374 (1986).”).

exert policy preferences that are impermissible.”³⁹⁰

Additionally, in their petitions for reconsideration of SAFE 1, several states and cities asserted that EPA unlawfully changed course in SAFE 1 by considering (and relying on) the purported preemptive effect of EPCA, which is outside the confines of section 209(b) and argued that this rationale for withdrawing the waiver was flawed.³⁹¹

D. Analysis: EPA Is Rescinding Its SAFE 1 Actions Related to Preemption Under EPCA

Since SAFE 1, NHTSA has formally withdrawn its conclusions (and associated regulatory text) that state or local regulations of tailpipe carbon dioxide emissions are related to fuel economy standards and therefore preempted under EPCA.³⁹² Thus the predicate for EPA’s decision to withdraw the ACC waiver on that basis no longer exists. Furthermore, given the context of EPA’s reconsideration of the ACC program waiver at the time of SAFE 1, the Agency believes it was inappropriate to reconsider the validity of the waiver against criteria such as preemption under EPCA. In this action, based on the two independent grounds noted above, the Agency is rescinding the portion of SAFE 1 that withdrew the ACC program waiver based on preemption under EPCA.

1. NHTSA Has Since Repealed Its Findings of Preemption Made in SAFE 1

In the Notice of Reconsideration, EPA sought comment on the Agency’s reliance on NHTSA’s preemption findings as a basis for its withdrawal of the ACC program waiver in SAFE 1. EPA also sought comment on how the repeal of SAFE 1, should NHTSA take final action to do so, would affect its own reconsideration of SAFE 1.³⁹³ NHTSA has since withdrawn its findings of preemption and the preemption basis of withdrawal is no longer applicable. Specifically, NHTSA has issued a new final rule that formally repeals the codified text and additional pronouncements regarding preemption under EPCA found in SAFE 1.³⁹⁴ In

³⁹⁰ SCAQMD at 7.

³⁹¹ 86 FR at 22428.

³⁹² 86 FR 74236.

³⁹³ 86 FR at 22429.

³⁹⁴ 86 FR 74236. NHTSA notes in this rulemaking that “the Agency is repealing all regulatory text and appendices promulgated in the SAFE I Rule. In doing so, the Agency underscores that any positions announced in preambulatory statements of prior NHTSA rulemakings, including in the SAFE I Rule, which purported to define the scope of preemption under the Energy Policy and Conservation Act (EPCA), do not reflect the Agency’s reconsidered

SAFE 1, EPA stated that it was appropriate to consider the effect of NHTSA’s actions, including the view that California cannot enforce standards that are void *ab initio* and thus EPA stated that “to the extent that administrative action is necessary on EPA’s part to reflect that state of affairs, EPA hereby withdraws that prior grant of a waiver on this basis.”³⁹⁵ Since this condition no longer exists, EPA believes it is appropriate to rescind the waiver withdrawal that was based on preemption under EPCA. EPA believes that, to the extent it was ever appropriate for the Agency to base its action on NHTSA’s finding of preemption under EPCA in SAFE 1, the repeal of the preemption rule makes it likewise appropriate to rescind the Agency’s action in SAFE 1. This would also act to minimize regulatory uncertainty as to do otherwise would create further confusion that resulted from the joint action in SAFE 1 and would not appropriately reflect the current state of affairs under the circumstances of a unique federal regulation that had otherwise motivated EPA’s actions in SAFE 1. NHTSA’s recent action also supports EPA’s belief that its practice of limiting its review of section 209(b) criteria, as explained below, remains appropriate in the context of preemption under EPCA.

2. EPA Improperly Deviated From Its Historical Practice of Limiting Its Review to Section 209(b) Criteria

Section 209(b)(1) of the Act limits the Agency’s authority to deny California’s requests for waivers to the three criteria contained therein and the Agency has consistently refrained from reviewing California’s requests for waivers based on any other criteria. EPA acknowledges that California adopts its standards as a matter of law under its state police powers, that the Agency’s task in reviewing waiver requests is limited to evaluating California’s request according to the criteria in section 209(b), and that it is appropriate to defer to litigation brought by third parties in other courts, such as state or federal district court, for the resolution of any constitutionality claims and assertions of inconsistency with other statutes.

understanding of its proper role in matters of EPCA preemption.”

³⁹⁵ EPA distinguished these previous single-agency actions from its joint action context by explaining that ignoring NHTSA’s determination of preemption in the same action, “would place the United States Government in the untenable position of arguing that one federal agency can resurrect a State provision that, as another federal agency has concluded and codified, Congress has expressly preempted and therefore rendered void *ab initio*.” 84 FR at 51338.

Considering the lack of statutory and precedential support as shown below, even if EPA were to have discretion to consider criteria outside section 209(b), EPA now views the joint-action context of SAFE 1 as an insufficient justification for deviating from its statutory authority and the Agency's historical practice and therefore the Agency rescinds its actions regarding preemption under EPCA in SAFE 1.

Withdrawal of the waiver was premised on NHTSA's preemption regulations in what EPA explained was a joint rulemaking action. But nothing in section 209(b) can be read as calling for consideration of preemption under EPCA in evaluating waiver requests regardless of whether EPA engaged in joint rulemaking with another agency or acted alone. Specifically, under section 209(b), EPA must grant California a waiver of the preemption contained in section 209(a) unless the Administrator makes a finding under any one of the listed criteria: "The Administrator shall . . . waive application of the preemption in section 209(a) if the Administrator finds any of the following: '(A) [California's] determination [that its standards in the aggregate will be at least as protective] is arbitrary and capricious, (B) [California] does not need such State standards to meet compelling and extraordinary conditions, or (C) such State standards and accompanying enforcement procedures are not consistent with section [202(a)].'"³⁹⁶ Evaluation of preemption under EPCA is not a listed criterion.

Nor did SAFE 1 premise preemption under EPCA on any of the three statutory criteria. In the ACC program waiver request, CARB made a protectiveness finding that, as a quantitative matter, its standards, in the aggregate, were as protective as the Federal standards and did not address preemption under EPCA.³⁹⁷ In fact, while California might opt to respond to comments on preemption under EPCA, California would not be expected to take it into account in any protectiveness finding made for a waiver request. It bears note that California's practice is not unusual because there are other factors and provisions of the CAA that California does not account for in making its protectiveness finding under section 209(b)(1).³⁹⁸ In granting the ACC program waiver request, EPA found that California's protectiveness finding was

neither arbitrary nor capricious.³⁹⁹ EPA also responded to comments on the consideration of preemption under EPCA in granting the waiver but dismissed such objections as outside the scope of its review.⁴⁰⁰ Historically, EPA draws a comparison between the numerical stringency of California and federal standards in making the requisite finding as to whether California's protectiveness determination is arbitrary and capricious.⁴⁰¹ Thus, neither California's initial request, nor EPA's waiver grant, considered preemption under EPCA and as previously explained in the ACC program waiver, EPA declined to consider preemption under EPCA viewing it as outside the scope of Agency review.

SAFE 1 made clear that consideration of and reliance on preemption under EPCA was the consequence of regulations promulgated by NHTSA. As SAFE 1 also acknowledged, however, EPA does not "administer" EPCA; that task falls to NHTSA.⁴⁰² Instead, "[i]f EPA concludes that California's standards [meet section 209(b)], it is obligated to approve California's waiver application."⁴⁰³ EPA therefore disagrees with the comment that *Massachusetts* provides the Agency special duty to consider preemption under EPCA in a joint rulemaking action in reviewing waiver requests. In *Massachusetts*, the Supreme Court recognized the potential overlap between NHTSA's and EPA's statutory obligations and concluded that "there is no reason to think the two agencies cannot both administer their obligations yet avoid inconsistency."⁴⁰⁴ As one commenter noted, EPA and NHTSA have previously engaged in joint actions that addressed fuel economy and GHG emissions. In those actions, NHTSA's role has been to set national fuel economy standards and EPA's role has been to set national GHG

standards.⁴⁰⁵ These roles are complementary, but distinct. The Court acknowledged the independence of these roles in *Massachusetts*: "EPA has been charged with protecting the public's 'health' and 'welfare,' 42 U.S.C. 7521(a)(1), a statutory obligation wholly independent of DOT's mandate to promote energy efficiency. See Energy Policy and Conservation Act, § 2(5), 89 Stat. 874, 42 U.S.C. 6201(5)."⁴⁰⁶

Regarding the Agency's simultaneous pronouncement that reliance on preemption under EPCA would be a singular exercise that would not be repeated, statutory support or past precedent for this singular consideration was also lacking.⁴⁰⁷ In fact, this singular exercise would allow for EPA to evaluate the same waiver request differently and depending on EPA's own choice—the choice to act with another agency or not—rather than on the merits of the waiver request itself within specified criteria in section 209(b). Again, the result of this unique application of EPA's authority is unsupported under section 209(b)(1).

As previously noted, EPCA is generally administered by NHTSA and consideration of preemption under EPCA in reviewing waiver requests would for instance call for EPA to resolve the much debated and differing views as to what is a "law or regulation related to fuel economy," as contemplated by 39 U.S.C. 32919(a).⁴⁰⁸ Relevant judicial precedent would also appear to call into question whether California's GHG standards and ZEV sales mandates are indeed preempted under EPCA.⁴⁰⁹ But as previously explained, EPA does not implement EPCA, and the Agency's review of waiver requests is highly deferential.

EPA also disagrees with comments that the Agency must generally consider factors outside the criteria listed in section 209(b), including preemption under EPCA, regardless of the joint- or single-agency nature of the action. EPA

³⁹⁹ 78 FR at 2125.

⁴⁰⁰ *Id.* at 2145.

⁴⁰¹ Section 209(b)(2) provides that if each State [California] standard is at least as stringent as comparable applicable Federal standards then such standard shall be deemed to be as protective of public health and welfare as such federal standards for purposes of section 209(b)(1)(A). EPA acknowledges that in 1977 Congress amended the waiver provision to allow for California to address its unique combination of air quality problems and that California only be required to demonstrate stringency in the aggregate and that therefore some pollutant standards may not be as stringent.

⁴⁰² 84 FR at 51338 ("EPA agrees with commenters that EPA is not the agency that Congress has tasked with administering and interpreting EPCA. This is especially so because '[t]he waiver proceeding produces a forum ill-suited to the resolution of constitutional claims.' *MEMA I*, 627 F.2d at 1115.").

⁴⁰³ *MEMA II*, 142 F.3d at 463.

⁴⁰⁴ *Massachusetts v. EPA*, 549 U.S. 497, 532 (2007).

⁴⁰⁵ In its most recent rulemaking addressing GHG emissions from light-duty vehicles, EPA extensively coordinated with NHTSA on details of the program but did not conduct it as a joint rulemaking. See 86 FR 74434, 74436 (December 30, 2021).

⁴⁰⁶ *Massachusetts*, 549 U.S. at 497, 532.

⁴⁰⁷ "EPA does not intend in future waiver proceedings concerning submissions of California programs in other subject areas to consider factors outside the statutory criteria in section 209(b)(1)(A)–(C)." 84 FR at 51338.

⁴⁰⁸ EPA takes no position on any role NHTSA might play under 42 U.S.C. 32919(a) and acknowledges that NHTSA discusses this in its recent final rulemaking. See generally 86 FR 74236.

⁴⁰⁹ See, e.g., *Cent. Valley Chrysler-Jeep, Inc. v. Goldstene*, 529 F. Supp. 2d 1151, 1153–54 (E.D. Cal. 2007), as corrected Mar. 26, 2008; *Green Mountain Chrysler Plymouth Dodge Jeep v. Crombie*, 508 F. Supp. 2d 295, 300–01 (D. Vt. 2007).

³⁹⁶ CAA section 209(b)(1)(A)–(C).

³⁹⁷ 2012 Waiver Request at 15–17.

³⁹⁸ For example, "California is not required to comply with section 207 to get a waiver." *MEMA II*, 142 F.3d 449, 467 (D.C. Cir. 1989).

has never claimed that it has such broad authority to consider factors outside section 209(b) and the decades of waiver practice, as well as judicial precedent, are indicative of the Agency's narrow scope of review for California waiver requests: "[T]he Administrator has consistently held since first vested with the waiver authority, [that] his inquiry under section 209 is modest in scope. He has no 'broad and impressive' authority to modify California regulations."⁴¹⁰ Instead, EPA has consistently declined to consider factors outside the three statutory criteria listed in section 209(b).⁴¹¹ This limited scope of review has been repeatedly upheld by the courts. For example, in *MEMA I*, the D.C. Circuit stated that "there is no such thing as a 'general duty' on an administrative agency to make decisions based on factors other than those Congress expressly or impliedly intended the agency to consider."⁴¹² In *MEMA II*, the D.C. Circuit again rejected consideration of a factor outside the 209(b) statutory criteria because doing so would restrict California's ability to "exercise broad discretion."⁴¹³

Commenters also claim that ignoring NHTSA's finding of preemption would violate the Supremacy Clause of the Constitution because the necessary consequence of NHTSA's conclusion in SAFE 1 is that certain standards were void *ab initio* as preempted under EPCA and as such that "the state mandates referenced in [California's] petition for reconsideration are not even eligible to be considered for a CAA waiver of preemption."⁴¹⁴ EPA disagrees. As the D.C. Circuit has held, "[t]hat [the Administrator] like every other administrative officer owes allegiance to the Constitution does not mean that he is required to issue rulings of constitutional dimension."⁴¹⁵ Thus, "[n]othing in section 209 requires [the Administrator] to consider the constitutional ramifications of the

regulations for which California requests a waiver."⁴¹⁶

Moreover, consideration of factors beyond those set out in section 209(b)(1) would subject California and vehicle and engine manufacturers to changes in regulatory schemes by other federal agencies not acting under the authority of the CAA.⁴¹⁷ SAFE 1 and subsequent events perfectly encapsulate this problem. For instance, NHTSA has since finalized the repeal of the regulatory provisions and pronouncements it made in SAFE 1 that were the underpinnings for EPA withdrawing certain aspects of the ACC program waiver and with that action the Agency's basis for revocation of the waiver under EPCA has now evaporated.⁴¹⁸ Additionally, this is affirmation of EPA's long held view that waiver proceedings are not the appropriate venue for resolving these issues, and the joint-rulemaking context is not and should never have been justification for deviating from statutory authority and the Agency's historical practice.

It also bears note that consideration of factors beyond the criteria contained in section 209(b) would not be limited to preemption under EPCA. Commenters suggested, for instance, that EPA would not be able to "ignore the First Amendment," in the hypothetical situation where California impos[ed] standards on some manufacturers in retaliation for their voiced opposition to California's authority as well as criminality such as "bribery and extortion had been instrumental in assembling the legislative majorities."⁴¹⁹ In short, under the commenter's view, factors for consideration in waiver proceedings would be innumerable. And yet these factors bear little or no relation to specific criteria in section 209(b) that would otherwise warrant the denial of a waiver request. The D.C. Circuit has already, several times, held that EPA is not required to consider factors outside of and unconnected to these statutory criteria, especially constitutional objections. In fact, regarding the commenter's example, the court has already specifically rejected consideration of the First Amendment

⁴¹⁶ *Id.* at 1115.

⁴¹⁷ "The manufacture of automobiles is a complex matter, requiring decisions to be made far in advance of their actual execution. The ability of those engaged in the manufacture of automobiles to obtain clear and consistent answers concerning emission controls and standards is of considerable importance so as to permit economies in production." S. Rep. No. 403, 90th Cong., at 730 1st Sess. (1967).

⁴¹⁸ See 86 FR 74236.

⁴¹⁹ CEI at 11.

in waiver evaluations. In *MEMA I*, the court considered and upheld EPA's decision declining to consider a First Amendment objection to a waiver as beyond the scope of agency review.⁴²⁰ Courts have also rejected objections based on the applicability of CAA section 207 to California waiver requests⁴²¹ and the Commerce Clause.⁴²² EPA is therefore not persuaded by these arguments. Additionally, courts have long held that administrative proceedings for California waiver requests are ill-suited for consideration of constitutional issues. Nothing precludes commenters from challenging California's standards themselves—whether under EPCA, another statute, or the Constitution—in other, better-suited fora. According to the D.C. Circuit, for instance, [w]hile nothing in section 209 categorically forbids the Administrator from listening to constitutionality-based challenges, petitioners are assured through a petition of review . . . that their contentions will get a hearing."⁴²³ The D.C. Circuit has also repeatedly stated that challenges which go to the legality of California's standards themselves, are better addressed directly by either courts or Congress.⁴²⁴ Challenges based on preemption under EPCA similarly go to the legality of California's standards themselves and are thus more appropriate in court or addressed to Congress.

E. Conclusion

Because the landscape of federal law has changed since SAFE 1 due to NHTSA's repeal of its regulatory text, appendix, and pronouncements regarding EPCA preemption in SAFE 1, EPA believes that it is appropriate to rescind its waiver withdrawal actions in SAFE 1 that were predicated on the federal law context created by NHTSA's SAFE 1 action. On separate grounds, EPA also believes that, based on the foregoing, EPA should not have deviated from its practice of limiting its waiver review to the criteria in section

⁴²⁰ *MEMA I*, 627 F.2d 1095, 1115 (D.C. Cir. 1979).

⁴²¹ *MEMA II*, 142 F.3d 449, 467 (D.C. Cir. 1998).

⁴²² *ATA v. EPA*, 600 F.3d 624, 628 (D.C. Cir. 2010) ("EPA's only role is to review California's proposed rules under a narrowly defined set of statutory criteria."); *OOIDA v. EPA*, 622 Fed. Appx. 4, 5 (D.C. Cir. 2015) (rejecting a challenge for lack of jurisdiction because challengers objected to California's regulations themselves, not EPA's approval of them in a waiver under 209(b)).

⁴²³ *MEMA I*, 627 F.2d at 1115.

⁴²⁴ *Id.* at 1105. In *ATA v. EPA*, the D.C. Circuit rejected a constitutional challenge to a California waiver, concluding that Congress made the decision to give California "the primary role in regulating certain mobile pollution sources" so the challenger's argument was best directed to Congress. 600 F.3d 624, 628 (D.C. Cir. 2010).

⁴¹⁰ *MEMA I*, 627 F.2d 1095, 1119 (D.C. Cir. 1979).

⁴¹¹ See, e.g., 43 FR at 32184 (rejecting objections to the procedures at state level, objections that section 207(c)(3)(A) establishes field protection, and constitutional objections all as beyond the "narrow" scope of the Administrator's review); 74 FR at 32783 (declining to consider EPCA preemption, stating that "section 209(b) of the Clean Air Act limits our authority to deny California's requests for waivers to the three criteria therein."); 79 FR at 46264 (reiterating that EPA can only deny a waiver request based on the 209(b) statutory criteria, dismissing comments on preemption under EPCA, as well as the Constitution and the implications of the FAAAA).

⁴¹² 627 F.2d at 1116.

⁴¹³ 142 F.3d at 464.

⁴¹⁴ NADA at 3.

⁴¹⁵ *MEMA I*, 627 F.2d at 1114–15.

209(b)(1). Thus, for the reasons stated above, EPA is rescinding those portions of SAFE 1 that withdrew the waiver of the ACC program on the basis of preemption under EPCA.

VII. EPA Inappropriately Set Forth an Interpretive View of Section 177 in SAFE 1

In SAFE 1, EPA provided an interpretive view of section 177 of the CAA, stating that states adopting California's new motor vehicle emission standards (section 177 states) could not adopt California's GHG standards.⁴²⁵ In this action, EPA determines that it was both inappropriate and unnecessary within a waiver proceeding to provide an interpretive view of the authority of section 177 states to adopt California standards, as EPA plays no statutory approval role in connection with states' adoption of standards identical to those standards for which a waiver has been granted to California.⁴²⁶ Rather, if a state chooses to submit such standards for inclusion in an SIP, EPA's role with regard to approval of these standards is to review them in the same way that EPA reviews all SIP revisions a state submits, via a notice and comment process, to ensure that the submission meets all statutory and regulatory requirements as part of the Agency's decision whether to approve or disapprove the submission. Therefore, the Agency is rescinding the interpretive views on section 177 set out in SAFE 1.

A. SAFE 1 Interpretation

In the SAFE proposal, EPA proposed to conclude that "States may not adopt California's GHG standards pursuant to section 177 because the text, context, and purpose of section 177 support the conclusion that this provision is limited to providing States the ability, under certain circumstances and with certain conditions, to adopt and enforce standards designed to control criteria pollutants to address NAAQS nonattainment."⁴²⁷ Additionally, the proposal noted the title of section 177 ("New motor vehicle emission standards in nonattainment areas") indicates a limited scope of application.⁴²⁸ The proposal also suggested that, because "[a]reas are only designated nonattainment with respect to criteria pollutants," it would be

"illogical" if states could use their 177 authority "to adopt California standards that addressed environmental problems other than nonattainment of criteria pollutant standards."⁴²⁹

In the SAFE 1 decision, EPA finalized its proposed interpretive view, reiterating that "the text (including both the title and main text), structural location, and purpose of the provision confirm that it does not apply to GHG standards."⁴³⁰ Because section 177's title references nonattainment areas, and because nonattainment designations only exist for criteria pollutants, EPA claimed, states could not adopt standards for purposes of GHG control under section 177.⁴³¹

As evidence for this interpretive view, EPA again pointed to the text and location of the section, which had been the basis for the Agency's interpretation in the SAFE proposal. EPA acknowledged commenters who argued that "CAA section 177 does not contain any text that could be read as limiting its applicability to certain pollutants only" and that EPA had "inappropriately relied on the heading for CAA section 177 to construe a statutory provision as well as arrogated authority to implement an otherwise self-implementing provision," but disagreed with these commenters.⁴³² In addition to the evidence relied on in the proposal, EPA provided examples of legislative history from the 1977 amendments to support its interpretive view.⁴³³

B. Notice of Reconsideration of SAFE 1 and Request for Comment

Acknowledging that "section 177 does not require States that adopt California emission standards to submit such regulations for EPA review" and that "California in previous waiver requests has addressed the benefits of GHG emissions reductions as it relates to ozone," EPA sought comment in the 2021 Notice of Reconsideration on whether EPA had the authority in the

SAFE 1 context to interpret section 177 of the CAA and whether the interpretive view was appropriate.⁴³⁴ Specifically, EPA sought comment on whether it was appropriate for EPA to provide an interpretive view of section 177 within the SAFE 1 proceeding.⁴³⁵ To the extent it was appropriate to provide an interpretation, EPA sought comment on whether section 177 was properly interpreted and whether California's motor vehicle emission standards adopted by states pursuant to section 177 may have both criteria emission and GHG emission benefits and purposes.⁴³⁶

C. Comments Received

In response to SAFE 1, EPA received multiple petitions for reconsideration. One petition submitted by several states and cities asserted that, in adopting its interpretation of section 177, EPA "relie[d] on information and reasoning not presented in the SAFE Proposal," particularly the "superseded version of Section 172 . . . and legislative history for that outdated provision."⁴³⁷ The petition noted that the use of this information and reasoning was used in the SAFE 1 to conclude that "section 177 is in fact intended for NAAQS attainment planning and not to address global air pollution."⁴³⁸ Petitioners argued that because this information and reasoning was not presented in the proposal, "EPA should withdraw and reconsider its finalization of the Section 177 interpretation and allow for full and fair public comment before proceeding further."⁴³⁹

EPA also received many comments in response to the Notice of Reconsideration of SAFE 1, both supporting and opposing EPA's statements regarding section 177 in SAFE 1. Supporters of SAFE 1 reiterated the reasoning from the proposal and final action.⁴⁴⁰ For example, one commenter wrote, "In short, 'the text, context, and purpose of Section 177 suggest' that the provision is limited to motor vehicle standards 'designed to control criteria pollutants to address NAAQS nonattainment.'" ⁴⁴¹ Like the SAFE proposal and final action, the commenter stated that in addition to the text and context of the section, there is "substantial legislative history showing that Congress's purpose in creating the Section 177 program was to address

⁴²⁵ 84 FR at 51310, 51350.

⁴²⁶ EPA is aware of instances of States adopting California new motor vehicle emission standards and not subsequently including such standards in their SIP. In these circumstances EPA has not played and would not play an approval role.

⁴²⁷ 83 FR at 43240.

⁴²⁸ *Id.*

⁴²⁹ *Id.*

⁴³⁰ 84 FR at 51350.

⁴³¹ *Id.*

⁴³² *Id.*

⁴³³ In particular, EPA cited legislative history on section 172(b), which set forth the "requisite provisions" for state plans for nonattainment areas. *Id.* at 51350 n.286. According to the legislative history, one of the many factors that must be considered by a state plan is "actual emissions of such pollutant resulting from in-use motor vehicles." *Id.* (quoting H.R. Rep. No. 294, 95th Cong., 1st Sess. 212 (1977), 1977 U.S.C.C.A.N. 1077, 1291, 1997 WL 16034). Therefore, EPA claimed, this legislative history "identifies section 177 as a means of addressing the NAAQS attainment planning requirements of CAA section 172, including the specific SIP content and approvals criteria for EPA." *Id.* at 51351.

⁴³⁴ 86 FR at 22429.

⁴³⁵ *Id.*

⁴³⁶ *Id.*

⁴³⁷ See States and Cities' Petition at 27.

⁴³⁸ *Id.* (quoting 84 FR at 51351).

⁴³⁹ *Id.*

⁴⁴⁰ CEI at 17–18; NADA at 6; AFPM at 12–13.

⁴⁴¹ CEI at 18 (quoting heavily from the SAFE proposal and SAFE final action).

non-attainment with NAAQS for criteria pollutants, not to address any global atmospheric phenomenon.”⁴⁴²

Opponents of SAFE 1 argued both that EPA had no authority to issue its 177 statement and that the merits of EPA’s argument were wrong. On the issue of authority, opponents of SAFE 1 claimed that SAFE 1 failed to consider the reliance interests of the stakeholders, particularly section 177 states.⁴⁴³ SAFE 1, they argued, upset this reliance and created uncertainty.⁴⁴⁴ A substantial number of commenters also argued that EPA had no authority to make its statements on section 177 because “Congress gave EPA no role in implementing Section 177 and no authority to constrain States’ decisions regarding adoption of California emissions standards.”⁴⁴⁵

⁴⁴² *Id.*

⁴⁴³ States and Cities at 50–55; Institute for Policy Integrity Amicus Brief at 22–26 (“[T]he fact that California and many other states have detrimentally relied on this waiver to meet federal and state air-pollution mandates resolves any lingering doubt about the lawfulness of EPA’s Action. . . . Revoking the preemption waiver . . . jeopardizes the state’s ability to meet federal standards for other harmful air pollutants, since the standards covered by the waiver would have reduced—directly and indirectly—nitrogen-oxide, ozone, and particulate-matter pollution. See 78 FR 2122, 2129, and 2134.”); Tesla at 11–13; National Association of Clean Air Agencies (NACAA), Docket No. EPA–HQ–OAR–2021–0257–0096 at 3. Many of the 177 states had also provided comments, during the SAFE 1 comment period, explaining that they have adopted the ACC program standards to meet their public health goals. See, e.g., Maryland Department of the Environment, Docket No. EPA–HQ–OAR–2018–0283–5831 at 2–3; Delaware Department of Natural Resources and Environment Control, Docket No. EPA–HQ–OAR–2018–0283–5066 at 3–5; Massachusetts Department of Environmental Protection, Docket No. EPA–HQ–OAR–2018–0283–5476; State of California et al., Docket No. EPA–HQ–OAR–2018–0283–5481 at 130–31 (California was joined by the States of Connecticut, Delaware, Hawaii, Iowa, Illinois, Maine, Maryland, Minnesota, New Jersey, New Mexico, New York, North Carolina, Oregon, Rhode Island, Vermont, Washington, the Commonwealths of Massachusetts, Pennsylvania, and Virginia, the District of Columbia, and the Cities of Los Angeles, New York, Oakland, San Francisco, and San Jose).

⁴⁴⁴ See, e.g., States and Cities at 50–55; Tesla at 11–13.

⁴⁴⁵ States and Cities at 51. See also Tesla at 11–13; Twelve Public Interest Organizations app. 1 at 2; NESCAUM at 8–9; Southern Environmental Law Center (SELC), Docket No. EPA–HQ–OAR–2021–0257–0125 at 2–3; NCAT at 12; Class of ‘85, Docket No. EPA–HQ–OAR–2021–0257–0454 (correction to an earlier comment by the same commenter, which can be found at Docket No. EPA–HQ–OAR–2021–0257–0388) at 5–6; Maine at 2; OTC at 2. Ironically, one supporter of SAFE 1, while arguing that EPA cannot consider GHG reductions from section 177 states in its second prong analysis, acknowledged EPA’s lack of an oversight role under section 177: “EPA cannot consider GHG reductions, if any, attributable to ‘opt-in’ states under Section 177, as these are out of the scope of a waiver application. Indeed, EPA has no legal role in reviewing opt-in states, as the statute grants the agency no role in reviewing opt-in by other states.” AFPM at 15.

On the merits of EPA’s SAFE 1 argument, opponents of the action commented that EPA misinterpreted section 177 and that, even if EPA’s interpretive view were correct, EPA misapplied it. Multiple commenters wrote that the text of section 177 does not limit the types of pollutants for which motor vehicle emission standards can be authorized.⁴⁴⁶ Commenters also noted that the title of section 177 refers to geographic *areas*, not pollutants, and argued that the restriction was therefore on which states could adopt California standards (states with plan provisions approved under Part D) not on the pollutants for which those states could adopt standards.⁴⁴⁷ A few commenters also argued that EPA’s section 177 interpretive view would create a “third vehicle” scenario, in contradiction of section 177’s identicality requirement.⁴⁴⁸ Even if EPA’s interpretation were correct, opponents continued, California’s standards have both criteria emission and GHG emission benefits and purposes.⁴⁴⁹ Commenters cited the factual record as well as EPA’s own past findings as evidence of the connection between GHG standards and NAAQS attainment.

D. Analysis: EPA Is Rescinding SAFE 1’s Interpretive Views of Section 177

EPA is withdrawing its non-regulatory and non-binding interpretation of section 177 set forth in SAFE 1. EPA plays no statutory approval role in connection with states’ adoption of standards identical to those standards for which the Agency has granted a waiver to California.⁴⁵⁰ Rather, if a state chooses to submit such standards for inclusion in a SIP, EPA’s role with regard to approval of these standards is

⁴⁴⁶ See, e.g., States and Cities at 53; NESCAUM at 9; NCAT at 12.

⁴⁴⁷ See, e.g., States and Cities at 53 (“[T]he reference in the title to ‘nonattainment areas’ is not a limitation to ‘nonattainment (i.e., criteria) pollutants’ or standards that target them” but rather a limitation on the states that can adopt California’s standards); NESCAUM at 9; SELC at 2; NCAT at 12.

⁴⁴⁸ Commenters feared that EPA’s interpretation, which “prevents Section 177 States from adopting California’s GHG standards, but not any other California standards,” could require states to “extract just the GHG portion of the Advanced Clean Cars rules from their programs, thus potentially creating type of ‘third vehicle’ forbidden by Section 177 (i.e., a vehicle subject to a hybrid combination of the other California standards and the (now weakened) federal GHG standards.” States and Cities at 54. See also NESCAUM at 11–12; SELC at 5.

⁴⁴⁹ States and Cities at 31–32, 50–55; NESCAUM at 12–13; SELC at 5; NCAT at 12; Class of ‘85 at 4–5.

⁴⁵⁰ EPA is aware of instances of States adopting California new motor vehicle emission standards and not subsequently including such standards in their SIP. In these circumstances EPA has not played and would not play an approval role.

to review them in the same way that EPA reviews all SIP revisions a state submits, via a notice and comment process, to ensure that the submission meets all statutory and regulatory requirements as part of the Agency’s decision whether to approve or disapprove the submission.⁴⁵¹

In reconsidering SAFE 1, EPA now believes that it was inappropriate to offer an interpretive view of section 177 in the context of that action. EPA believes it acted inappropriately in providing an interpretive view in SAFE 1 and that such action was based on an inaccurate assessment of the factual record. EPA’s interpretive view was not compelled by any petition, request, or legislative or judicial mandate and was otherwise not final agency action.⁴⁵² EPA is therefore rescinding the interpretive views contained in SAFE 1.

As commenters have noted, section 177 does not describe a direct approval role for EPA. Section 177 says that “any State which has plan provisions approved under this part may adopt and enforce” identical California standards and delineates three specific criteria for adoption.⁴⁵³ Nothing in this language or in the text of the rest of the section requires or allows EPA to approve such adoption and enforcement or directs EPA to implement the section through regulation; EPA plays no statutory approval role in the adoption of California standards by other states other than action on a SIP revision, should those states include the standards in their plans. In fact, there are only three prerequisites to adoption and enforcement by a state: That the state has a federally approved SIP, that the standards are identical (thus the state standards must not create or have the effect of creating a “third vehicle”) to California standards for which California has received a waiver, and that California and the state adopt the standards with at least two years lead time.⁴⁵⁴ This limited role has been

⁴⁵¹ EPA notes that although section 177 states that “. . . any State which has plan provisions approved under this part may adopt and enforce for any model year standards relating to control of emissions from new motor vehicles . . .” the language in section 177 does not require a state to submit its adopted motor vehicle emissions standards for SIP approval.

⁴⁵² 84 FR at 51338 n.256 (“EPA acknowledges that its actions in this document may have implications for certain prior and potential future EPA reviews of and actions on state SIPs. . . . EPA will consider whether and how to address those implications, to the that they exist, is separate actions.”). EPA action on a state plan (including application of Section 177) is subject to judicial review. 42 U.S.C. 7607(b)(1).

⁴⁵³ 42 U.S.C. 7507.

⁴⁵⁴ *Id.*

acknowledged by courts and EPA alike.⁴⁵⁵ Thus, it is well established that states have broad discretion to adopt California standards without being subject to EPA's approval.⁴⁵⁶

States with approved SIPs that have adopted the waived California standard into state law may submit a SIP revision that includes that adopted standard. In that proceeding, EPA could determine whether the statutory criteria for adoption are met for purposes of approving a SIP revision. Indeed, in the litigation following SAFE 1, EPA acknowledged that its interpretive view of section 177 would have no actual effect until applied in a future SIP context.⁴⁵⁷ SIPs are a crucial planning tool in helping states reach attainment for NAAQS and California's standards are key components of many of these SIPs.⁴⁵⁸ In a SIP proceeding, these states

⁴⁵⁵ In 1979, for example, only two years after the adoption of section 177, the D.C. Circuit stated that the Act only requires the three listed prerequisites, "not . . . that the EPA administrator conduct a separate waiver proceeding for each state that chooses [to adopt California standards]." *Ford Motor Co. v. EPA*, 606 F.2d 1293, 1298 (D.C. Cir. 1979). Similarly, in 1994, while enacting rules implementing section 209(e)(2)(B), the parallel provision for the nonroad vehicle section of the California Waiver program, EPA noted that section 177 states had not "ask[ed] for EPA authorization before they adopted the California standards, nor did EPA or the automobile industry suggest that they needed such authorization." 56 FR 36969, 36983 (1994). See also 77 FR 62637 n.54 ("States are not required to seek EPA approval under the terms of section 177.").

⁴⁵⁶ EPA also notes that there are ample judicial avenues to directly challenge state adoption of California standards. For example, the First and Second Circuits have already addressed objections to the adoption of California standards under section 177. In both *Am. Auto. Mfrs. Ass'n v. Mass. DEP and Motor Vehicle Mfrs. Ass'n v. NYSDEC*, petitioners argued that the States' adoption of California's low emission vehicles standards without the associated clean fuels plan violated section 177. 31 F.3d 18 (1st Cir. 1994); 17 F.3d 521 (2d Cir. 1994).

⁴⁵⁷ Several commenters on the Notice of Reconsideration argued that SAFE 1 violated conformity rules by interfering with already approved SIPs. However, as EPA explained in the litigation over SAFE 1, the action had no actual effect on "either existing approvals of state plans or the plans themselves for criteria pollutants." Final Brief for Respondents at 106, *Union of Concerned Scientists v. NHTSA*, No. 19-1230 (D.C. Cir. Oct. 27, 2020). See also 84 FR 51338, n.256.

⁴⁵⁸ Wisconsin at 1 ("These standards provide important and necessary reductions in both GHG and criteria pollutant emissions needed to meet state and local air quality goals and address federal CAA requirements."); Connecticut at 2 ("These programs enable long-term planning and yield critical emission reductions that are critical to meeting Connecticut's climate goals as well as our statutory obligations to reach attainment with the ozone NAAQS."); Delaware at 2 ("Delaware adopted the California LEV regulation and incorporated the LEV and GHG standards into the State Implementation Plan. . . . Delaware will not meet air quality goals without more protective vehicle emission standards."); Maine at 1 ("[T]he LEV program was initially created to help attain

and other stakeholders are better able to provide specific and comprehensive comments about the intent and effect of adopting California standards.⁴⁵⁹

For these reasons, EPA believes that it was inappropriate to provide an interpretive view of section 177 in SAFE 1.⁴⁶⁰ Therefore, EPA is withdrawing its SAFE 1 interpretive view of section 177.

E. Conclusion

EPA determines that it was both inappropriate and unnecessary, within the SAFE 1 waiver proceeding, to provide an interpretive view of the authority of section 177 states to adopt California standards. Therefore, EPA withdraws its interpretive views that had been set forth in SAFE 1.

VIII. Other Issues

A. Equal Sovereignty

As explained in Section VI, EPA must grant California's waiver request unless the Agency makes one of the specified findings in section 209(b)(1). In this instance, Congress has made multiple determinations through its adoption of section 209 and subsequent amendments, dating from 1967 through the 1990 CAA Amendments, regarding California's role and its relation to federal standard setting for mobile sources. EPA's longstanding waiver practice, consistent with case law, has been to refrain from considering factors beyond section 209(b)(1) criteria as well as constitutional claims in the review of California waiver requests.⁴⁶¹ EPA

and maintain the health-based National Ambient Air Quality Standards (NAAQS) . . . The California ZEV and GHG programs enable long-term planning for both the states and the regulated community and have been drivers of technological change across the industry.").

⁴⁵⁹ The Agency has considered whether there may be any reliance interests on EPA's previous interpretive view of section 177 described in the SAFE 1 action. EPA is unaware of any such interests, and none were raised in comments.

⁴⁶⁰ To the extent that EPA's reasoning in its SAFE 1 section 177 determination lacked fair notice, as the States and Cities' Petition claimed, such a contention is rendered moot by this action.

⁴⁶¹ EPA has declined to consider constitutional challenges to California Waivers since at least 1976. 41 FR 44212 (Oct. 7, 1976) ("An additional argument against granting the waiver was raised by the Motorcycle Industry Council and Yamaha, who contended that the CARB had violated due process when adopting their standards, by not allowing the manufacturers a fair and full opportunity to present their views at a State hearing. If this argument has any validity, the EPA waiver hearing is not the proper forum in which to raise it. Section 209(b) does not require that EPA insist on any particular procedures at the State level. Furthermore, a complete opportunity was provided at the EPA waiver hearing for the presentation of views."). See also, e.g., 43 FR at 32184 (July 25, 1978) (rejecting objections to the procedures at state level, objections that section 207(c)(3)(A) establishes field protection, and constitutional objections all as beyond the "narrow" scope of the Administrator's review).

acknowledges that California adopts its standards as a matter of law under its police powers,⁴⁶² that the Agency's task in reviewing waiver requests is properly limited to evaluating California's request according to the criteria in section 209(b), and that it is appropriate to defer to litigation brought by third parties in other courts, such as state or federal court, for the resolution of constitutionality claims and inconsistency, if any, with other statutes. As further explained this practice flows from the statute and legislative history, which reflect a broad policy deference that is afforded to California to address its serious air quality problems (which are on-going) as well as to drive emission control innovation. And so, EPA has historically declined to consider constitutional issues in evaluating and granting section 209 waivers. In *MEMA I*, the D.C. Circuit rejected a First Amendment challenge to a waiver as outside the scope of review.⁴⁶³ In 2009, EPA approved a waiver (and authorization) under section 209(e), granting California authority to enforce its Airborne Toxic Control Measure, which established in-use emission performance standards for engines in transport refrigeration units (TRUs) and TRU generator sets.⁴⁶⁴ Responding to comments that the waiver reached beyond California's borders in violation of the Dormant Commerce Clause, EPA stated that such considerations are not factors that EPA must consider under section 209(e) because "EPA's review of California's regulations is limited to the criteria that Congress directed EPA to review."⁴⁶⁵ This interpretation was upheld by the D.C. Circuit Court of Appeals. The Court agreed with EPA that the commenters had sought to "improperly . . . engraft a type of constitutional Commerce Clause analysis onto EPA's Section 7543(e) waiver decisions that is neither present in nor authorized by the statute."⁴⁶⁶

⁴⁶² *Central Valley Chrysler-Jeep, Inc. v. Goldstene*, 529 F.Supp.2d 1151, 1174 ("The waiver provision of the Clean Air Act recognizes that California has exercised its police power to regulate pollution emissions from motor vehicles since before March 30, 1966; a date that predates both the Clean Air Act and EPCA.").

⁴⁶³ *MEMA I*, 627 F.2d 1095, 1111, 1114-14 (D.C. Cir. 1979).

⁴⁶⁴ 74 FR 3030 (January 16, 2009).

⁴⁶⁵ Decision Document, EPA-HQ-OAR-2005-0123-0049 at 67.

⁴⁶⁶ *ATA v. EPA*, 600 F.3d 624, 628 (D.C. Cir. 2010) (quoting the U.S. brief). In a footnote to this statement, the Court said ATA could attempt to bring a constitutional challenge directly (which would argue that the waiver unconstitutional burdens interstate commerce) but "express[ed] no view on that possibility." *Id.* at n.1. See also *COIDA v. EPA*, 622 Fed. Appx. 4, 5 (D.C. Cir. 2015)

Consistent with the Agency's long standing practice, the decision on whether to grant the ACC program waiver was based solely on criteria in section 209(b) and the Agency did not either interpret or apply the Equal Sovereignty Doctrine or any other constitutional or statutory provision in that waiver decision.⁴⁶⁷

Although EPA specified issues that it was seeking comment on within the Notice of Reconsideration, commenters nevertheless argued that the Equal Sovereignty Doctrine, which was not one of the identified aspects in that notice, preempts reinstatement of the relevant aspects of the ACC program waiver. According to these commenters, "Section 209, by allowing California and only California to retain a portion of its sovereign authority that the Clean Air Act takes from other States, is unconstitutional and thus unenforceable."⁴⁶⁸ Other commenters argued that the Equal Sovereignty doctrine does not apply to the California waiver program. One comment maintained that the holding in *Shelby County v. Holder* is distinguishable from the CAA.⁴⁶⁹ California disagreed with

(rejecting a challenge for lack of jurisdiction because challengers objected to the state regulations themselves, not EPA's approval of them in a waiver under 209(b)) ("To the extent there is any tension in our case law surrounding whether we might decide a constitutional claim brought within a broader challenge to an EPA waiver decision, OOIDA does not present us with such a challenge, and we have no occasion to resolve that question here.").

⁴⁶⁷ 78 FR at 2145.

⁴⁶⁸ Ohio and 15 States, Docket No. EPA-HQ-OAR-2021-0257-0124 at 1. This commenter also stated that "The waiver at issue here, allowing only California to regulate carbon emissions, is not sufficiently related to the problem that Section 209(a) targets, Congress enacted that section to permit California to address local air pollution. But California seeks special treatment for its proposed greenhouse gas targets . . . designed to mitigate climate change—an inherently global interest." *Id.* at 8–9. EPA notes that this characterization of CARB's standards is addressed in Section V.

⁴⁶⁹ Twelve Public Interest Organizations at 5 ("Shelby County does not govern here. See Amicus Br. of Prof. Leah Litman 12–17, *Union of Concerned Scientists v. NHTSA*, No. 19–1230 (July 6, 2020) (A–0384). First, Clean Air Act Section 209(b) places no extraordinary burden or disadvantage on one or more States. Rather, the statute benefits California by allowing the exercise of its police power authority to address its particular pollution control needs. Second, the foundation for reserving California's authority has not waned over time. California had in 1967, and continues to have, the Nation's absolute worst air quality. For example, the South Coast air basin, home to 17 million people, typically leads the Nation in ozone (smog) pollution. The American Lung Association's 2021 'State of the Air' report on national air pollution shows that seven of the ten worst areas for ozone pollution in the country are in California, as are six of the worst ten for small particulate matter. Am. Lung Ass'n, *Most Polluted Cities*, <https://www.lung.org/research/sota/city-rankings/most-polluted-cities> (last visited July 2, 2021) (A–0422).").

EPA's characterization of the relevance of the doctrine, commenting that the Supreme Court has only applied the "rarely invoked" doctrine of Equal Sovereignty in the "rare instance where Congress undertook 'a drastic departure from basic principles of federalism' by authorizing 'federal intrusion into sensitive areas of state and local policymaking.'" ⁴⁷⁰

As explained in the 2013 ACC program waiver decision, EPA continues to believe that waiver requests should be reviewed based solely on the criteria in section 209(b)(1) and specifically, that the Agency should not consider constitutional issues in evaluating waiver requests.⁴⁷¹ As previously noted in Section VI, the constitutionality of section 209 is not one of the three statutory criteria for reviewing waiver requests, and such objections are better directed to either the courts or Congress. As the D.C. Circuit reasoned in *MEMA I*, "it is generally considered that the constitutionality of Congressional enactments is beyond the jurisdiction of administrative agencies."⁴⁷² Although commenters here raise a new constitutional argument—that of Equal Sovereignty rather than the First Amendment or the Dormant Commerce Clause—EPA is no more well-suited to resolve this constitutional objection than it is to resolve previous constitutional objections.⁴⁷³

EPA notes that Congress struck a deliberate balance in 1967 when it acknowledged California's serious air quality problems as well as it being a laboratory for the country, and once again in 1977 when Congress continued to acknowledge California's air quality problems as well as problems in other states and decided that California's new motor vehicle standards, once waived by EPA and subject to certain conditions, would be optionally

⁴⁷⁰ States and Cities at 41–42.

⁴⁷¹ 78 FR at 2145.

⁴⁷² *MEMA I*, 627 F.2d 1095, 1114–15 (D.C. Cir. 1979) (holding that EPA did not need to consider whether California's standards "unconstitutionally burden[ed] [petitioners'] right to communicate with vehicle purchasers."). See also Twelve Public Interest Organizations at 7 ("As regulatory agencies are not free to declare an act of Congress unconstitutional." *Springsteen-Abbott v. SEC*, 989 F.3d 4, 8 (D.C. Cir. 2021), EPA cannot determine whether a statute Congress directed it to implement contravenes the equal-sovereignty principle. Thus, EPA should proceed to rescind the Waiver Withdrawal and leave Ohio's argument for review by an appropriate court.").

⁴⁷³ See, e.g., *Johnson v. Robison*, 415 U.S. 361, 368, (1974) ("Adjudication of the constitutionality of congressional enactments has generally been thought beyond the jurisdiction of administrative agencies"); *Springsteen-Abbott*, 989 F.3d at 8; *Meredith Corp. v. FCC*, 809 F.2d 863, 872 (D.C. Cir. 1987).

available for all states under section 177 under specified criteria.⁴⁷⁴ In striking a balance between one national standard and 51 different state standards, Congress chose to authorize two standards—the federal standard, and California's standards (which other states may adopt). EPA believes this balance reflected Congress's desire for California to serve as a laboratory of innovation and Congress's understanding of California's extraordinary pollution problems on the one hand, and its desire to ensure that automakers were not subject to too many different standards on the other.

In reconsidering the SAFE 1 action and the appropriateness of reinstating the 2013 ACC program waiver, EPA has not considered whether section 209(a) and section 209(b) are unconstitutional under the Equal Sovereignty Doctrine. As in the 2013 ACC program waiver, the decision on whether to grant the waiver and the consequence of a reinstated waiver is based solely on the criteria in section 209(b) and this decision does not attempt to interpret or apply the Equal Sovereignty Doctrine or any other constitutional or statutory provision.

B. CARB's Deemed-To-Comply Provision

EPA received comments arguing that California's 2018 clarification to its deemed-to-comply provision "changed important underlying requirements of the original 2012 waiver application" and "EPA cannot reinstate a Clean Air Act waiver for a program that no longer exists."⁴⁷⁵ These commenters maintain that California has never sought a waiver for the 2018 amendments or a determination that the change is within the scope of the prior waiver. As such, commenters maintain that EPA lacks a necessary predicate to permit California's enforcement of its amended GHG standards.

Other commenters argued that the "deemed to comply" provision was always conditioned on the federal standards providing GHG reductions that were at least equal to or as protective as California's program and so the 2018 amendments did not substantively change the provision or affect any related reliance interests and instead were designed to clarify the

⁴⁷⁴ "§ 177 . . . permitted other states to 'piggyback' onto California's standards, if the state's standards 'are identical to the California standards for which a waiver has been granted for such model year.'" *Motor Vehicle Mfrs. Ass'n v. New York State Dep't of Env'tl. Conservation*, 17 F.3d 521, 525 (2d Cir. 1994).

⁴⁷⁵ AFPM at 7; Urban Air at 2, 18–19; NADA at 6.

provision.⁴⁷⁶ Commenters maintain that CARB adopted “non-substantive amendments for its LEV III regulations to further clarify that the deemed-to-comply provision would only apply if the federal GHG standards remained substantially as they were as of the date of the 2017 Final Determination.”⁴⁷⁷ According to these commenters, California adopted these amendments after EPA’s withdrawal of its 2017 Final Determination that had determined that its Federal GHG standards for model years 2022–2025 remained appropriate and instead concluded that the federal standards for model years 2022–2025 may be too stringent and should be revised. EPA notes that after the January 2017 MTE CARB subsequently found that compliance with those federal standards would result in equivalent or greater GHG benefits than originally projected for California.⁴⁷⁸ These commenters further maintain that the clarification of the deemed-to-comply provision is immaterial to the reversal of the waiver withdrawal in SAFE 1 because the SAFE 1 action was expressly based on EPA’s decision to rely on NHTSA’s preemption findings and section 209(b)(1)(B) determination, neither of which was based on CARB’s 2018 clarification rulemaking. As such, the commenters maintain that the clarification of the deemed-to-comply provision has no bearing on and does not preclude EPA’s SAFE 1 waiver withdrawal.⁴⁷⁹

As previously explained, under section 209(b)(1) EPA is to grant a waiver of preemption for California to enforce its own standards that would otherwise be preempted under section 209(a). This preemption does not extend to federal standards that are adopted under section 202(a). EPA explained this in responding to comments on the deemed-to-comply provision in the ACC program waiver decision. “[T]he waiver decision affects only California’s emission standards, not the federal standards that exist regardless of EPA’s decision.”⁴⁸⁰ This preemptive effect of section 209(a) does not change even when California chooses to allow for compliance with its standards through

federal standards as envisaged by the deemed-to-comply provision.

It also bears note that in SAFE 1, EPA made clear that the 2018 amendment was not a “necessary part of the basis for the waiver withdrawal and other actions that EPA finalizes in this [SAFE1] document.”⁴⁸¹ In the Notice of Reconsideration, EPA neither reopened nor reconsidered elements of the 2013 waiver that were not part of EPA’s findings in SAFE 1.⁴⁸² As noted in this decision, EPA has evaluated the factual and legal errors that occurred in SAFE 1. As part of this evaluation, EPA believes it has considered all appropriate and relevant information necessary to its review of issues associated with the second waiver prong or consideration of preemption under EPCA. The Agency also recognizes that it received comments from parties that raised non-germane issues to EPA’s Notice of Reconsideration. EPA did not conduct an analysis of such comments in the context of reconsidering the specific actions taken in SAFE 1. EPA also makes clear that the result of rescinding its part of SAFE 1 is the automatic reinstatement of the waiver granted to California in 2013 for its ACC program. That is the result of the action taken herein.⁴⁸³

⁴⁸¹ EPA declined to “take any position at this point on what effect California’s December 2018 amendment to its “deemed to comply” provision . . . [may] have on the continued validity of the January 2013 waiver.” 84 FR at 51329, n.208, 51334, n.230. Although EPA claimed in SAFE 1 that the deemed to comply clarification confirmed and provided further support for the SAFE 1 action, EPA no longer makes this claim to the extent it is relevant in its reconsideration and rescission of SAFE 1. The consequence of this action is the reinstatement of the ACC program waiver issued in 2013 and does not extend to other regulatory developments in California or by EPA that occurred subsequent to that waiver decision.

⁴⁸² 86 FR at 22423. In addition to declining to take a position on the effect of California’s 2018 amendments to its “deemed to comply” provision, SAFE 1 did not finalize the withdrawal of the waiver under the first or third waiver prongs. EPA also notes that it has previously responded twice to the comments suggesting that CARB’s deemed-to-comply provision demonstrates that California does not have a need for its own standards. See 78 FR at 2124–25.

⁴⁸³ EPA acknowledges that motor vehicle emission standards in California as well as federally are periodically clarified, amended, or revised. For example, after California issued its first deemed-to-comply regulation, EPA determined that the state’s GHG standards were within the scope of the 2009 waiver. While EPA believes that Congress intended regulatory certainty to be attached to the Agency’s waivers issued under section 209, EPA acknowledges that conditions may change over time so significantly that it could merit a review of California’s motor vehicle emission program and applicable standards therein or that would prompt California to submit a related waiver request to EPA. As explained in this decision, the conditions associated with the analysis of the three waiver criteria performed in the ACC waiver decision did not change so as to merit the SAFE 1 action. EPA

IX. Decision

After review of the information submitted by CARB and other public commenters, the SAFE 1 action, and the record pertaining to EPA’s 2013 ACC program waiver, I find that EPA did not appropriately exercise its limited inherent authority to reconsider waiver grants in SAFE 1. SAFE 1 did not correct a clerical or factual error, nor did the factual circumstances and conditions related to the three statutory criteria change prior to SAFE 1, much less change so significantly as to cast the propriety of the waiver grant into doubt. On this basis, I am rescinding the SAFE 1 action.

Furthermore, after review of both the 2013 ACC program waiver record as well as the SAFE 1 record, to the extent that EPA did have authority to reconsider the ACC program waiver, I have determined that the asserted bases were in error and did not justify the waiver withdrawal. With respect to the Agency’s first purported basis—its discretionary decision to undertake a reinterpretation of the second waiver prong—I find that the statutory interpretation adopted in SAFE 1 is a flawed reading of the statute, and I hereby return to the traditional interpretation of the second waiver prong, which is, at least, the better interpretation. Under the traditional interpretation, which looks at the program as a whole, California clearly had a compelling need for the ACC program. Even if SAFE 1’s statutory reinterpretation, which focuses on California’s compelling need for the specific standards, were an appropriate reading, EPA did not perform a reasonable, accurate, and complete review of the factual record in its findings regarding the criteria emission benefits of CARB’s ZEV sales mandate and GHG emission regulations. Upon review, I find that SAFE 1’s predicate for concluding that California did not have a compelling need for these specific standards was not reasonable given the record at the time of the ACC program waiver and once again during the SAFE 1 proceeding. A reasonable, accurate, and complete review of the record supports the need for California’s specific GHG emission standards and ZEV sales mandate to meet compelling and extraordinary conditions in California. This is true whether I look at how these standards reduce criteria pollution, GHG pollution, or both. In

recognizes that federal light-duty vehicle GHG emission standards have been modified twice since SAFE 1 was issued; the current standards do not change EPA’s conclusion that SAFE 1 should be rescinded.

⁴⁷⁶ States and Cities at 58–61. (“California always intended its standards would ‘remain an important backstop in the event the national program is weakened or terminated.’ 78 FR at 2,128.”).

⁴⁷⁷ *Id.* at 60. “Final Determination on the Appropriateness of the Model Year 2022–2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation” (2017 Final Determination) at <https://nepis.epa.gov/Exec/ZyPDF.cgi?Dockey=P100QQ91.pdf>.

⁴⁷⁸ 82 FR 14671 (March 22, 2017) and 83 FR 16077 (April 13, 2018).

⁴⁷⁹ States and Cities at 60–62.

⁴⁸⁰ 78 FR at 2124.

sum, although I am not adopting the interpretation of the second waiver prong set forth in SAFE 1, I find that the burden of proof necessary to demonstrate that CARB's ZEV sales mandate and GHG emission standards are not needed to meet compelling and extraordinary conditions has not been met under either interpretation of the second waiver prong. Therefore, I rescind the Agency's part of the SAFE 1 action to the extent it relied upon the second waiver prong to withdraw the ACC program waiver.

With regard to the applicability of preemption under EPCA, I find that, to the extent EPA's authority to reconsider the ACC program waiver rested upon NHTSA's joint action at the time as well as the applicability of its EPCA interpretation to EPA's review, this statute falls clearly outside the confines of section 209(b) where EPA's authority to grant, deny, and reconsider waivers resides. In any event, the grounds for such action under SAFE 1 no longer exist given NHTSA's recent final action withdrawing its EPCA preemption rule in its entirety.

Each of the decisions and justifications contained in this final action is severable.

This decision rescinds EPA's SAFE 1 action and therefore, as a result, the waiver of preemption EPA granted to California for its ACC program ZEV sales mandates and GHG emission standards issued in 2013, including for the 2017 through 2025 model years, comes back into force.

Judicial Review

Section 307(b)(1) of the CAA governs judicial review of final actions by EPA. This section provides, in part, that petitions for review must be filed in the Court of Appeals for the District of Columbia Circuit: (i) When the agency action consists of "nationally applicable regulations promulgated, or final actions taken, by the Administrator," or (ii) when such action is locally or regionally applicable, but "such action is based on

a determination of nationwide scope or effect and if in taking such action the Administrator finds and publishes that such action is based on such a determination." For locally or regionally applicable final actions, the CAA reserves to EPA complete discretion whether to invoke the exception in (ii).

This final action is "nationally applicable" within the meaning of section 307(b)(1). In the alternative, to the extent a court finds this action to be locally or regionally applicable, the Administrator is exercising the complete discretion afforded to him under the CAA to make and publish a finding that this action is based on a determination of "nationwide scope or effect" within the meaning of section 307(b)(1).⁴⁸⁴ This action rescinds EPA's final action in SAFE 1, which withdrew a waiver for new motor vehicle greenhouse gas emission standards and ZEV sales mandate granted to California under section 209(b) of the CAA. In addition to California, sixteen other states and the District of Columbia have already adopted California's motor vehicle greenhouse gas standards. The other states are New York, Massachusetts, Vermont, Maine, Pennsylvania, Connecticut, Rhode Island, Washington, Oregon, Minnesota, New Jersey, Nevada, Maryland, Virginia, Colorado, and Delaware.⁴⁸⁵ These jurisdictions represent a wide geographic area and fall within eight different judicial circuits.⁴⁸⁶ In addition,

⁴⁸⁴ In deciding whether to invoke the exception by making and publishing a finding that this final action is based on a determination of nationwide scope or effect, the Administrator has also taken into account a number of policy considerations, including his judgment balancing the benefit of obtaining the D.C. Circuit's authoritative centralized review versus allowing development of the issue in other contexts and the best use of agency resources.

⁴⁸⁵ The same states have adopted California's ZEV sales mandate regulation with the exception of Pennsylvania, Washington, and Delaware.

⁴⁸⁶ In the report on the 1977 Amendments that revised CAA section 307(b)(1), Congress noted that the Administrator's determination that the "nationwide scope or effect" exception applies would be appropriate for any action that has a

this action will affect manufacturers nationwide who produce vehicles to meet the emissions standards of these states. For these reasons, this final action is nationally applicable or, alternatively, the Administrator is exercising the complete discretion afforded to him by the CAA and hereby finds that this final action is based on a determination of nationwide scope or effect for purposes of section 307(b)(1) and is hereby publishing that finding in the **Federal Register**.

Under CAA section 307(b)(1), petitions for judicial review of this action must be filed in the United States Court of Appeals for the District of Columbia Circuit within 60 days from the date this final action is published in the **Federal Register**.

X. Statutory and Executive Order Reviews

As with past waiver decisions, this action is not a rule as defined by Executive Order 12866. Therefore, it is exempt from review by the Office of Management and Budget as required for rules and regulations by Executive Order 12866.

In addition, this action is not a rule as defined in the Regulatory Flexibility Act, 5 U.S.C. 601(2). Therefore, EPA has not prepared a supporting regulatory flexibility analysis addressing the impact of this action on small business entities.

Further, Subtitle E of the Small Business Regulatory Enforcement Fairness Act of 1996, also known as the Congressional Review Act, 5 U.S.C. 801, *et seq.*, does not apply because this action is not a rule for purposes of 5 U.S.C. 804(3).

Michael S. Regan,
Administrator.

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scope or effect beyond a single judicial circuit. See H.R. Rep. No. 95-294 at 323-24, reprinted in 1977 U.S.C.C.A.N. 1402-03.

TABLE—REGISTRATION REVIEW INTERIM DECISIONS BEING ISSUED—Continued

Registration review case name and No.	Docket ID No.	Chemical review manager and contact information
<i>Streptomyces lydicus</i> strain WYEC 108; Case Number 6088.	EPA-HQ-OPP-2014-0608	Monica Thapa, thapa.monica@epa.gov , (703) 347-8688.
Triallate; Case Number 2695	EPA-HQ-OPP-2014-0573	Natalie Bray, bray.nathalie@epa.gov , (703) 347-8467.
Triphenyltin hydroxide (TPTH) aka fentin hydroxide; Case Number 0099.	EPA-HQ-OPP-2012-0413	Tiffany Green, green.tiffany@epa.gov , (703) 347-0314.
Triticonazole; Case Number 7036	EPA-HQ-OPP-2015-0602	Ramata Sy, sy.ramata@epa.gov , (703) 347-8941.

The proposed interim registration review decisions for the chemicals in the table above were posted to the docket and the public was invited to submit any comments or new information. EPA addressed the comments or information received during the 60-day comment period for the proposed interim decisions in the discussion for each pesticide listed in the table. Comments from the 60-day comment period that were received may or may not have affected the Agency's interim decision. Pursuant to 40 CFR 155.58(c), the registration review case docket for the chemicals listed in the Table will remain open until all actions required in the interim decision have been completed. This document also announces the closure of the registration review case for siduron (Case Number 3130, Docket ID Number EPA-HQ-OPP-2015-0857) because the last U.S. registrations for this pesticide have been canceled.

Background on the registration review program is provided at: <http://www.epa.gov/pesticide-reevaluation>.

Authority: 7 U.S.C. 136 *et seq.*

Dated: April 23, 2021.

Mary Reaves,

Director, Pesticide Re-Evaluation Division,
Office of Pesticide Programs.

[FR Doc. 2021-08874 Filed 4-27-21; 8:45 am]

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ENVIRONMENTAL PROTECTION AGENCY

[EPA-HQ-OAR-2021-0257; FRL-10022-05-OAR]

California State Motor Vehicle Pollution Control Standards; Advanced Clean Car Program; Reconsideration of a Previous Withdrawal of a Waiver of Preemption; Opportunity for Public Hearing and Public Comment

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of Opportunity for Public Hearing and Comment.

SUMMARY: The Environmental Protection Agency (EPA) is reconsidering a prior action that withdrew a waiver of

preemption for California's zero emission vehicle (ZEV) mandate and greenhouse gas (GHG) emission standards within California's Advanced Clean Car (ACC) program for purposes of rescinding that action. The ACC program waiver, as it pertains to the GHG emission standards and ZEV mandates, will become effective should EPA rescind the prior action. On September 27, 2019, EPA and the National Highway Transportation Safety Administration (NHTSA) issued an action titled "The Safer Affordable Fuel-Efficient Vehicles Rule Part One: One National Program" (SAFE 1) that included, among other matters, EPA's determination that the Agency had authority to reconsider the ACC program waiver and that elements of the ACC program waiver should be withdrawn due to NHTSA's action under the Energy Policy & Conservation Act (EPCA) and Clean Air Act (CAA) preemption provisions. In addition, SAFE 1 included EPA's interpretation of whether States can adopt California's GHG emission standards under section 177 of the CAA.

EPA believes that there are significant issues regarding whether SAFE 1 was a valid and appropriate exercise of agency authority, including the amount of time that had passed since EPA's 2013 waiver decision, the novel approach and legal interpretations used in SAFE 1, and whether EPA took proper account of the environmental conditions in California and the environmental consequences from the waiver withdrawal in SAFE 1. Further, EPA will be addressing issues raised in several petitions for reconsideration of SAFE 1, including one filed by California (jointly with a number of States and Cities) and one jointly filed by nongovernmental organizations. Finally, on January 20, 2021, President Biden issued an Executive Order on "Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis." The President directed the Federal Agencies to "immediately review" SAFE 1, and to consider action "suspending, revising, or rescinding" that action by April 2021. Therefore, based upon the issues

associated with SAFE 1, the petitions for reconsideration, and the Executive Order, this **Federal Register** notice initiates reconsideration of SAFE 1 and announces a virtual public hearing as well as an opportunity to submit new written comment.

DATES:

Comments: Comments must be received on or before July 6, 2021.

Public Hearing: EPA will hold a virtual public hearing on June 2, 2021. Please refer to the **SUPPLEMENTARY INFORMATION** section for additional information on the public hearing. Additional information regarding the virtual public hearing and this action can be found at: <https://www.epa.gov/regulations-emissions-vehicles-and-engines/public-hearing-information-epas-notice-reconsideration>.

ADDRESSES: *Comments.* You may send your comments, identified by Docket ID No. EPA-HQ-OAR-2021-0257, by any of the following methods:

- *Federal eRulemaking Portal:* <http://www.regulations.gov> (our preferred method). Follow the online instructions for submitting comments.
- *Email:* a-and-r-Docket@epa.gov. Include Docket ID No. EPA-HQ-OAR-2021-0257 in the subject line of the message.
- *Mail:* U.S. Environmental Protection Agency, EPA Docket Center, Air Docket, Mail Code 28221T, 1200 Pennsylvania Avenue NW, Washington, DC 20460.

- *Hand Delivery or Courier (by scheduled appointment only):* EPA Docket Center, WJC West Building, Room 3334, 1301 Constitution Avenue NW, Washington, DC 20004. The Docket Center's hours of operations are 8:30 a.m.–4:30 p.m., Monday–Friday (except Federal Holidays).

Instructions: All submissions received must include the Docket ID No. for this action. Comments received may be posted without change to <https://www.regulations.gov>, including any personal information provided. For the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit

<http://www.epa.gov/dockets/commenting-epa-dockets>.

Out of an abundance of caution for members of the public and our staff, the EPA Docket Center and Reading Room are closed to the public, with limited exceptions, to reduce the risk of transmitting COVID-19. Our Docket Center staff will continue to provide remote customer service via email, phone, and webform. We encourage the public to submit comments via <https://www.regulations.gov> or email, as there may be a delay in processing mail and faxes. Hand deliveries and couriers may be received by scheduled appointment only. For further information on EPA Docket Center services and the current status, please visit us online at <https://www.epa.gov/dockets>.

EPA continues to monitor information carefully and continuously from the Centers for Disease Control and Prevention (CDC), local area health departments, and our Federal partners so that we can respond rapidly as conditions change regarding COVID-19.

Public Hearing. The virtual public hearing will be held on June 2, 2021. The hearing will begin at 9:00 a.m. Eastern Time (ET) and end when all parties who wish to speak have had an opportunity to do so. All hearing attendees (including those who do not intend to provide testimony and merely listen) should notify the SAFE1Hearing@epa.gov email address listed under **FOR FURTHER INFORMATION CONTACT** by May 25, 2021. Once an email is sent to this address you will receive an automatic reply with further information for registration. Be sure to check your clutter and junk mailboxes for this reply. Additional information regarding the hearing appears below under **SUPPLEMENTARY INFORMATION**.

FOR FURTHER INFORMATION CONTACT: For questions regarding this proposed action, contact David Dickinson, Office of Transportation and Air Quality, Transportation and Climate Division, Environmental Protection Agency; telephone number: (202) 343-9256; email address: dickinson.david@epa.gov. To register for the virtual public hearing, contact SAFE1hearing@epa.gov.

SUPPLEMENTARY INFORMATION:

I. Participation in Virtual Public Hearing
II. Background

- A. Scope of Preemption and Criteria for a Waiver Under the Clean Air Act
- B. The ACC Program Waiver
- C. The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program" (SAFE 1)
- D. Prior EPA Waiver Decisions for California Greenhouse Gas Emission Standards

E. The Petitions for Reconsideration
III. Request for Comments

I. Participation in Virtual Public Hearing

Please note that EPA is deviating from its typical approach because the President has declared a national emergency. Because of current CDC recommendations, as well as state and local orders for social distancing to limit the spread of COVID-19, EPA cannot hold in-person public meetings at this time.

EPA will begin pre-registering speakers for the hearing upon publication of this document in the **Federal Register**. To register to speak at the virtual hearing, please contact the email address listed in the **FOR FURTHER INFORMATION CONTACT** section. The last day to pre-register to speak at the hearing will be May 25, 2021.

Each commenter will have 3 minutes to provide oral testimony. EPA may ask clarifying questions during the oral presentations but will not respond to the presentations at that time. EPA recommends submitting the text of your oral comments as written comments to the rulemaking docket. Written statements and supporting information submitted during the comment period will be considered with the same weight as oral comments and supporting information presented at the public hearing. Please note that any updates made to any aspect of the hearing will be posted online at: <https://www.epa.gov/regulations-emissions-vehicles-and-engines/public-hearing-information-epas-notice-reconsideration>.

While EPA expects the hearing to go forward as set forth above, please monitor the website or contact the person listed in the **FOR FURTHER INFORMATION CONTACT** section to determine if there are any updates. EPA does not intend to publish a document in the **Federal Register** announcing updates. A copy of the hearing transcript will be placed into the docket.

If you require the services of a translator or special accommodations such as audio description, please pre-register for the hearing and describe your needs by May 25, 2021. EPA may not be able to arrange accommodations without advance notice.

II. Background

EPA is reconsidering a prior action that withdrew the January 9, 2013 waiver of preemption for the state of California's (California) Advanced Clean Car (ACC) program for purposes of rescinding the withdrawal action. The ZEV mandates and GHG emission

standards within the ACC program waiver will come into effect should EPA rescind this prior action.¹

Specifically, on September 27, 2019, NHTSA and EPA each finalized agency actions that addressed greenhouse gas (GHG) emissions standards for new motor vehicles and zero emissions vehicle (ZEV) mandates in a single **Federal Register** notice titled: "The Safer Affordable Fuel-Efficient Vehicles Rule Part One: One National Program" (SAFE 1).² In that notice, NHTSA codified regulatory text, and appendices, that provided its view that state regulation of fuel economy is preempted under the Energy Policy and Conservation Act (EPCA). On its part, EPA withdrew a waiver of preemption that had been previously granted to California for the regulation of motor vehicle emissions through GHG standards and a ZEV mandate. EPA's action also took into consideration preemption regulations issued by NHTSA under EPCA in SAFE 1. On January 20, 2021, President Biden issued an Executive Order 13990 on "Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis." The President directed each Federal agency to "immediately review" SAFE 1, and consider taking action "suspending, revising, or rescinding" it by April 2021.³ Accordingly, EPA has conducted a review of both the legal and factual predicates for SAFE 1. EPA now believes that there are significant issues with the SAFE 1 action, including the time elapsed since EPA's 2013 waiver decision (and associated reliance interests), the novel statutory interpretations set forth in SAFE 1, and whether EPA took proper account of the environmental conditions in California and the environmental consequences of the waiver withdrawal in SAFE 1. Further, subsequent to SAFE 1, EPA received several petitions for reconsideration, including one filed by California seeking clarification of the scope of the SAFE 1 action, one filed by California (jointly with a number of States and Cities), and one jointly filed by nongovernmental organizations that

¹ 78 FR 2112 (January 9, 2013). EPA's waiver action on January 9, 2013 was for several California emission standards, including the low emission vehicle (LEV) III regulations for criteria pollutants. SAFE 1 withdrew elements of the January 9, 2013 waiver pertaining to certain ZEV mandate and GHG emission standards. Other elements of the ACC program waiver remain in effect.

² The SAFE 1 action is at 84 FR 51310 (September 27, 2019).

³ This action is being issued only by EPA and, therefore, does not bear upon any future or potential action NHTSA may take regarding its decision or pronouncements in SAFE 1.

raised significant issues related to the agency's action in SAFE 1. EPA has evaluated each petition for reconsideration and believes there is merit in reviewing issues that petitioners have raised such as whether the withdrawal of the ACC program waiver was a valid exercise of EPA authority, and whether the Agency properly interpreted and applied the CAA preemption provisions. EPA has notified these petitioners that the agency will be addressing issues raised in their petitions as part of this proceeding.

In considering whether to rescind the action that withdrew portions of the ACC program waiver, EPA is seeking to determine whether it properly evaluated and exercised its authority to reconsider a previous waiver granted to CARB and whether the withdrawal was a valid and appropriate exercise of authority and consistent with judicial precedent.

EPA is providing the following summary of sections of the Clean Air Act that are applicable to the Agency's review of the California Air Resources Board's (CARB's) new motor vehicle emissions program, an overview of CARB's ACC program waiver and subsequent EPA action to withdraw portions of the ACC program waiver pertaining to CARB's GHG emission standards and ZEV mandate in SAFE 1, an overview of prior EPA waiver actions applicable to CARB's GHG emission standards for motor vehicles, and a brief description of the petitions for reconsideration filed with EPA after the completion of SAFE 1 in order to provide the context for agency solicitation of comments, which can be found in section "III. Request for Comments." EPA is not soliciting comments on the 2013 ACC program waiver decision, and therefore has not reopened that decision for comments. Specifically, EPA is not soliciting comments on issues addressed in the ACC program waiver decision beyond those issues addressed in the final SAFE 1 action. EPA will treat any other comments it receives as beyond the scope of this reconsideration proceeding.

A. Scope of Preemption and Criteria for a Waiver Under the Clean Air Act

Title II of the Clean Air Act, as amended, generally preempts states from setting emission standards for new motor vehicles. Section 209(a) provides:

No State or any political subdivision thereof shall adopt or attempt to enforce any standard relating to the control of emissions from new motor vehicles or new motor vehicle engines subject to this part. No state shall require

certification, inspection or any other approval relating to the control of emissions from any new motor vehicle or new motor vehicle engine as condition precedent to the initial retail sale, titling (if any), or registration of such motor vehicle, motor vehicle engine, or equipment.⁴

California is the only state that is eligible to seek and receive a waiver of preemption under the terms of section 209(b)(1). This section provides:

The Administrator, after notice and opportunity for public hearing, to waive application of the prohibitions of section 209(a) for any state that has adopted standards (other than crankcase emission standards) for the control of emissions from new motor vehicles or new motor vehicle engines prior to March 30, 1966, if the state determines that the state standards will be, in the aggregate, at least as protective of public health and welfare as applicable Federal standards. No such waiver shall be granted if the Administrator finds that—

(A) the determination of the state is arbitrary and capricious,

(B) the state does not need the state standards to meet compelling and extraordinary conditions, or

(C) the state standards and accompanying enforcement procedures are not consistent with section 202(a) of the Act.⁵

Previous decisions granting California waivers of Federal preemption for motor vehicle emission standards have stated that State standards are inconsistent with section 202(a) if there is inadequate lead time to permit the development of the necessary technology giving appropriate consideration to the cost of compliance within that time period or if the Federal and State test procedures impose inconsistent certification procedures.⁶

EPA has consistently interpreted Section 209(b) to require issuance of a waiver unless EPA finds that at least one of the three criteria is met.⁷ As

⁴ Section 209(a) of the Clean Air Act, 42 U.S.C. 7543(a).

⁵ Section 209(b)(1) of the Clean Air Act, 42 U.S.C. 7543(b)(1).

⁶ To be consistent, the California certification procedures need not be identical to the Federal certification procedures. California procedures would be inconsistent, however, if manufacturers would be unable to meet the state and Federal requirements with the same test vehicle during the same test. See, e.g., 43 FR 32182 (July 25, 1978).

⁷ This is different from most waiver proceedings before the Agency, where EPA typically determines whether it is appropriate to make certain findings necessary for granting a waiver, and if the findings are not made then a waiver is denied. This reversal of the normal statutory structure embodies and is consistent with the congressional intent of providing deference to California to maintain its own new motor vehicle emissions program. In

noted above, the three waiver criteria are properly seen as the criteria for denial. Prior to SAFE 1, EPA has consistently declined to consider other potential bases for denying a waiver such as Constitutional claims or the preemptive effect of other Federal statutes.⁸ In addition, EPA, given the text, legislative history and judicial precedent, has consistently interpreted section 209(b) as placing the burden on the opponents of a waiver to demonstrate that one of the criterion for a denial has been met.⁹ Thus, EPA's practice has been to defer and not to intrude in policy decisions made by California in adopting standards for protecting the health and welfare of its citizens.¹⁰

In 1977, Congress promulgated section 177 of the Clean Air Act, which permitted States to adopt California new motor vehicle emission standards for which a waiver of preemption has been granted if certain criteria are met.¹¹ Also known as the "opt-in" provision, section 177 of the Act, 42 U.S.C. 7507, provides:

Notwithstanding section 7543(a) of this title, any State which has plan provisions approved under this part may adopt and enforce for any model year standards relating to control of emissions from new motor vehicles or new motor vehicle engines and take such other actions as are referred to in

previous waiver decisions, EPA has recognized that the intent of Congress in creating a limited review based on specifically listed criteria was to ensure that the Federal government did not second-guess state policy choices. See 40 FR 23102, 23103 (May 28, 1975); 78 FR 2112, 2115 (January 9, 2013); 40 FR 23103–23104; see also LEV I waiver at 58 FR 4166 (January 13, 1993), Decision Document at 64. Similarly, EPA has stated its practice of leaving the decision on "ambiguous and controversial matters of public policy" to California's judgment. 78 FR 2112, 2115; 40 FR 23103, 23104; 58 FR 4166.

⁸ As EPA has stated on numerous occasions, section 209(b) of the Clean Air Act limits our authority to deny California's requests for waivers to the three criteria therein, and EPA has refrained from denying California's requests for waivers based on any other criteria. Where the Court of Appeals for the District of Columbia Circuit has reviewed EPA decisions declining to deny waiver requests based on criteria not found in section 209(b), the court has upheld and agreed with EPA's determination." 78 FR 2112, 2145 (citing *Motor and Equipment Manufacturers Ass'n v. Nichols (MEMA II)*, 142 F.3d 449, 462–63, 466–67 (D.C. Cir. 1998), *Motor and Equipment Manufacturers Ass'n v. EPA (MEMA I)*, 627 F.2d 1095, 1111, 1114–20 (D.C. Cir. 1979).

⁹ *MEMA* at 1120–1121; *MEMA II*.

¹⁰ EPA is "to afford California the broadest possible discretion in selecting the best means to protect the health of its citizens and the public welfare." *MEMA II*, 142 F.3d at 453 (quoting H.R. Rep. No. 95–294, at 301–02 (1977)); EPA " 'is not to overturn California's judgment lightly,' " *Id.*, at 463 (quoting H.R. Rep. No. 95–294, at 302 (1977), reprinted in 1977 U.S.C.A.N. at 1381).

¹¹ *Motor Vehicle Mfrs. Ass'n v. NYS Dep. of Env't Conservation*, 17 F.3d 521, 532 (2d Cir. 1994).

section 7543(a) of this title respecting such vehicles if—

(1) such standards are identical to the California standards for which a waiver has been granted for such model year, and

(2) California and such State adopt such standards at least two years before commencement of such model year (as determined by regulations of the Administrator).

Nothing in this section or in subchapter II of this chapter shall be construed as authorizing any such State to prohibit or limit, directly or indirectly, the manufacture or sale of a new motor vehicle or motor vehicle engine that is certified in California as meeting California standards, or to take any action of any kind to create, or have the effect of creating, a motor vehicle or motor vehicle engine different than a motor vehicle or engine certified in California under California standards (a “third vehicle”) or otherwise create such a “third vehicle”.

B. The ACC Program Waiver

On June 27, 2012, CARB notified EPA of its adoption of the ACC program regulatory package that contained amendments to its low-emission vehicle (LEV) and ZEV mandate and requested a waiver of preemption under section 209(b) to enforce regulations pertaining to this program.¹² The ACC program combined the control of smog and soot-causing pollutants and GHG emissions into a single coordinated package of requirements for passenger cars, light-duty trucks, and medium-duty passenger vehicles (and limited requirements related to heavy-duty vehicles for certain model years). On August 31, 2012, EPA issued a notice of opportunity for public hearing and written comment on CARB’s request and solicited comment on all aspects of a full waiver analysis under the criteria of section 209(b) of the CAA.¹³ On January 9, 2013, EPA granted California’s request for a waiver of preemption to enforce the ACC program regulations.¹⁴

Set forth in the ACC program waiver decision is a summary discussion of EPA’s decision to depart from its

traditional interpretation of section 209(b)(1)(B) (the second waiver prong) in the 2008 waiver denial for CARB’s initial GHG standards for certain earlier model years along with EPA’s return to the traditional interpretation in the waiver issued in 2009.¹⁵ The traditional interpretation, which EPA stated is the better interpretation of section 209(b)(1)(B), calls for evaluating California’s need for a separate motor vehicle emission program to meet compelling and extraordinary conditions. Because EPA received comment on this issue during the ACC program waiver proceeding, as it pertained to both CARB’s GHG emission standards and ZEV mandate, the Agency once again recounted the interpretive history associated with standards for both GHG emissions and criteria air pollutants to explain EPA’s belief that section 209(b)(1)(B) should be interpreted the same way for all air pollutants.¹⁶ Applying this approach, and with deference to California, EPA found that it could not deny the waiver under the second waiver prong.¹⁷ Without adopting an alternative interpretation, EPA noted that to the extent that it was appropriate to examine the need for CARB’s GHG standards to meet compelling and extraordinary conditions, EPA had discussed at length in its 2009 GHG waiver decision that California does have compelling and extraordinary conditions directly related to regulations of GHGs.¹⁸ Similarly, to the extent that it was appropriate to examine the need for CARB’s ZEV mandate, EPA noted that the ZEV mandate in the ACC program enables California to meet both its air quality and climate goals into the future. EPA recognized CARB’s coordinated strategies reflected in the ACC program for addressing both criteria pollutants and greenhouse gases and the magnitude of the technology and energy transformation needed to meet such goals.¹⁹ Therefore, EPA determined that to the extent the second waiver criterion

should be interpreted to mean a need for the specific standards at issue, then CARB’s GHG emission standards and ZEV mandate satisfy such a finding.²⁰

Also included in the ACC program waiver is a discussion of the technological feasibility of the ACC program GHG emission standards and the ZEV mandate as evaluated under section 209(b)(1)(C).²¹

Further, in response to a comment that the waiver request for GHG emission standards should be denied because GHG standards relate to fuel economy and are expressly preempted by the Energy Policy and Conservation Act (EPCA), EPA explained that section 209(b) of the Act limits the Agency’s authority to deny California’s requests for waivers to the three criteria therein and that the Agency has consistently refrained from denying California’s requests for waivers based on any other criteria. EPA also relied on judicial precedent as support.²²

C. “The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program” (SAFE 1)

In 2018, NHTSA issued a proposal for the next generation of the Congressionally-mandated Corporate Average Fuel Economy (CAFE) standards that must be achieved by each manufacturer for its car and light-duty truck fleet while EPA revisited its light-duty vehicle GHG emissions standards for certain model years in the rulemaking titled: “The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks.”²³ EPA also proposed to withdraw the waiver for the ACC program GHG emission standards and ZEV mandate under both sections 209(b)(1)(B) and (C), based upon the Agency’s exercise of its inherent authority to reconsider a previously granted waiver under the Clean Air Act. As part of EPA’s asserted authority to reconsider that ACC program waiver issued in 2013, EPA noted the changed circumstances including its reassessment of section 209(b)(1)(B) as well as EPA’s new assessment of the feasibility of CARB’s standards under section 209(b)(1)(C). In addition, EPA noted that the proposal presented a unique situation to consider the implications of NHTSA’s proposed

¹⁵ 73 FR 12156 (March 6, 2008); 74 FR 32744 (July 8, 2009).

¹⁶ 78 FR 2112, 2125–2128.

¹⁷ *Id.* at 2129. “CARB has repeatedly demonstrated the need for its motor vehicle program to address compelling and extraordinary conditions in California. As discussed above, the term compelling and extraordinary conditions “does not refer to the levels of pollution directly.” Instead, the term refers primarily to the factors that tend to produce higher levels of pollution—geographical and climatic conditions (like thermal inversions) that, when combined with large numbers and high concentrations of automobiles, create serious air pollution problems. California still faces such conditions.”

¹⁸ *Id.* at 2129–2130.

¹⁹ *Id.* at 2130–2131.

²⁰ *Id.* at 2129–2131.

²¹ *Id.* at 2131–2143.

²² *Id.* at 2145 (“Where the Court of Appeals for the District of Columbia Circuit has reviewed EPA decisions declining to deny waiver requests based on criteria not found in section 209(b), the court has upheld and agreed with EPA’s determination.” See *MEMA II* at 462–63, *MEMA I* at 1114–20).

²³ 83 FR 42986 (August 24, 2018).

¹² CARB’s June 12, 2012 waiver request (including its attachments) was included in EPA’s Air Docket at EPA–HQ–OAR–2012–0562–0002 *et seq.* The waiver request and attachments have also now been placed in EPA’s Air Docket pertaining to this reconsideration at EPA–HQ–OAR–2021–0257. A complete description of the ACC program, as it existed at the time that CARB applied for the 2013 waiver, can be found in the docket for the January 2013 waiver action, Docket No. EPA–HQ–OAR–2012–0562.

¹³ 77 FR 53199 (August 31, 2012).

¹⁴ 78 FR 2112 (January 9, 2013).

conclusion of EPCA preemption for California's GHG emission standards and ZEV mandate. EPA proposed to conclude that state standards preempted under EPCA cannot be afforded a valid section 209(b) waiver and thus also proposed that, if NHTSA finalized its determination regarding California's GHG standards and ZEV mandate, it would be necessary to withdraw the waiver separate and apart from section 209(b)(1)(B) and (C).

On September 27, 2019, EPA and NHTSA published a final action titled: "The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program" (SAFE 1) that promulgated regulations reflecting NHTSA's conclusion that EPCA preempted California's GHG standards and ZEV mandate. In the same action EPA withdrew the waiver of preemption for California to enforce the ACC program GHG and ZEV mandate on two grounds.²⁴ First, EPA posited that standards preempted under EPCA could not be afforded a valid waiver of preemption under section 209(b). EPA explained that agency pronouncements in the ACC program waiver decision on the historical practice of disregarding the preemptive effect of EPCA in the context of evaluating California's waiver applications "was inappropriately broad, to the extent it suggested that EPA is categorically forbidden from ever determining that a waiver is inappropriate due to consideration of anything other than the 'criteria' or 'prongs' at CAA section 209(b)(1)(B)(A)–(C)."²⁵ EPA further explained that those pronouncements were made in waiver proceedings where the agency was acting solely on its own in contrast to a joint action with NHTSA such as SAFE 1. Additionally, EPA expressed intentions not to consider factors other than statutory criteria set out in section 209(b)(1)(A)–(C) in future waiver proceedings, but explained that addressing the preemptive effect of EPCA and its implications for EPA's waiver for California standards was called for in SAFE 1 because EPA and NHTSA were coordinating regulatory actions in a single notice.²⁶

Second, EPA withdrew the waiver for GHG standards and ZEV mandate on two alternative grounds under the second waiver prong. Specifically, EPA determined that California does not need the GHG standards "to meet compelling and extraordinary conditions," under section 209(b)(1)(B) and even if California does have

compelling and extraordinary conditions in the context of global climate change, California does not "need" the GHG standards, under section 209(b)(1)(B) because they will not meaningfully address global air pollution problems of the type associated with GHG emissions.²⁷

EPA premised the agency's finding on a consideration of California's "need" for its own GHG and ZEV programs, instead of the "need" for a separate motor vehicle emission program to meet compelling and extraordinary conditions. In doing so, EPA read "such State standards" in section 209(b)(1)(B) as ambiguous with respect to the scope of agency analysis of California waiver requests and posited that reading this phrase as requiring EPA to only and always consider California's entire motor vehicle program would limit the application of this waiver prong in a way that EPA did not believe Congress intended. EPA further noted that the Supreme Court had found that Clean Air Act provisions may apply differently to GHGs than they do to traditional pollutants in *UARG v. EPA*, 134 S. Ct. 2427 (2014) (partially reversing the GHG "Tailoring" Rule on grounds that the section 202(a) endangerment finding for GHG emissions from motor vehicles did not compel regulation of all sources of GHG emissions under the Prevention of Significant Deterioration and Title V permit programs).

EPA then interpreted section 209(b)(1)(B) as turning on whether there is a particularized, local nexus between (1) pollutant emissions from sources, (2) air pollution, and (3) resulting impact on health and welfare.²⁸ EPA stated that these elements match the elements of the predicate finding EPA must make before regulating, under section 202(a)(1), and are evident in California's criteria-pollutant problems, which prompted Congress to enact the waiver provision.²⁹ Under this interpretation, EPA concluded that no such California nexus exists for greenhouse gases: (1) These emissions from California cars are no more relevant to climate-change impacts in the state than emissions from cars elsewhere; (2) the resulting pollution is globally mixed; and (3) climate-change impacts in California are not extraordinary to that state.³⁰ EPA further determined that "such State standards" in sections 209(b)(1)(B) and (C) should be read consistently, which was a departure from the traditional approach where this phrase is read as

referring back to "in the aggregate" in section 209(b)(1).³¹ EPA further reasoned that the most stringent regulatory alternative considered in the 2012 final rule and Final Regulatory Impact Analysis, which would have required a seven percent average annual fleetwide increase in fuel economy for MYs 2017–2025 compared to MY 2016 standards, was forecasted to decrease global temperatures by only 0.02 °C in 2100.³²

Finally, as support for the determination that California did not need the ZEV mandate requirements to meet compelling and extraordinary conditions, EPA relied on a statement in the ACC program waiver support document where CARB noted that there were no criteria emissions benefit in terms of vehicle (tank-to-wheel) emissions because its LEV III criteria pollutant fleet standard was responsible for those emission reductions.³³

Regarding burden of proof in waiver proceedings, the agency posited that it was "not necessary to resolve this issue as regardless of whether a preponderance of the evidence or clear and compelling evidence standard is applied, the Agency was concluding that withdrawal of the waiver was appropriate."³⁴

EPA did not finalize the withdrawal of the waiver under the third waiver criterion at section 209(b)(1)(C), as proposed, explaining instead that EPA and NHTSA were not finalizing the proposed assessment regarding the technological feasibility of the Federal GHG standards for MY 2021 through 2025 in SAFE 1.³⁵

In withdrawing the waiver, EPA asserted that authority to reconsider and withdraw the grant of a waiver for the ACC program was implicit in section 209(b) given that the authority to revoke a waiver is implied in the authority for EPA to grant a waiver. The Agency

³¹ *Id.* at 51345.

³² *Id.* at 51349.

³³ "There is no criteria emissions benefit from including the ZEV proposal in terms of vehicle (tank-to-wheel or TTW) emissions." CARB ACC program waiver request at 15 (May 2012), EPA–HQ–OAR–2012–0562–0004.

³⁴ 84 FR 51310, 51344 n.268. At proposal, EPA also took comment on the burden of proof in waiver proceedings even though the Agency had initiated reconsideration of the grant of the ACC program waiver and such evidentiary aspects for section 209(b) waivers had long been settled. *Motor and Equip. Mfrs Ass'n. v. EPA*, 627 F.2d 1095, 1121, n.19, 1126 (D.C. Cir. 1979) (*MEMA I*).

³⁵ 84 FR 51310, 51350. EPA had proposed to determine, as an additional basis for the waiver withdrawal, that new GHG standards and ZEV mandate for 2021 through 2025 model years are not consistent with section 202(a) of the Clean Air Act, including how costs should be properly considered. EPA's waiver for CARB's ACC program, issued in 2013, fully evaluated this criterion.

²⁴ 84 FR 51310 (September 27, 2019).

²⁵ *Id.* at 51338.

²⁶ *Id.*

²⁷ 84 FR 51310, 51328–51333.

²⁸ *Id.* at 51339, 51347.

²⁹ *Id.* at 51339–5134040, 51348–451349.

³⁰ *Id.*

claimed further support for authority based on the legislative history of section 209(b) and the judicial principle that agencies possess inherent authority to reconsider their decisions:

The legislative history from the 1967 CAA amendments where Congress enacted the provisions now codified in section 209(a) and (b) provides support for this view. The Administrator has “the right . . . to withdraw the waiver at any time [if] after notice and an opportunity for public hearing he finds that the State of California no longer complies with the conditions of the waiver.” S. Rep. No. 50–403, at 34 (1967).³⁶

EPA also noted that, subject to certain limitations, administrative agencies possess inherent authority to reconsider their decisions in response to changed circumstances:

It is well settled that EPA has inherent authority to reconsider, revise, or repeal past decisions to the extent permitted by law so long as the Agency provides a reasoned explanation. This authority exists in part because EPA’s interpretations of the statutes it administers “are not carved in stone.” *Chevron U.S.A. Inc. v. NRDC, Inc.*, 467 U.S. 837, 863 (1984). An agency “must consider varying interpretations and the wisdom of its policy on a continuing basis.” *Id.* at 863–64. This is true when, as is the case here, review is undertaken “in response to . . . a change in administration.” *National Cable & Telecommunications Ass’n v. Brand X internet Services*, 545 U.S. 967, 981 (2005). The EPA must also be cognizant where it is changing a prior position and articulate a reasoned basis for the change. *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515 (2009).³⁷

EPA opined that the text, structure, and context of section 209(b) support EPA’s interpretation that it has this authority. EPA further asserted that no cognizable reliance interests had accrued sufficient to foreclose EPA’s ability to exercise this authority.³⁸ EPA stated:

In tying the third waiver prong to CAA section 202(a), Congress gave a clear indication that, in determining whether to grant a waiver request, EPA is to engage in a review that involves a considerable degree of future prediction, due to the expressly future-oriented terms and function of CAA section 202(a). In turn, where circumstances arise that suggest that such predictions may have been inaccurate, it necessarily follows that EPA has authority to revisit

those predictions with regard to rules promulgated under CAA section 202(a), the requirements of that section, and their relation to the California standards at issue in a waiver request, and, on review, withdraw a previously granted waiver where those predictions proved to be inaccurate.³⁹

EPA also disagreed with some commenters’ assertions that ostensible reliance interests foreclose withdrawal of the waiver for MY 2021–2025 GHG and ZEV standards.⁴⁰ EPA stated that “CAA section 177 States do not have any reliance interests that are engendered by the withdrawal of the waiver for the MY 2021–2025 GHG and ZEV standards.”⁴¹

In SAFE 1, EPA provided an interpretation of section 177 of the CAA, including the notion that this section does not authorize other states to adopt California’s greenhouse gas emission standards for which EPA had granted a waiver of preemption under section 209(b). Although section 177 does not

require States that adopt California emission standards to submit such regulations for EPA review, EPA chose to nevertheless provide an interpretation that this provision is available only to states with approved nonattainment plans. EPA stated that nonattainment designations exist only as to criteria pollutants and greenhouse gases are not criteria pollutants; therefore, states could not adopt GHG standards under section 177.⁴² Notably, California in previous waiver requests has addressed the benefits of GHG emissions reductions as it relates to ozone.

D. Prior EPA Waiver Practice

For over fifty years, EPA has evaluated California’s requests for waivers of preemption under section 209(b), primarily considering CARB’s motor vehicle emission program that addresses criteria pollutants.⁴³ More recently, the Agency has been tasked with determining how section 209(b)(1)(B) should be interpreted and applied in the context of GHG standards and California’s historical air quality problems, including the public health and welfare challenge of climate change. Although the withdrawal and revocation of the waiver for CARB’s ACC program, in SAFE 1, represents a snapshot of this task, it is important to examine EPA’s waiver practice in general, including prior waiver decisions pertaining to CARB GHG emission standards, in order to determine whether EPA properly reconsidered the ACC program waiver and properly applied the waiver criterion in section 209(b)(1)(B) in SAFE 1. A summary of EPA’s historical waiver practice and decisions regarding CARB’s regulation of criteria and GHG emissions, including EPA’s consideration of the second waiver prong, is provided below.

EPA has consistently interpreted and applied the second waiver criterion by

³⁹ *Id.* at 51332, 51334. As noted above, however, EPA did not withdraw the ACC waiver based on the third waiver prong of Section 209(b). 84 FR at 51334. Further, by way of example, EPA stated that California as well as other parties, such as section 177 states, were on notice that EPA would be conducting a midterm evaluation (MTE) of the Federal GHG emission standards and that such circumstances indicate a lack of sufficient reliance interests to preclude EPA’s reconsideration of the ACC waiver issued in 2013. As relevant here, EPA’s October 15, 2012 rulemaking setting GHG emission standards for 2017 and later model years included a commitment to perform the MTE for the Federal 2022 through 2025 model year standards. 77 FR 62624 (October 15, 2012). The MTE called for EPA to issue a final determination regarding whether the Federal MY 2022–2025 GHG standards remained appropriate under section 202(a). On January 12, 2017, EPA completed the MTE and determined that GHG standards for MY 2022–2025 remained appropriate under section 202(a). Subsequently, EPA withdrew the January 2017 final determination and revised the finding of appropriateness, concluding instead that GHG standards for MY 2022–2025 were not appropriate and, therefore, should be revised. 83 FR 16077 (April 13, 2018).

⁴⁰ According to commenters “California, and the section 177 states that have elected to adopt those standards as their own have incurred reliance interests ultimately flowing from those standards. For instance, California has incurred reliance interests because it is mandated to achieve an aggressive GHG emissions reduction target for 2030 . . . “[b]ut EPA provides no justification for applying that change in policy retroactively to upend a five-year old decision to which substantial reliance interests have attached.” 84 FR 51310, 51331, 51334–51335.

⁴¹ *Id.* at 51336. Regarding states that had adopted the GHG standards into state implementation plans (SIPs), under section 177, EPA explained that because “Title I does not call for NAAQS attainment planning as it relates to GHG standards, those States that may have adopted California’s GHG standards and ZEV standards for certain MYs would also not have any reliance interests. 84 FR 51310, 52335. “EPA did, however, acknowledge the possibility of SIP implications arising from the withdrawal of these standards and indicated that the agency would engage in future actions to address those implications. *Id.* at 51338, n. 256.

⁴² *Id.* at 51350–51351. Since EPA was offering its views of section 177 in the abstract, its interpretation of section 177 in SAFE 1 did not have direct and appreciable legal consequences and was not a “final action” of the agency.

⁴³ EPA notes that the 1990 amendments to the Clean Air Act added subsection (e) to section 209. Subsection (e) addresses the preemption of State or political subdivision regulation of emissions from nonroad engines or vehicles. Section 209(e)(2)(A) sets forth language similar to section 209(b) in terms of the criteria associated with EPA waiving preemption, in this instance for California nonroad vehicle and engine emission standards. Congress directed EPA to implement subsection (e). See 40 CFR part 1074. EPA review of CARB requests submitted under section 209(e)(2)(A)(i) includes consideration of whether CARB needs its nonroad vehicle and engine program to meet compelling and extraordinary conditions. See 78 FR 58090 (September 20, 2013).

³⁶ *Id.* at 51332.

³⁷ *Id.* at 51333.

³⁸ *Id.* at 51331–51337.

considering whether California needed a separate mobile source program as compared to the individual standards at issue to meet compelling and extraordinary conditions. As previously noted, this is known as the “traditional approach” of interpreting section 209(b)(1)(B).⁴⁴ At the same time, in the event and in response to commenters that have argued that EPA is required to examine the specific standards at issue in the waiver request, EPA’s practice has been to retain the traditional approach but to nevertheless review the specific standards to determine whether California needs such standards. This has not meant that EPA has adopted an “alternative approach” and required a demonstration for the need of specific standards; rather, this additional Agency review has been afforded to address commenters’ concerns. For example, EPA granted an authorization for CARB’s In-use Off-road Diesel Standards (Fleet Requirements) that included an analysis under both approaches.⁴⁵

The task of interpreting and applying section 209(b)(1)(B) to California’s GHG standards and consideration of the state’s historical air quality problems that now include the public health and welfare challenge of climate change began in 2005, with CARB’s waiver request for 2009 and subsequent model years’ GHG emission standards. On March 6, 2008, EPA denied the waiver request based on a new interpretive finding that section 209(b) was intended for California to enforce new motor vehicle emission standards that address local or regional air pollution problems, and an Agency belief that California could not demonstrate a “need” under section 209(b)(1)(B) for standards intended to address global climate change problems. EPA also employed this new alternative interpretation to state a belief that the effects of climate change in California are not compelling and extraordinary in comparison with the rest of the country. Therefore, within this waiver denial, EPA no longer evaluated whether California had a need for its motor vehicle emission program to meet compelling and extraordinary conditions (the traditional interpretation) but rather focused on the specific GHG emission standard in

isolation and not in conjunction with the other motor vehicle emission standards for criteria pollutants.

In 2009, EPA initiated a reconsideration of the 2008 waiver denial based on a belief that significant issues had been raised since the denial of the waiver.⁴⁶ The reconsideration resulted in granting CARB a waiver for its GHG emission standards commencing in the 2009 model year.⁴⁷ This led to a rejection of the Agency’s novel alternative interpretation of the second waiver prong announced in the previous waiver denial. Instead, EPA returned to its traditional approach of evaluating California’s need for a separate motor vehicle emission program to meet compelling and extraordinary conditions because the agency viewed it as the better interpretation. Under the traditional interpretation of the second waiver prong, EPA found that the opponents of the waiver had not met their burden of proof to demonstrate that California did not need its motor vehicle emission program to meet compelling and extraordinary conditions. EPA also determined that, even if the alternative interpretation were to be applied, the opponents of the waiver had not demonstrated that California did not need its GHG emissions standards to meet compelling and extraordinary conditions.⁴⁸ Since then EPA has employed the traditional approach for evaluating California’s need for a separate motor vehicle emissions program in waiver requests. Notably, EPA also relied on the traditional approach in granting the waiver for the ACC program.

Within the context of EPA’s evaluation of the second waiver prong and California’s GHG emission standards for on-highway vehicles, EPA notes the existence of two waivers of preemption for CARB’s heavy-duty tractor-trailer (HD) GHG emission standards.⁴⁹ Once again, EPA relied upon its traditional approach of evaluating California’s need for a separate motor vehicle emission program to meet compelling and extraordinary conditions and found that no evidence had been submitted to demonstrate that California no longer

needed its motor vehicle emissions program to meet compelling and extraordinary conditions.⁵⁰ EPA’s second waiver for the HD GHG emission standards made a similar finding that California’s compelling and extraordinary conditions continue to exist under the traditional approach for the interpretation of the second waiver criterion.⁵¹

F. Petitions for Reconsideration

After it issued SAFE 1, EPA received multiple petitions for reconsideration urging the agency to reconsider the withdrawal of the ACC program’s GHG standards and ZEV mandate on various grounds. EPA has granted the following petitions for reconsideration of SAFE 1 that were pending before the Agency:⁵²

1. A Petition for Clarification/ Reconsideration submitted by the State of California (the California Attorney General and the California Air Resources Board), on October 9, 2019 (California Petition for Clarification).⁵³ The Petitioner sought both a

⁵⁰ Relatedly, California explained the need for these standards based on projected “reductions in NOx emissions of 3.1 tons per day in 2014 and one ton per day in 2020 due to the HD GHG Regulations. California state[d] that these emissions reductions will help California in its efforts to attain applicable air quality standards. California further projects that the HD GHG Regulations will reduce GHG emissions in California by approximately 0.7 million metric tons (MMT) of carbon dioxide equivalent emissions (CO₂e) by 2020.” 79 FR 46256, 46261.

⁵¹ 81 FR 95982, 95987. At the time of CARB’s Board adoption of the HD Phase I GHG regulation, CARB determined in Resolution 13–50 that California continues to need its own motor vehicle program to meet serious ongoing air pollution problems. CARB asserted that “[t]he geographical and climatic conditions and the tremendous growth in vehicle population and use that moved Congress to authorize California to establish vehicle standards in 1967 still exist today. EPA has long confirmed CARB’s judgment, on behalf of the State of California, on this matter.” (See EPA Air Docket at regulations.gov at EPA–HQ–OAR–2016–0179–0012). In enacting the California Global Warming Solutions Act of 2006, the Legislature found and declared that “Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to the marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other health-related problems.”

⁵² Separately from this action, EPA has notified the Parties to each of the Petitions for Reconsideration and informed them that EPA is initiating an action under the Administrative Procedure Act to reconsider SAFE 1. Copies of EPA’s reply letters can be found in the public docket at EPA–HQ–OAR–2021–0257.

⁵³ Copies of the petitions for reconsideration can be found in the public docket at EPA–HQ–OAR–2021–0257.

⁴⁴ 49 FR 18887, 18890 (May 3, 1984).

⁴⁵ 78 FR 58090 (Sept. 20, 2013). The United States Court of Appeals for the Ninth Circuit upheld EPA’s grant of a waiver of preemption under either approach. *Dalton Trucking v. EPA*, No. 13–74019 (9th Cir. 2021) (finding that EPA was not arbitrary in granting the waiver of preemption under either approach). The court opinion noted that “[t]his disposition is not appropriate for publication and is not precedent except as provided by Ninth Circuit Rule 36–3.”

⁴⁶ 74 FR 7040 (February 12, 2009).

⁴⁷ 74 FR 32744 (July 8, 2009).

⁴⁸ *Id.* at 32759–32767. See also 76 FR 34693 (June 14, 2011).

⁴⁹ The first HD GHG emissions standard waiver related to certain new 2011 and subsequent model year tractor-trailers. 79 FR 46256 (August 7, 2014). The second HD GHG emissions standard waiver related to CARB’s “Phase I” regulation for 2014 and subsequent model year tractor-trailers. 81 FR 95982 (December 29, 2016).

clarification and reconsideration of the scope of SAFE 1 as it related to the withdrawal of portions of the ACC program waiver. Regarding clarification, the Petitioner cited somewhat contradictory statements in SAFE 1 and indicated that there was confusion regarding model years that were affected by the waiver withdrawal.⁵⁴ The Petitioner also requested reconsideration on grounds that the final action relied on analyses and justifications not presented at proposal and thus, was beyond the scope of the proposal.⁵⁵

2. A Petition for Reconsideration was submitted by several States and Cities on November 26, 2019 (States and Cities' Petition).⁵⁶ This petition presented several issues, including whether EPA failed to articulate a valid rationale to support its authority to revoke the GHG standards and ZEV mandate and instead relied on facially unclear theories not made available at proposal for public comment.

Petitioners further asserted that EPA unlawfully changed course in SAFE 1 by considering (and relying on) the purported preemptive effect of EPCA, which is outside the confines of section 209(b) and argued that the agency rationale for withdrawing the waiver was flawed. They also disagreed with the Agency's interpretation of section 209(b)(1)(B) and EPA's reassessment of the factual record that existed at the time of the ACC program waiver, which led to a new finding under the second

waiver prong and a new result in SAFE 1. They asserted, for example, that EPA's new reliance on the "endangerment provision" in Section 202(a) does not support EPA's section 209(b)(1)(B) interpretation or conclusion and that the use of the equal sovereignty principle to inform EPA's interpretation of "compelling and extraordinary conditions" was inappropriate. Additionally, Petitioners asserted that EPA should have considered all supporting documentation instead of only considering the 2013 waiver record and that EPA failed to consider new evidence that further demonstrated California's need for GHG emission standards and ZEV mandates to address compelling and extraordinary conditions in California.

3. Petition for Reconsideration by several non-governmental organizations on November 25, 2019 (NGOs' Petition).⁵⁷ Petitioners asserted that EPA's reconsideration of the ACC program waiver was not a proper exercise of agency authority and that EPA relied on improper considerations in its decision-making. Petitioners cast the agency's rationale as "pretextual." The NGOs' Petition further noted that EPA did not properly interpret and apply the second waiver prong and markedly ignored new evidence that further demonstrated California's need for its GHG emission standards and ZEV mandates to address compelling and extraordinary conditions in California.⁵⁸

V. Request for Comment

When EPA receives new waiver requests from CARB, EPA traditionally publishes a notice of opportunity for public hearing and comment and then, after the comment period has closed, publishes a notice of its decision in the **Federal Register**. EPA believes it is appropriate to use the same procedures for reconsidering SAFE 1. EPA notes that, consistent with caselaw and EPA's past practice for California waivers, this proceeding is subject to the Administrative Procedure Act (APA) and is considered an informal adjudication under the APA. EPA

encourages interested parties to provide comments on the topics below for consideration by EPA, in the context of reconsidering SAFE 1 and reaching a decision on rescinding that prior agency action. As noted below, EPA seeks public comment, in the context of SAFE 1 and now the Agency's reconsideration, on whether the Agency properly exercised its authority in reconsidering the ACC program waiver and whether the second waiver prong at section 209(b)(1)(B) was properly interpreted and applied. Additionally, EPA seeks comment on whether EPA had the authority in the SAFE 1 context to interpret section 177 of the CAA and whether the interpretation was appropriate, as well as whether EPA properly considered EPCA preemption and its effect on California's waiver. EPA will take all relevant comments into consideration before taking final action.

The full waiver analysis, for new waiver requests, includes consideration of the following three criteria: Whether (a) California's determination that its motor vehicle emission standards are, in the aggregate, at least as protective of public health and welfare as applicable Federal standards is arbitrary and capricious, (b) California needs such standards to meet compelling and extraordinary conditions, and (c) California's standards and accompanying enforcement procedures are consistent with section 202(a) of the Clean Air Act.

In contrast, in this instance EPA is not considering an initial waiver request (e.g., the 2012 ACC program waiver request from CARB, which EPA granted long ago, in 2013). Rather, EPA is now in the position of reconsidering the Agency's prior withdrawal of a waiver action (SAFE 1) for the purpose of determining whether the withdrawal was a valid exercise of the Agency's authority and consistent with judicial precedent and whether the agency's action in SAFE 1 should now be rescinded. Relatedly, certain ZEV mandate and GHG emission standards within the ACC program would become effective should EPA rescind SAFE 1.

EPA's purpose in soliciting public comment is to determine whether SAFE 1 was a valid and appropriate exercise of the Agency's authority. EPA is only reconsidering SAFE 1 and not reopening the ACC program waiver decision for comments. Therefore, EPA is not soliciting comments on issues raised and evaluated by EPA in the 2013 ACC program waiver decision that were not raised and evaluated in the final SAFE 1 decision. EPA intends to treat any

⁵⁴ The California Petition for Clarification notes "[i]n the Final Actions, EPA makes statements that are creating confusion, and, indeed, appear contradictory, concerning the temporal scope of its action(s)—specifically, which model years are covered by the purported withdrawal of California's waiver for its GHG and ZEV standards. In some places, EPA's statements indicate that it has limited its action(s) to the model years for which it proposed to withdraw and for which it now claims to have authority to withdraw—namely model years 2021 through 2025. In other places, however, EPA's statements suggest action(s) with a broader scope—one that would include earlier model years."

⁵⁵ "To the extent that EPA's response to this petition would result in final action(s) beyond the scope of what EPA proposed, or would contain analyses or justifications not included in the Proposal (such as purported justifications for broader withdrawal authority), then EPA must withdraw at least the portion of the Final Actions that extend beyond the Proposal, issue a revised proposal and accept and consider public comment before taking any final action." California Petition for Clarification at 9.

⁵⁶ See EPA-HQ-OAR-2021-0257. This Petition was joined by the States of California, Colorado, Connecticut, Delaware, Hawaii, Illinois, Maine, Maryland, Minnesota, Nevada, New Jersey, New Mexico, New York, North Carolina, Oregon, Rhode Island, Vermont, Washington, Wisconsin, Michigan, the Commonwealths of Massachusetts, Pennsylvania, and Virginia, the District of Columbia, and the Cities of Los Angeles, New York, San Francisco, and San Jose..

⁵⁷ See EPA-HQ-OAR-2021-0257. This Petition was joined by The Center for Biological Diversity, Chesapeake Bay Foundation, Environment America, Environmental Defense Fund, Environmental Law & Policy Center, Natural Resources Defense Council, Public Citizen, Inc., Sierra Club, and the Union of Concerned Scientists.

⁵⁸ Among the comments is a letter from the CARB, dated June 17, 2019, in support of Petitioners' arguments that EPA improperly considered the reliance interests associated with the ACC program waiver and that EPA improperly understood the scope of the need for the ZEV mandate and GHG standards to address a variety of transportation conformity obligations as well as State Implementation Plan planning requirements.

such comments as beyond the scope of this action.

EPA is seeking to determine whether it properly evaluated and exercised its authority in reconsidering a previous waiver granted to CARB and whether the withdrawal was a valid exercise of authority and consistent with judicial precedent. EPA specifically seeks comment on the matters raised in the Petitions for Reconsideration as they pertain to these evaluations.

EPA is interested in any information or comments regarding EPA's inherent or implied authority to reconsider previously granted waivers. In particular, to the extent EPA has such authority, EPA seeks comments as to whether there are particular factors or issues that the Agency is required to take into consideration, and whether EPA properly evaluated such factors when reaching the decision in SAFE 1 to reconsider the ACC program waiver and withdraw elements of it. For example, was it permissible for EPA to withdraw elements of the ACC program waiver over five years after it was issued? Were the grounds EPA provided in SAFE 1 a valid basis for withdrawing the identified elements of the ACC program waiver? Did EPA properly identify and consider any relevant reliance interests, such as the inclusion of GHG emission standards and ZEV mandates in approved SIPs, in its SAFE 1 action? Similarly, are there particular factors or reliance interests that EPA should consider in reconsidering the SAFE 1 action and recognizing the validity of EPA's 2013 ACC program waiver?

EPA's decision to change course and withdraw the ACC program waiver, as it related to CARB's GHG emission standards and EPA's finding that such standards were only designed to address climate change and a global air pollution problem, was based in large part on a new interpretation of section 209(b)(1)(B)—the second waiver prong regarding whether California “needs such standards to meet compelling and extraordinary conditions.” EPA is also interested in any new or additional information or comments regarding whether it appropriately interpreted and applied section 209(b)(1)(B) in SAFE 1. For example, was it permissible for EPA to construe section 209(b)(1)(B) as calling for a consideration of California's need for a separate motor vehicle program where criteria pollutants are at issue and a consideration of California's specific standards where GHG standards are at issue?

Likewise, EPA's decision to withdraw the ACC program waiver as it relates to

California's ZEV mandate, based on the same new interpretation and application of the second waiver prong, rested heavily on the conclusion that California only adopted the ZEV program to achieve GHG emission reductions. EPA recognizes that this conclusion, in turn, rested solely on a specific reading of CARB's ACC program waiver request.⁵⁹ EPA requests comment on these specific conclusions and readings as well as within the context of environmental conditions in California whether the withdrawal of the ACC program waiver as it applied to the ZEV mandate was permissible and appropriate, under applicable factors identified above and in relevant caselaw.

We also seek comment on EPA's action in SAFE 1 regarding section 177 of the CAA. Specifically, EPA seeks comment on whether it was appropriate for EPA to provide an interpretation of section 177 within the SAFE 1 proceeding. To the extent it was appropriate to provide an interpretation, EPA seeks comment on whether section 177 was properly interpreted and whether California's mobile source emission standards adopted by states pursuant to Section 177 may have both criteria emission and GHG emission benefits and purposes.

As explained above, SAFE 1 represented a unique and unprecedented circumstance where two Federal agencies issued a joint notice and provided separate interpretive opinions regarding their respective federal preemption statutes.⁶⁰ Although EPA has historically declined to look beyond the waiver criteria in section 209(b) when deciding the merits of a waiver request from CARB, in SAFE 1 EPA chose not only to void portions of a waiver it had previously granted, but also to evaluate the effect of a pronouncement of preemption under EPCA on an existing Clean Air Act waiver. We seek comment on whether EPA properly considered and withdrew portions of the ACC program waiver pertaining to GHG standards and the ZEV mandate based on NHTSA's EPCA preemption action, including whether EPA has the authority to withdraw an existing waiver based on a new action that is beyond the scope of section 209

of the CAA. Because EPA relied on NHTSA's regulation on preemption, what significance should EPA place on the repeal of that regulation if NHTSA does take final action to do so?

Determination of Nationwide Scope or Effect

Section 307(b)(1) of the CAA governs judicial review of final actions by EPA. This section provides, in part, that petitions for review must be filed in the Court of Appeals for the District of Columbia Circuit: (i) When the agency action consists of “nationally applicable regulations promulgated, or final actions taken, by the Administrator,” or (ii) when such action is locally or regionally applicable, if “such action is based on a determination of nationwide scope or effect and if in taking such action the Administrator finds and publishes that such action is based on such a determination.” For locally or regionally applicable final actions, the CAA reserves to EPA complete discretion whether to invoke the exception in (ii).

⁶¹

In addition to California, thirteen other states and the District of Columbia have adopted California's greenhouse gas standards.⁶² The other states are New York, Massachusetts, Vermont, Maine, Pennsylvania, Connecticut, Rhode Island, Washington, Oregon, New Jersey, Maryland, Delaware, and Colorado. These jurisdictions represent a wide geographic area and fall within seven different judicial circuits.

If the Administrator takes final action to revise or rescind SAFE 1, then, in consideration of the effects of SAFE 1 not only on California, but also on those states that had already adopted California's standards under section 177, to the extent a court finds this action to be locally or regionally applicable, the Administrator intends to exercise the complete discretion afforded to him under the CAA to make and publish a finding that this action is based on a determination of

⁵⁹ “Regarding the ACC program ZEV mandate requirements, CARB's waiver request noted that there was no criteria emissions benefit in terms of vehicle (tank-to-wheel—TTW) emissions because its LEV III criteria pollutant fleet standard was responsible for those emission reductions.” 84 FR at 51330.

⁶⁰ The September 27, 2019 joint agency action is properly considered as two severable actions, a rulemaking by NHTSA and a final informal adjudication by EPA.

⁶¹ In deciding whether to invoke the exception by making and publishing a finding that this final action is based on a determination of nationwide scope or effect, the Administrator intends to take into account a number of policy considerations, including his judgment balancing the benefit of obtaining the D.C. Circuit's authoritative centralized review versus allowing development of the issue in other contexts and the best use of agency resources.

⁶² In addition, other states are currently in the process of adopting California standards.

“nationwide scope or effect” within the meaning of CAA section 307(b)(1).⁶³

Michael S. Regan,
Administrator.

[FR Doc. 2021-08826 Filed 4-27-21; 8:45 am]

BILLING CODE 6560-50-P

FEDERAL COMMUNICATIONS COMMISSION

[OMB 3060-0562; FRS 22896]

Information Collection Being Reviewed by the Federal Communications Commission Under Delegated Authority

AGENCY: Federal Communications Commission.

ACTION: Notice and request for comments.

SUMMARY: As part of its continuing effort to reduce paperwork burdens, and as required by the Paperwork Reduction Act of 1995 (PRA), the Federal Communications Commission (FCC or Commission) invites the general public and other Federal agencies to take this opportunity to comment on the following information collections. Comments are requested concerning: Whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility; the accuracy of the Commission’s burden estimate; ways to enhance the quality, utility, and clarity of the information collected; ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology; and ways to further reduce the information collection burden on small business

concerns with fewer than 25 employees. The FCC may not conduct or sponsor a collection of information unless it displays a currently valid Office of Management and Budget (OMB) control number. No person shall be subject to any penalty for failing to comply with a collection of information subject to the PRA that does not display a valid OMB control number.

DATES: Written PRA comments should be submitted on or before June 28, 2021. If you anticipate that you will be submitting comments but find it difficult to do so within the period of time allowed by this notice, you should advise the contact listed below as soon as possible.

ADDRESSES: Direct all PRA comments to Cathy Williams, FCC, via email to *PRA@fcc.gov* and to *Cathy.Williams@fcc.gov*.

FOR FURTHER INFORMATION CONTACT: For additional information about the information collection, contact Cathy Williams at (202) 418-2918.

SUPPLEMENTARY INFORMATION:

OMB Control Number: 3060-0562.
Title: Section 76.916, Petition for Recertification.

Form Number: Not applicable.
Type of Review: Extension of a currently approved collection.

Respondents: Business or other for-profit entities; State, local or tribal government.

Number of Respondents and Responses: 2 respondents; 3 responses.
Estimated Time per Response: 10 hours.

Frequency of Response: On occasion reporting requirement; Third party disclosure requirement.

Obligation to Respond: Required to obtain or retain benefits. The statutory authority for this information collection is contained in Sections 4(i) and 623 of the Communications Act of 1934, as amended.

Total Annual Burden: 30 hours.
Total Annual Cost: No cost.
Privacy Act Impact Assessment: No impact(s).

Nature and Extent of Confidentiality: There is no need for confidentiality with this collection of information.

Needs and Uses: The information collection requirements contained in 47 CFR 76.916 provide that a franchising authority wishing to assume jurisdiction to regulate basic cable service and associated rates after its request for certification has been denied or revoked, may file a petition for recertification with the Commission. The petition must be served on the cable operator and on any interested party that participated in the proceeding denying or revoking the original certification. Oppositions to petitions may be filed within 15 days after the petition is filed. Replies may be filed within seven days of filing of oppositions.

Federal Communications Commission.

Marlene Dortch,

Secretary, Office of the Secretary.

[FR Doc. 2021-08798 Filed 4-27-21; 8:45 am]

BILLING CODE 6712-01-P

FEDERAL COMMUNICATIONS COMMISSION

[23202]

Deletion of Item From April 22, 2021 Open Meeting

April 21, 2021.

The following item has been adopted by the Commission and deleted from the list of items scheduled for consideration at the Thursday, April 22, 2021, Open Meeting. The item was previously listed in the Commission’s Notice of Thursday, April 15, 2021.

7	MEDIA	<p><i>Title:</i> Imposing Application Cap in Upcoming NCE FM Filing Window (MB Docket No. 20-343). <i>Summary:</i> The Commission will consider a Public Notice to impose a limit of ten applications filed by any party in the upcoming 2021 filing window for new non-commercial educational FM stations.</p>
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The meeting will be webcast with open captioning at: *www.fcc.gov/live*. Open captioning will be provided as well as a text only version on the FCC website. Other reasonable accommodations for people with disabilities are available upon request. In your request, include a description of

the accommodation you will need and a way we can contact you if we need more information. Last minute requests will be accepted but may be impossible to fill. Send an email to: *fcc504@fcc.gov* or call the Consumer & Governmental Affairs Bureau at 202-418-0530.

Additional information concerning this meeting may be obtained from the

Office of Media Relations, (202) 418-0500. Audio/Video coverage of the meeting will be broadcast live with open captioning over the internet from

⁶³In the report on the 1977 Amendments that revised CAA section 307(b)(1), Congress noted that the Administrator’s determination that the

“nationwide scope or effect” exception applies would be appropriate for any action that has a scope or effect beyond a single judicial circuit. See

H.R. Rep. No. 95-294 at 323-24, reprinted in 1977 U.S.C.C.A.N. 1402-03.



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Docket (EPA-HQ-OAR-2018-0794) (/docket/EPA-HQ-OAR-2018-0794) / Document

 **PROPOSED RULE**

National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units

Posted by the **Environmental Protection Agency** on Feb 9, 2022

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Content

Action

Proposed rule.

Summary

The EPA is proposing to revoke a May 22, 2020 finding that it is not appropriate and necessary to regulate coal- and oil-fired electric utility steam generating units (EGUs) under Clean Air Act (CAA) section 112, and to reaffirm the Agency's April 25, 2016 finding that it remains appropriate and necessary to regulate hazardous air pollutant (HAP) emissions from EGUs after considering cost. The Agency is also reviewing another part of the May 22, 2020 action, a residual risk and technology review (RTR) of Mercury and Air Toxics Standards (MATS). Accordingly, in addition to soliciting comments on all aspects of this proposal, the EPA is soliciting information on the performance and cost of new or improved technologies that control HAP emissions, improved methods of operation, and risk-related information to further inform the Agency's review of the MATS RTR as directed by Executive Order 13990.

Dates

Comments must be received on or before April 11, 2022.

Public hearing: The EPA will hold a virtual public hearing on February 24, 2022. See SUPPLEMENTARY INFORMATION for information on the hearing.

Addresses

You may send comments, identified by Docket ID No. EPA-HQ-OAR-2018-0794, by any of the following methods:

- **Federal eRulemaking Portal:** <https://www.regulations.gov/> (our preferred method). Follow the online instructions for submitting comments.
- **Email:** a-and-r-docket@epa.gov. Include Docket ID No. EPA-HQ-OAR-2018-0794 in the subject line of the message.
 - Fax: (202) 566-9744. Attention Docket ID No. EPA-HQ-OAR-2018-0794.
 - Mail: U.S. Environmental Protection Agency, EPA Docket Center, Docket ID No. EPA-HQ-OAR-2018-0794, Mail Code 28221T, 1200 Pennsylvania Avenue NW, Washington, DC 20460.
- **Hand/Courier Delivery:** EPA Docket Center, WJC West Building, Room 3334, 1301 Constitution Avenue NW, Washington, DC 20004. The Docket Center's hours of operation are 8:30 a.m.-4:30 p.m., Monday-Friday (except Federal holidays).

Instructions: All submissions received must include the Docket ID No. for this rulemaking. Comments received may be posted without change to <https://www.regulations.gov/>, including any personal information provided. For detailed instructions on sending comments and additional information on the rulemaking process, see the SUPPLEMENTARY INFORMATION section of this document. Out of an abundance of caution for members of the public and our staff, the EPA Docket Center and Reading Room are closed to the public, with limited exceptions, to reduce the risk of transmitting COVID-19. Our Docket Center staff will continue to provide remote customer service via email, phone, and webform. We encourage the public to submit comments via <https://www.regulations.gov/> or email, as there may be a delay in processing mail and faxes. Hand deliveries and couriers may be received by scheduled appointment only. For further information on EPA Docket Center services and the current status, please visit us online at <https://www.epa.gov/dockets>.

For Further Information Contact

For questions about this proposed action, contact Melanie King, Sector Policies and Programs Division (D243-01), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-2469; and email address: king.melanie@epa.gov.

Supplementary Information

The EPA is proposing to revoke a May 22, 2020 finding that it is not appropriate and necessary to regulate coal- and oil-fired EGUs under CAA section 112, and to reaffirm the Agency's April 25, 2016 finding that it remains appropriate and necessary to regulate HAP emissions from EGUs after considering cost. The 2016 finding was made in response to the U.S. Supreme Court's 2015 *Michigan v. EPA* decision, where the Court held that the Agency had erred by not taking cost into consideration when taking action on February 16, 2012, to affirm a 2000 EPA determination that it was appropriate and necessary to regulate HAP emissions from EGUs. In the same 2012 action, the EPA also promulgated National Emission Standards for Hazardous Air Pollutants (NESHAP) for coal- and oil-fired EGUs, commonly known as the Mercury and Air Toxics Standards or MATS.

Based on a re-evaluation of the administrative record and the statute, the EPA proposes to conclude that the framework applied in the May 22, 2020 finding was ill-suited to assessing and comparing the full range of benefits to costs, and the EPA concludes that, after applying a more suitable framework, the 2020 determination should be withdrawn. For reasons explained in this notice, the EPA further proposes to reaffirm that it is appropriate and necessary to regulate HAP emissions from EGUs after weighing the volume of pollution that would be reduced through regulation, the public health risks and harms posed by these emissions, the impacts of this pollution on

particularly exposed and sensitive populations, the availability of effective controls, and the costs of reducing this harmful pollution including the effects of control costs on the EGU industry and its ability to provide reliable and affordable electricity. This notice also presents information and analysis that has become available since the 2016 finding, pertaining to the health risks of mercury emissions and the costs of reducing HAP emissions, that lend further support for this determination.

The review that led to this proposal is consistent with the direction in Executive Order 13990, "Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis," signed by President Biden on January 20, 2021. In response to the Executive Order, the Agency is also reviewing another part of the May 22, 2020 action, a RTR of MATS. Accordingly, in addition to soliciting comments on all aspects of this proposal, the EPA is soliciting information on the performance and cost of new or improved technologies that control HAP emissions, improved methods of operation, and risk-related information to further inform the Agency's review of the MATS RTR as directed by the Executive Order. Results of the EPA's review of the RTR will be presented in a separate action.

Participation in virtual public hearing. Please note that the EPA is deviating from its typical approach for public hearings because the President has declared a national emergency. Due to the current Centers for Disease Control and Prevention (CDC) recommendations, as well as state and local orders for social distancing to limit the spread of COVID-19, the EPA cannot hold in-person public meetings at this time.

The virtual public hearing will be held via teleconference on February 24, 2022 and will convene at 10:00 a.m. Eastern Time (ET) and will conclude at 7:00 p.m. ET. The EPA may close a session 15 minutes after the last pre-registered speaker has testified if there are no additional speakers. For information or questions about the public hearing, please contact the public hearing team at (888) 372-8699 or by email at SPPDpublichearing@epa.gov. The EPA will announce further details at <https://www.epa.gov/stationary-sources-air-pollution/mercury-and-air-toxics-standards>.

The EPA will begin pre-registering speakers for the hearing no later than 1 business day following publication of this document in the Federal Register . The EPA will accept registrations on an individual basis. To register to speak at the virtual hearing, please use the online registration form available at <https://www.epa.gov/stationary-sources-air-pollution/mercury-and-air-toxics-standards> or contact the public hearing team at (888) 372-8699 or by email at SPPDpublichearing@epa.gov. The last day to pre-register to speak at the hearing will be February 18, 2022. Prior to the hearing, the EPA will post a general agenda that will list pre-registered speakers in approximate order at: <https://www.epa.gov/stationary-sources-air-pollution/mercury-and-air-toxics-standards>.

The EPA will make every effort to follow the schedule as closely as possible on the day of the hearing; however, please plan for the hearings to run either ahead of schedule or behind schedule.

Each commenter will have 5 minutes to provide oral testimony. The EPA encourages commenters to provide the EPA with a copy of their oral testimony electronically (via email) by emailing it to king.melanie@epa.gov. The EPA also recommends submitting the text of your oral testimony as written comments to the rulemaking docket.

The EPA may ask clarifying questions during the oral presentations but will not respond to the presentations at that time. Written statements and supporting information submitted during the comment period will be considered with the same weight as oral testimony and supporting information presented at the public hearing.

Please note that any updates made to any aspect of the hearing will be posted online at <https://www.epa.gov/stationary-sources-air-pollution/mercury-and-air-toxics-standards>. While the EPA expects the hearing to go forward as set forth above, please monitor our website or contact the public hearing team at (888) 372-8699 or by email at SPPDpublichearing@epa.gov to determine if there are any updates. The EPA does not intend to publish a document in the Federal Register announcing updates.

If you require the services of a translator or a special accommodation such as audio description, please pre-register for the hearing with the public hearing team and describe your needs by February 16, 2022. The EPA may not be able to arrange accommodations without advanced notice.

Docket. The EPA has established a docket for this rulemaking under Docket ID No. EPA-HQ-OAR-2018-0794. ⁽¹⁾ All documents in the docket are listed in <https://www.regulations.gov/>. Although listed, some information is not publicly available, e.g., Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the internet and will be publicly available only in hard copy. With the exception of such material, publicly available docket materials are available electronically in <https://www.regulations.gov/>.

Instructions. Direct your comments to Docket ID No. EPA-HQ-OAR-2018-0794. The EPA's policy is that all comments received will be included in the public docket without change and may be made available online at <https://www.regulations.gov/>, including any personal information provided, unless the comment includes information claimed to be CBI or other information whose disclosure is restricted by statute. Do not submit electronically any information that you consider to be CBI or other information whose disclosure is restricted by statute. This type of information should be submitted by mail as discussed below.

The EPA may publish any comment received to its public docket. Multimedia submissions (audio, video, *etc.*) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (*i.e.*, on the Web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit <https://www.epa.gov/dockets/commenting-epa-dockets>.

The <https://www.regulations.gov/> website allows you to submit your comment anonymously, which means the EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an email comment directly to the EPA without going through <https://www.regulations.gov/>, your email address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the internet. If you submit an electronic comment, the EPA recommends that you include your name and other contact information in the body of your comment and with any digital storage media you submit. If the EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, the EPA may not be able to consider your comment. Electronic files should not include special characters or any form of encryption and be free of any defects or viruses. For additional information about the EPA's public docket, visit the EPA Docket Center homepage at <https://www.epa.gov/dockets>.

The EPA is temporarily suspending its Docket Center and Reading Room for public visitors, with limited exceptions, to reduce the risk of transmitting COVID-19. Our Docket Center staff will continue to provide remote customer service via email, phone, and webform. We encourage the public to submit comments via <https://www.regulations.gov/> as there may be a delay in processing mail and faxes. Hand deliveries or couriers will be received by scheduled appointment only. For further information and updates on EPA Docket Center services, please visit us online at <https://www.epa.gov/dockets>.

The EPA continues to carefully and continuously monitor information from the CDC, local area health departments, and our Federal partners so that we can respond rapidly as conditions change regarding COVID-19.

Submitting CBI. Do not submit information containing CBI to the EPA through <https://www.regulations.gov/> or email. Clearly mark the part or all of the information that you claim to be CBI. For CBI information on any digital storage media that you mail to the EPA, mark the outside of the digital storage media as CBI and then identify electronically within the digital storage media the specific information that is claimed as CBI. In addition to one complete version of the comments that includes information claimed as CBI, you must submit a copy of the comments that does not contain the information claimed as CBI directly to the public docket through the procedures outlined in *Instructions* above. If you submit any digital storage media that does not contain CBI, mark the outside of the digital storage media clearly that it does not contain CBI. Information not marked as CBI will be included in the public docket and the EPA's electronic public docket without prior notice. Information marked as CBI will not be disclosed except in accordance with procedures set forth in title 40 of the Code of Federal Regulations (CFR) part 2. Send or deliver information identified as CBI only to the following address: OAQPS Document Control Officer (C404-02), OAQPS,

U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, Attention Docket ID No. EPA-HQ-OAR-2018-0794. Note that written comments containing CBI and submitted by mail may be delayed and no hand deliveries will be accepted.

Preamble acronyms and abbreviations. We use multiple acronyms and terms in this preamble. While this list may not be exhaustive, to ease the reading of this preamble and for reference purposes, the EPA defines the following terms and acronyms here:

ACI activated carbon injection

ATSDR Agency for Toxic Substances and Disease Registry

ARP Acid Rain Program

BCA benefit-cost analysis

CAA Clean Air Act

CAAA Clean Air Act Amendments of 1990

CAMR Clean Air Mercury Rule

CBI Confidential Business Information

CFR Code of Federal Regulations

CVD cardiovascular disease

DSI dry sorbent injection

EGU electric utility steam generating unit

EIA Energy Information Administration

EPA Environmental Protection Agency

ESP electrostatic precipitator

EURAMIC European Multicenter Case-Control Study on Antioxidants, Myocardial Infarction, and Cancer of the Breast Study

FF fabric filter

FGD flue gas desulfurization

FR Federal Register

GW gigawatt

HAP hazardous air pollutant(s)

HCl hydrogen chloride

HF hydrogen fluoride

IHD ischemic heart disease

IPM Integrated Planning Model

IRIS Integrated Risk Information System

KIHD Kuopio Ischaemic Heart Disease Risk Factor Study

kW kilowatt

MACT maximum achievable control technology

MATS Mercury and Air Toxics Standards

MI myocardial infarction

MIR maximum individual risk

MW megawatt

NAS National Academy of Sciences

NESHAP national emission standards for hazardous air pollutants

OMB Office of Management and Budget

O&M operation and maintenance

PM particulate matter

PUFA polyunsaturated fatty acid

RfD reference dose

RIA regulatory impact analysis

RTR residual risk and technology review

SCR selective catalytic reduction

SO₂ sulfur dioxide

TSD technical support document

tpy tons per year

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I. General Information

A. Executive Summary

On January 20, 2021, President Biden signed Executive Order 13990, “Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis” (86 FR 7037, January 25, 2021). The Executive Order, among other things, instructs the EPA to review the 2020 final action titled, “National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units—Reconsideration of Supplemental Finding and Residual Risk and Technology Review” (85 FR 31286; May 22, 2020) (2020 Final Action) and consider publishing a notice of proposed rulemaking suspending, revising, or rescinding that action. Consistent with the Executive Order, the EPA has undertaken a careful review of the 2020 Final Action, in which the EPA reconsidered its April 25, 2016 supplemental finding (81 FR 24420) (2016 Supplemental Finding). Based on that review, the Agency proposes to find that the decisional framework for making the appropriate and necessary determination under CAA section 112(n)(1)(A) that was applied in the 2020 Final Action was unsuitable because it failed to adequately account for statutorily relevant factors. Therefore, we propose to revoke the May 2020 determination that it is not appropriate and necessary to regulate HAP emissions from coal- and oil-fired EGUs under section 112 of the CAA. We further propose to reaffirm our earlier determinations—made in 2000 (65 FR 79825; December 20, 2000) (2000 Determination), 2012 (77 FR 9304; February 16, 2012) (2012 MATS Final Rule), and 2016—that it is appropriate and necessary to regulate coal- and oil-fired EGUs under section 112 of the CAA.

In 1990, frustrated with the EPA's pace in identifying and regulating HAP, Congress radically transformed its treatment of that pollution. It rewrote section 112 of the CAA to require the EPA to swiftly regulate 187 HAP with technology-based standards that would require all major sources (defined by the quantity of pollution a facility has the potential to emit) to meet the levels of reduction achieved in practice by the best-performing similar sources. EGUs were the one major source category excluded from automatic application of these new standards. EGUs were treated differently primarily because the 1990 Amendments to the CAA (1990 Amendments) included the Acid Rain Program (ARP), which imposed criteria pollution reduction requirements on EGUs. Congress recognized that the controls necessary to comply with this and other requirements of the 1990 Amendments might reduce HAP emissions from EGUs as well. Therefore, under CAA section 112(n)(1)(A), Congress directed the EPA to regulate EGUs if, after considering a study of “the hazards to public health reasonably anticipated to occur as a result of [HAP] emissions by [EGUs] . . . after imposition of the [Acid Rain Program and other] requirements of this chapter,” the EPA concluded that it “is appropriate and necessary” to do so. See CAA section 112(n)(1)(A).

The EPA completed that study in 1998 and, in 2000, concluded that it is appropriate and necessary to regulate HAP emissions from coal- and oil-fired EGUs. See 65 FR 79825 (December 20, 2000). The EPA reaffirmed that conclusion in 2012, explaining that the other requirements of the CAA, in particular the ARP, did not lead to the HAP emission reductions that had been anticipated because many EGUs switched to lower-sulfur coal rather than deploy pollution controls that may have also reduced emissions of HAP. Indeed, the statute contemplated that the EPA would be conducting the required study within 3 years of the 1990 Amendments; but when the EPA re-examined public health hazards remaining after imposition of the Act's requirements in 2012, the Agency accounted for over 20 years of CAA regulation, and EGUs still remained one of the largest sources of HAP pollution. Specifically, in 2012, the EPA concluded that EGUs were the largest domestic source of emissions of mercury, hydrogen fluoride (HF), hydrogen chloride (HCl), and selenium; and among the largest domestic contributors of emissions of arsenic, chromium, cobalt, nickel, hydrogen cyanide, beryllium, and cadmium. The EPA further found that a significant majority of EGUs were located at facilities that emitted above the statutory threshold set for major sources (e.g., 10 tons per year (tpy) of any one HAP or 25 tpy or more of any combination of HAP). See 77 FR 9304 (February 16, 2012). In 2012, the EPA also established limits for emissions of HAP from coal- and oil-fired EGUs. *Id.*

Many aspects of the EPA's appropriate and necessary determination and the CAA section 112 regulations were challenged in the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit), and all challenges were denied and the finding and standards upheld in full in *White Stallion Energy Center v. EPA*, 748 F.3d 1222 (2014). The Supreme Court granted review on a single issue and, in *Michigan v. EPA*, 576 U.S. 743 (2015), the Court held that the EPA erred when it failed to consider the costs of its regulation in determining that it is appropriate and necessary to regulate HAP emissions from EGUs, and remanded that determination to the D.C. Circuit for further proceedings. Following *Michigan*, in 2016 the EPA issued a Supplemental Finding that it is appropriate and necessary to regulate EGU HAP after considering the costs of such regulation. See 81 FR 24420 (April 25, 2016). In 2020, the Agency reversed that determination. ⁽²⁾ In this action, we conclude that the methodology we applied in 2020 is ill-suited to the appropriate and necessary determination because, among other reasons, it did not give adequate weight to the significant volume of HAP emissions from EGUs and the attendant risks remaining after imposition of the other requirements of the CAA, including many adverse health and environmental effects of EGU HAP emissions that cannot be quantified or monetized. We propose, therefore, to revoke the 2020 Final Action.

We further propose to affirm, once again, that it is appropriate and necessary to regulate coal- and oil-fired EGUs under CAA section 112. We first examine the benefits or advantages of regulation, including new information on the risks posed by EGU HAP. We then examine the costs or disadvantages of regulation, including both the costs of compliance (which we explain we significantly overestimated in 2012) and how those costs affect the industry and the public. We then weigh these benefits and costs to reach the conclusion that it is appropriate and necessary to regulate using two alternative methodologies.

Our preferred methodology, as it was in the 2016 Supplemental Finding, is to consider all of the impacts of the regulation—both costs and benefits to society—using a totality-of-the-circumstances approach rooted in the *Michigan* court's direction to “pay[] attention to the advantages *and* disadvantages of [our] decision[.]” 576 U.S. at 753; see *id.* at 752 (“In particular, ‘appropriate’ is ‘the classic broad all-encompassing term that naturally includes consideration of all relevant factors.’”). To help determine the relevant factors to weigh, we look to CAA section 112(n)(1)(A), the other provisions of CAA section 112(n)(1), and to the statutory design of CAA section 112.

Initially, we consider the human health advantages of reducing HAP emissions from EGUs because in CAA section 112(n)(1)(A) Congress directed the EPA to make the appropriate and necessary determination after considering the results of a “study of the hazards to public health reasonably anticipated to occur as a result of [HAP] emissions” from EGUs. See CAA section 112(n)(1)(A). We consider all of the advantages of reducing emissions of HAP (i.e., the risks posed by HAP) regardless of whether those advantages can be quantified or monetized, and we explain why almost none of those advantages can be monetized. Consistent with CAA section 112(n)(1)(B)'s direction to examine the rate and mass of mercury emissions, and the design of CAA section 112, which required swift reduction of the volume of HAP emissions based on an assumption of risk, we conclude that we should place substantial weight on reducing the large volume of HAP emissions from EGUs—both in absolute terms and relative to other source categories—that, absent MATS, was entering our air, water, and land, thus reducing the risk of

grave harms that can occur as a result of exposure to HAP. Also consistent with the statutory design of CAA section 112, in considering the advantages of HAP reductions, we consider the distribution of those benefits, and the statute's clear goal in CAA section 112(n)(1)(C) and other provisions of CAA section 112 to protect the most exposed and susceptible populations, such as communities that are reliant on local fish for their survival, and developing fetuses. We think it is highly relevant that while EGUs generate power for all, and EGU HAP pollution poses risks to all Americans exposed to such HAP, a smaller set of Americans who live near EGUs face a disproportionate risk of being significantly harmed by toxic pollution. Finally, we also consider the identified risks to the environment posed by mercury and acid-gas HAP, consistent with CAA section 112(n)(1)(B) and the general goal of CAA section 112 to reduce risks posed by HAP to the environment.

We next weigh those advantages against the disadvantages of regulation, principally in the form of the costs incurred to control HAP before they are emitted into the environment. Consistent with the statutory design, we consider those costs comprehensively, examining them in the context of the effect of those expenditures on the economics of power generation more broadly, the reliability of electricity, and the cost of electricity to consumers. These metrics are relevant to our weighing exercise because they give us a more complete picture of the disadvantages to producers and consumers of electricity imposed by this regulation, and because our conclusion might change depending on how this burden affects the ability of the industry to thrive and to provide reliable, affordable electricity to the benefit of all Americans. These metrics are relevant measures for evaluating costs to the utility sector in part because they are the types of metrics considered by the owners and operators of EGUs themselves. See 81 FR 24428 (April 25, 2016). Per CAA section 112(n)(1)(B), we further consider the availability and cost of control technologies, including the relationship of that factor to controls installed under the ARP.

As explained in detail in this document, we ultimately propose to conclude that, weighing the risks posed by HAP emissions from EGUs against the costs of reducing that pollution on the industry and society as a whole, it is worthwhile (*i.e.*, "appropriate") to regulate those emissions to protect all Americans, and in particular the most vulnerable populations, from the inherent risks posed by exposure to HAP emitted by coal- and oil-fired EGUs. We propose to find that this is true whether we are looking at the record in 2016 (*i.e.*, information available as of the time of the 2012 threshold finding and rulemaking) or at the updated record in 2021, in which we quantify additional risks posed by HAP emissions from EGUs and conclude that the actual cost of complying with MATS was almost certainly significantly less than the EPA's projected estimate in the 2011 RIA, primarily because fewer pollution controls were installed than projected and because the unexpected increases in natural gas supply led to a dramatic decrease in the price of natural gas.

In the 2016 Supplemental Finding we did not consider non-HAP health benefits that occur by virtue of controlling HAP from EGUs as a relevant factor for our consideration under the preferred approach. However, because the Supreme Court in *Michigan* directed us to consider health and environmental effects beyond those posed by HAP, "including, for instance, harms that regulation might do to human health or the environment," and stressed that "[n]o regulation is 'appropriate' if it does significantly more harm than good," 576 U.S. at 752, we take comment on whether it is reasonable to also consider the advantages associated with non-HAP emission reductions that result from the application of HAP controls as part of our totality-of-the-circumstances approach. In the 2012 MATS Final Rule, we found that regulating EGUs for HAP resulted in substantial health benefits accruing from coincidental reductions in particulate matter (PM) pollution and its precursors. We also projected that regulating EGUs for HAP would similarly result in an improvement in ozone pollution. While we propose to reach the conclusion that HAP regulation is appropriate even absent consideration of these additional benefits, adding these advantages to the weighing inquiry would provide further support for our proposed conclusion that the advantages of regulation outweigh the disadvantages.

We recognize, as we did in 2016, that our preferred, totality-of-the-circumstances approach to making the appropriate and necessary determination is an exercise in judgment, and that "[r]easonable people, and different decision-makers, can arrive at different conclusions under the same statutory provision" (81 FR 24431; April 25, 2016). However, this type of weighing of factors and circumstances is an inherent part of regulatory decision-making, and we think it is a reasonable approach where the factors the statute identifies as important to consider cannot be quantified or monetized.

Next, we turn to our alternative approach of a formal benefit-cost analysis (BCA). This approach independently supports the determination that it is appropriate to regulate EGU HAP. Based on the 2011 Regulatory Impacts Analysis (2011 RIA) ⁽³⁾ performed as part of the 2012 MATS Final Rule, the total net benefits of MATS were overwhelming even though the EPA was only able to monetize one of the many benefits of reducing HAP emissions from EGUs. Like the preferred approach, this conclusion is further supported by newer information on the risks posed by HAP emissions from EGUs as well as the actual costs of implementing MATS, which almost certainly were significantly lower than estimated in the 2011 RIA.

Our proposal is organized as follows. In section II.A of this preamble, we provide as background the regulatory and procedural history leading up to this proposal. We also detail, in preamble section II.B, the statutory design of HAP regulation that Congress added to the CAA in 1990 in the face of the EPA's failure to make meaningful progress in regulating HAP emissions from stationary sources. In particular, we point out that many provisions of CAA section 112 demonstrate the value Congress placed on reducing the volume of HAP emissions from stationary sources as much as possible and quickly, with a particular focus on reducing HAP related risks to the most exposed and most sensitive members of the public. This background assists in identifying the relevant statutory factors to weigh in considering the advantages and disadvantages of HAP regulation.

Against this backdrop, we propose to revoke the 2020 Final Action and reaffirm the 2016 determination that it remains appropriate to regulate HAP emissions from EGUs after a consideration of cost. Specifically, in section III.A of this preamble, we review the long-standing and extensive body of evidence, as well as new mercury-related risk analyses performed since 2016, identifying substantial risks to human health and the environment from HAP emissions from coal- and oil-fired EGUs that support a conclusion that regulating HAP emissions from EGUs is appropriate. In preamble section III.B, we analyze information regarding how the power sector elected to comply with MATS, and how our 2012 projections for the cost of regulation almost certainly overestimated the actual costs of the regulation by a significant amount. In preamble section III.C, we explain our reasons for revoking the 2020 Final Action, which applied an ill-suited framework for evaluating cost because it gave little to no weight to the statutory concern with reducing the volume of and risks from HAP emissions to protect even the most exposed and most vulnerable members of the public. In section III.D of this preamble, we describe and apply our preferred, totality-of-the-circumstances approach, giving particular weight to the factors identified in CAA section 112(n)(1) and 112 more generally. We propose to conclude that after considering all of the relevant factors and weighing the advantages of regulation against the cost of doing so, it is appropriate and necessary to regulate EGUs under CAA section 112. In section III.E of this preamble, we propose an alternative formal benefit-cost approach for making the appropriate and necessary determination. Under this approach, we propose to conclude that it remains appropriate to regulate HAP emissions from EGUs after considering cost because the BCA issued with the MATS rule indicated that the total net benefits of MATS were overwhelming even though the EPA was only able to monetize one of many statutorily identified benefits of regulating HAP emissions from EGUs. The new information examined by the EPA with respect to updated science and cost information only strengthens our conclusions under either of these methodologies. Section IV of this preamble notes that because this proposal reaffirms prior determinations and does not impact implementation of MATS, this action, if finalized, would not change those standards.

Finally, in preamble section V, in addition to soliciting comments on all aspects of this proposed action, we separately seek comment on any data or information that will assist in the EPA's ongoing review of the RTR that the Agency completed for MATS in 2020.

B. Does this action apply to me?

The source category that is the subject of this proposal is Coal- and Oil-Fired EGUs regulated by NESHAP under 40 CFR 63, subpart UUUUU, commonly known as MATS. The North American Industry Classification System (NAICS) codes for the Coal- and Oil-Fired EGU source category are 221112, 221122, and 921150. This list of NAICS codes is not intended to be exhaustive, but rather provides a guide for readers regarding the entities that this proposed action is likely to affect.

C. Where can I get a copy of this document and other related information?

In addition to being available in the docket, an electronic copy of this action is available on the internet. Following signature by the EPA Administrator, the EPA will post a copy of this proposed action at <https://www.epa.gov/stationary-sources-air-pollution/mercury-and-air-toxics-standards>. Following publication in the Federal Register, the EPA will post the Federal Register version of the proposal and key technical documents at this same website.

II. Background

A. Regulatory History

In the 1990 Amendments, Congress substantially modified CAA section 112 to address hazardous air pollutant emissions from stationary sources. CAA section 112(b)(1) sets forth a list of 187 identified HAP, and CAA sections 112(b)(2) and (3) give the EPA the authority to add or remove pollutants from the list. CAA section 112(a)(1) and (2) specify the two types of sources to be addressed: major sources and area sources. A major source is any stationary source or group of stationary sources at a single location and under common control that emits or has the potential to emit, considering controls, 10 tpy or more of any HAP or 25 tpy or more of any combination of HAP. CAA section 112(a)(1). Any stationary source of HAP that is not a major source is an area source. ⁽⁴⁾ CAA section 112(a)(2). All major source categories, besides EGUs, and certain area source categories, were required to be included on an initial published list of sources subject to regulation under CAA section 112. See CAA sections 112(a)(1) and (c)(1). The EPA is required to promulgate emission standards under CAA section 112(d) for every source category on the CAA section 112(c)(1) list.

The general CAA section 112(c) process for listing source categories does not apply to EGUs. Instead, Congress enacted a special provision, CAA section 112(n)(1)(A), which establishes a separate process by which the EPA determines whether to add EGUs to the CAA section 112(c) list of source categories that must be regulated under CAA section 112. Because EGUs were subject to other CAA requirements under the 1990 Amendments, most importantly the ARP, CAA section 112(n)(1)(A) directs the EPA to conduct a study to evaluate the hazards to public health that are reasonably anticipated to occur as a result of the HAP emissions from EGUs “after imposition of the requirements of this chapter.” See CAA section 112(n)(1)(A); see also *Michigan v. EPA*, 576 U.S. at 748 (“Quite apart from the hazardous-air-pollutants program, the Clean Air Act Amendments of 1990 subjected power plants to various regulatory requirements. The parties agree that these requirements were expected to have the collateral effect of reducing power plants' emissions of hazardous air pollutants, although the extent of the reduction was unclear.”). The provision directs that the EPA shall regulate EGUs under CAA section 112 if the Administrator determines, after considering the results of the study, that such regulation is “appropriate and necessary.” CAA section 112(n)(1)(A), therefore, sets a unique process by which the Administrator is to determine whether to add EGUs to the CAA section 112(c) list of sources that must be subject to regulation under CAA section 112.

The study required under CAA section 112(n)(1)(A) is one of three studies commissioned by Congress under CAA section 112(n)(1), a subsection entitled “Electric utility steam generating units.” The first, which, as noted, the EPA was required to consider before making the appropriate and necessary determination, was completed in 1998 and was entitled the *Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generating Units-Final Report to Congress* (Utility Study). ⁽⁵⁾ The Utility Study contained an analysis of HAP emissions from EGUs, an assessment of the hazards and risks due to inhalation exposures to these emitted pollutants, and a multipathway (inhalation plus non-inhalation exposures) risk assessment for mercury and a subset of other relevant HAP. The study indicated that mercury was the HAP of greatest concern to public health from coal- and oil-fired EGUs. The study also concluded that numerous control strategies were available to reduce HAP emissions from this source category. The second study commissioned by Congress under CAA section 112(n)(1)(B), the Mercury Study Report to Congress (Mercury Study), ⁽⁶⁾ was released in 1997. Under this provision, the statute tasked the EPA with focusing exclusively on mercury, but directed the Agency to look at other stationary sources of mercury emission in addition to EGUs, the rate and mass of emissions coming from those sources, available technologies for controlling mercury and the costs of such technologies, and a broader scope of impacts including environmental effects. As in the Utility Study, the EPA confirmed that mercury is highly toxic, persistent, and bioaccumulates in food chains. Fish consumption is the primary pathway for human exposure to mercury, which can lead to higher risks in certain

populations. The third study, required under CAA section 112(n)(1)(C), directed the National Institute of Environmental Health Sciences (NIEHS) to conduct a study to determine the threshold level of mercury exposure below which adverse human health effects were not expected to occur (NIEHS Study). The statute required that the study include a threshold for mercury concentrations in the tissue of fish that could be consumed, even by sensitive populations, without adverse effects to public health. NIEHS submitted the required study to Congress in 1995.⁷ See 76 FR 24982 (May 3, 2011). Later, after submission of the CAA section 112(n)(1) reports and as part of the fiscal year 1999 appropriations, Congress further directed the EPA to fund the National Academy of Sciences (NAS) to perform an independent evaluation of the data related to the health impacts of methylmercury, and, similar to the CAA section 112(n)(1)(C) inquiry, specifically to advise the EPA as to the appropriate reference dose (RfD) for methylmercury. Congress also indicated in the 1999 conference report directing the EPA to fund the NAS Study, that the EPA should not make the appropriate and necessary regulatory determination until the EPA had reviewed the results of the NAS Study. See H.R. Conf. Rep. No. 105-769, at 281-282 (1998). This last study, completed by the NAS in 2000, was entitled Toxicological Effects of Methylmercury (NAS Study),⁽⁸⁾ and it presented a rigorous peer-review of the EPA's RfD for methylmercury. Based on the results of these studies and other available information, the EPA determined on December 20, 2000, pursuant to CAA section 112(n)(1)(A), that it is appropriate and necessary to regulate HAP emissions from coal- and oil-fired EGUs and added such units to the CAA section 112(c) list of source categories that must be regulated under CAA section 112. See 65 FR 79825 (December 20, 2000) (2000 Determination).⁽⁹⁾

In 2005, the EPA revised the original 2000 Determination and concluded that it was neither appropriate nor necessary to regulate EGUs under CAA section 112 in part because the EPA concluded it could address risks from EGU HAP emissions under a different provision of the statute. See 70 FR 15994 (March 29, 2005) (2005 Revision). Based on that determination, the EPA removed coal- and oil-fired EGUs from the CAA section 112(c) list of source categories to be regulated under CAA section 112. In a separate but related 2005 action, the EPA also promulgated the Clean Air Mercury Rule (CAMR), which established CAA section 111 standards of performance for mercury emissions from EGUs. See 70 FR 28605 (May 18, 2005). Both the 2005 Revision and the CAMR were vacated by the D.C. Circuit in 2008. *New Jersey v. EPA*, 517 F.3d 574 (DC Cir. 2008). The D.C. Circuit held that the EPA failed to comply with the requirements of CAA section 112(c)(9) for delisting source categories, and consequently also vacated the CAA section 111 performance standards promulgated in CAMR, without addressing the merits of those standards. *Id.* at 582-84.

Subsequent to the *New Jersey* decision, the EPA conducted additional technical analyses, including peer-reviewed risk assessments on human health effects associated with mercury (2011 Final Mercury TSD)⁽¹⁰⁾ and non-mercury metal HAP emissions from EGUs (2011 Non-Hg HAP Assessment).⁽¹¹⁾ Those analyses, which focused on populations with higher fish consumption (e.g., subsistence fishers) and residents living near the facilities who experienced increased exposure to HAP through inhalation, found that mercury and non-mercury HAP emissions from EGUs remain a public health hazard and that EGUs were the largest anthropogenic source of mercury emissions to the atmosphere in the U.S. Based on these findings, and other relevant information regarding the volume of HAP, environmental effects, and availability of controls, in 2012, the EPA affirmed the original 2000 Determination that it is appropriate and necessary to regulate EGUs under CAA section 112. See 77 FR 9304 (February 16, 2012).

In the same 2012 action, the EPA established a NESHAP, commonly referred to as MATS, that required coal- and oil-fired EGUs to meet HAP emission standards reflecting the application of the maximum achievable control technology (MACT) for all HAP emissions from EGUs.⁽¹²⁾ MATS applies to existing and new coal- and oil-fired EGUs located at both major and area sources of HAP emissions. An EGU is a fossil fuel-fired steam generating combustion unit of more than 25 megawatts (MW) that serves a generator that produces electricity for sale. See CAA section 112(a)(8) (defining EGU). A unit that cogenerates steam and electricity and supplies more than one-third of its potential electric output capacity and more than 25 MW electric output to any utility power distribution system for sale is also an EGU. *Id.*

For coal-fired EGUs, MATS includes standards to limit emissions of mercury, acid gas HAP, non-mercury HAP metals (e.g., nickel, lead, chromium), and organic HAP (e.g., formaldehyde, dioxin/furan). Standards for HCl serve as a surrogate for the acid gas HAP, with an alternate standard for sulfur dioxide (SO₂) that may be used as a

surrogate for acid gas HAP for those coal-fired EGUs with flue gas desulfurization (FGD) systems and SO₂ continuous emissions monitoring systems that are installed and operational. Standards for filterable PM serve as a surrogate for the non-mercury HAP metals, with standards for total non-mercury HAP metals and individual non-mercury HAP metals provided as alternative equivalent standards. Work practice standards that require periodic combustion process tune-ups were established to limit formation and emissions of the organic HAP.

For oil-fired EGUs, MATS includes standards to limit emissions of HCl and HF, total HAP metals (e.g., mercury, nickel, lead), and organic HAP (e.g., formaldehyde, dioxin/furan). Standards for filterable PM serve as a surrogate for total HAP metals, with standards for total HAP metals and individual HAP metals provided as alternative equivalent standards. Periodic combustion process tune-up work practice standards were established to limit formation and emissions of the organic HAP.

Additional detail regarding the types of units regulated under MATS and the regulatory requirements that they are subject to can be found in 40 CFR 63, subpart UUUUU. ⁽¹³⁾ The existing source compliance date was April 16, 2015, but many existing sources were granted an additional 1-year extension of the compliance date for the installation of controls.

After MATS was promulgated, both the rule itself and many aspects of the EPA's appropriate and necessary determination were challenged in the D.C. Circuit. In *White Stallion Energy Center v. EPA*, the D.C. Circuit unanimously denied all challenges to MATS, with one exception discussed below in which the court was not unanimous. 748 F.3d 1222 (D.C. Cir. 2014). As part of its decision, the D.C. Circuit concluded that the "EPA's 'appropriate and necessary' determination in 2000, and the reaffirmation of that determination in 2012, are amply supported by EPA's findings regarding the health effects of mercury exposure." *Id.* at 1245. ⁽¹⁴⁾ While joining the D.C. Circuit's conclusions as to the adequacy of the EPA's identification of public health hazards, one judge dissented on the issue of whether the EPA erred by not considering costs together with the harms of HAP pollution when making the "appropriate and necessary" determination, finding that cost was a required consideration under that determination. *Id.* at 1258-59 (Kavanaugh, J., dissenting).

The U.S. Supreme Court subsequently granted *certiorari*, directing the parties to address a single question posed by the Court itself: "Whether the Environmental Protection Agency unreasonably refused to consider cost in determining whether it is appropriate to regulate hazardous air pollutants emitted by electric utilities." *Michigan v. EPA*, 135 S. Ct. 702 (Mem.) (2014). In 2015, the U.S. Supreme Court held that "EPA interpreted [CAA section 112(n)(1)(A)] unreasonably when it deemed cost irrelevant to the decision to regulate power plants." *Michigan*, 576 U.S. at 760. In so holding, the U.S. Supreme Court found that the EPA "must consider cost-including, most importantly, cost of compliance-before deciding whether regulation is appropriate and necessary." *Id.* at 2711. It is "up to the Agency," the Court added, "to decide (as always, within the limits of reasonable interpretation) how to account for cost." *Id.* The rule was ultimately remanded back to the EPA to complete the required cost analysis, and the D.C. Circuit left the MATS rule in place pending the completion of that analysis. *White Stallion Energy Center v. EPA*, No. 12-1100, ECF No. 1588459 (D.C. Cir. December 15, 2015).

In response to the U.S. Supreme Court's direction, the EPA finalized a supplemental finding on April 25, 2016, that evaluated the costs of complying with MATS and concluded that the appropriate and necessary determination was still valid. The 2016 Supplemental Finding promulgated two different approaches to incorporate cost into the decision-making process for the appropriate and necessary determination. See 81 FR 24420 (April 25, 2016). The EPA determined that both approaches independently supported the conclusion that regulation of HAP emissions from EGUs is appropriate and necessary.

The EPA's preferred approach to incorporating cost evaluated estimated costs of compliance with MATS against several cost metrics relevant to the EGU sector (e.g., historical annual revenues, annual capital expenditures, and impacts on retail electricity prices), and found that the projected costs of MATS were reasonable for the sector in comparison with historical data on those metrics. The evaluation of cost metrics that the EPA applied was consistent with approaches commonly used to evaluate environmental policy cost impacts. ⁽¹⁵⁾ The EPA also examined as part of its cost analysis what the impact of MATS would be on retail electricity prices and the reliability of the power grid. Using a totality-of-the-circumstances approach, the EPA weighed these supplemental findings as to cost against the existing administrative record detailing the identified hazards to public health and the

environment from mercury, non-mercury metal HAP, and acid gas HAP that are listed under CAA section 112, and the other advantages to regulation. Based on that balancing, the EPA concluded under the preferred approach that it remains appropriate to regulate HAP emissions from EGUs after considering cost. See 81 FR 24420 (April 25, 2016) (“After evaluating cost reasonableness using several different metrics, the Administrator has, in accordance with her statutory duty under CAA section 112(n)(1)(A), weighed cost against the previously identified advantages of regulating HAP emissions from EGUs—including the agency’s prior conclusions about the significant hazards to public health and the environment associated with such emissions and the volume of HAP that would be reduced by regulation of EGUs under CAA section 112.”)

In a second alternative and independent approach (referred to as the alternative approach), the EPA considered the BCA in the 2011 RIA for the 2012 MATS Final Rule. *Id.* at 24421. In that analysis, even though the EPA was only able to monetize one HAP-specific endpoint, the EPA estimated that the final MATS rule would yield annual monetized net benefits (in 2007 dollars) of between \$37 billion to \$90 billion using a 3-percent discount rate and between \$33 billion to \$81 billion using a 7-percent discount rate, in comparison to the projected \$9.6 billion in annual compliance costs. See *id.* at 24425. The EPA therefore determined that the alternative approach also independently supported the conclusion that regulation of HAP emissions from EGUs remains appropriate after considering cost. *Id.*

Several state and industry groups petitioned for review of the 2016 Supplemental Finding in the D.C. Circuit. *Murray Energy Corp. v. EPA*, No. 16-1127 (D.C. Cir. filed April 25, 2016). In April 2017, the EPA moved the D.C. Circuit to continue oral argument and hold the case in abeyance in order to give the then-new Administration an opportunity to review the 2016 action, and the D.C. Circuit ordered that the consolidated challenges to the 2016 Supplemental Finding be held in abeyance (*i.e.*, temporarily on hold).⁽¹⁶⁾

Accordingly, the EPA reviewed the 2016 action, and on May 22, 2020, finalized a revised response to the *Michigan* decision. See 85 FR 31286 (May 22, 2020). In the 2020 Final Action, after primarily comparing the projected costs of compliance to the one post control HAP emission reduction benefit that could be monetized, the EPA reconsidered its previous determination and found that it is not appropriate to regulate HAP emissions from coal- and oil-fired EGUs after a consideration of cost, thereby reversing the Agency’s conclusion under CAA section 112(n)(1)(A), first made in 2000 and later affirmed in 2012 and 2016. Specifically, in its reconsideration, the Agency asserted that the 2016 Supplemental Finding considering the cost of MATS was flawed based on its assessment that neither of the two approaches to considering cost in the 2016 Supplemental Finding satisfied the EPA’s obligation under CAA section 112(n)(1)(A), as that provision was interpreted by the U.S. Supreme Court in *Michigan*. Additionally, the EPA determined that, while finalizing the action would reverse the 2016 Supplemental Finding, it would not remove the Coal- and Oil-Fired EGU source category from the CAA section 112(c)(1) list, nor would it affect the existing CAA section 112(d) emissions standards regulating HAP emissions from coal- and oil-fired EGUs that were promulgated in the 2012 MATS Final Rule.¹⁷ See 85 FR 31312 (May 22, 2020).

In the 2020 Final Action, the EPA also finalized the risk review required by CAA section 112(f)(2) and the first technology review required by CAA section 112(d)(6) for the Coal- and Oil-Fired EGU source category regulated under MATS.⁽¹⁸⁾ The EPA determined that residual risks due to emissions of air toxics from the Coal- and Oil-Fired EGU source category are acceptable and that the current NESHAP provides an ample margin of safety to protect public health and to prevent an adverse environmental effect. In the technology review, the EPA did not identify any new developments in HAP emission controls to achieve further cost-effective emissions reductions. Based on the results of these reviews, the EPA found that no revisions to MATS were warranted. See 85 FR 31314 (May 22, 2020).

Several states, industry, public health, environmental, and civil rights groups petitioned for review of the 2020 Final Action in the D.C. Circuit. *American Academy of Pediatrics v. Regan*, No. 20-1221 and consolidated cases (D.C. Cir. filed June 19, 2020). On September 28, 2020, the D.C. Circuit granted the EPA’s unopposed motion to sever from the lead case and hold in abeyance two of the petitions for review: *Westmoreland Mining Holdings LLC v. EPA*, No. 20-1160 (D.C. Cir. filed May 22, 2020) (challenging the 2020 Final Action as well as prior EPA actions related to MATS, including a challenge to the MATS CAA section 112(d) standards on the basis that the 2020 Final

Action's reversal of the appropriate and necessary determination provided a "grounds arising after" for filing a petition outside the 60-day window for judicial review of MATS), and *Air Alliance Houston v. EPA*, No. 20-1268 (D.C. Cir. filed July 21, 2020) (challenging only the RTR portion of the 2020 Final Action).⁽¹⁹⁾

On January 20, 2021, President Biden signed Executive Order 13990, "Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis." The Executive Order, among other things, instructs the EPA to review the 2020 Final Action and consider publishing a notice of proposed rulemaking suspending, revising, or rescinding that action. In February 2021, the EPA moved the D.C. Circuit to hold *American Academy of Pediatrics* and consolidated cases in abeyance, pending the Agency's review of the 2020 Final Action as prompted in Executive Order 13990, and on February 16, 2021, the D.C. Circuit granted the Agency's motion.⁽²⁰⁾

In the meantime, the requirements of MATS have been fully implemented, resulting in significant reductions in HAP emissions from EGUs and the risks associated with those emissions. The EPA had projected that annual EGU mercury emissions would be reduced by 75 percent with MATS implementation. In fact, EGU emission reductions have been far more substantial (down to approximately 4 tons in 2017), which represents an 86 percent reduction compared to 2010 (pre-MATS) levels. See Table 4 at 84 FR 2689 (February 7, 2019). Acid gas HAP and non-mercury metal HAP have similarly been reduced—by 96 percent and 81 percent, respectively—as compared to 2010 levels. *Id.* MATS is the only Federal requirement that guarantees this level of HAP control from EGUs.

The EPA is now proposing to revoke the 2020 reconsideration of the 2016 Supplemental Finding and to reaffirm once again that it is appropriate and necessary to regulate emissions of HAP from coal- and oil-fired EGUs. We will provide notice of the results of our review of the 2020 RTR in a separate future action.

B. Statutory Background

Additional statutory context is useful to help identify the relevant factors that the Administrator should weigh when making the appropriate and necessary determination.

1. Pre-1990 History of HAP Regulation

In 1970, Congress enacted CAA section 112 to address the millions of pounds of HAP emissions that were estimated to be emitted from stationary sources in the country. At that time, the CAA defined HAP as "an air pollutant to which no ambient air quality standard is applicable and which, in the judgment of the Administrator may cause, or contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness," but the statute left it to the EPA to identify and list pollutants that were HAP. Once a HAP was listed, the statute required the EPA to regulate sources of that identified HAP "at the level which in [the Administrator's] judgment provides an ample margin of safety to protect the public health from such hazardous air pollutants." CAA section 112(b)(1)(B) (pre-1990 amendments); Legislative History of the CAA Amendments of 1990 ("Legislative History"), at 3174-75, 3346 (Comm. Print 1993). The statute did not define the term "ample margin of safety" or provide a risk metric on which the EPA was to establish standards, and initially the EPA endeavored to account for costs and technological feasibility in every regulatory decision. In *Natural Resources Defense Council (NRDC) v. EPA*, 824 F.2d 1146 (D.C. Cir. 1987), the D.C. Circuit concluded that the CAA required that in interpreting what constitutes "safe," the EPA was prohibited from considering cost and technological feasibility. *Id.* at 1166.

The EPA subsequently issued the NESHAP for benzene in accordance with the *NRDC* holding.⁽²¹⁾ Among other things, the Benzene NESHAP concluded that there is a rebuttable presumption that any cancer risk greater than 100-in-1 million to the most exposed individual is unacceptable, and per *NRDC*, must be addressed without consideration of cost or technological feasibility. The Benzene NESHAP further provided that, after evaluating the acceptability of cancer risks, the EPA must evaluate whether the current level of control provides an ample margin of safety for any risk greater than 1-in-1 million and, if not, the EPA will establish more stringent standards as necessary after considering cost and technological feasibility.⁽²²⁾

2. Clean Air Act 1990 Amendments to Section 112

In 1990, Congress radically transformed section 112 of the CAA and its treatment of hazardous air pollution. The legislative history of the amendments indicates Congress' dissatisfaction with the EPA's slow pace addressing these pollutants under the 1970 CAA: "In theory, [hazardous air pollutants] were to be stringently controlled under the existing Clean Air Act section 112. However, . . . only seven of the hundreds of potentially hazardous air pollutants have been regulated by EPA since section 112 was enacted in 1970." H.R. Rep. No. 101-490, at 315 (1990); see also *id.* at 151 (noting that in 20 years, the EPA's establishment of standards for only seven HAP covered "a small fraction of the many substances associated . . . with cancer, birth defects, neurological damage, or other serious health impacts."). Congress was concerned with how few sources had been addressed during this time. *Id.* ("[The EPA's] regulations sometimes apply only to limited sources of the relevant pollutant. For example, the original benzene standard covered just one category of sources (equipment leaks). Of the 50 toxic substances emitted by industry in the greatest volume in 1987, only one—benzene—has been regulated even partially by EPA."). Congress noted that state and local regulatory efforts to act in the face of "the absence of Federal regulations" had "produced a patchwork of differing standards," and that "[m]ost states . . . limit the scope of their program by addressing a limited number of existing sources or source categories, or by addressing existing sources only on a case-by-case basis as problem sources are identified" and that "[o]ne state exempts all existing sources from review." *Id.*

In enacting the 1990 Amendments with respect to the control of hazardous air pollution, Congress noted that "[p]ollutants controlled under [section 112] tend to be less widespread than those regulated [under other sections of the CAA], but are often associated with more serious health impacts, such as cancer, neurological disorders, and reproductive dysfunctions." *Id.* at 315. In its substantial 1990 Amendments, Congress itself listed 189 HAP (CAA section 112(b)) and set forth a statutory structure that would ensure swift regulation of a significant majority of these HAP emissions from stationary sources. Specifically, after defining major and area sources and requiring the Agency to list all major sources and many area sources of the listed pollutants (CAA section 112(c)), the new CAA section 112 required the Agency to establish technology-based emission standards for listed source categories on a prompt schedule and to revisit those technology-based standards every 8 years (CAA section 112(d) (emission standards); CAA section 112(e) (schedule for standards and review)). The 1990 Amendments also obligated the EPA to evaluate the residual risk within 8 years of promulgation of technology-based standards. CAA section 112(f) (2).

In setting the standards, CAA section 112(d) requires the Agency to establish technology-based standards that achieve the "maximum degree of reduction," "including a prohibition on such emissions where achievable." CAA section 112(d)(2). Congress specified that the maximum degree of reduction must be at least as stringent as the average level of control achieved in practice by the best performing sources in the category or subcategory based on emissions data available to the Agency at the time of promulgation. This technology-based approach permitted the EPA to swiftly set standards for source categories without determining the risk or cost in each specific case, as the EPA had done prior to the 1990 Amendments. In other words, this approach to regulation quickly required that all major sources and many area sources of HAP install control technologies consistent with the top performers in each category, which had the effect of obtaining immediate reductions in the volume of HAP emissions from stationary sources. The statutory requirement that sources obtain levels of emission limitation that have actually been achieved by existing sources, instead of levels that could theoretically be achieved, inherently reflects a built-in cost consideration. ⁽²³⁾

Further, after determining the minimum stringency level of control, or MACT floor, CAA section 112(d)(2) requires the Agency to determine whether more stringent standards are achievable after considering the cost of achieving such standards and any non-air-quality health and environmental impacts and energy requirements of additional control. In doing so, the statute further specifies in CAA section 112(d)(2) that the EPA should consider requiring sources to apply measures that, among other things, "reduce the volume of, or eliminate emissions of, such pollutants . . ." (CAA section 112(d)(2)(A)), "enclose systems or processes to eliminate emissions" (CAA section 112(d)(2)(B)), and "collect, capture, or treat such pollutants when released . . ." (CAA section 112(d)(2)(C)). The 1990 Amendments also built in a regular review of new technologies and a one-time review of risks that remain after imposition of MACT standards. CAA section 112(d)(6) requires the EPA to evaluate every NESHAP no less often than every 8 years to determine whether additional control is necessary after taking into consideration

“developments in practices, processes, and control technologies,” without regard to risk. CAA section 112(f) requires the EPA to ensure that the risks are acceptable and that the MACT standards provide an ample margin of safety.

The statutory requirement to establish technology-based standards under CAA section 112 avoided the need for the EPA to identify hazards to public health and the environment in order to justify regulation of HAP emissions from stationary sources, reflecting Congress' judgment that such emissions are inherently dangerous. See S. Rep. No. 101-228, at 148 (“The MACT standards are based on the performance of technology, and not on the health and environmental effects of the [HAP].”). The technology review required in CAA section 112(d)(6) further mandates that the EPA continually evaluate standards to determine if additional reductions can be obtained, without consideration of the specific risk associated with the HAP emissions that would be reduced. Notably, the CAA section 112(d)(6) review of what additional reductions may be obtained based on new technology is required *even after* the Agency has conducted the CAA section 112(f)(2) review and determined that the existing standard will protect the public with an ample margin of safety.

The statutory structure and legislative history also demonstrate Congress' concern with the many ways that HAP can harm human health and Congress' goal of protecting the most exposed and vulnerable members of society. The committee report accompanying the 1990 Amendments discussed the scientific understanding regarding HAP risk at the time, including the 1989 report on benzene performed by the EPA noted above. H.R. Rep. No. 101-490, at 315. Specifically, Congress highlighted the EPA's findings as to cancer incidence, and importantly, lifetime individual risk to the most exposed individuals. *Id.* The report also notes the limitations of the EPA's assessment: “The EPA estimates evaluated the risks caused by emissions of a single toxic air pollutant from each plant. But many facilities emit numerous toxic pollutants. The agency's risk assessments did not consider the combined or synergistic effects of exposure to multiple toxics, or the effect of exposure through indirect pathways.” *Id.* Congress also noted the EPA's use of the maximum exposed individual (MEI) tool to assess risks faced by heavily exposed citizens. *Id.* The report cited particular scientific studies demonstrating that some populations are more affected than others—for example, it pointed out that “[b]ecause of their small body weight, young children and fetuses are especially vulnerable to exposure to PCB-contaminated fish. One study has found long-term learning disabilities in children who had eaten high-levels of Great Lakes fish.” *Id.*

The statutory structure confirms Congress' approach to risk and sensitive populations. As noted, the CAA section 112(f)(2) residual risk review requires the EPA to consider whether, after imposition of the CAA section 112(d)(2) MACT standard, there are remaining risks from HAP emissions that warrant more stringent standards to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect. See CAA section 112(f)(2)(A). Specifically, the statute requires the EPA to promulgate standards under the risk review provision if the CAA section 112(d) standard does not “reduce lifetime excess cancer risks to the individual most exposed to emissions from a source in the category or subcategory to less than one in one million.” *Id.* Thus, even after the application of MACT standards, the statute directs the EPA to conduct a rulemaking if even *one* person has a risk, not a guarantee, of getting cancer. This demonstrates the statutory intent to protect even the most exposed member of the population from the harms attendant to exposure to HAP emissions.

If a residual risk rulemaking is required, as noted above, the statute incorporates the detailed rulemaking approach set forth in the Benzene NESHAP for determining whether HAP emissions from stationary sources pose an unacceptable risk and whether standards provide an ample margin of safety. See CAA section 112(f)(2)(B) (preserving the prior interpretation of “ample margin of safety” set forth in the Benzene NESHAP). That approach includes a rebuttable presumption that any cancer risk greater than 100-in-1 million to the most exposed person is per se unacceptable. For non-cancer chronic and acute risks, the EPA has more discretion to determine what is acceptable, but even then, the statute requires the EPA to evaluate the risks to the most exposed individual and our RfDs are developed with the goal of being protective of even sensitive members of the population. See e.g., CAA section 112(n)(1)(C) (requiring, in part, the development of “a threshold for mercury concentration in the tissue of fish which may be consumed (including consumption by sensitive populations) without adverse effects to public health”). If risks are found to be unacceptable, the EPA must impose additional control requirements to ensure that post CAA section 112(f) risks from HAP emissions are at an acceptable level, regardless of cost and technological feasibility.

After determining whether the risks are acceptable and developing standards to achieve an acceptable level of risk if necessary, the EPA must then determine whether more stringent standards are necessary to provide an ample margin of safety to protect public health, and at this stage we must take into consideration cost, technological feasibility, uncertainties, and other relevant factors. As stated in the Benzene NESHAP, “In protecting public health with an ample margin of safety under section 112, EPA strives to provide maximum feasible protection against risks to health from hazardous air pollutants by . . . protecting the greatest number of persons possible to an individual lifetime risk level no higher than approximately 1 in 1 million.” See 54 FR 38044-45 (September 14, 1989); see also *NRDC v. EPA*, 529 F.3d 1077, 1082 (D.C. Cir. 2008) (finding that “the Benzene NESHAP standard established a maximum excess risk of 100-in-one million, while adopting the one-in-one million standard as an aspirational goal.”).

The various listing and delisting provisions of CAA section 112 further demonstrate a statutory intent to reduce risk and protect the most exposed members of the population from HAP emissions. See, e.g., CAA section 112(b)(2) (requiring the EPA to add pollutants to the HAP list if the EPA determines the HAP “presents, or may present” adverse human health or adverse environmental effects); *id.* at CAA section 112(b)(3)(B) (requiring the EPA to add a pollutant to the list if a petitioner shows that a substance is known to cause or “may reasonably be anticipated to cause adverse effects to human health or adverse environmental effects”); *id.* at CAA section 112(b)(3) (authorizing the EPA to delete a substance only on a showing that “the substance may not reasonably be anticipated to cause any adverse effects to human health or adverse environmental effects.”); *id.* at CAA section 112(c)(9)(B)(i) (prohibiting the EPA from delisting a source category if even one source in the category causes a lifetime cancer risk greater than 1-in-1 million to “the individual in the population who is most exposed to emissions of such pollutants from the source.”); *id.* at CAA section 7412(c)(9)(B)(i) (prohibiting the EPA from delisting a source category unless the Agency determines that the non-cancer causing HAP emitted from the source category do not “exceed a level which is adequate to protect public health with an ample margin of safety and no adverse environmental effect will result from emissions of any source” in the category); *id.* at CAA section 112(n)(1)(C) (requiring a study to determine the level of mercury in fish tissue that can be consumed by even sensitive populations without adverse effect to public health).

The deadlines for action included in the 1990 Amendments indicate that Congress wanted HAP pollution addressed quickly. The statute requires the EPA to list all major source categories within 1 year of the 1990 Amendments and to regulate those listed categories on a strict schedule that prioritizes the source categories that are known or suspected to pose the greatest risks to the public. See CAA sections 112(c)(1), 112(e)(1) and 112(e)(2). For area sources, where the statute provides the EPA with greater discretion to determine the sources to regulate, it also directs the Agency to collect the information necessary to make the listing decision for many area source categories and requires the Agency to act on that information by a date certain.

For example, CAA section 112(k) establishes an area source program designed to identify and list at least 30 HAP that pose the greatest threat to public health in the largest number of urban areas (urban HAP) and to list for regulation area sources that account for at least 90 percent of the area source emissions of the 30 urban HAP. See CAA sections 112(k) and 112(c)(3). In addition to the urban air toxics program, CAA section 112(c)(6) directs the EPA to identify and list sufficient source categories to ensure that at least 90 percent of the aggregate emissions of seven bioaccumulative and persistent HAP, including mercury, are subject to standards pursuant to CAA sections 112(d)(2) or (d)(4). See CAA section 112(c)(6). Notably, these requirements were *in addition to* any controls on mercury and other CAA section 112(c)(6) HAP that would be imposed if the EPA determined it was appropriate and necessary to regulate EGUs under CAA section 112. This was despite the fact that it was known at the time of enactment that other categories with much lower emissions of mercury would have to be subject to MACT standards because of the exclusion of EGUs from CAA section 112(c)(6).

As the preceding discussion demonstrates, throughout CAA section 112 and its legislative history, Congress made clear its intent to quickly secure large reductions in the volume of HAP emissions from stationary sources because of its recognition of the hazards to public health and the environment inherent in exposure to such emissions. CAA section 112 and its legislative history also reveal Congress' understanding that fully characterizing the risks posed by HAP emissions was exceedingly difficult; thus, Congress purposefully replaced a regime that required an assessment of risk in the first instance with one that assumed that risk and directed swift and substantial

reductions. The statutory design and direction also repeatedly emphasize that the EPA should regulate with the most exposed and most sensitive members of the population in mind in order to achieve an acceptable level of HAP emissions with an ample margin of safety. As explained further below, this statutory context informs the EPA's judgment as to the relevant factors to weigh in the analysis of whether regulation remains appropriate after a consideration of cost.

III. Proposed Determination Under CAA Section 112(n)(1)(A)

In this action, the EPA is proposing to revoke the 2020 Final Action and to reaffirm the appropriate and necessary determination made in 2000, and reaffirmed in 2012 and 2016. ⁽²⁴⁾ We propose to find that, under either our preferred totality-of-the-circumstances framework or our alternative formal BCA framework, the information that would have been available to the Agency as of the time of the 2012 rulemaking supports a determination that it is appropriate and necessary to regulate HAP from EGUs. We also consider new information regarding the hazards to public health and the environment and the costs of compliance with MATS that has become available since the 2016 Supplemental Finding, and find that the updated information strengthens the EPA's conclusion that it is appropriate and necessary to regulate HAP from coal- and oil-fired EGUs.

At the outset, we note that CAA section 112(n)(1)(A) is silent as to whether the EPA may consider updated information when acting on a remand of the appropriate and necessary determination. CAA section 112(n)(1)(A) directs the EPA to conduct the Utility Study within 3 years, and requires the EPA to regulate EGUs if the Administrator makes a finding that it is appropriate and necessary to do so "after" considering the results of the Utility Study. Consistent with the EPA's interpretation in 2005, 2012, 2016, and 2020, we do not read this language to *require* the EPA to consider the most-up-to-date information where the Agency is compelled to revisit the determination, but nor do we interpret the provision to *preclude* consideration of new information where reasonable. See 70 FR 16002 (March 29, 2005); 77 FR 9310 (February 16, 2012); 81 FR 24432 (April 25, 2016); 85 FR 31306 (May 22, 2020). As such, the Agency has applied its discretion in determining when to consider new information under this provision based on the circumstances. For example, when the EPA was revisiting the determination in 2012, we noted that "[b]ecause several years had passed since the 2000 finding, the EPA performed additional technical analyses for the proposed rule, even though those analyses were not required." 77 FR 9310 (February 16, 2012). ⁽²⁵⁾ Similarly, we think that it is reasonable to consider new information in the context of this proposal, given that almost a decade has passed since we last considered updated information. In this proposed reconsideration of the determination per the President's Executive Order, both the growing scientific understanding of public health risks associated with HAP emissions and a clearer picture of the cost of control technologies and the make-up of power sector generation over the last decade may inform the question of whether it is appropriate to regulate, and, in particular, help address the inquiry that the Supreme Court directed us to undertake in *Michigan*. We believe the evolving scientific information with regard to benefits and the advantage of hindsight with regard to costs warrant considering currently available information in making this determination. To the extent that our determination should flow from information that would have been available at the "initial decision to regulate," *Michigan*, 576 U.S. at 754, we propose conclusions here based on analyses limited to this earlier record. But we also believe it is reasonable to consider new data, and propose to find that the new information regarding both public health risks and costs bolsters the finding and supports a determination that it is appropriate and necessary to regulate EGUs for HAP.

In section III.A of this preamble, we first describe the advantages of regulation—the reduction in emissions of HAP and attendant reduction of risks to human health and the environment, including the distribution of these health benefits. We carefully document the numerous risks to public health and the environment posed by HAP emissions from EGUs. This includes information previously recognized and documented in the statutorily mandated CAA section 112(n)(1) studies, the 2000 Determination, the 2012 MATS Final Rule, and the 2016 Supplemental Finding about the nature and extent of health and environmental impacts from HAP that are emitted by EGUs, as well as additional risk analyses supported by new scientific studies. Specifically, new risk screening analyses on the connection between mercury and heart disease as well as IQ loss in children across the U.S. further supports the conclusion that HAP emissions from EGUs pose hazards to public health and the environment warranting regulating under CAA section 112. The EPA also discusses the challenges associated with fully quantifying and

monetizing the human health and environmental effects associated with HAP emissions. Finally, we note that in addition to reducing the identified risks posed by HAP emissions from EGUs, regulation of such HAP emissions results in significant health and environmental co-benefits.

We then turn in preamble section III.B. to the disadvantages of regulation—the costs associated with reducing EGU HAP emissions and other potential impacts to the sector and the economy associated with MATS. With the benefit of hindsight, we first consider whether MATS actually cost what we projected in the 2011 RIA and conclude that the projection in the 2011 RIA was almost certainly a significant overestimate of the actual costs. We then evaluate the costs estimated in the 2011 RIA against several metrics relevant to the impacts those costs have on the EGU sector and American electricity consumers (e.g., historical annual revenues, annual capital and production expenditures, impacts on retail electricity prices, and impacts on resource adequacy and reliability). These analyses, based on data available in 2012 and based on updated data, all show that the costs of MATS were within the bounds of typical historical fluctuations and that the industry would be able to comply with MATS and continue to provide a reliable source of electricity without price increases that were outside the range of historical variability.

In section III.C of this preamble, we explain why the methodology used in our 2020 Finding was ill-suited to determining whether EGU HAP regulation is appropriate and necessary because it gave virtually no weight to the volume of HAP that would be reduced, and the vast majority of the benefits of reducing EGU HAP, including the reduction of risk to sensitive populations, based on the Agency's inability to quantify or monetize post-control benefits of HAP regulations.

In preamble section III.D, we explain our preferred totality-of-the-circumstances methodology that we propose to use to make the appropriate determination, and our application of that methodology. This approach looks to the statute, and particularly CAA section 112(n)(1)(A) and the other provisions in CAA section 112(n)(1), to help identify the relevant factors to weigh and what weight to afford those factors. Under that methodology we weigh the significant health and environmental advantages of reducing EGU HAP, and in particular the benefits to the most exposed and sensitive individuals, against the disadvantages of expending money to achieve those benefits— i.e., the effects on the electric generating industry and its ability to provide reliable and affordable electricity. We ultimately propose to conclude that the advantages outweigh the disadvantages whether we look at the record from 2012 or at our new record, which includes an expanded understanding of the health risks associated with HAP emissions and finds that the costs projected in the 2011 RIA were almost certainly significantly overestimated. We further consider that, if we also account for the non-HAP benefits in our preferred totality-of-the-circumstances approach, such as the benefits (including reduced mortality) of coincidental reductions in PM and ozone that flow from the application of controls on HAP, the balance weighs even more heavily in favor of regulating HAP emissions from coal- and oil-fired EGUs.

Finally, in section III.E, we consider an alternative methodology to make the appropriate determination, using a formal BCA of MATS that was conducted consistent with economic principles. This methodology is not our preferred way to consider advantages and disadvantages for the CAA section 112(n)(1)(A) determination, because the EPA's inability to generate a monetized estimate of the full benefits of HAP reductions can lead to an underestimate of the monetary value of the net benefits of regulation. To the extent that a formal BCA is appropriate for making the CAA section 112(n)(1)(A) determination, however, that approach demonstrates that the monetized benefits of MATS outweigh the monetized costs by a considerable margin, whether we look at the 2012 record or our updated record. We therefore propose that it is appropriate to regulate EGUs for HAP applying a BCA approach as well.

In sum, the EPA proposes to conclude that it is appropriate and necessary to regulate HAP emissions from coal- and oil-fired EGUs, whether we are applying the preferred totality-of-the-circumstances methodology or the alternative formal benefit-cost approach, and whether we are considering only the administrative record as of the original EPA response on remand to *Michigan* in 2016 or based on new information made available since that time. The information and data amassed by the EPA over the decades of administrative analysis and rulemaking devoted to this topic overwhelmingly support the conclusion that the advantages of regulating HAP emissions from coal- and oil-fired EGUs outweigh the costs. The EPA requests comment on this proposed finding and on the supporting

information presented in this proposal, including information related to the risks associated with HAP emissions from U.S. EGUs and the actual costs incurred by the power sector due to MATS, as well as on the preferred and alternative methodologies for reaching the proposed conclusion.

A. Public Health Hazards Associated With Emissions From EGUs

1. Overview

The administrative record for the MATS rule detailed several hazards to public health and the environment from HAP emitted by EGUs that remained after imposition of the ARP and other CAA requirements. See 80 FR 75028-29 (December 1, 2015). See also 65 FR 79825-31 (December 20, 2000); 76 FR 24976-25020 (May 3, 2011); 77 FR 9304-66 (February 16, 2012). The EPA considered all of this information again in the 2016 Supplemental Finding, noting that this sector represented a large fraction of U.S. emissions of mercury, non-mercury metal HAP, and acid gases. Specifically, the EPA found that even after imposition of the other requirements of the CAA, but absent MATS, EGUs remained the largest domestic source of mercury, HF, HCl, and selenium and among the largest domestic contributors of arsenic, chromium, cobalt, nickel, hydrogen cyanide, beryllium, and cadmium, and that a significant majority of EGU facilities emitted above the major source thresholds for HAP emissions.

Further, the EPA noted that the totality of risks that accrue from these emissions were significant. These hazards include potential neurodevelopmental impairment, increased cancer risks, contribution to chronic and acute health disorders, as well as adverse impacts on the environment. Specifically, the EPA pointed to results from its revised nationwide Mercury Risk Assessment (contained in the 2011 Final Mercury TSD) ⁽²⁶⁾ as well as an inhalation risk assessment (2011 Non-Hg HAP Assessment) for non-mercury HAP (*i.e.*, arsenic, nickel, chromium, selenium, cadmium, HCl, HF, hydrogen cyanide, formaldehyde, benzene, acetaldehyde, manganese, and lead). The EPA estimated lifetime cancer risks for inhabitants near some coal- and oil-fired EGUs to exceed 1-in-1 million ⁽²⁷⁾ and noted that this case-study-based estimate likely underestimated the true maximum risks for the EGU source category. See 77 FR 9319 (February 16, 2012). The EPA also found that mercury emissions pose a hazard to wildlife, adversely affecting fish-eating birds and mammals, and that the large volume of acid gas HAP associated with EGUs also pose a hazard to the environment. ⁽²⁸⁾ These technical analyses were all challenged in the *White Stallion* case, and the D.C. Circuit found that the EPA's risk finding as to mercury alone—that is, before reaching any other risk finding—established a significant public health concern. The court stated that “EPA's ‘appropriate and necessary’ determination in 2000, and its reaffirmation of that determination in 2012, are amply supported by EPA's finding regarding the health effects of mercury exposure.” *White Stallion Energy Center v. EPA*, 748 F.3d 1222, 1245 (D.C. Cir. 2014). Additional scientific evidence about the human health hazards associated with EGU HAP emissions that has been collected since the 2016 Supplemental Finding and is discussed in this section has extended our confidence that these emissions pose an unacceptable risk to the American public and in particular, to vulnerable, exposed populations.

This section of the preamble starts by briefly reviewing the long-standing and extensive body of evidence, including new scientific information made available since the 2016 Supplemental Finding, which demonstrates that HAP emissions from oil- and coal-fired EGUs present hazards to public health and the environment warranting regulation under CAA section 112 (section III.A.2). This is followed by an expanded discussion of the health risks associated with domestic EGU mercury emissions based on additional evidence regarding cardiovascular effects that has become available since the 2016 Supplemental Finding (section III.A.3). In section III.A.4, the EPA describes the reasons why it is extremely difficult to estimate the full health and environmental impacts associated with exposure to HAP. We note the longstanding challenges associated with quantifying and monetizing these effects, which may be permanent and life-threatening and are often distributed unevenly (*i.e.*, concentrated among highly exposed individuals). Next, the section provides an expanded discussion of some identified environmental justice (EJ) issues associated with these emissions (section III.A.5). Section III.A.6 identifies health effects associated with other, non-HAP emissions from EGUs such as SO₂, direct PM_{2.5} and other PM_{2.5} and ozone precursors. Because these pollutants are co-emitted with HAP, the controls necessary to reduce HAP emissions from EGUs often reduce these pollutants as well. After assessing all the evidence, the EPA concludes again (section III.A.7) that regulation of HAP emissions from EGUs under CAA section 112 greatly improves public health for Americans by reducing the risks of premature mortality from heart attacks, cancer, and neurodevelopmental

delays in children, and by helping to restore economically vital ecosystems used for recreational and commercial purposes. Further, we conclude that these public health improvements will be particularly pronounced for certain segments of the American population that are especially vulnerable (e.g., subsistence fishers ⁽²⁹⁾ and their children) to impacts from EGU HAP emissions. In addition, the concomitant reductions in co-emitted pollutants will also provide substantial public health and environmental benefits.

2. Overview of Health Effects Associated With Mercury and Non-Mercury HAP

In calling for the Agency to consider the regulation of HAP from EGUs, the CAA stipulated that the EPA complete three studies (all of which were extensively peer-reviewed) exploring various aspects of risk posed to human health and the environment by HAP released from EGUs. The first of these studies, the Utility Study, published in 1998, focused on the hazards to public health specifically associated with EGU-sourced HAP including, but not limited to, mercury. See CAA section 112(n)(1)(A). A second study, the Mercury Study, released in 1997, while focusing exclusively on mercury, was broader in scope including not only human health, but also environmental impacts and specifically addressed the potential for mercury released from multiple emissions sources (in addition to EGUs) to affect human health and the environment. See CAA section 112(n)(1)(B). The third study, required under CAA section 112(n)(1)(C), the NIEHS Study, submitted to Congress in 1995, considered the threshold level of mercury exposure below which adverse human health effects were not expected to occur. An additional fourth study, the NAS Study, directed by Congress in 1999 and completed in 2000, focused on determining whether a threshold for mercury health effects could be identified for sensitive populations and, as such, presented a rigorous peer review of the EPA's RfD for methylmercury. The aggregate results of these peer-reviewed studies commissioned by Congress as part of CAA section 112(n)(1) supported the determination that HAP emissions from EGUs represented a hazard to public health and the environment that would not be addressed through imposition of the other requirements of the CAA. In the 2 decades that followed, the EPA has continued to conduct additional research and risk assessments and has surveyed the latest science related to the risk posed to human health and the environment by HAP released from EGUs.

a. Review of Health Effects and Previous Risk Analyses for Methylmercury

Mercury is a persistent and bioaccumulative toxic metal that, once released from power plants into the ambient air, can be readily transported and deposited to soil and aquatic environments where it is transformed by microbial action into methylmercury. See Mercury Study; 76 FR 24976 (May 3, 2011) (2011 NESHAP Proposal); 80 FR 75029 (December 1, 2015) (2015 Proposal). Methylmercury bioaccumulates in the aquatic food web eventually resulting in highly concentrated levels of methylmercury within the larger and longer-living fish, which can then be consumed by humans. ⁽³⁰⁾ As documented in both the NAS Study and the Mercury Study, fish and seafood consumption is the primary route of human exposure to methylmercury, with populations engaged in subsistence-levels of consumption being of particular concern. ⁽³¹⁾ The NAS Study reviewed the effects of methylmercury on human health, concluding that it is highly toxic to multiple human and animal organ systems. Of particular concern is chronic prenatal exposure via maternal consumption of foods containing methylmercury. Elevated exposure has been associated with developmental neurotoxicity and manifests as poor performance on neurobehavioral tests, particularly on tests of attention, fine motor function, language, and visual-spatial ability. Evidence also suggests potential for adverse effects on the cardiovascular system, adult nervous system, and immune system, as well as potential for causing cancer. ⁽³²⁾ Below we review the broad range of public health hazards associated with methylmercury exposure.

Neurodevelopmental Effects of Exposure to Methylmercury. Methylmercury is a powerful neurotoxin. Because the impacts of the neurodevelopmental effects of methylmercury are greatest during periods of rapid brain development, developing fetuses and young children are particularly vulnerable. Children born to populations with high fish consumption (e.g., people consuming fish as a dietary staple) or impaired nutritional status (e.g., people with iron or vitamin C deficiencies) are especially vulnerable to adverse neurodevelopmental outcomes. These dietary and nutritional vulnerabilities are often particularly pronounced in underserved communities with minority populations and low-income populations that have historically faced economic and environmental injustice and are overburdened by cumulative levels of pollution. ⁽³³⁾

Infants in the womb can be exposed to methylmercury when their mothers eat fish and shellfish that contain methylmercury. This exposure can adversely affect unborn infants' growing brains and nervous systems. Children exposed to methylmercury while they are in the womb can have impacts to their cognitive thinking, memory, attention, language, fine motor skills, and visual spatial skills. Based on scientific evidence reflecting concern about a range of neurodevelopmental effects seen in children exposed *in utero* to methylmercury, the EPA defined an RfD of 0.0001 mg/kg-day for methylmercury. ⁽³⁴⁾ An RfD is defined as an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime (EPA, 2002). ⁽³⁵⁾

Prenatal exposure to methylmercury from maternal consumption of fish has been associated with several adverse neurodevelopmental outcomes in various fish consuming populations. Although data are limited, the EPA has focused on several subpopulations likely to be at higher risk from methylmercury exposure associated with EGU HAP due to fish consumption. As part of the 2011 Final Mercury TSD, the EPA completed a national-scale risk assessment focused on mercury emissions from domestic EGUs. Specifically, we examined risk associated with mercury released from U.S. EGUs that deposits to watersheds within the continental U.S., bioaccumulates in fish as methylmercury, and is consumed when fish are eaten by female subsistence fishers of child-bearing age and other freshwater self-caught fish consumers. There is increased risk for *in utero* exposure and adverse outcomes in children born to female subsistence fishers with elevated exposure to methylmercury. The risk assessment modeled scenarios representing high-end self-caught fish consumers active at inland freshwater lakes and streams. The analysis estimated that 29 percent of the watersheds studied would lead to female subsistence fishers having exposures which exceeded the methylmercury RfD, based on *in utero* effects, due in whole or in part to the contribution of domestic EGU emissions of mercury. This included up to 10 percent of modeled watersheds where deposition from U.S. EGUs alone leads to potential exposures that exceed the RfD. ⁽³⁶⁾

In addition to the 2011 Final Mercury TSD focusing on subsistence fishers referenced above, the EPA also completed a RIA in 2011 including the characterization of benefits associated with the prospective reduction of U.S. EGU mercury emissions under MATS. ⁽³⁷⁾ However, due to limitations on the available data with regard to the extent of subsistence fishing activity in the U.S., which prevented the enumeration of subsistence fisher populations, the EPA was unable to develop a quantitative estimate of the reduction in population-level risk or associated dollar benefits for children of female subsistence fishers. Instead, in the 2011 MATS RIA, the EPA focused on a different population of self-caught fish consumers that could be enumerated. Specifically, we quantitatively estimated the amount and value of IQ loss associated with prenatal methylmercury exposure among the children of recreational anglers consuming self-caught fish from inland freshwater lakes, streams and rivers (unlike subsistence fishers, available data allow the characterization of recreational fishing activity across the U.S. including enumeration of these populations). Although the EPA acknowledged uncertainty about the size of the affected population and acknowledged that it could be underestimated, these unborn children associated with recreational anglers represented precisely the type of sensitive population most at risk from mercury exposure that CAA section 112 is designed to protect. The results generated in the 2011 RIA for recreational anglers suggested that by reducing methylmercury exposure, MATS was estimated to yield an additional 511 IQ points among the affected population of children, which would increase their future lifetime earnings. The EPA noted at the time that the analysis likely underestimated potential benefits for children of recreational anglers since, due to data limitations, it did not cover consumption of recreationally caught seafood from estuaries, coastal waters, and the deep ocean which was expected to contribute significantly to overall exposure. Nevertheless, this single endpoint alone, evaluated solely for the recreational angler, provides evidence of potentially significant health harm from methylmercury exposure.

In 2011 we noted that other, more difficult to quantify endpoints may also contribute to the overall burden across a broader range of subgroups. The metrics studied in addition to IQ include those measured by performance on neurobehavioral tests, particularly on tests of attention, fine motor-function, language, and visual spatial ability (USEPA, 2001; Agency for Toxic Substances and Disease Registry (ATSDR), 1999). ⁽³⁸⁾ Such adverse neurodevelopmental effects are well documented in cohorts of subsistence fisher populations (*i.e.*, Faroe Islands and the Nunavik region of Arctic Canada).

At this time, the EPA is conducting an updated methylmercury IRIS assessment and recently released preliminary assessment materials, an IRIS Assessment Plan (IAP) and Systematic Review Protocol for methylmercury. ⁽³⁹⁾ The update to the methylmercury IRIS assessment will focus on updating the quantitative aspects of neurodevelopmental outcomes associated with methylmercury exposure. As noted in these early assessment materials, new studies are available, since 2001, assessing the effects of methylmercury exposure on cognitive function, motor function, behavioral, structural, and electrophysiological outcomes at various ages following prenatal or postnatal exposure to methylmercury (USEPA, 2001; NAS Study; 84 FR 13286 (April 4, 2019); ⁽⁴⁰⁾ 85 FR 32037 (May 8, 2020)). ⁽⁴¹⁾

Cardiovascular Impacts of Exposure to Methylmercury. The NAS Study indicated that there was evidence that exposure to methylmercury in humans and animals can have adverse effects on both the developing and adult cardiovascular system. Infant exposure in the womb to methylmercury has been associated with altered blood-pressure and heart-rate variability in children. In adults, dietary exposure to methylmercury has been linked to a higher risk of acute myocardial infarction (MI), coronary heart disease, or cardiovascular heart disease. To date, the EPA has not attempted to utilize a quantitative dose-response assessment for cardiovascular effects associated with methylmercury exposures because of a lack of consensus among scientists on the dose-response functions for these effects and inconsistency among available studies as to the association between methylmercury exposure and various cardiovascular system effects.

However, additional studies have become available that have increased the EPA's confidence in characterizing the dose-response relationship between methylmercury and adverse cardiovascular outcomes. These new studies were leveraged to inform new quantitative screening analyses (described in section III.A.3, below) to estimate one cardiovascular endpoint—incidence of MI mortality—that may potentially be linked to U.S. EGU mercury emissions as well as the number of U.S. EGU impacted watersheds. In addition to a new meta-analysis (Hu *et al.*, 2021) ⁽⁴²⁾ on the association of methylmercury generally with cardiovascular disease (CVD), stroke, and ischemic heart disease (IHD), there is a limited body of existing literature that has examined associations between mercury and various cardiovascular outcomes. These include acute MI, hypertension, atherosclerosis, and heart rate variability (Roman *et al.*, 2011). ⁽⁴³⁾

Immunotoxic Effects of Exposure to Methylmercury. Although exposure to some forms of mercury can result in a decrease in immune activity or an autoimmune response (ATSDR, 1999), evidence for immunotoxic effects of methylmercury is limited (NAS Study).

Other Mercury-Related Human Toxicity Data Including Potential Carcinogenicity. The Mercury Study noted that methylmercury is not a potent mutagen but is capable of causing chromosomal damage in a number of experimental systems. The NAS Study indicated that the evidence that human exposure to methylmercury causes genetic damage is inconclusive; it noted that some earlier studies showing chromosomal damage in lymphocytes may not have controlled sufficiently for potential confounders. One study of adults living in the Tapajos River region in Brazil (Amorim *et al.*, 2000) ⁽⁴⁴⁾ reported a relationship between methylmercury concentration in hair and DNA damage in lymphocytes, as well as effects on chromosomes. Long-term methylmercury exposures in this population were believed to occur through consumption of fish, suggesting that genotoxic effects (largely chromosomal aberrations) may result from dietary, chronic methylmercury exposures similar to and above those seen in the populations studied in the Faroe Islands and Republic of Seychelles. Since 2000, more recent studies have evaluated methylmercury genotoxicity *in vitro* in human and animal cell lines and *in vivo* in rats.

Based on limited human and animal data, methylmercury is classified as a “possible human carcinogen” by the International Agency for Research on Cancer (IARC, 1993) ⁽⁴⁵⁾ and in IRIS (USEPA, 2001). However, a quantitative estimate of the carcinogenic risk of methylmercury has not been assessed under the IRIS program at this time. Multiple human epidemiological studies have found no significant association between methylmercury exposure and overall cancer incidence, although a few studies have shown an association between methylmercury exposure and specific types of cancer incidence (e.g., acute leukemia and liver cancer) (NAS Study).

Some evidence of reproductive and renal toxicity in humans from methylmercury exposure exists. However, overall, human data regarding reproductive, renal, and hematological toxicity from methylmercury are very limited and are based on studies of the two high-dose poisoning episodes in Iraq and Japan or animal data, rather than

epidemiological studies of chronic exposures at the levels of interest in this analysis.

b. Review of Health Effects for Non-Mercury HAP

As noted earlier, EGUs are the largest source of HCl, HF, and selenium emissions, and are a major source of metallic HAP emissions including arsenic, chromium, nickel, cobalt, and others. Exposure to these HAP, depending on exposure duration and levels of exposures, is associated with a variety of adverse health effects. These adverse health effects may include chronic health disorders (e.g., irritation of the lung, skin, and mucus membranes; decreased pulmonary function, pneumonia, or lung damage; detrimental effects on the central nervous system; damage to the kidneys; and alimentary effects such as nausea and vomiting).

As of 2021, three of the key metal HAP emitted by EGUs (arsenic, chromium, and nickel) have been classified as human carcinogens, while three others (cadmium, selenium, and lead) are classified as probable human carcinogens. Overall (metal and non-metal), the EPA has classified four of the HAP emitted by EGUs as human carcinogens and five as probable human carcinogens. See 76 FR 25003-25005 (May 3, 2011) for a fuller discussion of the health effects associated with these pollutants.

As summarized in the *Supplement to the Non-Hg Case Study Chronic Inhalation Risk Assessment In Support of the Appropriate and Necessary Finding for Coal- and Oil-Fired Electric Generating Units* (2011 Non-Hg HAP Assessment), ⁽⁴⁶⁾ the EPA previously completed a refined chronic inhalation risk assessment for 16 EGU case studies in order to assess potential public health risk associated with non-mercury HAP. The 16 case studies included one unit that used oil and 15 that used coal. As noted in the 2015 Proposal, this set of case studies was designed to include those facilities with potentially elevated cancer and non-cancer risk based on an initial risk screening of prospective EGU units completed utilizing the Human Exposure Model paired with HAP emissions data obtained from the 2005 National Emissions Inventory. For each of the 16 case study facilities, we conducted refined dispersion modeling with the EPA's AERMOD (American Meteorological Society/Environmental Protection Agency Regulatory Model) system to calculate annual ambient concentrations (see 2011 Non-Hg HAP Assessment). Average annual concentrations were calculated at census block centroids. We calculated the MIR for each facility as the cancer risk associated with a continuous lifetime (24 hours per day, 7 days per week, and 52 weeks per year for a 70-year period) exposure to the maximum concentration at the centroid of an inhabited census block, based on application of the unit risk estimate from the EPA's IRIS program. Based on estimated actual emissions, the highest estimated individual lifetime cancer risk from any of the 16 case study facilities was 20-in-1 million, driven by nickel emissions from the one case study facility with oil-fired EGUs. Of the facilities with coal-fired EGUs, five facilities had MIR greater than 1-in-1 million (the highest was 5-in-1 million), with the risk from four due to emissions of chromium VI and the risk from one due to emissions of nickel. There were also two facilities with coal-fired EGUs that had MIR equal to 1-in-1 million. Based on this analysis, the EPA concludes that cancer risks associated with these HAP emissions supports a finding that it is appropriate to regulate HAP emissions from EGUs.

c. Review of Other Adverse Environmental Effects Associated With EGU HAP Emissions

Ecological Effects of Methylmercury. Along with the human health hazards associated with methylmercury, it is well-established that birds and mammals are also exposed to methylmercury through fish consumption (Mercury Study). At higher levels of exposure, the harmful effects of methylmercury include slower growth and development, reduced reproduction, and premature mortality. The effects of methylmercury on wildlife are variable across species but have been observed in the environment for numerous avian species and mammals including polar bears, river otters, and panthers. These adverse effects can propagate into impacts on human welfare to the extent they influence economies that depend on robust ecosystems (e.g., tourism).

Ecological Effects of Acid Gas HAP. Even after the ARP was largely implemented in 2005, EGU sources comprised 82 percent of all anthropogenic HCl (a useful surrogate for all acid gas HAP) emissions in the U.S. When HCl dissolves in water, hydrochloric acid is formed. When hydrochloric acid is deposited by rainfall into terrestrial and aquatic ecosystems, it results in acidification of those systems. The MATS rule was expected to result in an 88 percent reduction in HCl emissions. As part of a recent Integrated Science Assessment (EPA, 2020), ⁽⁴⁷⁾ the EPA concluded that the body of evidence is sufficient to infer a causal relationship between acidifying deposition and

adverse changes in freshwater biota. Affected biota from acidification of freshwater include plankton, invertebrates, fish, and other organisms. Adverse effects can include physiological impairment, as well as alteration of species richness, community composition, and biodiversity in freshwater ecosystems. This evidence is consistent and coherent across multiple species. More species are lost with greater acidification.

3. Post-2016 Screening-Level Risk Assessments of Methylmercury Impacts

This section of the preamble describes three screening-level risk assessments completed since the 2016 Supplemental Finding that further strengthen the conclusion that U.S. EGU-sourced mercury represents a hazard to public health. These “screening-level” assessments are designed as broad bounding exercises intended to illustrate the potential scope and public health importance of methylmercury risks associated with U.S. EGU emissions. In some cases, they incorporate newer peer-reviewed literature that was not available to the Agency previously. Remaining uncertainties, however, prohibit the EPA from generating a more precise estimate at this time. Two of the three risk assessments focus on the potential for methylmercury exposure to increase the risk of MI-related mortality in adults and for that reason, section III.A.3.a begins by describing the methodology used in the analyses, including discussion of the concentration response (CR) function ⁽⁴⁸⁾ for MI-related mortality and the incorporation of confidence cutpoints designed to address uncertainty. Then, the EPA describes an extension of the original watershed-level subsistence fisher methylmercury risk assessment to evaluate the potential for elevated MI-mortality risk among subsistence fishers (section III.A.3.b). In addition, a separate risk assessment is presented for elevated MI mortality among all adults utilizing a bounding approach that explores potential risks associated with exposure of the general U.S. population to methylmercury (sourced from U.S. EGUs) through fish consumption (section III.A.3.c). Finally, focusing on neurodevelopmental outcomes, another bounding analysis is presented that focuses on the risk of IQ points loss in children exposed *in utero* through maternal fish consumption by the population of general U.S. fish consumers (section III.A.3.d). Each of these analyses quantify potential impacts on incidence of adverse health effects. Section III.A.4 provides illustrative examples of how these incidence estimates translate to monetized benefits.

a. Methodology for Estimating MI-Mortality

This section describes the methodology used in the new screening-level risk assessments related to mortality, including the EPA's application of a CR function characterizing the relationship between increased MI-mortality and methylmercury exposure. As discussed further in the 2021 Risk TSD, ⁽⁴⁹⁾ which is contained in the docket for this action, the approach draws on recommendations provided by an expert panel convened by the EPA in 2010 to evaluate the cardiovascular effects associated with methylmercury exposure (the findings of the expert panel were summarized as a peer-reviewed paper, Roman *et al.*, 2011). The panel “found the body of evidence exploring the link between [methylmercury] and acute myocardial infarction (MI) to be sufficiently strong to support its inclusion in future benefits analyses, based both on direct epidemiological evidence of [a methylmercury]-MI link and on [methylmercury's] association with intermediary impacts that contribute to MI risk.” Given the likely mechanism of action associated with MI, the panel further recommended that either hair-mercury or toenail-mercury be used as an exposure metric because both reflect a longer-term pattern of exposure. Regarding the shape of the CR function, the panel noted that the EURAMIC study (Guallar *et al.*, 2002) ⁽⁵⁰⁾ had identified a log-linear model form with log-of exposure providing the best fit using toenail mercury as the biomarker of exposure. The panel also discussed the issue of potential effect modification by cardioprotective compounds including polyunsaturated fatty acids (PUFA). ⁽⁵¹⁾ Kuopio Ischaemic Heart Disease Risk Factor Study (KIHD) and European Multicenter Case-Control Study on Antioxidants, Myocardial Infarction, and Cancer of the Breast Study (EURAMIC) datasets “provide the strongest and most useful data sets for quantifying methylmercury-related incidence of MI.” However, the panel did note the disconnect between typical levels of exposure to methylmercury in the U.S. population and the relatively higher levels of exposure reflected in the two recommended epidemiology studies (KIHD and EURAMIC). Therefore, the panel suggested that consideration be given to restricting modeling MI mortality to those with higher concentrations reflecting the levels of exposure found in the two key epidemiology studies (corresponding to roughly 75th to 95th percentile hair-mercury levels for U.S. women of child-bearing age, as characterized in National Health and Nutrition Examination Survey (NHANES) data and referenced by the panel).

In the intervening period since the release of the expert panel's findings in 2011 (Roman *et al.*, 2011), the EPA has continued to review literature characterizing the relationship between methylmercury exposure and cardiovascular effects. While the EPA has not yet conducted a systematic review, two recent studies are of particular interest for quantifying the potential relationship between U.S. EGU mercury emissions and acute MI that informed a modeling approach. Giang and Selin (2016) ⁽⁵²⁾ presented an approach for modeling MI mortality reflecting a number of the recommendations presented in Roman *et al.*, 2011 including the use of the KIHD and EURAMIC studies as the basis for a CR function including both the log-linear functional form and the effect estimate derived from the KIHD study results. A second study, Hu *et al.* 2021, ⁽⁵³⁾ presented a meta-analysis looking at the relationship between methylmercury exposure and mortality. That paper utilized eight studies each determined to be of good quality and reflecting at a minimum, adjustments for age, sex, and n-3 PUFA in specifying dose-response relationships. Historically, studies which account for n-3 PUFA have assumed a linear relationship between PUFAs and risk of MI (Roman *et al.*, 2011). However, the association between PUFA intake and cardiovascular risk may not be linear (Mozaffarian and Rimm, 2006). ⁽⁵⁴⁾ The potential for confounding and effect modification by PUFA and selenium makes it difficult to interpret the relationship between methylmercury and MI, particularly at lower doses where there is potential for masking of methylmercury toxicity. The results of the meta-analysis by Hu *et al.*, 2021 illustrated this phenomenon with their J-shaped functions for both IHD and CVD, both of which showed an initial region of negative slope (diminishing net risk with methylmercury exposure) before reaching an inflection point (between 1 and 2 microgram per gram ($\mu\text{g/g}$) hair-mercury depending on the endpoint) where the function turns positive (increasing risk).

For the EPA's new screening-level assessment, we have considered the recommendations presented in Roman *et al.*, 2011, as well as the J-shaped functions presented in Hu *et al.*, 2021, and their implications for considering overall confidence in specifying the relationship between cardiovascular-related mortality and methylmercury exposure. In particular, the EPA has higher confidence in the log-linear relationship at levels of hair-mercury exposure above the selected confidence cutpoints. In specifying these confidence cutpoints (for modeling MI mortality) we have looked to recommendations presented in Roman *et al.*, 2011, specifically that we consider modeling risk for levels of exposure reflected in the EURAMIC and KIHD studies (with these equating to roughly 0.66 and 1.9 $\mu\text{g/g}$ hair-mercury, respectively, or approximately the 75th-95th percentile of hair-mercury levels seen in women of childbearing age in available 1999-2000 NHANES survey data ⁽⁵⁵⁾). Further, we note that these confidence cutpoints roughly match the inflection point for IHD and CVD seen in the J-shaped plot presented in Hu *et al.*, 2021, which further supports their use in defining regions of methylmercury exposure above which we have increased confidence in modeling MI mortality. However, as noted earlier, we are not concluding here that there is an absence of risk below these cutpoints, as such conclusions would require a weight of the evidence analysis and subsequent independent peer review. Rather, we are less confident in our ability to specify the nature of the CR function in those lower exposure regions due to possible effect modification and/or confounding by PUFA and/or selenium. Therefore, in applying the CR function in modeling MI mortality, we included a set of three functions-two including the cutpoints described above and a third no-cutpoint version of the function reflecting the assumption that risk extends across the entire range of methylmercury exposure. In terms of the other elements of the CR function (shape and effect estimate), we have also followed the advice presented in Roman *et al.*, 2011, as further illustrated through the analysis published by Giang and Selin 2016, and utilized a log-linear form and an effect estimate of 0.10 for MI mortality obtained from the KIHD study (see 2021 Risk TSD). As with the other risk estimates presented for methylmercury, these estimates reflect the baseline for U.S. EGUs prior to implementation of MATS (*i.e.*, 29 tons).

b. Increased MI-Mortality Risk in Subsistence Fishers Exposed to Methylmercury

This screening-level analysis of MI-mortality risk is an extension of the female subsistence-fisher-based at-risk watershed analysis originally completed as part of the 2011 risk assessment supporting the appropriate and necessary determination (USEPA, 2011) and documented in the 2011 Final Mercury TSD. In that original analysis, a series of female subsistence fisher risk scenarios was evaluated for a subset of 3,141 watersheds within the continental U.S. for which there were sampled methylmercury fish tissue data (that fish tissue data allowing a higher-confidence empirically-based assessment of methylmercury risk to be generated for those watersheds). For each watershed, we used the fish tissue methylmercury data to characterize total mercury-related risk and then we

estimated the portion of that total risk attributable to U.S. EGUs (based on the fraction of total mercury deposition to those watersheds associated with U.S. EGU emissions as supported by the Mercury Maps approach, USEPA, 2011).⁽⁵⁶⁾

We have now extended the at-risk watershed analysis completed in 2011 for the subsistence fisher scenarios to include an assessment of the potential for increased MI mortality risk.⁽⁵⁷⁾ Specifically, we have utilized the U.S. EGU-attributable methylmercury exposure estimates ($\mu\text{g}/\text{kg}\text{-day}$ methylmercury intake) generated for the subsistence fisher scenario in each watershed to generate equivalent hair-mercury exposure estimates for that subsistence fisher scenario in each watershed (see 2021 Risk TSD for additional detail on the conversion of daily methylmercury intake rates into hair-mercury levels). We then compare those hair-mercury levels to the confidence cutpoints developed for the MI mortality screening-level risk assessment described above in section III.A.3.a. If the hair-mercury level for a particular watershed is above either the EURAMIC or KIHD confidence cutpoint (*i.e.*, above 0.66 and 1.9 $\mu\text{g}/\text{g}$ hair-mercury, respectively), then we consider that watershed to be at increased risk for MI mortality exclusively due to that U.S. EGU-attributable methylmercury exposure.⁽⁵⁸⁾ Note, that this is not to suggest that exposures at watersheds where U.S. EGU-attributable contributions are below these cutpoints are without risk, but rather that when exposure levels exceed these cutpoints, we have increased confidence in concluding there is an increased risk of MI mortality for subsistence fishers active within that watershed. It is also important to note that in many cases, total methylmercury exposure (*i.e.*, EGU contribution plus contributions from other sources) may exceed these confidence cutpoints such that subsistence fishers active at those watersheds would be at increased risk of MI mortality at least in part due to EGU emissions. See *White Stallion*, 748 F.3d at 1242-43 (finding reasonable the EPA's decision to consider cumulative impacts of HAP from EGUs and other sources in determining whether HAP emissions from EGUs pose a hazard to public health under CAA section 112(n)(1)(A)); see also CAA section 112(n)(1)(B) (directing the EPA to study the cumulative impacts of mercury emissions from EGUs and other domestic stationary sources of mercury).

Table 3 of the 2021 Risk TSD presents the results of the analysis of risk for MI-mortality for the subsistence fisher scenarios. As with the original RfD-based risk estimates, these results are dimensioned on two key parameters (*self-caught fish consumption rate* and *the watershed percentile exposure level—hair-mercury $\mu\text{g}/\text{g}$*). Those watershed percentile hair-mercury values that exceed the EURAMIC-based MI mortality confidence cutpoints (0.66 $\mu\text{g}/\text{g}$ hair-mercury) are shaded in the table and those cells that also exceed the KIHD-based MI mortality confidence cutpoint (1.9 $\mu\text{g}/\text{g}$ hair-mercury) are bolded. Once again, these thresholds identify levels of methylmercury exposure (hair-mercury) associated with a clear association with MI-related health effects (*i.e.*, increased risk). Unlike the RfD-based risk estimates, for MI-mortality estimates we only focus on U.S. EGU-attributable methylmercury (*i.e.*, whether U.S. EGU-attributable hair-mercury exceeds the cutpoints of interest).

Results for the typical subsistence fisher, representing high-end self-caught fish consumption in the U.S. population, suggest that up to 10 percent of the watersheds modeled are associated with hair-mercury levels (due to U.S. EGU mercury emissions alone) that exceed the lower EURAMIC cutpoint for MI-mortality risk, with 1 percent of modeled watersheds also exceeding the KIHD cutpoint (due to U.S. EGU-mercury emissions alone). For low-income Black subsistence fishers active in the Southeast, up to 25 percent of the watersheds exceed the lower EURAMIC confidence threshold (assuming the highest rate of fish consumption), with only the upper 1 percent of watersheds exceeding the KIHD threshold (again based only on U.S. EGU-sourced mercury exposure).

c. Characterization of MI-Mortality Risk for the General U.S. Population Resulting From the Consumption of Commercially-Sourced Fish

The second of the three new screening-level risk analyses estimates the incidence of MI mortality in the general U.S. population resulting from consumption of commercially-sourced fish containing methylmercury emitted from U.S. EGUs.⁽⁵⁹⁾ This is accomplished by first estimating the total burden of methylmercury-related MI mortality in the U.S. population and then estimating the fraction of that total increment attributable to U.S. EGUs. The task of modeling this health endpoint can involve complex mechanistic modeling of the multi-step process leading from U.S. EGU mercury emissions to mercury deposition over global/regional fisheries to bioaccumulation of methylmercury in fisheries stocks to exposure of U.S. fish consumers through consumption of those commercially-sourced fish (*e.g.*, Giang and Selin, 2016). However, in recognition of the uncertainty associated with attempting to

model this more complex multi-step process, we have instead developed a simpler screening analysis approach intended to generate a range of risk estimates that reflects the impact of critical sources of uncertainty associated with this exposure scenario. Rather than attempting to generate a single high-confidence estimate of risk, which in our estimation is challenging given overall uncertainty associated with this exposure pathway, the goal with the bounding approach is simply to generate a range of risk estimates for MI mortality that furthers our understanding of the significant public health burden associated with EGU HAP emissions.

The bounding approach developed for this particular scenario is based on the assumption that fish sourced from global commercial fisheries are loaded by mercury deposited to those fisheries and that the fraction of that deposited mercury originating from U.S. EGUs will eventually be reflected as a fraction of methylmercury in those fish and subsequently as a fraction of MI mortality risk associated with those U.S. EGUs. One of the challenges associated with this screening analysis is how to attribute domestic EGU contributions to global fisheries and how that might vary from location to location. For simplicity, the bounding analysis includes two assumptions: (1) A potential lower-bound reflecting the assumption that U.S. fish consumption is largely sourced from global fisheries and consequently the U.S. EGU contribution to total global mercury emissions (anthropogenic and natural) can be used to approximate the U.S. EGU fractional contribution to MI mortality and (2) a potential upper-bound where we assume that fisheries closer to U.S. EGUs (*e.g.*, within the continental U.S. or just offshore and/or along the U.S. Atlantic and Pacific coastlines) supply most of the fish and seafood consumed within the U.S., and therefore U.S. EGU average deposition over the U.S. (as a fraction of total mercury deposition) can be used to approximate the U.S. EGU fractional contribution to MI mortality (*see* 2021 Risk TSD for more detail).⁽⁶⁰⁾ The EPA is continuing to review the literature (including consideration of research by FDA) to better define the relative contributions for sources of fish consumed within the U.S. Note that the bounding analysis also includes consideration for another key source of uncertainty, namely, the specification of the CR function linking methylmercury exposure to increased MI mortality and, in particular, efforts to account for increased confidence in specifying the CR function for higher levels of methylmercury exposure through the use of confidence cutpoints (section III.A.3.a). Additional detail on the stepwise process used to first generate the total U.S. burden of MI-mortality related to total methylmercury exposure and then apportion that total risk estimate to the fraction contributed by U.S. EGUs is presented the 2021 Risk TSD. Based on the 29 tons of mercury emitted by U.S. EGUs prior to implementation of MATS, the bounding estimates from the fraction of total mercury deposition attributable to U.S. EGUs at the global scale is 0.48 percent (lower bound) and 1.8 percent (upper bound). These estimated bounding percentages are important since they have a significant impact on the overall incidence of MI mortality ultimately attributable to U.S. EGU-sourced mercury.

Reflecting both the spread in the apportionment of U.S. EGU-sourced mercury (as described above) and application of the three possible applications of the CR function for MI mortality (no confidence-cutpoint, KIH D cutpoint, EURAMIC cutpoint), the estimated MI-mortality attributable to U.S. EGU-sourced mercury for the general U.S. population associated primarily with consumption of commercially-sourced fish ranges from 5 to 91 excess deaths each year.⁽⁶¹⁾ For those Americans with high levels of methylmercury in their body (*i.e.*, above certain cutpoints), the science suggests that any additional increase in methylmercury exposure will raise the risk of fatal heart attacks. Based on this screening analysis, even after imposition of the ARP and other CAA criteria pollutant requirements that also reduce HAP emissions from domestic EGU sources, we find that mercury emissions from EGUs pose a risk of premature mortality due to MI.

d. Characterization of IQ Loss for Children Born to Mothers in the General U.S. Population Resulting From the Consumption of Commercially Sourced Fish (and Other Food Items Containing Methylmercury)

The third new screening-level risk analysis estimates the incidence of IQ loss in children in the general U.S. population resulting from maternal consumption of commercially sourced fish containing methylmercury attributable to U.S. EGUs (resulting in subsequent prenatal exposure to methylmercury). The approach used in estimating incidence of this adverse health effect shares several elements with the approach described above for modeling MI mortality in the general U.S. population, including in particular, the method used to apportion the total methylmercury-related health burden to the fraction associated with U.S. EGU mercury emissions (*e.g.*, use of lower and upper bound estimates of the fractional contribution of domestic EGU sources). Other elements of the modeling approach, including the specification of the number of children born annually in the U.S., the specification

of maternal baseline hair-mercury levels (utilizing NHANES data) and the characterization of the linkage between methylmercury exposure (*in utero*) and IQ loss, are based on methods used in the original 2011 benefits analysis completed for MATS (USEPA, 2011) and are documented in the 2021 Risk TSD.

As with the MI-mortality estimates described earlier, the two bounding estimates for the fraction of total mercury deposition attributable to U.S. EGUs at the global and regional scales (0.48 percent and 1.8 percent, respectively) have a significant impact on the overall magnitude of IQ points lost (for children born to the general U.S. population) which are ultimately attributable to U.S. EGUs. However, the EPA has relatively high confidence in modeling this endpoint due to greater confidence in the IQ loss CR function. The range in IQ points lost annually due to U.S. EGU-sourced mercury is estimated at 1,600 to 6,000 points, which is distributed across the population of U.S. children covered by this analysis. ⁽⁶²⁾ Given variation in key factors related to maternal methylmercury exposure, it is likely that modeled IQ loss will not be uniformly distributed across the population of exposed children and may instead, display considerable heterogeneity. ⁽⁶³⁾ The bounding analysis described here was not designed to characterize these complex patterns of heterogeneity in IQ loss across the population of children simulated and we note that such efforts would be subject to considerable uncertainty. However, it does provide evidence of specific adverse outcomes with real implications to those affected. Even small degradations in IQ in the early stages of life are associated with diminished future outcomes in education and earnings potential.

4. Most HAP Benefits Cannot Be Quantified or Monetized

Despite the array of adverse health and environmental risks associated with HAP emissions from U.S. coal- and oil-fired EGUs documented above, as the above discussion demonstrates, it can be technically challenging to estimate the extent to which EGU HAP emissions will result in adverse effects quantitatively across the U.S. population absent regulation. In fact, the vast majority of the post-control benefits of reducing HAP cannot be quantified or monetized with sufficient quality to inform regulatory decisions due to data gaps, particularly with respect to sensitive populations. But that does not mean that these benefits are small, insignificant, or nonexistent. There are numerous unmonetized effects that contribute to additional benefits realized from emissions reductions. These include additional reductions in neurodevelopmental and cardiovascular effects from exposure to methylmercury, adverse ecosystem effects including mercury-related impacts on recreational and commercial fishing, health risks from exposure to non-mercury HAP, and health risks in EJ subpopulations that face disproportionately high exposure to EGU HAP.

Congress well understood the challenges in monetizing risks. As discussed in section II.B above, the statutory language in CAA section 112 clearly supports a conclusion that the intended benefit of HAP regulation is a reduction in the volume of HAP emissions to reduce assumed and identified risks from HAP with the goal of protecting even the most exposed and most sensitive members of the population. The statute requires the EPA to move aggressively to quickly reduce and eliminate HAP, placing high value on doing so in the face of uncertainty regarding the full extent of harm posed by hazardous pollutants on human health and welfare. The statute also clearly places great value on protecting even the most vulnerable members of the population, by instructing the EPA, when evaluating risk in the context of a determination of whether regulation is warranted, to focus on risk to the most exposed and most sensitive members of the population. See, e.g., CAA sections 112(c)(9)(B), 112(f)(2)(B), and 112(n)(1)(C). For example, in evaluating the potential for cancer effects associated with emissions from a particular source category under CAA section 112(f)(2), the EPA is directed by Congress to base its determinations on the maximum individual risk (MIR) to the most highly exposed individual living near a source. Similarly, in calculating the potential for non-cancer effects to occur, the EPA evaluates the impact of HAP to the most exposed individual and accounts for sensitive subpopulations.

Notably, Congress in CAA section 112 did not require the EPA to quantify risk across the entire population, or to calculate average or “typical” risks. The statutory design focusing on maximum risk to individuals living near sources acknowledges the inherent difficulty in enumerating HAP effects, given the large number of pollutants and the uncertainties associated with those pollutants, as well as the large number of sources emitting HAP. However, this does not mean that these effects do not exist or that society would not highly value these reductions, despite the fact that the post-control effects of the reductions generally cannot be quantified. The EPA has long acknowledged the difficulty of quantifying and monetizing HAP benefits. In March 2011, the EPA issued a report on

the post-control benefits and costs of the CAA. This Second Prospective Report ⁽⁶⁴⁾ is the latest in a series of EPA studies that estimate and compare the post-control benefits and costs of the CAA and related programs over time. Notably, it was the first of these reports to include any attempt to quantify and monetize the impacts of reductions in HAP, and it concentrated on a small case study for a single pollutant, entitled “Air Toxics Case Study—Health Benefits of Benzene Reductions in Houston, 1990-2020.” As the EPA summarized in the Second Prospective Report, “[t]he purpose of the case study was to demonstrate a methodology that could be used to generate human health benefits from CAAA controls on a single HAP in an urban setting, while highlighting key limitations and uncertainties in the process. . . . Benzene was selected for the case study due to the availability of human epidemiological studies linking its exposure with adverse health effects.” (pg. 5-29). In describing the approach, the EPA noted: “[b]oth the Retrospective analysis and the First Prospective analysis omitted a quantitative estimation of the benefits of reduced concentrations of air toxics, citing gaps in the toxicological database, difficulty in designing population-based epidemiological studies with sufficient power to detect health effects, limited ambient and personal exposure monitoring data, limited data to estimate exposures in some critical microenvironments, and insufficient economic research to support valuation of the types of health impacts often associated with exposure to individual air toxics.” (pg. 5-29). These difficulties have long hindered the Agency’s ability to quantify post-control HAP impacts and estimate the monetary benefits of HAP reductions.

In preparing the benzene case study for inclusion in the Second Prospective Report, the Agency asked the Advisory Council on Clean Air Compliance Analysis (the Council) to review the approach. In its 2008 consensus advice to the EPA after reviewing the benzene case study, ⁽⁶⁵⁾ the Council noted that “Benzene . . . has a large epidemiological database which OAR used to estimate the health benefits of benzene reductions due to CAAA controls. The Council was asked to consider whether this case study provides a basis for determining the value of such an exercise for HAP benefits characterization nationwide.” They concluded:

As recognized by OAR, the challenges for assessing progress in health improvement as a result of reductions in emissions of hazardous air pollutants (HAPs) are daunting. Accordingly, EPA has been unable to adequately assess the economic benefits associated with health improvements from HAP reductions due to a lack of exposure-response functions, uncertainties in emissions inventories and background levels, the difficulty of extrapolating risk estimates to low doses and the challenges of tracking health progress for diseases, such as cancer, that have long latency periods. . . .

The benzene case study successfully synthesized best practices and implemented the standard damage function approach to estimating the benefits of reduced benzene, however the Council is not optimistic that the approach can be repeated on a national scale or extended to many of the other 187 air toxics due to insufficient epidemiological data. With some exceptions, it is not likely that the other 187 HAPs will have the quantitative exposure-response data needed for such analysis. Given EPA’s limited resources to evaluate a large number of HAPs individually, the Council urges EPA to consider alternative approaches to estimate the benefits of air toxics regulations.

In addition to the difficulties noted by the Council, there are other challenges that affect the EPA’s ability to fully characterize post-control impacts of HAP on populations of concern, including sensitive groups such as children or those who may have underlying conditions that increase their risk of adverse effects following exposure to HAP. Unlike for criteria pollutants such as ozone and PM, the EPA lacks information from controlled human exposure studies conducted in clinical settings which enable us to better characterize dose-response relationships and identify subclinical outcomes. Also, as noted by the Council and by the EPA itself in preparing the benzene case study, the almost universal lack of HAP-focused epidemiological studies is a significant limitation. Estimated risks reported in epidemiologic studies of fine PM (PM_{2.5}) and ozone enable the EPA to estimate health impacts across large segments of the U.S. population and quantify the economic value of these impacts. Epidemiologic studies are particularly well suited to supporting air pollution health impact assessments because they report measures of population-level risk that can be readily used in a risk assessment.

However, such studies are infrequently performed for HAP. Exposure to HAP is typically more uneven and more highly concentrated among a smaller number of individuals than exposure to criteria pollutants. Hence, conducting an epidemiologic study for HAP is inherently more challenging; for starters, the small population size means such

studies often lack sufficient statistical power to detect effects. For example, in the case of mercury, the most exposed and most sensitive members of the population may be both small and highly concentrated, such as the subsistence fishers that the EPA has identified as likely to suffer deleterious effects from U.S. EGU HAP emissions. While it is possible to estimate the potential risks confronting this population in a case-study approach (an analysis that plays an important role in supporting the public health hazard determination for mercury as discussed above in sections III.A.2 and III.A.3), it is not possible to translate these risk estimates into post-control quantitative population-level impact estimates for the reasons described above.

Further, for many HAP-related health endpoints, the Agency lacks economic data that would support monetizing HAP impacts, such as willingness to pay studies that can be used to estimate the social value of avoided outcomes like heart attacks, IQ loss, and renal or reproductive failure. In addition, the absence of socio-demographic data such as the number of affected individuals comprising sensitive subgroups further limits the ability to monetize HAP-impacted effects. All of these deficiencies impede the EPA's ability to quantify and monetize post-control HAP-related impacts even though those impacts may be severe and/or impact significant numbers of people.

Though it may be difficult to quantify and monetize most post-control HAP-related health and environmental benefits, this does not mean such benefits are small. The nature and severity of effects associated with HAP exposure, ranging from lifelong cognitive impairment to cancer to adverse reproductive effects, implies that the economic value of reducing these impacts would be substantial if they were to be quantified completely. By extension, it is reasonable to expect both that reducing HAP-related incidence affecting individual endpoints would yield substantial benefits if fully quantified, and moreover that the total societal impact of reducing HAP would be quite large when evaluated across the full range of endpoints. In judging it appropriate to regulate based on the risks associated with HAP emissions from U.S. EGUs, the EPA is placing weight on the likelihood that these effects are significant and substantial, as supported by the health evidence. The EPA's new screening-level analyses laid out in the Risk TSD for this proposal illustrate this point. Specifically, in exploring the potential for MI-related mortality risk attributable to mercury emissions from U.S. EGUs, the EPA's upper bound estimate is that these emissions may contribute to as many as 91 additional premature deaths each year. The value society places on avoiding such severe effects is very high; as the EPA illustrates in the valuation discussion in the 2021 Risk TSD, the benefit of avoiding such effects could approach \$720 million per year. Similarly, for IQ loss in children exposed *in utero* to U.S. EGU-sourced mercury, our upper bound estimate approaches 6,000 IQ points lost which could translate into a benefit approaching \$50 million per year.

These estimates are intended to illustrate the point that the HAP impacts are large and societally meaningful, but not to suggest that they are even close to the full benefits of reducing HAP. There are many other unquantified effects of reducing EGU HAP that would also have substantial value to society. As described above, mercury alone is associated with a host of adverse health and environmental effects. The statute clearly identifies this basket of effects as a significant concern in directing the EPA to study them specifically. If the EPA were able to account for all of these post-control effects in our quantitative estimates, the true benefits of MATS would be far clearer. However, available data and methods currently preclude a full quantitative accounting of the post-control impacts of reducing HAP emissions from U.S. EGUs and a monetization of these impacts.

There are other aspects of social willingness to pay that are not accounted for in the EPA's quantitative estimate of benefits either. For example, in previous MATS-related rulemakings and analysis, the EPA has not estimated what individuals would be willing to pay in order to reduce the exposure of *others* who are exposed (even if they are not experiencing high levels of HAP exposure themselves). These may be considered and quantified as benefits depending on whether it is the health risks to others in particular that is motivating them. ⁽⁶⁶⁾ For example, Cropper *et al.* (2016) found that focus group participants indicated a preference for more equitable distribution of health risks than for income, which indicates that it is specifically the risks others face that was important to the participants. ⁽⁶⁷⁾ This result is particularly important as exposure to HAP is often disproportionately borne by underserved and underrepresented communities (Bell and Ebisu, 2012). ⁽⁶⁸⁾ Unfortunately, studies to quantify the willingness to pay for a more equitable distribution of HAP exposures are limited, so quantification of this benefit likely cannot be performed until new research is conducted.

The HAP-related legislative history for the 1990 Amendments includes little discussion of the monetized benefits of HAP, perhaps due to these attendant difficulties. When such monetized benefits were estimated in several outside reports submitted to Congress before passage of the 1990 Amendments, the estimates were based on reduced cancer deaths and the value of the benefits that are quantified were estimated to be small as compared to the estimated costs of regulating HAP emissions under CAA section 112. See, e.g., *A Legislative History of the Clean Air Act Amendments of 1990*, Vol. I at 1366-67 (November 1993) (estimating the total annual cost of CAA section 112 to be between \$6 billion and \$10 billion per year and the estimated annual benefits to be between \$0 and \$4 billion per year); *id.* at 1372-73 (estimating the total annual cost of CAA section 112 to be between \$14 billion and \$62 billion per year and the estimated annual benefits to be between \$0 and \$4 billion per year). Despite the apparent disparity of estimated costs and monetized benefits, Congress still enacted the revisions to CAA section 112. Thus, it is reasonable to conclude that Congress found HAP emissions to be worth regulating even without evidence that the monetized benefits of doing so were greater than the costs. The EPA believes this stems from the value that the statute places on reducing HAP regardless of whether the post-control benefits of doing so can be quantified or monetized, and the statute's purpose of protecting even the most exposed and most sensitive members of the population.

5. Characterization of HAP Risk Relevant to Consideration of Environmental Justice

In assessing the adverse human health effects of HAP pollution from EGUs, we note that these effects are not borne equally across the population, and that some of the most exposed individuals and subpopulations—protection of whom is, as noted, of particular concern under CAA section 112—are minority and/or low-income populations. Executive Order 12898 (59 FR 7629; February 16, 1994) establishes Federal executive policy on EJ issues. That Executive Order's main provision directs Federal agencies, to the greatest extent practicable and permitted by law, to make EJ part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations. Executive Order 14008 (86 FR 7619; February 1, 2021) also calls on Federal agencies to make achieving EJ part of their missions “by developing programs, policies, and activities to address the disproportionately high and adverse human health, environmental, climate-related and other cumulative impacts on disadvantaged communities, as well as the accompanying economic challenges of such impacts.” That Executive Order also declares a policy “to secure environmental justice and spur economic opportunity for disadvantaged communities that have been historically marginalized and overburdened by pollution and under-investment in housing, transportation, water and wastewater infrastructure, and health care.” Under Executive Order 13563, Federal agencies may consider equity, human dignity, fairness, and distributional considerations, where appropriate and permitted by law.

In the context of MATS, exposure scenarios of clear relevance from an EJ perspective include the full set of subsistence fisher scenarios included in the watershed-level risk assessments completed for the rule. Subsistence fisher populations are potentially exposed to elevated levels of methylmercury due to their elevated levels of self-caught fish consumption which, in turn, are often driven either by economic need (i.e., poverty) and/or cultural practices. In the context of MATS, we completed watershed-level assessments of risks for a broad set of subsistence fisher populations covering two health endpoints of clear public health significance including: (a) Neurodevelopmental effects in children exposed prenatally to methylmercury (the methylmercury-based RfD analysis described in the 2011 Final Mercury TSD) and (b) potential for increased MI-mortality risk in adults due to methylmercury exposure (section III.A.3.b above).

The general subsistence fisher population that was evaluated nationally for both analyses was not subdivided by socioeconomic status, race, or cultural practices.⁽⁶⁹⁾ Therefore, the risk estimates derived do not fully inform our consideration of EJ impacts, although the significantly elevated risks generated for this general population are clearly relevant from a public health standpoint. However, the other, more differentiated subsistence fisher populations, which are subdivided into smaller targeted communities, are relevant in the EJ context and in some instances were shown to have experienced levels of risk significantly exceeding those of the general subsistence fisher population, as noted earlier in section III.A.3.b.

In particular, for the watershed analysis focusing on the methylmercury RfD-based analysis (*i.e.*, neurodevelopmental risk for children exposed prenatally), while the general female fisher scenario suggested that modeled exposures (from U.S. EGU-sourced mercury alone) exceeded the methylmercury RfD in approximately 10 percent of the watersheds modeled (2011 Final Mercury TSD, Table 2-6), for low-income Black subsistence fisher females in the Southeast, modeled exposures exceeded the RfD in approximately 25 percent of the watersheds. These results suggest a greater potential for adverse effects in low-income Black populations in the Southeast. Similarly, while the general subsistence fisher had exposure levels suggesting an increased risk for MI-mortality risk in 10 percent of the watersheds modeled, two sub-populations were shown to be even further disadvantaged. Low-income Black and white populations in the Southeast and tribal fishers active near the Great Lakes had the potential for increased risk in 25 percent of the watersheds modeled. ⁽⁷⁰⁾ Both of these results (the neurodevelopmental RfD-based analysis and the analysis of increased MI-mortality risk) suggest that subsistence fisher populations that are racially or culturally, geographically, and income-differentiated could experience elevated risks relative to not only the general population but also the population of subsistence fishers generally. We think these results are relevant in considering the benefits of regulating EGU HAP.

6. Overview of Health and Environmental Effects Associated With Non-HAP Emissions From EGUs

Alongside the HAP emissions enumerated above, U.S. EGUs also emit a substantial quantity of criteria pollutants, including direct PM_{2.5}, nitrogen oxides (NO_x) (including NO₂), and SO₂, even after implementation of the ARP and numerous other CAA requirements designed to control criteria pollutants. In the 2011 RIA, for example, the EPA estimated that U.S. EGUs would emit 3.4 million tons of SO₂ and 1.9 million tons of NO_x in 2015 prior to implementation of any controls under MATS (*see* Table ES-2). These EGU SO₂ emissions were approximately twice as much as all other sectors combined (EPA SO₂ Integrated Science Assessment, 2017). ⁽⁷¹⁾ These pollutants contribute to the formation of PM_{2.5} and ozone criteria pollutants in the atmosphere, the exposure to which is causally linked with a range of adverse public health effects. SO₂ both directly affects human health and is a precursor to PM_{2.5}. Short-term exposure to SO₂ causes respiratory effects, particularly among adults with asthma. SO₂ serves as a precursor to PM_{2.5}, the exposure to which increases the risk of premature mortality among adults, lung cancer, new onset asthma, exacerbated asthma, and other respiratory and cardiovascular diseases. Likewise, EGU-related emissions of NO_x will adversely affect human health in the form of respiratory effects including exacerbated asthma. NO_x is a precursor pollutant to both PM_{2.5} and ground-level ozone. Exposure to ozone increases the risk of respiratory-related premature death, new onset asthma, exacerbated asthma, and other outcomes. Fully accounting for the human health impacts of reduced EGU emissions under MATS entails quantifying both the direct impacts of HAP as well as the avoided premature deaths and illnesses associated with reducing these co-emitted criteria pollutants. Similarly, U.S. EGUs emit substantial quantities of CO₂, a powerful greenhouse gas (GHG): The EPA estimated these emissions at 2.23 million metric tpy in 2015 (2011 RIA, Table ES-2). The environmental impacts of GHG emissions are accounted for through the social cost of carbon, ⁽⁷²⁾ which can be used to estimate the benefits of emissions reductions due to regulation.

Not all of the non-HAP benefits of MATS were quantified or monetized in the 2011 RIA. However, the EPA thoroughly documented these potential effects and identified those for which quantification and/or monetization was possible. Specifically, the EPA calculated the number and value of avoided PM_{2.5}-related impacts, including 4,200 to 11,000 premature deaths, 4,700 nonfatal heart attacks, 2,600 hospitalizations for respiratory and cardiovascular diseases, 540,000 lost work days, and 3.2 million days when adults restrict normal activities because of respiratory symptoms exacerbated by PM_{2.5} (2011 RIA, p. ES-3). We also estimated substantial additional health improvements for children from reductions in upper and lower respiratory illnesses, acute bronchitis, and asthma attacks. In addition, we included in our monetized co-benefits estimates the effect from the reduction in CO₂ emissions resulting from this rule, based on the interagency SC-CO₂ estimates. These benefits stemmed from imposition of MATS and would be coincidentally realized alongside the HAP benefits.

7. Summary of Public Health Hazards Associated With Emissions From EGUs

The EPA is proposing to find that the evidence provided in this section of the preamble, informed where possible with new scientific evidence available since the publication of the 2016 Supplemental Finding, once again demonstrates that HAP released from U.S. EGUs represent a significant public health hazard absent regulation

under CAA section 112. As noted earlier, the EPA found that even after imposition of the other requirements of the CAA, EGUs were the largest domestic source of mercury, HF, HCl, and selenium and among the largest domestic contributors of arsenic, chromium, cobalt, nickel, hydrogen cyanide, beryllium, and cadmium. The EPA has documented a wide range of adverse health effects in children and adults associated with mercury including, in particular, neurodevelopmental effects in children exposed prenatally (e.g., IQ, attention, fine motor-function, language, and visual spatial ability) and a range of cardiovascular effects in adults including fatal MI and non-fatal IHD. Non-mercury HAP have also been associated with a wide range of chronic health disorders (e.g., irritation of the lung; decreased pulmonary function, pneumonia, or lung damage; detrimental effects on the central nervous system; and damage to the kidneys). Furthermore, three of the key metal HAP emitted by EGUs (arsenic, chromium, and nickel) have been classified as human carcinogens and there is evidence to suggest that, prior to MATS, emissions from these sources had the potential to result in cancer risks greater than 1-in-1 million.

Further, this section describes the results from several new screening-level risk assessments considering mercury from domestic EGU sources. These risk assessments focused on two broad populations of exposure: (a) Subsistence fishers exposed to mercury through self-caught fish consumption within the continental U.S. and (b) the general U.S. population exposed to mercury through the consumption of commercially-sourced fish (i.e., purchased from restaurants and food stores). The results of these screening-level risk assessments are useful for informing our understanding about the potential scope and public health importance of these impacts, but remaining uncertainties prohibit precise estimates of the size of these impacts currently. For example, numerous studies considering multiple, large cohorts have shown that people exposed to high amounts of mercury are at higher risk of fatal and non-fatal CVD. While U.S. EGUs are only one of multiple global sources that contribute to this mercury exposure, the EPA's screening analysis suggests the potential for U.S. EGU emissions of mercury to contribute to premature mortality in the general U.S. population.

Furthermore, as part of the subsistence fisher analyses, we included scenario modeling for a number of EJ-relevant populations showing that several populations (including low-income Blacks and whites in the Southeast and tribal populations near the Great Lakes) had risk levels that were significantly above the general subsistence fisher population modeled for the entire U.S. As noted earlier, the EPA believes that Congress intended in CAA section 112 to address risks to the most exposed and most sensitive members of the public. These additional risk assessments suggest that there are populations that are particularly vulnerable to EGU HAP emissions, including populations of concern from an EJ standpoint.

MATS plays a critical role in reducing the significant volume and risks associated with EGU HAP emissions discussed above. Mercury emissions have declined by 86 percent, acid gas HAP by 96 percent, and non-mercury metal HAP by 81 percent since 2010 (pre-MATS). See Table 4 at 84 FR 2689 (February 7, 2019). MATS is the only Federal requirement that guarantees this level of HAP control from EGUs. At the same time, the concomitant reductions in CO₂, NO_x, and SO₂, also provide substantial public health and environmental benefits. Given the numerous and important public health and environmental risks associated with EGU emissions, the EPA again concludes that the advantages of regulating HAP emissions from this sector are significant. Acknowledging the difficulties associated with characterizing risks from HAP emissions discussed earlier in this section, we solicit comments about the health and environmental hazards of EGU HAP emissions discussed in this section and the appropriate approaches for quantifying such risks, as well any information about additional risks and hazards not discussed in this proposal.

B. Consideration of Cost of Regulating EGUs for HAP

1. Introduction

In evaluating the costs and disadvantages of MATS, we begin with the costs to the power industry of complying with MATS. This assessment uses a sector-level (or system-level) accounting perspective to estimate the cost of MATS, looking beyond just pollution control costs for directly affected EGUs to include incremental costs associated with changes in fuel supply, construction of new capacity, and costs to non-MATS units that were also projected to adjust operating decisions as the power system adjusted to meet MATS requirements. Such an approach is warranted due to the nature of the power sector, which is a large, complex, and interconnected industry. This means that while the MATS requirements are directed at a subset of EGUs in the power sector, the compliance

actions of the MATS-regulated EGUs can affect production costs and revenues of other units due to generation shifting and fuel and electricity price changes. Thus, the EPA's projected compliance cost estimate represents the incremental costs to the entire power sector to generate electricity, not just the compliance costs projected to be incurred by the coal- and oil-fired EGUs that are regulated under MATS. Limiting the cost estimate to only those expenditures incurred by EGUs directly regulated by MATS would provide an incomplete estimate of the costs of the rule.

Using this broad view, in the 2011 RIA we projected that the compliance cost of MATS would be \$9.6 billion per year in 2015. ⁽⁷³⁾ This estimate of compliance cost was based on the change in electric power generation costs between a base case without MATS and a policy case where the sector complies with the HAP emissions limits in the final MATS. The EPA generated this cost estimate using the Integrated Planning Model (IPM). ⁽⁷⁴⁾ This model is designed to reflect electricity markets as accurately as possible using the best available information from utilities, industry experts, natural gas and coal market experts, financial institutions, and government statistics. Notably, the model includes cost and performance estimates for state-of-the-art air pollution control technologies with respect to mercury and other HAP controls. But there are inherent limits to what can be predicted *ex ante*. And because the estimate was made 5 years prior to full compliance with MATS, stakeholders, including a leading power sector trade association, have indicated that our initial cost projection significantly overestimated actual costs expended by industry. There are significant challenges to producing an *ex post* cost estimate that provides an apples-to-apples comparison to our initial cost projections, due to the complex and interconnected nature of the industry. However, independent analyses provided to the EPA indicate that we may have overestimated the cost of MATS by billions of dollars per year. Moreover, there have been significant changes in the power sector in the time since MATS was promulgated that were not anticipated in either EPA or U.S. Energy Information Administration (EIA) projections at the time. ⁽⁷⁵⁾ Entirely outside of the realm of EPA regulation, there were dramatic shifts in the cost of natural gas and renewables, state policies, and Federal tax incentives, which have also further encouraged construction of new renewables. These have led to significantly faster and greater than anticipated retirement of coal capacity and coal-fired generation.

While there are significant limitations to producing an *ex post* cost estimate, we have endeavored, where possible, to approximate the extent of our overestimate. The unexpected shifts in the power sector, including the rapid increase in natural gas supplies that occurred after promulgation of MATS, resulted in our projected estimates of natural gas prices to be approximately double what they were in actuality. Incremental natural gas expenditures accounted for approximately 25 percent of the \$9.6 billion compliance cost estimate for 2015 in the 2011 RIA. The market trends of the power sector also had major impacts on the number of controls installed and operated on coal-fired EGUs in the years following promulgation of MATS. With respect to just pollution control installation and operation, we project that we overestimated annual compliance costs by at least \$2.2 to 4.4 billion per year, simply as a result of fewer pollution controls being installed than were estimated in the 2011 RIA. Though this range of an overestimate is limited to costs associated with pollution controls and operation, those costs made up 70 percent of the projected \$9.6 billion figure.

We additionally find that the controls that were installed at MATS-regulated EGUs were likely both less expensive and more effective in reducing pollution than originally projected, resulting in our estimate likely being too high for these reasons as well. Lastly, since completing the 2011 RIA, we have updated several assumptions in our modeling that would also have resulted in a lower cost estimate had they been incorporated into our modeling at the time of the rule. Taking into account the above considerations, we believe we overestimated the cost of MATS by billions of dollars.

We next examine the projected cost of MATS—both total cost and specific types of costs—using sector-level metrics that put those cost estimates in context with the economics of the power sector. The reason we examine these metrics is to better understand the disadvantages that expending these costs had on the EGU industry and the public more broadly, just as on the benefits side we look beyond the volume of pollution reductions to the health and environmental advantages conferred by the reductions.

For purposes of these analyses, we use the 2011 RIA projections, keeping in mind our newer analyses, which indicated that those projections were almost certainly overestimated. Specific to the power sector, we evaluate the projected costs of the rule to revenues from electricity sales across nearly 20 years, and we compare the projected expenditures required under the rule with historic expenditures by the industry over the same time period. We additionally evaluate broader impacts on the American public by looking at projected effects of MATS on retail electricity prices and our analyses of whether the power sector could continue to provide adequate and reliable electricity after imposition of the rule. We find that, when viewed in context, the projected costs of MATS to both the power sector and the public were small relative to these metrics and well within the range of historical variability. Moreover, experience has borne out our projection that the EGU sector could continue to provide adequate, reliable, and affordable electricity to the American public after the imposition of the rule.

Section III.B.2 contains our discussion of the ways in which the compliance costs for MATS were likely overestimated. Section III.B.3 expands upon and re-evaluates the cost metrics used in the 2016 Supplemental Finding by adding post-promulgation information to our analysis, and we discuss impacts on power sector generating capacity. In section III.B.4, we propose to reaffirm additional cost considerations regarding the availability and cost of control technologies discussed in earlier rulemakings, and in section III.B.5, we provide our proposed conclusions regarding the costs, or disadvantages, of regulating HAP from EGUs.

2. Compliance Cost Projections in the 2011 RIA Were Likely Significantly Overestimated

In issuing this proposal, the EPA finds itself in a position Congress was not likely to have contemplated when it promulgated the 1990 Amendments. The statute contemplated that the EPA would have completed the required studies and presumably made its determination more than 20 years ago. Due to litigation and multiple changes of administration following *Michigan*, we are, at this point, nearly 10 years after promulgation of the regulation about which we are making a threshold determination, and 5 years after full implementation of that regulation. The vast majority of MATS-affected sources were required to be in compliance with the rule's requirements by April 2016, and installation of new controls-or upgrades to existing controls-were in place by 2017. ⁽⁷⁶⁾ This means we now have on hand unit-level data regarding installations, a clearer picture about market trends, and updated, more accurate assumptions that, taken together, produce a very different picture of the actual costs of MATS than what we projected when we reaffirmed the appropriate and necessary determination and promulgated the rule in 2012. Therefore, while the Agency considers that the information that was available at the time of MATS promulgation provided a valid analytical basis for the threshold appropriate and necessary determination, because many years have elapsed since then, the EPA believes it is reasonable to examine how the power sector has evolved since MATS was finalized and, with the benefit of hindsight, compare important aspects of the 2011 RIA projections with what actually happened since MATS was promulgated. Because our obligation under CAA section 112(n)(1)(A) is to fully consider the advantages and disadvantages of regulating a large, critically important industry, whose role impacts the lives of every American, we think it is important to evaluate and consider the best, currently available information, even if, as discussed in sections III.B.3 and 4, the pre-existing record supports the same conclusion. This *ex post* examination demonstrates that the EPA almost certainly significantly overestimated compliance costs in the 2011 RIA, which further supports the determination that regulation is appropriate and necessary after considering cost. We also do not view this updated, post-hoc evaluation of what happened post-promulgation as undermining the record we established in 2012. Models are not invalidated "solely because there might be discrepancies between those predictions and the real world. That possibility is inherent in the enterprise of prediction." *EME Homer City Generation, L.P. v. EPA*, 795 F.3d 118, 135-36 (D.C. Cir. 2015).

In an ideal world, with perfect information, we would be able to generate an *ex post* analysis of regulatory costs that could be compared to our *ex ante* cost estimate prepared at the time MATS was issued. However, it is extremely challenging to produce rigorous retrospective estimates of regulatory costs. A literature review and series of case studies performed by EPA staff provides insights on how analysts can perform retrospective cost analysis. ⁽⁷⁷⁾ Kopits *et al.* (2015) identifies several challenges associated with *ex post* cost assessments, including data limitations with respect to how facilities chose to comply with regulations and comprehensive facility-level pollution abatement costs. A key component to a rigorous retrospective analysis noted by the authors that can be

particularly difficult to achieve is an accurate definition of the counterfactual, that is, what would have occurred absent the rule. It is this counterfactual that provides the baseline against which the incremental costs of regulation are estimated.

In the case of MATS, to construct an estimate of *ex post* implementation costs that is directly comparable to the *ex ante* 2011 RIA cost estimate, we would first need to accurately attribute changes in the power sector that were due to MATS requirements rather than to market and technological changes, other regulations, or, importantly, combinations of these factors (*i.e.*, properly specify the counterfactual). Second, we would need actual information of the incremental costs that had been associated with facility-level operational changes due to MATS, such as observed changes in dispatch, actual fuel consumption, and how controls in MATS-affected units were actually operated. Even the operation of non-MATS affected units would be relevant to such an analysis, because operational decisions are interconnected on the grid via dispatch decisions as well as through fuel markets. While there may be approaches such as econometric analysis, simulation modeling, and event study analysis that could capture and estimate components of the problem identified above and derive an estimate of *ex post* MATS costs, the approach would very likely require different methods and assumptions than the 2011 RIA estimates which were based on the comparison of two forward-looking sets of projections. Even if we undertook such additional analysis or modeling, ultimately we would still only be able to provide a new *estimate* of regulatory costs, not an *actual* cost. Given how challenging it is to produce rigorous retrospective estimates of regulatory costs, particularly at a system-level, an *ex post* analysis is better suited to comparing particular aspects of the analysis, which can help us understand whether costs in the 2011 RIA were over- or under-estimated and can yield a general sense of how much reality diverged from the projection, than to attempting to generate a new and precise “actual” total compliance cost estimate for MATS.

Estimating retrospective costs for a rule of the magnitude of MATS is an especially significant challenge because the rule regulates hundreds of units within a complex, interdependent, and dynamic economic sector. Units within the power sector are also subject to many regulatory requirements and other economic drivers. While we can observe the decisions of the sector and individual units in terms of decisions on controls, fuels, and retirement, we cannot pinpoint the reason(s) behind each unit-level decision. With respect to identifying the counterfactual against which to evaluate retrospective compliance costs, several unforeseen factors since MATS promulgation have driven changes in the power sector that have led to the composition of the current fleet being different than the fleet projected in the 2011 RIA. For example, dramatic increases in the supply of natural gas, along with advances in cost and performance of renewable generation technologies and low electricity demand growth, none of which were fully anticipated in the 2011 RIA, have made strong contributions to shifts away from coal-fired generation. ⁽⁷⁸ ⁷⁹⁾ Additionally, other EPA regulations such as the Disposal of Coal Combustion Residuals from Electric Utilities final rule, the Steam Electric Power Generating Effluent Guidelines—2015 Final Rule, and the 2020 Steam Electric Reconsideration Rule, were promulgated after MATS. ⁽⁸⁰⁾ While the compliance periods of these rules all postdate the MATS compliance date, utilities are likely to consider multiple regulations simultaneously when making planning decisions, a likelihood that also complicates the identification of the counterfactual scenario of a world without MATS that is needed to generate an *ex post* incremental cost estimate of MATS that would be directly comparable to the *ex ante* 2011 RIA cost estimate.

Even though it is extremely challenging to produce the type of *ex post* incremental cost estimate discussed above, several stakeholders have conducted analyses, focusing on different components of the regulation's cost, to assess actual costs of compliance. While none of these estimates can be precisely compared against the EPA *ex ante* estimates because they use different methods than the power sector modeling the EPA used in the 2011 RIA, all of the independent analyses suggested that the actual compliance costs expenditures were significantly lower—by billions of dollars—than the EPA estimated in the 2011 RIA.

First, a 2015 analysis by Andover Technology Partners focused on the capital and operating costs associated with the actual installation and operation of pollution control equipment at MATS-regulated units and made two key findings: the number of installed controls was significantly lower than the number of controls that was projected in the 2011 RIA and the cost of the installed controls was generally lower than the control costs that the EPA assumed in the 2011 RIA modeling. Based on these findings, the study estimated that the EPA's projected cost of compliance

was over-estimated by approximately \$7 billion. ^(81 82) In other words, the Andover Technology Partners estimated that the EPA's projected cost was approximately four times higher than their retrospective estimate of cost, which they estimated to be approximately \$2 billion per year.

Second, a 2017 study performed by M.J. Bradley & Associates (MJB&A) used information from the EIA and estimated that owners and operators of coal-fired EGUs incurred total capital expenditures on environmental retrofits of \$4.45 billion from December 2014 to April 2016. ⁽⁸³⁾ To the EPA's understanding, the MJB&A cost estimate represents total upfront capital costs (not ongoing operating and maintenance expenditures), and is not annualized as was the capital expenditure in the 2011 RIA-based projected cost estimate. For comparison, the estimated total upfront (not annualized) capital expenditures underpinning the 2011 RIA annual compliance cost estimate is about \$36.5 billion, which is more than eight times higher than the MJB&A estimates. This result suggests that the capital cost component of the 2011 RIA cost projections was significantly overestimated, potentially by a factor of more than eight.

Third, the Edison Electric Institute (EEI), the association that represents all U.S. investor-owned electric companies, estimated that by April 2019, owners and operators of coal- and oil-based EGUs incurred *cumulative* (not annual) compliance costs of more than \$18 billion to comply with MATS, including both capital and operations and maintenance costs since MATS became effective in April 2012. ⁽⁸⁴⁾ In order to provide a simple comparison between the EEI figure, which was incurred over 7 years, and the annualized amount presented in the 2011 RIA (\$9.6 billion), we can divide the EEI figure by 7 to estimate an average annual amount of approximately \$2.6 billion, which is similar to the Andover Technology Partners estimate of approximately \$2 billion. Also in line with the Andover Technology Partners estimate, EEI's estimate suggests that the annual costs related to MATS compliance were overestimated in the 2011 RIA by approximately \$7 billion. While there is some uncertainty in the amount of time over which those costs were incurred, as well as the exact nature of those expenditures, it is clear that the information provided by EEI supports a conclusion that the costs of compliance with MATS were significantly lower than the Agency's projections.

In summary, it is the EPA's understanding that two of these studies indicate that the 2011 RIA may have overestimated annual compliance costs by approximately \$7 billion, and the third study finds that the projected total upfront capital costs may have been overestimated by a factor of more than eight. While each of these retrospective cost estimates is developed from bases that are dissimilar from one another and, in particular, from how the EPA developed the prospective cost estimates in the 2011 RIA, each of the independent analyses indicate that the costs of MATS are likely significantly less than the EPA estimated in the 2011 RIA.

For this proposal, the EPA has evaluated whether the *ex ante* estimates in the 2011 RIA were likely accurate, overestimated, or underestimated, and the details of the EPA's new analysis are contained in the docketed TSD (referred to herein as the "Cost TSD"). ⁽⁸⁵⁾ Consistent with our systems-level approach, we begin our analysis with an evaluation of natural gas expenditures during the relevant time period. The rapid decrease in the price of natural gas during this time period affected U.S. power generation profoundly, including U.S. EGU fuel expenditures; this has significant implications for our *ex post* analysis because natural gas expenditures constituted approximately 25 percent of the projected 2015 compliance costs in the 2011 RIA. ⁽⁸⁶⁾ These market shifts in the industry also impacted expenditures associated with the installation and operation of pollution control equipment at MATS-affected facilities. Those costs constituted a majority—about 70 percent—of the projected annual compliance costs in 2015. The following sections closely examine these two components of the compliance cost and use available information to evaluate whether the projected compliance costs reported in the 2011 RIA were likely higher or lower than actual costs. We also review important cost assumptions used in the 2011 RIA. Taken together, this suite of quantitative and qualitative evaluations indicates that the projected costs in the 2011 RIA were almost certainly significantly overestimated. We find that the 2011 RIA's estimate of the number of installations alone led to an overestimate of about \$2.2 to \$4.4 billion, and that if recent updates to the cost and performance assumption for pollution controls had been reflected in the 2011 RIA modeling, the projected compliance costs would likely have been even lower (suggesting the overestimate could be greater than \$4.4 billion).

a. Natural Gas Supply

The natural gas industry has undergone significant change in recent years. Starting in the mid-2000s, technological changes in natural gas drilling and extraction initiated major market changes that resulted in significant increases to domestic supplies of natural gas. As these technologies have continued to advance, they have had a lasting impact on natural gas markets, resulting in major shifts in the economics of electric sector operations given the abundant supply of natural gas at relatively low costs. This section summarizes these changes and the implications for the cost projection presented in the 2011 RIA.

In 2005, the EIA estimated that proved reserves of natural gas were 213 trillion cubic feet (tcf).⁽⁸⁷⁾ In 2019, the estimate of proved reserves was 495 tcf, an increase of 132 percent. The market effects of this major supply shift were profound across the economy, but especially for the power sector. By the end of 2019, aided by advances in drilling and hydraulic fracturing techniques, natural gas production from tight and shale gas formations was the major source of domestic production (see Table 1 below) and had increased three-fold from 2005 production levels.

Table 1—U.S. Natural Gas Production, by Source

Year	Tight/shale gas	Other lower 48 onshore	Lower 48 offshore	Other
2005	7.2	5.1	3.4	2.3
2006	8.0	5.1	3.2	2.3
2007	9.0	4.9	3.1	2.3
2008	10.3	4.9	2.6	2.4
2009	11.1	4.5	2.7	2.4
2010	12.4	4.2	2.5	2.2
2011	14.8	4.0	2.0	2.1
2012	16.7	3.7	1.6	2.0
2013	17.6	3.5	1.4	1.7
2014	19.5	3.4	1.3	1.6
2015	21.0	3.2	1.4	1.5
2016	21.1	2.8	1.3	1.4
2017	22.2	2.7	1.1	1.3
2018	25.7	2.7	1.0	1.3
2019	29.3	2.4	1.0	1.2
2020	29.2	2.3	1.2	1.2

Note

“Other” includes production from Alaska and Coalbed Methane sources.

As a result, the natural gas market underwent a long period of sustained low prices (see Table 2 below). These market shifts were not fully anticipated or predicted by observers, as indicated by natural gas futures prices at the time of MATS promulgation. Although these changes took root in the mid-2000s, the lasting market disruption would take more time to cement itself. From 2010 through 2019, the U.S became one of the world's leading producers of natural gas, breaking domestic production records year-on-year through the decade, while maintaining record-low prices. During this timeframe, the U.S. shifted from a *total* net energy importer to an exporter, ⁽⁸⁸⁾ while maintaining some of the lowest relative natural gas prices globally. ⁽⁸⁹⁾

Table 2—Natural Gas Prices

Year	NYMEX natural gas Henry Hub natural gas futures (\$/MMBtu), annual average, as of: 2011-03-16	NYMEX natural gas Henry Hub natural gas futures (\$/MMBtu), annual average, as of: 2011-12-21	Henry Hub spot natural gas index annual average price (\$/MMBtu)
2005			8.63
2006			6.74
2007			6.96
2008			8.90
2009			3.94
2010			4.37
2011	4.24		4.00
2012	4.91	3.43	2.75
2013	5.31	4.07	3.73
2014	5.67	4.43	4.37
2015	6.04	4.66	2.63
2016	6.36	4.90	2.51
2017	6.67	5.16	2.98
2018	6.97	5.43	3.16
2019	7.25	5.70	2.56
2020	7.50	5.96	2.03
2021	7.76	6.23	
2022	8.02	6.50	
2023	8.28	6.78	
2024		7.06	

The EPA projected a 2015 natural gas price of roughly \$5/MMBtu when MATS was finalized in December 2011, which was a reasonable expectation based on prevailing market conditions at that time. However, natural gas prices post-MATS promulgation ended up being considerably lower than anticipated, which resulted in major shifts in the economics of fossil fuel-fired electric generating technologies (see Table 2 above and Chart A-1 in the Cost TSD). From 2005 through 2010, annual average natural gas prices (at Henry Hub) averaged about \$6.60/MMBtu. Several years later, as MATS compliance began, prices averaged roughly \$2.75/MMBtu for the years 2015 through 2019. This market shift greatly changed the economics of power plant operation for fossil fuel-fired facilities, with the electric sector surpassing the industrial sector to become the largest consumer of natural gas (38 percent of the total in 2020),⁽⁹⁰⁾ and gas-fired generators becoming the leading source of electric generation in the electric sector, representing 40 percent of total generation in 2020.⁽⁹¹⁾

The modeling supporting the 2011 RIA did not anticipate this major change in natural gas supply, which has clearly had a significant impact on the electric power sector and those sources covered by MATS. While we do not quantify the impact this change would have on the projected compliance costs associated with incremental changes in natural gas use and price (about 25 percent of the total projected compliance cost in the 2011 RIA), we note that any closures of covered units that occurred as a result of the changed relative economics of fuel prices would decrease the MATS-related compliance costs for the sector. These closures reduced the amount of control capacity necessary for compliance with MATS, and we estimate below a range of costs associated with the overestimation of control installations in the 2011 RIA.

Several researchers have investigated the role of relative fuel prices as a factor in decisions that were made regarding closures of coal-fired units around 2015. Generally, these studies attribute closures primarily to the decrease in natural gas prices, and they also note smaller factors such as advances in the cost and performance of renewable generating sources, lower-than-anticipated growth in electricity demand, and environmental regulations.

For example, Linn and McCormack (2019) developed a simulation model of the U.S. Eastern Interconnection that reproduced unit operation, emissions, and retirements over the 2005-2015 period. The authors use this model to explain the relative contributions of demand, natural gas prices, wind generation, and environmental regulations, including MATS, to the changes in the share of coal in electricity generation. The results showed that lower electricity consumption and natural gas prices account for a large majority of the declines in coal plant profitability and resulting retirements. The authors found that the environmental regulations they modeled, NO_x emissions caps and MATS, played a relatively minor role in declines of coal plant profitability and retirements.

Additionally, Coglianesi *et al.* (2020) developed a statistical modeling approach to enable the decomposition of changes in U.S. coal production from 2008-2016 into changes due to a variety of factors, including changes in electricity demand, natural gas prices relative to coal, renewable portfolio standards, and environmental regulations that affect coal-fired plants. The results indicated that declines in natural gas prices explained about 92 percent of the decrease in coal production between 2008 and 2016. Air regulations, including MATS, explained about 6 percent of the drop in coal production. The study attributed about 5.2 GW of coal-fired EGU retirements to MATS.

These studies both demonstrate that the decrease in natural gas prices played a significant role in closures of coal-fired EGUs. While we do not quantify the impact this change had on the projected costs included in the 2011 RIA, we note that any closures of covered units that occurred as a result of the dramatically changed relative economics of fuel prices would decrease the MATS-related compliance costs for the sector.

b. Projected Versus Observed Pollution Control Installations

The 2011 RIA reported a sector-level compliance cost of \$9.6 billion annually in 2015. The majority of those costs—about 70 percent—represented the incremental annualized capital and annual operation and maintenance (O&M) costs associated with installation and operation of pollution controls for compliance with MATS at coal steam units. Given the time that has passed, we can now compare the incremental projected pollution control capacity reported in the 2011 RIA with available information regarding actual (observed) control installations. For this proposal, therefore, the EPA has compared observed installations and costs over 2013-2016 to unit-level estimates of the control installation capacity and associated costs presented in the 2011 RIA. This analysis demonstrates, subject to the caveats and uncertainty discussed below, that the 2011 RIA likely overestimated total pollution control retrofit

capacity that would occur in response to MATS and, thus, likely overestimated MATS compliance costs. For example, the analysis that follows demonstrates that fabric filter (FF) systems—which are an expensive and capital-intensive control technology—were only installed on less than one-third of the capacity anticipated in the 2011 RIA analysis.

This comparison of projected to observed control capacity installations relies on the simplifying assumption that all dry scrubbers (e.g., dry FGD systems), dry sorbent injection (DSI) systems, activated carbon injection (ACI) systems, and FF systems installed during the 2013-2016 period were installed for compliance with the MATS emissions limits. This assumption is necessitated by the absence of comprehensive data on the specific reasons EGUs installed pollution control equipment. While assuming pollution controls of these types that were installed in this period are singularly attributable to MATS requirements is a reasonable assumption for this analysis, it is a highly conservative assumption given that some of the observed installations likely occurred in response to other regulations to control criteria air pollutants (e.g., Cross-State Air Pollution Rule, Regional Haze, Federal implementation plans, or state implementation plans) or enforcement actions (e.g., consent decrees). Because some of the observed installations in this analysis likely resulted from non-MATS requirements, the approach potentially over-attributes the amount of pollution controls built specifically for MATS compliance, thereby leading to an overestimate of the control costs associated with MATS.

Table 3 presents the findings of this analysis in capacity terms. The total capacity projected to retrofit with each control in the 2011 RIA is reported for the base case (i.e., projected future conditions absent MATS) and under MATS. The difference is presented in the 'Projected Incremental Controls' column. So, for example, in the 2011 RIA the EPA projected that there would be an incremental 20.3 GW of capacity retrofitting with dry FGD that is attributable to MATS. We compare the projected incremental controls capacity value to the observed installations capacity value. Note that we are unable to estimate the total capacity of observed upgrades to electrostatic precipitators (ESP) and scrubbers due to a lack of available data regarding such upgrades. For additional information, see the docketed Cost TSD.

Table 3—Projected vs. Observed Capacity

Pollution control retrofit	Base case	MATS	Projected incremental controls	Observed installations(2013-2016)	Difference: Observed minus projected(2013-2016)	Percent difference:Observed minus projected(2013-2016)
Dry FGD	4.6	24.8	20.3	16.0	-4.3	-21
DSI	8.6	52.5	43.9	15.8	-28.1	-64
ACI	0	99.3	99.3	96.1	-3.2	-3
FF	12.7	114.7	102	31.4	-70.6	-69
ESP Upgrade	0	33.9	33.9	N/A	N/A	N/A
Scrubber Upgrade	0	63.1	63.1	N/A	N/A	N/A

This analysis demonstrates that projected incremental capacity of dry FGD, DSI, ACI, and FF was likely significantly overestimated in the 2011 RIA. The capacities of actual installed control technologies are lower, often significantly lower, than projected (and again, this analysis attributes *all* control installations of certain types during this time period to MATS, even though some portion of those installations were likely made in whole or in part due

to other regulations). For example, the installed DSI capacity is about two-thirds lower than was projected. The difference between observed installed control capacities and what we projected those incremental control capacities would be translates directly into significantly lower costs than estimated. Because the vast majority of compliance costs in the 2011 RIA were related to the installation and operation of pollution controls, and because significant deployment of any higher-cost compliance strategies did not occur, the large differences observed in Table 3 suggest that the projected compliance costs were likely significantly overestimated as well. For example, approximately \$2 billion was estimated to be attributable to the installation and operation of DSI controls (21 percent of the total annual projected costs of MATS), when in actuality, only one-third of those installations occurred (and some were likely attributable to regulations other than MATS).

We also conduct an analysis of the approximate costs related to the overestimate of projected incremental pollution controls. This analysis is discussed in detail in the Cost TSD. Specifically, we compared observed installations over 2013-2016 to unit-level estimates of the control installation capacity and associated costs presented in the 2011 RIA to develop a range of the potential overestimate of compliance costs related to projected control installations that did not occur.

As result of this analysis, we find that based on this one variable—the number of control technology installations—the 2011 RIA overestimated control costs by about \$2.2 to \$4.4 billion (or 2.7 times). If recent updates to the cost and performance assumptions for pollution controls had been reflected in the 2011 RIA modeling, the projected compliance costs would likely have been even lower (suggesting the overestimate could be greater than \$4.4 billion). The EPA did not quantify advances in cost and performance of control technology between the time of the EPA's modeling and implementation of the rule due to uncertainty. We note that this may be one reason that the Andover Technology Partners' overestimate for control costs of \$7 billion exceeds the EPA's range of overestimates (\$2.2-4.4 billion) for the same control and operation costs. The next section helps explain some of the difference quantified above, and provides further qualitative evidence supporting the EPA's conclusion that the 2011 RIA likely significantly overestimated the compliance costs associated with meeting MATS requirements.

c. 2011 RIA Modeling Assumptions

Since promulgation of MATS, the EPA has found it necessary to update some of the modeling assumptions used in the IPM modeling that informed the RIA cost estimate, in order to capture the most recently available information and best reflect the current state of the power sector. Several of these recent updates are directly related to pollution control retrofits that were projected to be installed for MATS in the 2011 RIA. Had these updates been reflected in our modeling, it likely would have projected fewer controls needing to be installed and therefore a lower cost estimate overall.

The full suite of assumptions utilized in the IPM modeling are reported in the model documentation, which provides additional information on the assumptions discussed here as well as all other assumptions and inputs to the model. ⁽⁹²⁾ Updates specific to MATS modeling are also in the IPM 4.10 Supplemental Documentation for MATS. ⁽⁹³⁾ As was included in the 2011 RIA discussion regarding uncertainty and limitations of the power sector modeling analysis (Section 3.15), the cost and emissions impact projections did not take into account the potential for advances in the capabilities of pollution control technologies or reductions in their costs over time. EPA modeling cannot anticipate in advance the full spectrum of compliance strategies that the power sector may innovate to achieve required emission reductions, and experience has shown that regulated industry often is able to comply at lower costs through innovation or efficiencies. Where possible, the EPA designs regulations to assure environmental performance while preserving flexibility for affected sources to design their own solutions for compliance. Industry will employ an array of responses, some of which regulators may not fully anticipate and will generally lead to lower costs associated with the rule than modeled in *ex ante* analysis. See, e.g., section III.D of this preamble, discussing how the actual cost of the ARP was up to 70 percent less than what had been estimated.

A first example regards the assumptions of HCl removal for certain types of coal. When lignite and subbituminous coals are combusted, the chemistry of coal ash alkalinity removes HCl emissions. The 2011 RIA modeling assumed a 75 percent reduction of HCl emissions from lignite and subbituminous coals. ⁽⁹⁴⁾ Upon subsequent review of available data, the EPA updated this assumption to 95 percent HCl removal. ⁽⁹⁵⁾ This revised assumption regarding improved HCl removal from coal ash alkalinity effectively lowers uncontrolled HCl emissions rates in the projections

and is a better reflection of actual removal rates observed by EGUs combusting subbituminous and/or lignite coal. This updated assumption, had it been used in the 2011 RIA modeling, would have significantly decreased the incremental capacity of acid gas controls (e.g., DSI, dry FGD) that the model projected to be needed for compliance with the MATS acid gas limits. ⁽⁹⁶⁾ The lower projection for controls would in turn have resulted in a lower cost estimate.

For a second example, the EPA updated the DSI retrofit cost methodology used in our power sector modeling. The 2011 RIA compliance cost projections assumed an SO₂ removal rate of 70 percent and a corresponding HCl removal effect of 90 percent ⁽⁹⁷⁾ based on a technical report, developed by Sargent and Lundy in August 2010. ⁽⁹⁸⁾ These assumptions have been updated to reflect an SO₂ removal rate of 50 percent and a corresponding HCl removal effect of 98 percent for units with FF in the EPA's recent modeling, ⁽⁹⁹⁾ based on an updated technical report from Sargent and Lundy. ⁽¹⁰⁰⁾

These revised assumptions, which better reflect the actual cost and performance of DSI, would reduce the variable costs significantly, by about one-third at a representative plant, ⁽¹⁰¹⁾ because less sorbent is required to achieve the same amount of HCl reduction. If the EPA had been able to use this new information in the 2011 RIA modeling, the projected compliance costs would have been lower, reflecting the reduced sorbent necessary to achieve the MATS emission limits. Furthermore, we note that while these modeling assumptions are based on a single sorbent (trona), alternative sorbents are available, potentially at a lower cost for some units.

A third example relates to the assumed cost of ESP upgrades. In the 2011 RIA modeling, the EPA assumed that a range of upgrades would be necessary at units with existing ESP controls in order to meet the MATS PM standard. The EPA assumed the cost of these upgrades ranged from \$55/kilowatt (kW) to \$100/kW (in 2009 dollars). However, new evidence suggests that many ESP upgrades were installed and are available at less than \$50/kW. ⁽¹⁰²⁾

These examples highlight the uncertainty inherent in *ex ante* compliance cost projections, and contribute additional evidence that the projected compliance costs presented in the 2011 RIA were likely overestimated and that actual compliance costs for MATS in 2015 were likely significantly less than the \$9.6 billion estimate.

d. Conclusion That the 2011 RIA Costs Were Overestimated

After reviewing this suite of quantitative and qualitative updates and considering studies that were performed by outside entities, the EPA concludes that the available *ex post* evidence points to significantly lower costs of compliance for the power sector under MATS than suggested by the *ex ante* projections in the 2011 RIA. There are numerous reasons for this, and chief among them is the fact that the natural gas industry has undergone profound change in recent years. Following the promulgation of MATS, natural gas supply increased substantially, leading to dramatic price decreases that resulted in major shifts in the economics of fossil fuel-fired electric generating technologies. The 2011 RIA modeling did not fully anticipate this historic change in natural gas supply and the related decrease in natural gas prices. As a result of this and other fundamental changes in the industry, we see a very different pattern of control installations than was projected: ⁽¹⁰³⁾

- 21 percent less capacity of dry FGD than projected;
- 64 percent less capacity of DSI than projected;
- 3 percent less capacity of ACI than projected;
- 69 percent less capacity of FF than projected; and
- Likely fewer ESP and scrubber control upgrades than projected.

These controls were responsible for approximately 70 percent of the projected annual compliance costs in the 2011 RIA. Because so many projected controls were not installed, we know that the control-related costs were almost certainly significantly overestimated. By simply comparing between projected and installed controls, we now find that the projected control-related costs for 2015 of about \$7 billion were likely overestimated by \$2.2 to \$4.4 billion, and possibly more.

In addition, we have updated some of the modeling assumptions that supported the 2011 RIA. Specifically:

- HCl emissions for EGUs burning subbituminous and lignite coals are much lower than originally modeled, reducing the number of controls necessary for compliance in the model;
- DSI controls require less sorbent than originally assumed, lower the operating cost of these controls, and other lower-cost sorbents are likely available; and
- The assumed cost of ESP upgrades in the modeling was likely much higher than the actual cost of these upgrades.

While not quantified here, the advances in cost and performance of control technology between the time of the EPA's modeling and implementation of the rule would, if quantified, likely add to the \$2.2 to \$4.4 billion overestimate.

Furthermore, the three studies submitted to the EPA during earlier rulemakings support this finding that the 2011 RIA cost projection was significantly overestimated:

- Andover Technology Partners estimated that the actual costs of compliance with MATS were approximately \$2 billion, and that the 2011 RIA may have overestimated compliance costs by approximately \$7 billion.
- MJB&A estimated that the total upfront capital expenditures of pollution controls installed for compliance with the rule were overestimated in the 2011 RIA by a factor of more than eight.
- EEI, the association that represents all U.S. investor-owned electric companies, estimated cumulative costs incurred by the industry in response to MATS, and that estimate suggests an annual amount about \$7 billion less than the 2011 RIA projected.

Taken together, this information indicates that the projected costs in the 2011 RIA were almost certainly significantly overestimated. We solicit comment on data resource and methods such as econometric, simulation, and event study approaches that may aid the EPA in better characterizing the *ex post* regulatory costs of MATS for consideration before we issue the final rule.

3. Evaluation of Metrics Related to MATS Compliance

In the next four sections, we place the costs that we estimated in 2011, and which, as just explained, were likely significantly overestimated, in the context of the EGU industry and the services the EGU industry provides to society. The purpose of these comparisons is to better understand the disadvantages conferred by expending this money, both in terms of their scale and distribution, in order to weigh cost as a factor in our preferred methodology for making the appropriate determination. While we recognize the projected cost estimate from the 2011 RIA in absolute terms is perceived as a large number, our findings demonstrate that, for example, the (overestimated) projected cost estimate is less than 3 percent of the power sector's revenues from electricity sales, even when compared against data from 2019 (which had the lowest electricity sale revenues in a nearly 20 year period). As we did in 2016, we first contextualize the costs of MATS against power sector data for the years 2000 to 2011, *i.e.*, the information that was available to the Agency when we were promulgating MATS in 2012 and reaffirming the appropriate and necessary determination. For purposes of this proposal, we also expand our assessment to compare the 2011 cost estimates to the most recent years of data available regarding, for example, industry revenue and electricity prices. The intent of expanding the years of analysis is to update our assessments from the 2016 Supplemental Finding considering power sector trends with the newest information. We continue to use projections developed for the 2011 RIA for purposes of these evaluations, because as discussed in section III.B.2, we are unable to generate new, bottom-line actual cost projections. However, in section III.D, we consider these evaluations in light of the EPA's finding that the projected costs were almost certainly significantly overestimated.

a. Compliance Costs as a Percent of Power Sector Sales

The first metric examined here (as in 2016) is a comparison of the annual compliance costs of MATS to electricity sales at the power sector-level (*i.e.*, revenues), often called a sales test. The sales test is a frequently used indicator of potential impacts from compliance costs on regulated industries.⁽¹⁰⁴⁾ Incorporating updated information from the EIA, Section 2.a and Table A-4 of the Cost TSD present the value of retail electricity sales from 2000 to 2019, as well as net generation totals for the electric power sector for the same period.

This information indicates that the \$9.6 billion in annual compliance costs of MATS projected for 2015 would have represented about 2.7 percent of 2008 power sector revenues from retail electricity sales, the peak year during the 2000 to 2019 period. The \$9.6 billion in projected compliance costs would constitute about 2.9 percent of 2019 sales, which was the lowest sales level observed in the post-2011 period. These projected compliance costs are a very small percentage of total EGU revenues from electricity sales in both robust or lean years, and newer data confirms the findings of the 2016 record. Moreover, if we account for the fact that the \$9.6 billion figure likely significantly overestimated the actual cost of compliance, the percentage of compliance costs to revenues would be even smaller.

b. Compliance Expenditures Compared to the Power Sector's Annual Expenditures

The next metrics we examine are a comparison of the annual capital expenditures projected in the 2011 RIA to be needed for MATS compliance to historical power sector-level overall capital expenditures, followed by a comparison of projected annual capital and production expenditures related to MATS compliance to historical power sector-level overall capital and production expenditures.

First, we evaluate capital expenditures. Capital costs represent largely irreversible investments for firms that must be paid off regardless of future economic conditions, as opposed to other important variable costs, such as fuel costs, that may vary according to economic conditions and generation needs. Section 2.b and Table A-5 of the Cost TSD present two sets of estimates for trends in annual capital expenditures by the electric power sector through 2019. The first set of information is based on data compiled by S&P Global, a private sector firm that provides data and analytical services. The second set of information is from the U.S. Census Bureau's Annual Capital Expenditures Survey. While each dataset has limitations, the estimates from each correspond to one another reasonably well.

The 2011 RIA modeling estimated the incremental capital expenditures associated with MATS compliance to be \$4.2 billion for 2015. As discussed in section III.B.2, the 2011 RIA likely significantly overestimated compliance costs. This conclusion also applies to the capital cost component of the overall cost because, as detailed earlier, fewer pollution controls were installed during the 2013-2016 timeframe than were projected in the 2011 RIA. While the EPA is not able to produce an alternative capital cost estimate directly comparable to the estimates from the 2011 RIA, the analysis discussed in section III.B.2 and the Cost TSD indicated the annualized capital expenditures at units that installed controls under MATS might be as low as \$0.7 billion (\$3.5 billion lower than projected in 2011 RIA, or less than one-fifth).

Even using the significantly overestimated figure of \$4.2 billion in our comparison shows that the projected capital expenditures associated with MATS represent a small fraction of the power sector's overall capital expenditures in recent years. Specifically, the \$4.2 billion estimate represents about 3.6 or 3.7 percent of 2019 (*i.e.*, most recent) power sector level capital expenditures based on the S&P Global and U.S. Census information, respectively. Compared against 2004 power sector level capital expenditures (*i.e.*, the 20-year low), the \$4.2 billion figure represents 10.4 or 9.3 percent of sector level capital expenditures (using the two respective data sets). Additionally, the projected \$4.2 billion in incremental capital costs is well within the range of annual variability associated with capital expenditures for the sector over the 2000-2019 period. During this period, based on the Census information, for example, the largest year-to-year decrease in power sector-level capital expenditures was \$19.5 billion (from 2001 to 2002) and the largest year-to-year increase in power sector-level capital expenditures was \$23.4 billion (from 2000 to 2001). This wide range (-\$19.5 to +\$23.4 billion) indicates substantial year-to-year variability in industry capital expenditures, and the projected \$4.2 billion increase in capital expenditures in 2015 projected under MATS falls well within this variability. Similar results are found using the S&P Global information. If a \$4.2 billion increase in capital expenditures in 2015 projected under MATS falls well within the variability of historical trends, then a capital expenditure of less than \$4.2 billion would also fall within this variability.

Next, in order to provide additional perspective to the projected cost information, we look at a broader set of costs faced by industry, including both capital and production expenditures together. Section 2.b and Table A-6 of the Cost TSD present two sets of estimates through 2019 for trends in annual total (capital and production) expenditures by the electric power sector using the same two data sets as above, which we then compare with the projected annual total expenditures required by MATS.

We find that even the overestimated \$9.6 billion compliance cost projection from the 2011 RIA represents a small fraction of the power sector's annual capital and production expenditures compared to historical data, and is well within annual variability in total costs over the 2000 to 2011 and the 2012 to 2019 periods. Compared to 2008 data (i.e., the historic high for total industry expenditures), the projected \$9.6 billion estimate represents about 4.2 to 4.3 percent of total expenditures. The MATS projected compliance cost represents 6.2 to 6.6 percent of total expenditures in 2003 (which was the lowest year for total industry expenditures during the studied time period). Additionally, the EPA notes that, similar to the capital expenditures analysis set forth in the 2015 Proposal, the projected \$9.6 billion in incremental capital plus production costs is well within the range of annual variability in costs in general over the 2000 to 2019 period. For example, during this period, the largest year-to-year decrease in power sector-level capital and production expenditures ranged from \$30.5 billion to \$32.8 billion. The largest year-to-year increase in power sector-level capital and production expenditures in this period ranged from \$27.5 billion to \$28.7 billion. If a \$9.6 billion increase in expenditures falls well within the variability of historical trends, then an expenditure substantially less than \$9.6 billion would also fall within this variability.

c. Impact on Retail Price of Electricity

We are cognizant that, for an industry like the power sector, costs and disadvantages to regulation are not solely absorbed by regulated sources. Many firms in the industry are assured cost-recovery for expenditures, so there is considerable potential for EGUs to pass through the costs of compliance to consumers via increases in retail electricity prices. This is especially true given that the demand for electricity is not particularly price-responsive. That is, because people are dependent on electricity for daily living, they are not likely to reduce their consumption of electricity even when the price goes up but will instead pay the higher price, thus absorbing the costs of compliance incurred by the industry. Notably, average retail electricity prices have fallen since the promulgation of MATS.

While we analyze these aspects of cost separately, control costs and electricity prices are not separate economic indicators. Electricity price increases are generally related to increases in the capital and operating expenditures by the power sector. Therefore, the electricity price impacts and the associated increase in electricity bills by consumers are not costs that are additional to the compliance costs described earlier in this section. In fact, to the extent the compliance costs are passed on to electricity consumers, the costs to the EGU owners in the power sector are reduced. Therefore, in order to further assess the disadvantages to regulation, in this case to consumers of electricity in all sectors (residential, commercial, industrial, transportation, and other sectors), we evaluate as we did in 2016 the projected effect MATS was anticipated to have on retail electricity prices, as measured against the variations in electricity prices from year to year. For this proposal, we expanded that analysis using updated data from the EIA, as presented in section 2.c and Table A-7 of the Cost TSD.

Looking at 2000-2019 data, we find that the projected 0.3 cents per kilowatt-hour projected increase in national average retail electricity price under MATS is well within the range of annual variability over the 2000-2019 period. During that time period, the largest year-to-year decrease in national average retail electricity price was -0.2 cents per kilowatt-hour (from 2001 to 2002) and the largest year-to-year increase was 0.5 cents per kilowatt-hour (from 2005 to 2006). For the newer data analyzed, we also found that average retail electricity prices have generally decreased since 2011, from 9.33 cents per kilowatt-hour in 2011 to 8.68 cents per kilowatt-hour in 2019, or by nearly 7 percent.

After considering the potential impacts of MATS on retail electricity prices, the EPA concludes that the projected increase in electricity prices is within the historical range. In addition, any increase in electricity prices would not be additive to the overall compliance costs of MATS. Rather, such price impacts would in part reflect the ability of many EGUs to pass their costs on to consumers, thereby reducing the share of MATS compliance costs borne by owners of EGUs. Given the relationship between compliance costs and electricity prices, we would also therefore expect the significant overestimate of compliance costs reflected in the \$9.6 billion figure to translate into overestimates in our projections for electricity price increases. Therefore, incorporating this newer data into our analysis, we find that MATS did not result in increases in electricity prices for American consumers that were outside the range of normal year-to-year variability, and during the period when MATS was implemented, electricity prices generally decreased.

d. Impact on Power Sector Generating Capacity

We recognize that the power sector plays a role of critical importance to the American public. A potential disadvantage to regulation that we consider to be a relevant factor in our consideration under CAA section 112(n)(1)(A) is how such regulation would impact the provision of adequate and reliable electricity throughout the country. ⁽¹⁰⁵⁾ Therefore, we analyzed, as part of the 2012 record, projected net changes in generation capacity under MATS, as compared to the base case, that is, what expected generation capacity would have been absent the rule. ⁽¹⁰⁶⁾ We also conducted an analysis of the impacts of projected retirements on electric reliability. *Id.* And finally, in parallel with finalizing MATS, the EPA's Office of Enforcement and Compliance Assurance issued a policy memorandum describing an approach for units that were reliability critical that could demonstrate a need to operate in noncompliance with MATS for up to a year. ⁽¹⁰⁷⁾

Our analysis indicated that the vast majority of the generation capacity in the power sector directly affected by the requirements of MATS would remain operational following MATS. Specifically, our model projected that operational capacity with MATS in place would be reduced by less than 1 percent nationwide. See Resource Adequacy and Reliability TSD at 2. With respect to reliability, our modeling indicated that coal retirements would be distributed throughout the power grid, and that there would only be small impacts at the regional level, and that in those regions, we anticipated small decreases in overall adequacy of resources and robust remaining reserve margins. *Id.* These analyses therefore found that the power sector would be able to continue to provide adequate and reliable electricity even with regulation of the EGU sector for HAP.

Additionally, since MATS was promulgated, the EPA has not been made aware of reliability or resource adequacy problems attributable to MATS. As noted, the EPA's enforcement office concurrently issued a policy memorandum to work with sources that faced demonstrated reliability concerns, and five administrative orders were issued in connection with the policy. ⁽¹⁰⁸⁾ We think this small number of sources obtaining relief due to their reliability critical status provides some confirmation of the EPA's projections that regulation would not cause widespread resource and reliability problems.

4. Other Cost Considerations

We also propose to reaffirm our previous findings regarding the costs of mercury controls, consistent with the instruction from the statute to study the availability and cost of such controls in CAA section 112(n)(1)(B). 80 FR 75036-37 (December 1, 2015). We similarly propose to reaffirm our previous records and findings regarding the cost of controls for other HAP emissions from EGUs, and the cost of implementing the utility-specific ARP, which Congress wrote into the 1990 CAA Amendments and implementation of which Congress anticipated could result in reductions in HAP emissions. *Id.* With respect to the costs of technology for control of mercury and non-mercury HAP, the record evidence shows that in 2012 controls were available and routinely used and that control costs had declined considerably over time. *Id.* at 75037-38. With regard to the ARP, industry largely complied with that rule by switching to lower-sulfur coal, and subsequently the actual costs of compliance were substantially lower than projected. Though the reasons for discrepancies between projected and actual costs are different for MATS, as discussed in section III.B.2, the newer information examined as part of this proposal demonstrates that the projected cost estimates for MATS were also likely significantly overestimated.

5. Summary of Consideration of Cost of Regulating EGUs for HAP

In this section, the EPA noted several studies performed by outside entities suggesting that costs of MATS may have been overestimated in the 2011 RIA. We discussed the dramatic impacts to the power sector over the last 10 years due to increasing supplies and decreasing price of natural gas and renewables, and we conducted a suite of quantitative and qualitative updates to the information available in the 2011 RIA. Based on this information, we propose to conclude that the available *ex post* evidence points to a power sector that incurred significantly lower costs of compliance obligations under MATS than anticipated based on the *ex ante* projections when the rule was finalized in 2012. This overestimate was significant—for just one part of the original compliance cost estimate, the EPA was able to quantify a range of at least \$2.2 to \$4.4 billion in projected costs related to the installation, operation, and maintenance of controls which were not expended by industry. This projected overestimation is limited to these costs; it does not account for other ways in which the rule's costs were likely overestimated, such

as advances in control technologies that made control applications less expensive or more efficient at reducing emissions. The other studies conducted by stakeholders asserted there were even greater differences between projected and actual costs of MATS.

We next examined the 2011 projected costs, which were almost certainly significantly overestimated, in the context of the EGU industry and the services the EGU industry provides to society. The purpose of these comparisons was to better understand the disadvantages imposed by these costs, in order to weigh cost as a factor in our preferred methodology for making the appropriate determination. Even though the cost estimates we used in this analysis were almost certainly significantly overestimated, we noted they were relatively small when placed in the context of the industry's revenues and expenditures, and well within historical variations.

Based on the 2011 RIA, the total projected cost of the MATS rule to the power sector in 2015 represented between 2.7 and 3.0 percent of annual electricity sales when compared to years from 2000 to 2019, a small fraction of the value of overall sales (and even smaller when one takes into account that the 2011 RIA projections were likely significantly overestimated). Looking at capital expenditures, the EPA demonstrated that the projected MATS capital expenditures in 2015 represented between 3.6 and 10.4 percent of total annual power sector capital expenditures when compared to years surrounding the finalization of the MATS rule. Such an investment by the power sector would comprise a small percentage of the sector's historical annual capital expenditures on an absolute basis and also would fall within the range of historical variability in such capital expenditures. Similarly, the EPA demonstrated that the projected capital and operating expenditures in 2015 represented between 4.3 and 6.2 percent of total annual power sector capital and operating expenditures over 2000 to 2019, and is well within the substantial range of annual variability. This proposal's analysis indicating that the far fewer controls were installed than the EPA had projected would be required is particularly relevant to considering our findings as to this metric; with the overestimation of capital expenditures in mind, actual investments by the power sector to comply with MATS would have comprised an even smaller percentage of historical annual capital expenditures.

With respect to impacts on the wider American public, the EPA examined impacts on average retail electricity prices and found the modest increases—which, like overall compliance costs, are also likely to have been significantly overestimated—to be within the range of historical variability. Experience has also shown that national average retail electricity prices in years after MATS promulgation have declined. Finally, previous analysis indicated that the vast majority of the generation capacity in the power sector would remain operational and that the power sector would be able to continue to provide adequate and reliable electricity after implementation of the rule, and we have seen no evidence to contradict those findings.

The EPA proposes that each of these analyses are appropriate bases for evaluating the disadvantages to society conferred by the MATS-related projected compliance expenditures. As we note above, even though the projected costs we use in this analysis are almost certainly significantly overestimated, we find that they are still relatively small when placed in the context of the economics of the industry, and well within historical variations. We solicit comments on all aspects of this proposed consideration of costs.

C. Revocation of the 2020 Final Action

We are proposing to revoke the 2020 Final Action because we find that the framework used to consider cost in 2020, which centered the Agency's mandated determination under CAA section 112(n)(1)(A) on a comparison of costs to monetized HAP benefits, was an approach ill-suited to making the appropriate and necessary determination in the context of CAA section 112(n)(1)(A) specifically and the CAA section 112 program generally. Moreover, the statutory text and legislative history do not support a conclusion that the 2020 framework is required under CAA section 112(n)(1)(A), and we exercise our discretion to adopt a different approach. We also disagree with the conclusions presented in the 2020 Final Action as to the 2016 Supplemental Finding's two approaches.

The 2020 Final Action established the following framework for making the appropriate and necessary determination. It stated:

“The Administrator has concluded that the following procedure provides the appropriate method under which the EPA should proceed to determine whether it is appropriate and necessary to regulate EGUs under CAA section 112(n)(1)(A). First, the EPA compares the monetized costs of regulation against the subset of HAP benefits that

could be monetized. . . . Second, the EPA considers whether unquantified HAP benefits may alter that outcome. . . . Third, the EPA considers whether it is appropriate, notwithstanding the above, to determine that it is “appropriate and necessary” to regulate EGUs under CAA section 112(n)(1)(A) out of consideration for the PM co-benefits that result from such regulation.” 85 FR 31302 (May 22, 2020).

Applying the first part of the framework, the Agency noted that the costs of regulation estimated in the 2011 RIA were disproportionately higher—by three orders of magnitude—than the monetized HAP benefits, and concluded “[t]hat does not demonstrate ‘appropriate and necessary.’” *Id.* Under the framework’s second inquiry, the EPA determined that the unquantified HAP benefits, even if monetized, were unlikely to alter its conclusion under the first part of the framework. *Id.*; see also 85 FR 31304 (noting that “valuing HAP-related morbidity outcomes would not likely result in estimated economic values similar to those attributed to avoiding premature deaths”). Finally, applying the third part of its framework, the EPA noted that nearly all of the monetized benefits of MATS as reflected in the 2011 RIA were derived from PM benefits. See 85 FR 31302-03 (May 22, 2020). The EPA then posited that, “[h]ad the HAP-specific benefits of MATS been closer to the costs of regulation, a different question might have arisen as to whether the Administrator could find that co-benefits legally form part of the justification for determination that regulation of EGUs under CAA section 112(d) is appropriate and necessary.” See 85 FR 31303 (May 22, 2020). However, because of the factual scenario presented in the record, the Agency in the 2020 Final Action stated that “[t]he EPA does not need to, and does not, determine whether that additional step would be appropriate . . . given that the monetized and unquantified HAP-specific benefits do not come close to a level that would support the prior determination.” *Id.* In conclusion, the EPA stated that “[u]nder the interpretation of CAA section 112(n)(1)(A) that the EPA adopts in this action, HAP benefits, as compared to costs, must be the primary question in making the ‘appropriate and necessary’ determination.” *Id.*

We note that the three-step framework employed by the 2020 Final Action is not a BCA conforming to recognized principles (see, e.g., OMB Circular A-4, EPA Economic Guidelines). BCA is a specific tool developed by economists to assess total society-wide benefits and costs, to determine the economic efficiency of a given action. Instead of conforming to this comprehensive approach, the three-step framework focused primarily on comparing the rule’s total costs to a very small subset of HAP benefits that could be monetized. The Agency gave secondary weight to the vast majority of the benefits of regulating HAP emissions from stationary sources that cannot be quantified, and completely ignored the non-HAP monetized benefits directly attributable to the MATS rule.

We propose to find that this three-step framework is an unsuitable approach to making the appropriate and necessary determination under CAA section 112(n)(1)(A) because it places undue primacy on those HAP benefits that have been monetized, and fails to consider critical aspects of the inquiry posed to the EPA by Congress in CAA section 112(n)(1). The 2020 three-step framework also did not in any meaningful way grapple with the bases upon which the EPA had relied to design the 2016 preferred approach, as discussed above, including the broad statutory purpose of CAA section 112 to reduce the volume of HAP emissions with the goal of reducing the risk from HAP emissions to a level that is protective of even the most exposed and most sensitive subpopulations; the fact that we rarely can fully characterize or quantify risks, much less benefits, at a nationwide level; and the fact that except for one of the many health endpoints for only one of the many HAP emitted from EGUs, the EPA lacked the information necessary to monetize any post-control benefit of reductions in HAP emissions. The sole rationale provided in the 2020 Final Action for rejecting the relevance of the statute’s clear purpose as evinced in the broader CAA section 112 program and reflected in the provisions of CAA section 112(n)(1) was that CAA section 112(n)(1)(A) is a separate provision and threshold determination. See 85 FR 31293-94 (May 22, 2020). But we do not think it is sensible to view the statute’s direction to the EPA to make a separate determination as to EGUs as an invitation to disregard the statutory factors of CAA section 112(n)(1) and the greater statutory context in which that determination exists, and we do not think that the 2020 Final Action provided an adequately reasoned basis for abandoning the interpretation and assessment provided in the 2016 Supplemental Finding. And in any event, we believe the methodology we propose today is better suited to making the statutory finding than the 2020 framework.

In the 2020 rulemaking, the EPA did not explain its rationale for its decision to anchor the appropriate and necessary determination at step one as a comparison between the monetized costs of regulation and *monetized* HAP specific benefits. Rather, the proposed and final rules repeatedly state that the “primary” inquiry in the determination should be a comparison of costs and HAP benefits, but did not explain why only *monetized* HAP

benefits should be given primacy. See, e.g., 85 FR 31286, 31288, 31303 (May 22, 2020). Given the Agency's recognition of the broad grant of discretion inherent in the phrase "appropriate and necessary," see 81 FR 24430-31 (April 25, 2016), its acknowledgement of Congress' "particularized focus on reducing HAP emissions and addressing public health and environmental risks from those emissions" in CAA section 112, see 85 FR 31299 (May 22, 2020), and its knowledge and recognition that the dollar value of one of its points of comparison represented but a small subset of the advantages of regulation, see 85 FR 31302 (May 22, 2020), we now believe it was inappropriate to adopt a framework that first and foremost compared dollar value to dollar value. Nothing in the CAA required the Agency's decision in 2020 to hinge its framework on monetized HAP benefits. The consideration of the non-monetized benefits of MATS (*i.e.*, dozens of endpoints, including virtually all of the HAP benefits associated with this rule) occurred only at step two, where the Agency considered whether the unquantified benefits, if monetized, were "likely to overcome the imbalance between the monetized HAP benefits and compliance costs in the record." See 85 FR 31296 (May 22, 2020). This approach discounts the vast array of adverse health and environmental impacts associated with HAP emissions from coal- and oil-fired EGUs that have been enumerated by the EPA ⁽¹⁰⁹⁾ and discounts the social value (benefit) of avoiding those impacts through regulation, simply because the Agency cannot assign a dollar value to those impacts. Further, the three-step framework gave no consideration to the important statutory objective of protecting the most at-risk subpopulations. As noted above, in CAA section 112(n)(1)(C) Congress directed the EPA to establish threshold levels of exposure under which no adverse effect to human health would be expected to occur, even considering exposures of sensitive populations, and throughout CAA section 112, Congress placed special emphasis on regulating HAP from sources to levels that would be protective of those individuals most exposed to HAP emissions and most sensitive to those exposures. The rigid and narrow approach to making the appropriate and necessary determination in the 2020 Final Action is at odds with the text and purpose of CAA section 112, and is certainly not required under the express terms of CAA section 112 or CAA section 112(n)(1)(A).

Commenters on the 2019 Proposal objected strenuously to the Agency's revised framework for making the appropriate and necessary determination, arguing that the 2019 Proposal's interpretation "fails to meaningfully address factors that are 'centrally relevant' to the inquiry of whether it is appropriate and necessary to regulate HAP from EGUs," and that the Agency's new interpretation must fall because the EPA failed to provide a reasoned explanation for its change in policy, as required by *Motor Vehicle Mfrs. Ass'n of United States, Inc. v. State Farm Mut. Automobile Ins. Co.*, 463 U.S. 29 (1983), and *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502 (2009). See 85 FR 31294 (May 22, 2020). Among the factors that commenters argued had been inadequately addressed under the new framework were the "hazards to public health reasonably anticipated to occur" that had not been monetized; the non-monetizable benefits of HAP regulation such as preservation of tribal social practices; the latency, persistence in the environment, and toxicity of HAP as recognized by Congress; and the distributional impacts on particular communities and individuals most impacted by HAP emitted from power plants. In responses to these comments, the EPA claimed that it was not "disregarding" or "dismissing" the concerns raised by the commenters, but rather simply weighing them differently, and explained that the Administration's changed priorities provided the "reasoned basis" for its changed interpretation. See 85 FR 31296-97 (May 22, 2020).

Agencies do have broad discretion to re-evaluate policies and change their "view of what is in the public interest," *State Farm*, 463 U.S. at 57, but such re-evaluations must still adhere to principles of reasoned decision-making. The 2020 Final Action did not aver that the concerns identified by commenters were factors that the statute does not instruct the Agency to consider in making its appropriate and necessary determination. Instead, the EPA stated that it was permitted to pick its decisional framework and admitted that its decisional framework might undervalue certain factors. For example, with respect to commenters' concerns that the revised appropriate and necessary framework did not adequately account for adverse impacts on tribal culture or undue concentration of public health risks on certain population subgroups or individuals, the EPA stated,

"In a cost-benefit comparison, the overall amount of the benefits stays the same no matter what the distribution of those benefits is. The EPA, therefore, believes it is reasonable to conclude that those factors to which the EPA previously gave significant weight-including qualitative benefits, and distributional concerns and impacts on minorities-will not be given the same weight in a comparison of benefits and costs for this action under CAA section 112(n)(1)(A)." 85 FR 31297 (May 22, 2020).

The decisional framework in the 2020 Final Action, however, did not give “less weight” to these factors—it gave them none. In both the selection and application of its framework, the EPA in the 2020 Final Action effectively ignored these factors altogether, and we do not agree that the inability to monetize a factor should render it unimportant. *Cf. Am. Trucking Ass'ns, Inc. v. EPA*, 175 F.3d 1027, 1052-53 (D.C. Cir. 1999), reversed in part on other grounds in *Whitman v. Am. Trucking Ass'ns*, 531 U.S. 457 (2001) (holding that the EPA was not permitted to ignore information “because the . . . benefits are difficult, if not impossible, to quantify reliably and because there is `no convincing basis for concluding that any such effects . . . would be significant' ”); *Pub. Citizen v. Fed. Motor Carrier Safety Admin.*, 374 F.3d 1209, 1219 (D.C. Cir. 2004) (“The mere fact that the magnitude of . . . effects is *uncertain* is no justification for *disregarding* the effect entirely.”) (emphasis in original). The mere mention and summary dismissal of factors does not constitute meaningful consideration of those factors.

In the 2020 Final Action, like the 2016 Supplemental Finding before it, the EPA maintained that there is more than one permissible way to interpret the Agency's obligation to consider cost in the appropriate and necessary determination. Given the Agency's knowledge of the significant risks and often irreversible impacts of HAP exposure on vulnerable populations like developing fetuses, the disproportionate impact of EGU HAP emissions on communities who subsist on freshwater fish due to cultural practices and/or economic necessity, and the record of data demonstrating risks to public health amassed over decades, and, perhaps more importantly, the overwhelming quantity of advantages to regulation that could not be monetized, we do not think that selecting a framework that compared first and foremost monetized HAP benefits with costs was appropriate. And even if the framework ultimately addressed the statutorily relevant factors because at the second step the EPA stated that it was considering non-monetized HAP benefits, we think that the application of that second step fell short. The secondary consideration of non-monetized HAP benefits in the three-step framework only considered post-control HAP-related impacts of regulation insofar as the EPA speculated about what the monetized value of those benefits might be (see 85 FR 31296 (May 22, 2020), asserting that monetized value of avoiding morbidity effects such as neurobehavioral impacts is “small” compared to monetized value associated with avoided deaths). The Agency did not, at this second step, grapple with the existing risk analyses, including those stemming from the statutorily mandated studies in CAA section 112(n)(1). Those analyses demonstrated substantial public health and environmental hazards, even if the hazards were not translated into post-control monetized benefits. See *White Stallion*, 748 F.3d at 1245. The Agency also did not explain why other attributes of risk—such as impacts on vulnerable populations and the reality that HAP pollution from EGUs is not distributed equally across the population but disproportionately impacts some individuals and communities far more than others—were unimportant, stating only that the selected framework did not accommodate consideration of those factors.

As noted, the Agency did not point to anything in the CAA as supporting the use of its three-step framework. This is in stark contrast to the 2016 Supplemental Finding rulemaking, in which the EPA examined CAA section 112(n)(1) (A) and the other section 112(n)(1) provisions, and the rest of CAA section 112 generally, and D.C. Circuit case law on CAA cost considerations to inform the EPA's interpretation of CAA section 112(n)(1)(A). See 80 FR 75030 (December 1, 2015); 2015 Legal Memorandum. In the 2020 Final Action, the EPA merely asserted that a comparison of benefits to costs is “a traditional and commonplace way to assess costs” and claimed that the Supreme Court's holding in *Entergy Corp. v. Riverkeeper*, 556 U.S. 208 (2009) supported the EPA's 2020 position that, absent an unambiguous prohibition to use a BCA, an agency may generally rely on a BCA as a reasonable way to consider cost. See 85 FR 31293 (May 22, 2020). The 2020 Final Action also pointed out “many references comparing” costs and benefits from the *Michigan* decision, including: “EPA refused to consider whether the costs of its decision outweighed the benefits” (576 U.S. at 743); “[o]ne would not say that it is rational, never mind `appropriate,' to impose billions of dollars in economic costs in return for a few dollars in health or environmental benefits” (*Id.* at 752); and “[n]o regulation is `appropriate' if it does more harm than good” (*Id.*).

But while we agree that a comparison of benefits to costs is a traditional way to assess costs, the 2020 framework was *not* a BCA. There is no economic theory or guidance of which we are aware that endorses the version of BCA presented in the 2020 Final Action, in which total costs are compared against a small subset of total benefits. See section III.E for further discussion. Moreover, general support for weighing costs and benefits does not justify placing undue weight on monetized HAP benefits, with secondary consideration for all other benefits, and only valuing those other benefits to the extent of their speculative monetized effects. As noted in Justice Breyer's

concurrence in *Entergy Corp.*, the EPA has the ability “to describe environmental benefits in non-monetized terms and to evaluate both costs and benefits in accordance with its expert judgment and scientific knowledge,” and to engage in this balancing outside of “formal cost- benefit proceedings and futile attempts at comprehensive monetization.” 556 U.S. at 235 (Breyer, J., concurring). Benefits—the advantages of regulation—can encompass outcomes that are not or cannot be expressed in terms of dollars and cents, just as the Court found that “ ‘cost’ includes more than the expense of complying with regulations; any disadvantage could be termed a cost.” *Michigan*, 576 U.S. at 752. And the Court faulted the EPA’s interpretation for “preclud[ing] the Agency from considering *any* type of cost—including, for instance, harms that regulation might do to human health or the environment. . . . No regulation is ‘appropriate’ if it does significantly more harm than good.” *Id.* The constricted view of benefits that the Agency adopted in 2020 was ill-suited to the statutory inquiry as interpreted in *Michigan*.

The primary basis in the 2020 action upon which the EPA relied to find that the 2016 preferred approach was flawed was that the preferred approach failed to “satisf[y] the Agency’s obligation under CAA section 112(n)(1)(A) as interpreted by the Supreme Court in *Michigan*.” See 84 FR 2674 (February 7, 2019). The 2019 Proposal claimed that the chief flaw of the preferred approach was the Agency’s failure to “meaningfully consider cost within the context of a regulation’s benefits,” asserting that the *Michigan* Court contemplated that a proper consideration of cost would be relative to benefits. See 84 FR 2675 (February 7, 2019). But that is not an accurate characterization of the 2016 preferred approach, wherein the Agency weighed the existing record from 2012 demonstrating that HAP emissions from EGUs pose a number of identified hazards to both public health and the environment remaining after imposition of the ARP and other CAA requirements against the cost of MATS. See 81 FR 24420 (April 25, 2016) (“After evaluating cost reasonableness using several different metrics, the Administrator has, in accordance with her statutory duty under CAA section 112(n)(1)(A), weighed cost against the previously identified advantages of regulating HAP emissions from EGUs—including the agency’s prior conclusions about the significant hazards to public health and the environment associated with such emissions and the volume of HAP that would be reduced by regulation of EGUs under CAA section 112.”). The 2020 Final Action further stated that the preferred approach was an “unreasonable” interpretation of CAA section 112(n)(1)(A) and impermissibly de-emphasized the importance of the cost consideration in the appropriate and necessary determination. See 85 FR 31292 (May 22, 2020). It is a decisional framework which rests primarily upon a comparison of the costs of a regulation and the small subset of HAP benefits which could be monetized that does not “meaningfully consider[s] cost within the context of a regulation’s benefits,” because such a narrow approach relegates as secondary (and in application appeared to ignore altogether) the vast majority of that rule’s HAP benefits and other advantages. We therefore propose to revoke the 2020 three-step approach and determination because we do not think it is a suitable way to assess the advantages and disadvantages of regulation under CAA section 112(n)(1)(A) and in applying it, the Agency failed to meaningfully address key facts in the existing record. Even if the Agency’s selection of the 2020 framework could be considered a permissible interpretation of the broad “appropriate and necessary” determination in CAA section 112(n)(1)(A), we exercise our discretion under the statute and as described in *Michigan*, to approach the determination differently.

D. The Administrator’s Proposed Preferred Framework and Proposed Conclusion

The EPA is proposing a preferred, totality-of-the-circumstances approach as a reasonable way to “pay attention to the advantages *and* disadvantages of [our] decision,” *Michigan*, 576 U.S. at 753, in determining whether it is appropriate to regulate coal- and oil-fired EGUs under section 112 of the CAA. This approach, including which factors we consider and how much weight we give them, is informed by Congress’ design of CAA section 112(n)(1) specifically, and CAA section 112 generally.

Specifically, under this approach we first consider and weigh the advantages of reducing EGU HAP via regulation. We focus on the public health advantages of reducing HAP emissions because in CAA section 112(n)(1)(A), Congress specifically directed the EPA to regulate EGUs under CAA section 112 after considering the results of the “study of hazards to public health reasonably anticipated to occur as a result of emissions” by EGUs. We also consider the other studies commissioned by Congress in CAA sections 112(n)(1)(B) and (C) and the types of information the statute directed the EPA to examine under those provisions—the rate and mass of EGU mercury emissions, the health and environmental effects of such emissions, and the threshold level of mercury concentrations in fish tissue which may be consumed (even by sensitive populations) without adverse effects to

public health. ⁽¹¹⁰⁾ We place considerable weight on the factors addressed in the studies required in the other provisions of CAA section 112(n)(1) because that provision is titled “Electric utility steam generating units,” so it is reasonable to conclude that the information in those studies is important and relevant to a determination of whether HAP emissions from EGUs should be regulated under CAA section 112. ¹¹¹ See *Michigan*, 576 U.S. at 753-54 (citing CAA sections 112(n)(1)(B) and (C), its caption, and the additional studies required under those subparagraphs as relevant statutory context for the appropriate and necessary determination).

Notably, the studies of CAA section 112(n)(1) place importance on the same considerations that are expressed in the terms and overall structure of CAA section 112. For example, CAA section 112(n)(1)(A) and section 112(n)(1)(B) both show interest in the amount of HAP emissions from EGUs—section 112(n)(1)(A) by requiring the EPA to estimate the risk remaining after imposition of the ARP and other CAA requirements and section 112(n)(1)(B) by requiring the EPA to study the rate and mass of mercury emissions; therefore, we believe it is reasonable to conclude that we should consider and weigh the volume of toxic pollution EGUs contributed to our air, water, and land absent regulation under CAA section 112, in total and relative to other domestic anthropogenic sources, and the potential to reduce that pollution, thus reducing its grave harms. In addition, the clear goal in CAA section 112(n)(1)(C) and elsewhere to consider risks to the most exposed and susceptible populations supports our decision to place significant weight on reducing the risks of HAP emissions from EGUs to the most sensitive members of the population (e.g., developing fetuses and children), and communities that are reliant on self-caught local fish for their survival. Finally, we also consider the identified risks to the environment posed by mercury and acid-gas HAP, consistent with CAA section 112(n)(1)(B) and the general goal of CAA section 112 to address adverse environmental effects posed by HAP emissions. See CAA section 112(a)(7) (defining “adverse environmental effect”).

We next examine the disadvantages of regulation, principally in the form of the costs incurred to capture HAP before they enter the environment. As with the advantages side of the equation, where we consider the consequences of reducing HAP emissions to human health and the environment, we consider the consequences of these expenditures for the electricity generating sector and society. We therefore consider compliance costs comprehensively, placing them in the context of the effect those expenditures have on the economics of power generation more broadly, the reliability of electricity, and the cost of electricity to consumers. These metrics are relevant to our weighing exercise because they give us a more complete picture of the disadvantages to society imposed by this regulation, and because our conclusion might change depending on how this burden affects the ability of the industry to thrive and provide reliable, affordable electricity to the benefit of all Americans. Consistent with CAA section 112(n)(1)(B), we further consider relevant control costs for EGUs and the relationship of control costs expected and experienced under the ARP and MATS.

Below, consistent with this framework, we consider and weigh the advantages to regulation against the costs of doing so, giving particular weight to our examination of the public health hazards we reasonably anticipate to occur as a result of HAP emissions from EGUs, and the risks posed by those emissions to exposed and vulnerable populations. We note as well that had we found regulation under CAA section 112 to impose significant barriers to provision of affordable and reliable electricity to the American public, this would have weighed heavily in our decision.

We acknowledge, as we recognized in the 2016 preferred approach, that this approach to making the appropriate and necessary determination is an exercise in judgment, and that “[r]easonable people, and different decision-makers, can arrive at different conclusions under the same statutory provision,” (81 FR 24431; April 25, 2016), but this type of weighing of factors and circumstances is an inherent part of regulatory decision-making. As noted in then-Judge Kavanaugh's dissent in *White Stallion*, “All regulations involve tradeoffs, and . . . Congress has assigned EPA, not the courts, to make many discretionary calls to protect both our country's environment and its productive capacity.” 748 F.3d at 1266 (noting as well that “if EPA had decided, in an exercise of its judgment, that it was ‘appropriate’ to regulate electric utilities under the MACT program because the benefits outweigh the costs, that decision would be reviewed under a deferential arbitrary and capricious standard of review”). Bright-line tests and thresholds are not required under the CAA's instruction to determine whether regulation is “appropriate and necessary,” nor have courts interpreted broad provisions similar to CAA section 112(n)(1)(A) in such manner. In

Catawba Cty. v. EPA, the D.C. Circuit held that “[a]n agency is free to adopt a totality-of-the-circumstances test to implement a statute that confers broad authority, even if that test lacks a definite ‘threshold’ or ‘clear line of demarcation to define an open-ended term.’” 571 F.3d 20, 37 (D.C. Cir. 2009).

In undertaking this analysis, we are cognizant that, while the Agency has been studying the science underlying this determination for decades, the understanding of risks, health, and environmental impacts associated with toxic air pollution continues to evolve. In this notice, we explained the additional information that has become available to the Agency since we performed our national risk assessments, and explained why, despite the certainty of the science demonstrating substantial health risks, we are unable at this time to quantify or monetize many of the effects associated with reducing HAP emissions from EGUs. ⁽¹¹²⁾ We continue to think it is appropriate to give substantial weight to these public health impacts, even where we lack information to precisely quantify or monetize those impacts. As the D.C. Circuit stated in *Ethyl Corp. v. EPA*,

“Where a statute is precautionary in nature, the evidence difficult to come by, uncertain, or conflicting because it is on the frontiers of scientific knowledge, the regulations designed to protect public health, and the decision that of an expert administrator, we will not demand rigorous step-by-step proof of cause and effect. . . . [I]n such cases, the Administrator may assess risks. . . . The Administrator may apply his expertise to draw conclusions from suspected, but not completely substantiated, relationships between facts, from trends among facts, from theoretical projections from imperfect data, from probative preliminary data not yet certifiable as ‘fact,’ and the like.”

541 F.2d 1, 28 (D.C. Cir. 1976). *See also Lead Industries Ass’n v. EPA*, 647 F.2d 1130, 1155 (D.C. Cir. 1980) (“[R]equiring EPA to wait until it can conclusively demonstrate that a particular effect is adverse to health before it acts is inconsistent with both the [Clean Air] Act’s precautionary and preventive orientation and the nature of the Administrator’s statutory responsibilities.”).

The EPA is not alone in needing to make difficult judgments about whether a regulation that has a substantial economic impact is “worth it,” in the face of uncertainty such as when the advantages of the regulation are hard to quantify in monetary terms. The Transportation Security Administration (TSA), when determining whether to require Advanced Imaging Technology at certain domestic airports, faced assertions that the high cost of widespread deployment of this type of screening was “not worth the cost.” TSA acknowledged that it did not “provide monetized benefits” or “degree of benefits” to justify the use of the screening, but noted that the agency “uses a risk-based approach . . . in order to try to minimize risk to commercial air travel.” *See* 81 FR 11364, 11394 (March 3, 2016). The agency pointed out that it could not consider “only the most easily quantifiable impacts of a terrorist attack, such as the direct cost of an airplane crashing,” but rather that it had an obligation to “pursue the most effective security measures reasonably available so that the vulnerability of commercial air travel to terrorist attacks is reduced,” noting that some commenters were failing to consider the more difficult to quantify aspects of the benefits of avoiding terrorist attacks, such as “substantial indirect effects and social costs (such as fear) that are harder to measure but which must also be considered by TSA when deciding whether an investment in security is cost-beneficial.” *Id.*

In reviewing Agency decisions like these, courts do “not to substitute [their] judgment[s] for that of the agenc[ies],” *State Farm*, 463 U.S. at 43 (1983), and “[t]his is especially true when the agency is called upon to weigh the costs and benefits of alternative policies,” *Center for Auto Safety v. Peck*, 751 F.2d 1336, 1342 (D.C. Cir. 1985). *See also v. FCC*, 707 F.2d 1413, 1440 (D.C. Cir. 1983) (“[C]ost benefit analyses epitomize the types of decisions that are most appropriately entrusted to the expertise of an agency.”). Agencies are entitled to this deference even where, or perhaps particularly where, costs or benefits can be difficult to quantify. For example, in *Consumer Elecs. Ass’n v. FCC*, the D.C. Circuit upheld the FCC’s mandate to require digital tuners, finding reasonable the Commission’s identification of benefits, that is, “principally speeding the congressionally-mandated conversion to DTV and reclaiming the analog spectrum,” coupled with the FCC’s “adequate[] estimate[] of the long-range costs of the digital tuner mandate within a range sufficient for the task at hand . . . and [its finding of] the estimated costs to consumers to be ‘within an acceptable range.’” 347 F.3d 291, 303-04 (D.C. Cir. 2003) (“We will not here second-guess the Commission’s weighing of costs and benefits.”).

Similarly, the Food and Drug Administration, in weighing the costs and benefits of deeming electronic cigarettes to be “tobacco products,” described the benefits qualitatively, “potentially coming from . . . premarket review [*i.e.*, the statutory consequence of deeming], which will result in fewer harmful or additive products from reaching the market than would be the case in the absence of the rule; youth access restrictions and prohibitions on free samples, which can be expected to constrain youth access to tobacco products and curb rising uptake; health warning statements, which will help consumers understand and appreciate the risks of using tobacco products; prohibitions against false or misleading claims and unsubstantiated modified risk claims; and other changes [such as monitoring and ingredient listings].” *Nicopure Labs, LLC v. FDA*, 266 F. Supp. 3d 360, 403-404 (D.D.C. 2017), *aff’d*, 944 F.3d 267 (D.C. Cir. 2019). Plaintiffs challenging the rule claimed that because the FDA had not quantified the benefits of the rule, it “cannot realistically determine that a rule’s benefits justify its costs,” because “it does not have . . . a general grasp of the rule’s benefits.” *Id.* at 406. The court disagreed, finding the agency’s statement of benefits to have “provided substantial detail on the benefits of the rule, and the reasons why quantification was not possible” and in any case agreeing with the agency that there was no obligation to quantify benefits in any particular way. *Id.*

We think the inquiry posed to the Agency by CAA section 112(n)(1)(A) has similarities to these other decisions, in which agencies tasked with protecting and serving the American public elected to take actions that would impose significant costs in order to achieve important benefits that could not be precisely quantified or were in some cases uncertain—protection from terrorist attacks, speeding the advancement of digital technology, and subjecting a new product to marketing and safety regulation. In those cases, the framework for decision-making was to make a judgment after a weighing of advantages against disadvantages, considering qualitative factors as well as quantified metrics. Here, we employ a similar totality-of-the-circumstances approach to the CAA section 112(n)(1)(A) inquiry as to whether it is appropriate to regulate HAP emissions from EGUs.

Earlier sections of this preamble (sections III.A. and III.B.) discuss in detail the EPA’s evaluation of the public health and environmental advantages of regulating HAP from U.S. EGUs and the reasons it is not possible to quantify or monetize most of those advantages, as well as the EPA’s comprehensive assessment of the costs of doing so. We will not in this section repeat every detail and data point, but we incorporate all of that analysis here and highlight only a few of the considerations that weighed heavily in our application of the preferred totality-of-the-circumstances approach.

Under our preferred approach, we first consider the public health advantages to reducing HAP from EGUs, and the other focuses for study identified by Congress in CAA section 112(n)(1). As noted, we give particular weight in our determination to the information related to the statutory factors identified for the EPA’s consideration by the studies—namely, the hazards to public health reasonably anticipated to occur as a result of EGU HAP emissions (112(n)(1)(A)), the rate and mass of mercury emissions from EGUs (112(n)(1)(B)), the health and environmental effects of such emissions (112(n)(1)(B)), and the levels of mercury exposure below which adverse human health effects are not expected to occur as well as the mercury concentrations in the tissue of fish which may be consumed (including by sensitive populations) without adverse effects to public health (112(n)(1)(C)).

The statutorily mandated studies are the foundation for the Agency’s finding that HAP emissions from U.S. EGUs represent a clear hazard to public health and the environment, but as documented in section III.A., the EPA has continued to amass an extensive body of evidence related to the original study topics that only furthers the conclusions drawn in the earlier studies. As discussed in section III.A, the EPA completed a national-scale risk assessment focused on mercury emissions from U.S. EGUs as part of the 2011 Final Mercury TSD. That assessment specifically examined risk associated with mercury released from U.S. EGUs that deposits to watersheds within the continental U.S., bioaccumulates in fish as methylmercury, and is consumed when fish are eaten by female subsistence fishers of child-bearing age and other freshwater self-caught fish consumers. We focused on the female subsistence fisher subpopulation because there is increased risk for *in utero* exposure and adverse outcomes in children born to female subsistence fishers with elevated exposure to methylmercury.⁽¹¹³⁾ Our analysis estimated that 29 percent of the watersheds studied would lead to exposures exceeding the methylmercury RfD for this population, based on *in utero* effects, due in part to the contribution of domestic EGU emissions of mercury. We also found that deposition of mercury emissions from U.S. EGUs alone led to potential exposures that exceed the RfD in up to 10 percent of modeled watersheds.

We have also examined impacts of prenatal methylmercury exposure on unborn children of recreational anglers consuming self-caught fish from inland freshwater lakes, streams, and rivers, and found significant IQ loss in the affected population of children. Our analysis, which we recognized did not cover consumption of recreationally caught seafood from estuaries, coastal waters, and the deep ocean, nevertheless indicated significant health harm from methylmercury exposure. Methylmercury exposure also leads to adverse neurodevelopmental effects such as performance on neurobehavioral tests, particularly on tests of attention, fine motor function, language, and visual spatial ability. See section III.A.2.a.

The population that has been of greatest concern with respect to methylmercury exposure is women of childbearing age because the developing fetus is the most sensitive to the effects of methylmercury. See 85 FR 24995 (May 3, 2011). In the Mercury Study, the EPA estimated that, at the time of the study, 7 percent of women of childbearing age in the continental U.S. (or about 4 million women) were exposed to methylmercury at levels that exceeded the RfD and that about 1 percent of women of childbearing age (or about 580,000 women) had methylmercury exposures three to four times the RfD. See 65 FR 79827 (December 20, 2000). We also performed a new bounding analysis for this proposal that focuses on the potential for IQ points lost in children exposed *in utero* through maternal fish consumption by the population of general U.S. fish consumers (section III.A.3.d).

Another important human health impact documented by the EPA over the last 2 decades includes cardiovascular impacts of exposure to methylmercury—including altered blood-pressure and heart-rate variability in children as a result of infant exposure in the womb and higher risk of acute MI, coronary heart disease, and cardiovascular heart disease in adults, due to dietary exposure. Studies that have become available more recently led the EPA to perform new quantitative screening analyses (as described in section III.A.3) to estimate the incidence of MI (heart attack) mortality that may be linked to U.S. EGU mercury emissions. The new analyses performed include an extension of the original watershed-level subsistence fisher methylmercury risk assessment to evaluate the potential for elevated MI-mortality risk among subsistence fishers (section III.A.3.b; 2021 Risk TSD) and a separate risk assessment examining elevated MI mortality among all adults that explores potential risks associated with exposure of the general U.S. population to methylmercury from domestic EGUs through commercially-sourced fish consumption (section III.A.3.c; 2021 Risk TSD). The updated subsistence fisher analysis estimated that up to 10 percent of modeled watersheds are associated with exposures linked to increased risk of MI mortality, but for some populations such as low-income Black subsistence fishers active in the Southeast, that number is approximately 25 percent of the watersheds modeled. The bounding analysis results estimating MI-mortality attributable to U.S. EGU-sourced mercury for the general U.S. population range from 5 to 91 excess deaths annually. As noted, we give significant weight to these findings and analyses examining public health impacts associated with methylmercury, given the statutory focus in CAA section 112(n)(1)(B) and 112(n)(1)(C) on adverse effects to public health from EGU mercury emissions and the directive to develop an RfD (“threshold level of mercury exposure below which adverse human health effects are not expected to occur”), and in particular one that is designed to assess “mercury concentrations in the tissue of fish which may be consumed (including consumption by sensitive populations).” See CAA section 112(n)(1)(C).

Because of CAA section 112(n)(1)(A)'s broader focus on hazards to public health from all HAP, not just mercury, we also give considerable weight to health effects associated with non-mercury HAP exposure (see section III.A.2.b for further detail), including chronic health disorders such as irritation of the lung, skin, and mucus membranes; decreased pulmonary function, pneumonia, or lung damage; detrimental effects on the central nervous system; damage to the kidneys; and alimentary effects such as nausea and vomiting). The 2011 Non-Hg HAP Assessment, performed as part of the EPA's 2012 reaffirmation of the appropriate and necessary determination, expanded on the original CAA section 112(n)(1)(A) Utility Study by examining further public health hazards reasonably anticipated to occur from EGU HAP emissions after imposition of other CAA requirements. This study included a refined chronic inhalation risk assessment that was designed to assess how many coal- and oil-fired EGUs had cancer and non-cancer risks associated with them, and indicated that absent regulation, a number of EGUs posed cancer risks to the American public (see section III.A.2.b).

As discussed in section II.B, the statutory design of CAA section 112 quickly secured dramatic reductions in the volume of HAP emissions from stationary sources. CAA section 112(n)(1)(B) also directs the EPA to study, in the context of the Mercury Study, the “rate and mass” of mercury emissions. We therefore think it is reasonable to

consider, in assessing the advantages to regulating HAP emissions from EGUs, what the volume of emissions was from that sector prior to regulation—as an absolute number and relative to other sources—and what the expected volume of emissions would be with CAA section 112(d) standards in place. Prior to the EPA's promulgation of MATS in 2012, the EPA estimated that in 2016, without MATS, coal-fired U.S. EGUs above 25 MW would emit 29 tons of mercury per year. While these mercury emissions from U.S. EGUs represented a decrease from 1990 and 2005 levels (46 tons and 53 tons, respectively), they still represented nearly half of all anthropogenic mercury emissions in 2011 (29 out of 64 tons total). Considered on a proportional basis, the relative contribution of U.S. EGUs to all domestic anthropogenic mercury emissions was also stark. The EGU sector emitted more than six times as much mercury as any other sector (the next highest being 4.6 tons). See Table 3 at 76 FR 25002 (May 3, 2011). Prior to MATS, U.S. EGUs were estimated to emit the majority of HCl and HF nationally, and were the predominant source of emissions nationally for many metal HAP as well, including antimony, arsenic, chromium, cobalt, and selenium. *Id.* at 25005-06. In 2012, the EPA projected that MATS would result in an 88 percent reduction in hydrogen chloride emissions, a 75 percent reduction in mercury emissions, and a 19 percent reduction in PM emissions (a surrogate for non-mercury metal HAP) from coal-fired units greater than 25 MW in 2015 alone. See 77 FR 9424 (February 16, 2012). In fact, actual emission reductions since MATS implementation have been even more substantial. In 2017, by which point all sources were required to have complied with MATS, the EPA estimated that acid gas HAP emissions from EGUs had been reduced by 96 percent, mercury emissions had been reduced by 86 percent, and non-mercury metal HAP emissions had been reduced by 81 percent compared to 2010 levels. See 84 FR 2689 (February 7, 2019). Retaining the substantial reductions in the volume of toxic pollution entering our air, water, and land, from this large fleet of domestic sources reduces the substantial risk associated with this pollution faced by all Americans.

Even though reducing HAP from EGUs would benefit all Americans by reducing risk and hazards associated with toxic air pollution, it is worth noting that the impacts of EGU HAP pollution in the U.S. have not been borne equally nationwide. Certain communities and individuals have historically borne greater risk from exposure to HAP emissions from EGUs prior to MATS, as demonstrated by the EPA's risk analyses. The individuals and communities that have been most impacted have shouldered a disproportionate burden for the energy produced by the power sector, which in turn benefits everyone—*i.e.*, these communities are subject to a greater share of the externalities of HAP pollution that is generated by EGUs producing power for everyone. A clear example of these disproportionately impacted populations are subsistence fishers who live near U.S. EGUs experiencing increased risk due to U.S. EGU mercury deposition at the watersheds where they are active (2011 Final Mercury TSD). CAA section 112(n)(1)(C) directed the EPA to examine risks to public health experienced by sensitive populations as a result of the consumption of mercury concentrations in fish tissue, which we think includes fetuses and communities that are reliant on local fish for their survival, and CAA section 112 more generally is drafted in order to be protective of small cohorts of highly exposed and susceptible populations. We therefore weigh heavily the importance of reducing risks to particularly impacted populations, including those who consume large amounts of self-caught fish reflecting cultural practice and/or economic necessity, including tribal populations, specific ethnic communities and low-income populations including Black persons living in the southeastern U.S.

Consistent with CAA section 112(n)(1)(B) and the general goal of CAA section 112 to reduce risks posed by HAP to the environment, we also consider the ecological effects of methylmercury and acid gas HAP (see section III.A.2.c). Scientific studies have consistently found evidence of adverse impacts of methylmercury on fish-eating birds and mammals, and insect-eating birds. These harmful effects can include slower growth and development, reduced reproduction, and premature mortality. Adverse environmental impacts of emissions of acid gas HAP, in particular HCl, include acidification of terrestrial and aquatic ecosystems. In the EPA's recent *Integrated Science Assessment for Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter — Ecological Criteria* (2020), we concluded that the body of evidence is sufficient to infer a causal relationship between acidifying deposition and adverse changes in freshwater biota like plankton, invertebrates, fish, and other organisms. Adverse effects on those animals can include physiological impairment, loss of species, changes in community composition, and biodiversity. Because EGUs contribute to mercury deposition in the U.S., we conclude that EGUs are contributing to the identified adverse environmental effects, and consider the beneficial impacts of mitigating those effects by regulating EGUs.

We turn next in our application of the preferred approach to the consideration of the disadvantages of regulation, which in this case we measure primarily in terms of the costs of that regulation. As discussed in section III.B, for purposes of this preferred totality-of-the-circumstances approach, we start with the sector-level estimate developed in the 2011 RIA. Given the complex, interconnected nature of the power sector, we think it is appropriate to consider this estimate, which represents the incremental costs to the entire power sector to generate electricity, not just the compliance costs projected to be borne by regulated EGUs. We explain in section III.B that while a precise *ex post* estimate of this sector-level figure is not possible, we update those aspects of the cost estimate where we can credibly do so (see section III.B.2), and our consideration of the cost of regulation therefore takes into account the fact that new analyses performed as part of this proposal demonstrate that the 2011 RIA cost estimate was almost certainly significantly overestimated. We propose to conclude that regulation is appropriate and necessary under either cost estimate.

As with the benefits side of the ledger, where we look comprehensively at the effects of reducing the volume of HAP, we also comprehensively assess costs in an attempt to evaluate the economic impacts of the regulation as a whole. We situate the cost of the regulation in the context of the economics of power generation, as we did in 2016, because we think examining the costs of the rule relative to three sector-wide metrics provides a useful way to evaluate the disadvantages of expending these compliance costs to this sector beyond a single monetary value. For each of these metrics, we use our 2011 estimate of compliance costs, which, as is discussed in section III.B.2 and the Cost TSD, was likely to have been significantly overestimated by a figure in the billions of dollars. We first evaluate the 2011 projected annual compliance costs of MATS as a percent of annual power sector sales, also known as a “sales test.” A sales test is a frequently used indicator of potential impacts from compliance costs on regulated industries, and the EPA's analysis showed that projected 2015 compliance costs, based on the 2011 estimate, represented between 2.7-3.5 percent of power sector revenues from historical annual retail electricity sales. See section III.B.3; Cost TSD; 80 FR 75033 (December 1, 2015). We also examine the annual capital expenditures that were expected for MATS compliance as compared to the power sector's historical annual capital expenditures. We conclude that projected incremental annual capital expenditures of MATS would be a small percentage of 2011 power sector-level capital expenditures, and well within the range of historical year-to-year variability on industry capital expenditures. *Id.* Finally, we consider the annual operating or production expenses in addition to capital expenditures because we were encouraged during the 2016 rulemaking to use this broader metric of power industry costs to provide perspective on the cost of MATS relative to total capital and operational expenditures by the industry historically. Consistent with our other findings, we conclude that, even when using the likely overestimated cost of MATS based on the 2011 RIA, the total capital and operational expenditures required by MATS are in the range of about 5 percent of total historical capital and operational expenditures by the power sector during the period of 2000-2011. See section III.B.3; Cost TSD; 81 FR 24425 (April 25, 2016). In this proposal, we re-analyze all of these metrics using updated data to reflect more recent information (as of 2019), and took into consideration the fact that the 2011 RIA cost estimate was almost certainly significantly overestimated. All of this new analysis further supports our findings as to the cost of MATS relative to other power sector economics based on the record available to the Agency at the time we were making the threshold determination (*i.e.*, the 2012 record).

Consistent with the *Michigan* Court's instruction to consider all advantages and disadvantages of regulation, we also assess, as we did in 2016, disadvantages to regulation that would flow to the greater American public. Specifically, we examine whether regulation of EGUs would adversely impact the provision of reliable, affordable electricity to the American public, because had regulation been anticipated to have such an effect, it would have weighed heavily on our decision as to whether it was appropriate to require such regulation. The CAA tasks the EPA with the purpose of protecting and enhancing air quality in the U.S., but directs that in doing so we promote public health and welfare *and* the productive capacity of the U.S. population. CAA section 101(b)(1). As noted, we also think examining these potential impacts is consistent with the “broad and all-encompassing” nature of the term “appropriate,” as characterized by the Supreme Court. *Michigan*, 576 U.S. at 752. We were particularly interested in examining the expected impact of MATS implementation on the retail price of electricity, because in electricity markets, utility expenditures can be fully or partially passed to consumers. It was therefore reasonable to assume that the cost of MATS could result in increased retail electricity prices for consumers, although we emphasize, as we did in 2016, that the electricity price impacts examined under this metric do not reflect *additional* compliance

costs on top of the estimate produced in the 2011 RIA but rather reflect the passing on of a share of those costs to consumers (and ultimately reducing the costs EGU owners would otherwise bear). However, even though the impacts on electricity prices are reflected in the total cost estimate to the sector as a whole, we think, for the reasons stated above, that electricity price impacts are worthy of special attention because of the potential effect on the American public.

We therefore estimate the percent increase in retail electricity prices projected to result from MATS compared to historical levels of variation in electricity prices. See section III.B.3; 80 FR 75035 (December 1, 2015). We estimate that retail electricity prices for 2015 would increase by about 0.3 cents per kilowatt-hour, or 3.1 percent with MATS in place. Between 2000 and 2011, the largest annual year-to-year decrease in retail electricity price was -0.2 cents per kilowatt-hour and the largest year-to-year increase during that period was +0.5 cents per kilowatt-hour. The projected 0.3 cents increase due to MATS was therefore well within normal historical fluctuations. *Id.* As with the other metrics examined, as the increase in retail electricity prices due to MATS was within the normal range of historical variability, a substantially lower estimate for impacts on electricity prices would only further support the EPA's determination. We also note in section III.B.3 that the year-to-year retail electricity price changes in the new information we examined (*i.e.*, years 2011-2019) were within the same ranges observed during the 2000-2011 period, and that in fact, during that period when MATS was implemented, retail electricity prices have generally decreased (9.3 cents per kilowatt-hour in 2011 to 8.7 cents per kilowatt-hour in 2019). Consistent with these observed trends in retail electricity prices, as discussed in section III.B.2 and further below, our *ex post* analysis of MATS indicates that the projected compliance costs in the 2011 RIA—and, as a corollary, the projected increases in retail electricity prices—were likely significantly overestimated. Certainly, we have observed nothing in the data that suggests the regulation of HAP from EGUs resulted in increases in retail electricity prices for the American public that would warrant substantial concern in our weighing of this factor.

Similar to our reasoning for examining impacts on electricity prices for American consumers, in assessing the potential disadvantages to regulation, we elected to also look at whether the power sector would be able to continue to provide reliable electricity to all Americans after the imposition of MATS. We think this examination naturally fits into our assessment of whether regulation is “appropriate,” because had MATS interfered with the provision of reliable electricity to the American public, that would be a significant disadvantage to regulation to weigh in our analysis. In examining this factor, we looked at both resource adequacy and reliability—that is, the provision of generating resources to meet projected load and the maintenance of adequate reserve requirements for each region (resource adequacy) and the sector's ability to deliver the resources to the projected electricity loads so that the overall power grid remains stable (reliability). See section III.B.3; U.S. EPA 2011, Resource Adequacy and Reliability TSD; 80 FR 75036 (December 1, 2015). Our analysis indicated that the power sector would have adequate and reliable generating capacity, while maintaining reserve margins over a 3-year MATS compliance period. *Id.* We did not in this proposal update the Resource Adequacy and Reliability Study conducted in 2011, but we note that the EPA, as a primary regulator of EGUs, is keenly aware of adequacy and reliability concerns in the power sector and in particular the relationship of those concerns to environmental regulation. We have not seen evidence in the last decade to suggest that the implementation of MATS caused power sector adequacy and reliability problems, and only a handful of sources obtained administrative orders under the enforcement policy issued with MATS to provide relief to reliability critical units that could not comply with the rule by 2016.

In addition to the cost analyses described above, the EPA revisited its prior records examining the costs of mercury controls consistent with the requirement in CAA section 112(n)(1)(B), the cost of controls for other HAP emissions from EGUs, and the cost of implementing the utility-specific ARP, which Congress wrote into the 1990 CAA Amendments and implementation of which Congress anticipated could result in reductions in HAP emissions. 80 FR 75036-37 (December 1, 2015). The ARP, like MATS, was expected to have a significant financial impact on the power sector, with projections of its cost between \$6 billion to \$9 billion per year (in 2000 dollars), based on the expectation that many utilities would elect to install FGD scrubbers in order to comply with the ARP. *Id.* at 75037. The actual costs of compliance were much less (up to 70 percent lower than initial estimates), in large part because of the utilities' choice to comply with the ARP by switching to low sulfur coal instead of installing scrubbers.⁽¹¹⁴⁾ This choice also resulted in far fewer reductions in HAP emissions than would have occurred if more EGUs had installed

SO₂ scrubbers. We believe the considerable reduction in the implementation cost of the ARP is important because of the economic benefit that accrued from delaying the large capital costs of controls by almost 25 years. With respect to the costs of technology for control of mercury and non-mercury HAP, the record evidence shows that in 2012 controls were available and routinely used and that control costs had declined considerably over time. *Id.* at 75037-38. We also note that, as explained at length in section III.B.2, the actual compliance costs of MATS, with respect to capital and operating expenditures associated with installing and operating controls, were significantly lower than what we projected at the time of the rule. In addition, the newer information examined as part of this proposal demonstrates that actual control costs were much lower than we projected, which weighs further in favor of a conclusion that it is appropriate to impose those costs in order to garner the advantages of regulation.

Our review of the record and application of the preferred totality-of-the-circumstances approach has demonstrated that we have, over the last 2 decades, amassed a voluminous and scientifically rigorous body of evidence documenting the significant hazards to public health associated with HAP emissions from EGUs, particularly to certain vulnerable populations that bear greater risk from these emissions than the general public. We have looked at the volume of emissions coming from these sources and what the impact of regulation would be on that volume. We examined the cost of regulation to industry (even using an estimate of cost that we know to be higher than what was expended), and the potential adverse impacts that could be felt by the American public via increased electricity prices and access to reliable electricity. And, consistent with the statute, we have also considered adverse impacts of EGU pollution on the environment as well as availability of controls and the costs of those controls.

Even based solely on the record available to us at the time we issued the regulation and made the threshold determination in 2012, we find that the benefits of regulation are manifold, and they address serious risks to vulnerable populations that remained after the implementation of the ARP and other controls imposed upon the power sector that were required under the CAA. We have placed considerable weight on these benefits, given the statutory directive to do so in CAA section 112(n)(1)(A) and Congress' clear purpose in amending CAA section 112 in 1990. In contrast, the costs, while large in absolute terms, were shown in our analyses to be within the range of other expenditures and commensurate with revenues generated by the sector, and our analysis demonstrated that these expenditures would not and did not have any significant impacts on electricity prices or reliability. After considering and weighing all of these facts and circumstances, in an exercise of his discretion under the Act, the Administrator proposes to conclude that the substantial benefits of reducing HAP from EGUs, which accrue in particular to the most vulnerable members of society, are worth the costs. Consequently, we propose to find after weighing the totality of the circumstances, that regulation of HAP from EGUs is appropriate after considering cost.

The newer information examined as part of this proposal regarding both benefits and costs is directionally consistent with all of the findings the EPA has made in the 2016 administrative record. The robust and long-standing scientific foundation regarding the adverse health and environmental risks from mercury and other HAP is fundamentally unchanged since the comprehensive studies that Congress mandated in the CAA were completed decades ago. But in this proposal, we completed screening level risk assessments, informed by newer meta-analyses of the dose-response relationship between methylmercury and cardiovascular disease, which indicate that a segment of the American public is at increased risk of prematurely dying by heart attack due to methylmercury exposure with as many as 91 deaths per year (and possibly more) being attributable to mercury emissions from EGUs. ⁽¹¹⁵⁾ Further, analyses show that some populations (e.g., low-income Blacks in the Southeast and certain tribal communities engaging in subsistence fishing activity) likely bear a disproportionately higher risk from EGU HAP emissions than the general populace.

The new cost information analyzed by the EPA, discussed in section III.B, indicates that the cost projection used in the 2016 Supplemental Finding (*i.e.*, the 2011 RIA cost estimate) likely significantly overestimated the actual costs of compliance of MATS. Specifically, the EGU sector installed far fewer controls to comply with the HAP emissions standards than projected; certain modeling assumptions, if updated with newer information, would have resulted in a lower cost estimate; unexpected advancements in technology occurred; and the country experienced a dramatic increase in the availability of comparatively inexpensive natural gas. All of these factors likely resulted in a lower actual cost of compliance than the EPA's projected estimates in 2011. We therefore find that when we consider

information available to the Agency after implementation of the rule, our conclusion that it was appropriate to regulate this sector for HAP is further strengthened. The costs projected in the 2011 RIA were almost certainly overestimated by an amount in the billions of dollars.

We note as well that during prior rulemaking processes related to the appropriate and necessary determination, stakeholders suggested that undermining the threshold finding in order to pave the way to rescinding MATS would have grave economic and health consequences. Utilities reported that they rely upon the mandated status of MATS in order to recoup expenditures already made to comply with the rule before Public Utility Commission proceedings. ⁽¹¹⁶⁾ States asserted that they rely upon the Federal protections achieved by the rule in state implementation planning and other regulatory efforts. ⁽¹¹⁷⁾ And other industries, such as pollution control companies, have made business decisions based on the existence of MATS. ⁽¹¹⁸⁾ We think these reliance interests, nearly all of which are aligned, also weigh in favor of retaining the appropriate and necessary determination, particularly given the fact that a significant portion of compliance costs have already been spent.

Finally, while we focus on the HAP benefits, we note that the *Michigan* court directed that “any disadvantage could be termed a cost.” *Michigan*, at 752. The corollary is that any advantage could be termed a benefit. And so, while it is not necessary to our conclusion that regulation is appropriate, we also consider, under our totality-of-the-circumstances approach, whether there are additional advantages or disadvantages to the specific controls imposed under MATS. Specifically, we note that because the controls required to reduce HAP from U.S. EGUs resulted in substantial reductions in co-emitted pollutants, including direct PM_{2.5} as well as SO₂ and NO_x, which are both precursors to ozone and fine particle formation, the Administrator’s proposed conclusion is further supported by the ramifications of the regulatory requirements in MATS for these pollutants. We propose that the benefits associated with such reductions may be appropriate to consider where the framework for making the CAA section 112(n)(1)(A) determination is a totality-of-the-circumstances approach, and we take comment on that approach. Therefore, while we conclude that the benefits associated with regulating HAP alone outweigh the costs without consideration of non-HAP benefits, we also propose that, to the extent we consider benefits attributable to reductions in co-emitted pollutants as a concomitant advantage, these benefits act to confirm that regulation is appropriate under a totality-of-the-circumstances approach. Specifically, we note that reductions in co-emissions of direct PM_{2.5}, SO₂ and NO_x will have substantial health benefits in the form of decreased risk of premature mortality among adults, and reduced incidence of lung cancer, new onset asthma, exacerbated asthma, and other respiratory and cardiovascular diseases. In the 2011 RIA, the EPA estimated the number and value of avoided PM_{2.5}-related impacts, including 4,200 to 11,000 premature deaths, 4,700 nonfatal heart attacks, 2,600 hospitalizations for respiratory and cardiovascular diseases, 540,000 lost work days, and 3.2 million days when adults restrict normal activities because of respiratory symptoms exacerbated by PM_{2.5}. We also estimated substantial additional health improvements for children from reductions in upper and lower respiratory illnesses, acute bronchitis, and asthma attacks. In addition, we estimated the benefit of reductions in CO₂ emissions under MATS. Although the EPA only partially monetized the benefits associated with these reductions in co-emitted pollutants in the 2011 RIA, the Agency estimated that—due in particular to the strong causal relationship between PM_{2.5} and premature mortality—these reductions could result in as much as \$90 billion (in 2016 dollars) in additional public health benefits annually. Therefore, if these non-HAP benefits are considered in the totality-of-the-circumstances approach, we take note of the fact that regulating EGUs for HAP emissions results in substantial other health benefits accruing to the American public by virtue of regulating HAP from EGUs.

E. The Administrator’s Proposed Benefit-Cost Analysis Approach and Proposed Conclusion

In addition to the preferred approach, we separately put forward an alternative approach, as we did in 2016, to support a determination that it is appropriate and necessary to regulate HAP from EGUs when looking at the results of a formal BCA. The formal BCA we conducted for purposes of meeting Executive Order 12866 using established BCA practices also demonstrates that the benefits estimated for MATS far exceed the estimated costs, as reported in the 2011 RIA. ⁽¹¹⁹⁾ In its net benefits projection, the 2011 RIA monetized only one post control benefit from regulating HAP emissions from EGUs because the Agency did not and does not have the information necessary to monetize the many other benefits associated with reducing HAP emissions from EGUs. See section III.A.4. However, the 2011 RIA properly accounted for all benefits by discussing qualitatively those that could not be quantified and/or monetized. While some of the impacts on particularly impacted populations—such as the children

of recreational anglers experiencing IQ loss—were reflected in the net benefits calculation, that accounting does not really grapple with the equitable question of whether a subset of Americans should continue to bear disproportionate health risks in order to avoid the increased cost of controlling HAP from EGUs. We continue to prefer a totality-of-the-circumstances approach to making the determination under CAA section 112(n)(1)(A), but we think that if a BCA is to be used, it should, consistent with economic theory and principles, account for all costs and all benefits.

BCA has been part of executive branch rulemaking for decades. Over the last 50 years, Presidents have issued Executive Orders directing agencies to conduct these analyses as part of the rulemaking development process. Executive Order 12866, currently in effect, requires a quantification of benefits and costs to the extent feasible for any regulatory action that is likely to result in a rule that may have an annual effect on the economy of \$100 million or more or adversely affect in a material way certain facets of society. Executive Order 12866, at section 3(f)(1).

The EPA performed a formal BCA to comport with Executive Order 12866 as part of the 2012 MATS rulemaking process (referred to herein as the 2011 RIA). In the 2016 Supplemental Finding, the EPA relied on the BCA it had performed for Executive Order 12866 purposes as an alternative basis upon which to make the appropriate and necessary determination. That BCA, which reflected in its net benefits calculation only certain categories of benefits that could be confidently monetized, estimated that the final MATS would yield annual *net* monetized benefits (in 2007 dollars) of between \$37 billion to \$90 billion using a 3-percent discount rate and \$33 billion to \$81 billion using a 7-percent discount rate. See 80 FR 75040 (December 1, 2015). These estimates included the portion of the HAP benefits described in section III.A that could be monetized at the time, along with additional health benefits associated with the controls necessary to control the HAP emissions from U.S. EGUs. Specifically, as noted, the net benefits estimates included only one of the many HAP benefits associated with reduction of HAP. Nonetheless, the monetized benefits of MATS outweighed the estimated \$9.6 billion in annual monetized costs by between 3-to-1 or 9-to-1 depending on the benefit estimate and discount rate used. The implementation of control technologies to reduce HAP emissions from EGU sources also led to reductions in emissions of SO₂, direct PM_{2.5}, as well as other precursors to PM_{2.5} and ozone. In the 2011 RIA, the EPA did not quantify the benefits associated with ozone reductions resulting from the emissions controls under MATS, but we did include estimates of the projected benefits associated with reductions in PM_{2.5}. These benefits were quite substantial and had a large economic value. Newer scientific studies strengthen our understanding of the link between PM_{2.5} exposure to a variety of health problems, including: premature death, lung cancer, non-fatal heart attacks, new onset asthma, irregular heartbeat, aggravated asthma, decreased lung function, and respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing. Furthermore, since the RIA was completed in 2011, the EPA has updated its conclusions about how PM_{2.5} emissions can adversely affect the environment through acidic deposition, materials damage, visibility impairment, and exacerbating climate change (EPA, 2019).⁽¹²⁰⁾ In its most recent review of the effects of ozone pollution, the EPA concluded that ozone is associated with a separate but similarly significant set of adverse outcomes including respiratory-related premature death, increased frequency of asthma attacks, aggravated lung disease, and damage to vegetation (EPA, 2020).⁽¹²¹⁾

BCAs are a useful tool to “estimate the *total* costs and benefits to society of an activity or program,” and “can be thought of as an accounting framework of the overall social welfare of a program.” EPA Economic Guidelines, Appendix A, A-6 (emphasis in original).⁽¹²²⁾ In a BCA, “[t]he favorable effects of a regulation are the benefits, and the foregone opportunities or losses in utility are the costs. Subtracting the total costs from the total monetized benefits provides an estimate of the regulation’s net benefits to society.” *Id.* Importantly, however, “[t]he key to performing BCA lies in the ability to measure both benefits and costs in monetary terms so that they are comparable.” *Id.*; see also OMB Circular A-4 (“A distinctive feature of BCA is that both benefits and costs are expressed as monetary units, which allows you to evaluate different regulatory options with a variety of attributes using a common measure.”).⁽¹²³⁾

In the 2020 Final Action, the EPA rescinded the 2016 alternative approach on the basis that it was “fundamentally flawed” because it applied “a formal cost-benefit analysis” to the CAA section 112(n)(1)(A) determination. The Agency’s objection at the time to the use of “a formal cost-benefit analysis” in the context of this determination was that doing so “implied that an equal weight was given to the non-HAP co-benefit emission reductions and the HAP-specific benefits of the regulation.” See 85 FR 31299 (May 22, 2020). The Agency concluded that it was not

appropriate to use a formal BCA in this situation because “to give equal weight to the monetized PM_{2.5} co-benefits would permit those benefits to become the driver of the regulatory determination, which the EPA believes would not be appropriate.” *Id.* The EPA reiterated in the 2020 Final Action that “HAP benefits, as compared to costs, must be the primary question in making the ‘appropriate and necessary’ determination” and “the massive disparity between co-benefits and HAP benefits on this record would mean that that alternative approach clearly elevated co-benefits beyond their permissible role.” *Id.* at 31303. “To be valid, the EPA’s analytical approach to [CAA section 112(n)(1)(A)] must recognize Congress’ particular concern about risks associated with HAP and the benefits that would accrue from reducing those risks.” *Id.* at 31301.

We agree that the analytical framework for the appropriate and necessary determination should first and foremost be one that is focused on “Congress’ particular concern about risks associated with HAP and the benefits that would accrue from reducing those risks.” *Id.* It is for this reason, as discussed in section III.C of this preamble, that we propose to revoke the analytical framework advanced for the appropriate and necessary determination by the 2020 Final Action, as being insufficiently attentive to the public health advantages of regulation. However, if the decisional framework is going to be one that considers advantages to regulation primarily in terms of potential monetized outcomes (see 85 FR 31296-97; May 22, 2020), a formal BCA that estimates net outcomes (*i.e.*, by comparing total losses and gains) and conforms to established economic best practices and accounts for *all* of the effects of the rule that can be quantified should be used. ⁽¹²⁴⁾

Consistent with scientific principles underlying BCA, both OMB Circular A-4 and the EPA’s Guidelines for Preparation of Economic Analyses direct the Agency to include all benefits in a BCA. Per Circular A-4, OMB instructs “Your analysis should look beyond the direct benefits and direct costs of your rulemaking and consider any important ancillary benefits and countervailing risks. An ancillary benefit is a favorable impact of the rule that is typically unrelated or secondary to the statutory purpose of the rulemaking.” Circular A-4 at 26. Similarly, the Guidelines state, “An economic analysis of regulatory or policy options should present all identifiable costs and benefits that are incremental to the regulation or policy under consideration. These should include directly intended effects and associated costs, as well as ancillary (or co-) benefits and costs.” Guidelines at 11-2. As discussed in prior MATS rulemakings (see, *e.g.*, 80 FR 75041; December 1, 2015), installing control technologies and implementing the compliance strategies necessary to reduce the HAP emissions directly regulated by the MATS rule also results in reductions in the emissions of other pollutants such as directly emitted PM_{2.5} and SO₂ (a PM_{2.5} precursor). A particularly cost-effective control of emissions of particulate-bound mercury and non-mercury metal HAP is through the use of PM control devices that indiscriminately collect PM along with the metal HAP, which are predominately present as particles. Similarly, emissions of the acid gas HAP are reduced by acid gas controls that are also effective at reducing emissions of SO₂ (also an acid gas, but not a HAP). *Id.* While these PM_{2.5} and SO₂ emission reductions are not the objective of the MATS rule, the reductions are, in fact, a direct consequence of regulating the HAP emissions from EGUs. Specifically, controls on direct PM_{2.5} emissions are required to reduce non-mercury metal HAP, while SO₂ emissions reductions come from controls needed to reduce acid gas emissions from power plants.

However, we recognize that there are significant reasons to question whether a formal BCA is the best way to interpret the Agency’s mandate in CAA section 112(n)(1)(A), and we take comment on whether the Agency should continue to rely on this alternative basis for making its determination. We have consistently taken the position that a formal BCA is not required under CAA section 112(n)(1)(A). See 80 FR 75039 (December 1, 2015). As set forth above, in *Michigan*, the Supreme Court declined to hold that CAA section 112(n)(1)(A) required such an assessment, stating, “We need not and do not hold that the law unambiguously required the Agency, when making this preliminary estimate, to conduct a formal cost-benefit analysis in which each advantage and disadvantage is assigned a monetary value.” *Michigan*, 576 U.S. at 759. However, the Court did note that “[c]onsideration of cost reflects the understanding that reasonable regulation ordinarily requires paying attention to the advantages *and* disadvantages of agency decisions.” *Id.* at 2707. Moreover, in finding the EPA’s decision not to consider cost irrational, the Court suggested that unintended disadvantages of a regulation could be considered costs as well, implying that such disadvantages should be accounted for. *Id.* at 2707 (“The Government concedes that if the

Agency were to find that emissions from power plants do damage to human health, but that the technologies needed to eliminate these emissions do even more damage to human health, it would still deem regulation appropriate. No regulation is 'appropriate' if it does significantly more harm than good.”).

In the 2015 Proposal, we identified several policy reasons for preferring to apply a totality-of-the-circumstances approach to weighing costs and benefits over using a formal BCA as our decisional framework under CAA section 112(n)(1)(A). See 80 FR 75025 (December 1, 2015). We recognized that benefits like those associated with reduction of HAP can be difficult to monetize, and this incomplete quantitative characterization of the positive consequences can underestimate the monetary value of net benefits. See 80 FR 75039 (December 1, 2015). This is well-established in the economic literature. As noted in OMB Circular A-4, “[w]here all benefits and costs can be expressed as monetary units, BCA provides decision makers with a clear indication of the most efficient alternative.” Circular A-4 at 2. However, “[w]hen important benefits and costs cannot be expressed in monetary units, BCA is less useful, and it can even be misleading, because the calculation of net benefits in such cases does not provide a full evaluation of all relevant benefits and costs.” Circular A-4 at 10. The EPA’s Guidelines for Preparation of Economic Analyses also recognizes the limitations of BCA, noting that “[m]ost important, [BCA] requires assigning monetized values to non-market benefits and costs. In practice it can be very difficult or even impossible to quantify gains and losses in monetary terms (e.g., the loss of a species, intangible effects).” Guidelines, Appendix A at A-7.

We also pointed out in the 2015 Proposal that national level BCAs may not account for important distributional effects, such as impacts to the most exposed and most sensitive individuals in a population. See 80 FR 75040 (December 1, 2015). These distributional effects and equity considerations are often considered outside of (or supplementary to) analyses like BCAs that evaluate whether actions improve economic efficiency (i.e., increase net benefits). For example, children near a facility emitting substantial amounts of lead are at significantly greater risk of neurocognitive effects (including lost IQ) and other adverse health effects. One perspective on the costs and benefits of controlling lead pollution would be to aggregate those costs and benefits across society, as in a BCA net benefits calculation. However, neither costs nor benefits are spread uniformly across society and failing to take account of that can overlook significant health risks for sensitive subpopulations, such as children exposed to lead pollution. Similarly, in the context of this determination, where we have found disproportionate risk for certain highly exposed or sensitive populations, such considerations are also particularly relevant. See section II.B; section III.A.

We note too that OMB Circular A-4 highlights the special challenges associated with the valuation of health outcomes for children and infants, because it is “rarely feasible to measure a child’s willingness to pay for health improvement” and market valuations such as increased “wage premiums demanded by workers to accept hazardous jobs are not readily transferred to rules that accomplish health gains for children.” Circular A-4 at 31. We take comment on whether a BCA, on its own, is an appropriate tool to make a determination of whether to regulate under CAA section 112(n)(1)(A), given that it may not meaningfully capture all the societal interests the statute intends the EPA to consider. See Guidelines, Appendix A at A-7 (“In some cases a policy may be considered desirable even if the benefits do not outweigh the costs, particularly if there are ethical or equity concerns.”).

With those caveats, we propose to reaffirm using a BCA approach, based on the 2011 RIA performed as part of the original MATS rulemaking, as another way to make the CAA section 112(n)(1)(A) determination of whether it is appropriate to regulate HAP emissions from EGUs.

Applying the alternative approach, based on the 2011 RIA, we propose to find that it is appropriate to regulate EGUs for HAP under CAA section 112(n)(1)(A). In the 2011 RIA, the total benefits of MATS were estimated to vastly exceed the total costs of the regulation. As we found when applying the 2016 alternative approach, the formal BCA that the EPA performed for the 2012 MATS Final Rule estimated that the final MATS rule would yield annual monetized total benefits (in 2007 dollars) of between \$37 billion to \$90 billion using a 3-percent discount rate and between \$33 billion to \$81 billion using a 7-percent discount rate; this compares to projected annual compliance costs of \$9.6 billion. This estimate of benefits was limited to those health outcomes the EPA was able to monetize. Despite the fact that these estimates captured only a portion of the benefits of the rule, excluding many important HAP and criteria pollutant-related endpoints which the Agency was unable to monetize (see

section III.A.4) and instead discussed qualitatively in the 2011 RIA, it was clear that MATS was projected to generate overwhelmingly net positive effects on society. We continue to think that the BCA approach independently supports the conclusion that regulation of HAP emissions from EGUs is appropriate.

Although as discussed in section III.B.2 it was not possible for the EPA to update the entire comprehensive cost estimate found in the 2011 RIA, we think the new information presented in sections III.A and III.B directionally supports the net benefits calculation of the 2016 alternative approach. That is, we have attempted to quantify additional risks, including risks of premature death from heart attacks that result from exposure to methylmercury associated with domestic EGU emissions, and we believe the 2011 RIA's projected cost was almost certainly significantly overestimated. Therefore, we propose that if BCA is a reasonable tool to use in the context of the EPA's determination under CAA section 112(n)(1)(A), newer data collected since 2011 overwhelmingly support an affirmative determination. Further, that both analytical approaches to addressing the inquiry posed by *Michigan* lead to the same result reinforces the reasonableness of the EPA's ultimate decision that it is appropriate and necessary to regulate HAP emissions from EGUs after considering cost.

In this proposal, the EPA has re-examined the extensive record, amassed over 2 decades, identifying the advantages of regulating HAP from EGUs and evaluating the costs of doing so. We have, for purposes of this proposal, also updated information on both benefits and costs. Of note, we find that new scientific literature indicates that methylmercury exposure from EGUs, absent regulation, poses cardiovascular and neurodevelopmental risks to all Americans and particularly those most exposed to this pollution. With respect to costs, we explain the combination of factors that occurred since the promulgation of MATS that leads us to believe that the projected, sector-level \$9.6 billion estimate of the cost of compliance of the rule in 2015 was almost certainly significantly overestimated. We propose two different approaches to considering all of this information, applying first a totality-of-the-circumstances methodology weighing of benefits and costs and focusing particularly on those factors that we were instructed by the statute to study under CAA section 112(n)(1), and next using a formal benefit-cost approach consistent with established guidance and economic principles. Under either approach, whether looking at only the information available at the time of our initial decision to regulate or at all currently available information, we propose to conclude that it remains appropriate and necessary to regulate EGUs for HAP. Substantial emission reductions have occurred after implementation of MATS, the emission limits established pursuant to the Agency's 2012 affirmative appropriate and necessary determination, and these limits provide the only Federal guarantee of these emission reductions from EGUs, which, absent regulation, were the largest domestic anthropogenic source of a number of HAP. Finalizing this affirmative threshold determination would provide important certainty about the future of MATS for regulated industry, states, other stakeholders, and the American public. We take comment on the information relied upon in this proposal and the EPA's proposed approaches to considering that information for this determination.

IV. Summary of Cost, Environmental, and Economic Impacts

The EPA estimates that there are 557 existing EGUs located at 265 facilities that are subject to the MATS rule. Because the EPA is not proposing any amendments to the MATS rule, there would not be any cost, environmental, or economic impacts as a result of the proposed action.

V. Request for Comments and for Information To Assist With Review of the 2020 RTR

On January 20, 2021, President Biden signed Executive Order 13990, "Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis" (86 FR 7037; January 25, 2021). That order, among other things, instructs the EPA to consider publishing a proposed rule suspending, revising, or rescinding the May 22, 2020 final action, "National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units—Reconsideration of Supplemental Finding and Residual Risk and Technology Review." The 2020 Final Action contained two distinct, but related, final actions—(1) a reconsideration of the 2016 Supplemental Finding and (2) the RTR. This notice fulfills the Agency's obligation to address the first action. We solicit comments on all aspects of this proposed action.

Separate from this proposal, the EPA has initiated a review of the RTR, taking into account the latest information available on the experience of EGUs in complying with MATS and implementing measures to reduce HAP emissions. As previously noted, since MATS was promulgated in 2012, power sector emissions of mercury, acid gas HAP, and non-mercury metal HAP have decreased by about 86 percent, 96 percent, and 81 percent, respectively, as compared to 2010 emissions levels (Table 4 at 84 FR 2689, February 7, 2019). While EGUs remain the largest domestic emitter of mercury (and other HAP), their emissions and contribution to total mercury in the environment is significantly less now than before MATS implementation. The EPA is seeking input into how both of these facts should factor into its review of the RTR.

In this notice, the EPA is soliciting information to allow for a more thorough review of the 2020 MATS RTR. The EPA is soliciting broadly for any data or information—including risk-related information—that will assist in the review of the RTR. The EPA is also soliciting specifically for any information on performance or cost of new or additional control technologies, improved methods of operation, or other practices and technologies that may result in cost-effective reductions of HAP emissions from coal- or oil-fired EGUs. In addition, the EPA is interested in receiving information on improvements or upgrades to existing controls that may result in cost-effective reductions of HAP emissions from coal- or oil-fired EGUs. The EPA also seeks information on the cost or performance of technologies and practices relating to monitoring of HAP emissions, and control of HAP emissions during startup and shutdown events, that could result in cost-effective reductions in HAP or assure improved operation of existing controls. We are seeking input from all interested stakeholders, including states, owners of EGUs, technology vendors and developers, and communities impacted by the emissions from EGUs.

VI. Statutory and Executive Order Reviews

Additional information about these statutes and Executive Orders can be found at <https://www.epa.gov/laws-regulations/laws-and-executive-orders>.

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This action is a significant regulatory action that was submitted to OMB for review under Executive Order 12866. Any changes made in response to OMB recommendations have been documented in the docket. The EPA does not project any incremental costs or benefits associated with this action because it does not impose standards or other requirements on affected sources.

B. Paperwork Reduction Act (PRA)

This action does not impose any new information collection burden under the PRA. OMB has previously approved the information collection activities contained in the existing regulations and has assigned OMB control number 2060-0567. This action does not impose an information collection burden because the EPA is not proposing any changes to the information collection requirements.

C. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. This action will not impose any requirements on small entities. The EPA does not project any incremental costs or benefits associated with this action because it does not impose standards or other requirements on affected sources.

D. Unfunded Mandates Reform Act (UMRA)

This action does not contain an unfunded mandate of \$100 million or more as described in UMRA, 2 U.S.C. 1531-1538, and does not significantly or uniquely affect small governments. The action imposes no enforceable duty on any state, local, or tribal governments or the private sector.

E. Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

This action does not have tribal implications as specified in Executive Order 13175. The executive order defines tribal implications as “actions that have substantial direct effects on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes.” Revocation of the 2020 determination that it is not appropriate and necessary to regulate HAP emissions from coal- and oil-fired EGUs under CAA section 112 and reaffirmation of the 2016 Supplemental Finding that it remains appropriate and necessary to regulate HAP emissions from EGUs after considering cost would not have a substantial direct effect on one or more tribes, change the relationship between the Federal Government and tribes, or affect the distribution of power and responsibilities between the Federal Government and Indian tribes. Thus, Executive Order 13175 does not apply to this action.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

This action is not subject to Executive Order 13045 because it is not economically significant as defined in Executive Order 12866, and because this action does not impose new regulatory requirements that might present a disproportionate risk to children. This action reaffirms the 2016 Supplemental Finding that it is appropriate and necessary to regulate HAP emissions from U.S. EGUs, but does not impose control requirements, which were implemented through MATS (77 FR 9304; February 16, 2012). While this action does not impose or change any standards or other requirements, it addresses the underpinning for the HAP emission standards in MATS. The EPA believes the reductions in HAP emissions achieved under MATS have provided and will continue to provide significant benefits to children in the form of improved neurodevelopment and respiratory health and reduced risk of adverse outcomes. Analyses supporting the 2012 MATS Final Rule estimated substantial health improvements for children in 2016 in the form of 130,000 fewer asthma attacks, 3,100 fewer emergency room visits due to asthma, 6,300 fewer cases of acute bronchitis, and approximately 140,000 fewer cases of upper and lower respiratory illness. See 77 FR 9441 (February 16, 2012). Reaffirming the appropriate and necessary determination assures those benefits will continue to accrue among children.

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This action is not a “significant energy action” because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. This action is not anticipated to have impacts on emissions, costs, or energy supply decisions for the affected electric utility industry as it does not impose standards or other requirements on affected sources.

I. National Technology Transfer and Advancement Act (NTTAA)

This action does not involve technical standards.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

The EPA believes that this action will not have disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, and/or indigenous peoples, as specified in Executive Order 12898 (59 FR 7629; February 16, 1994), because it does not impose standards or other requirements on affected sources and is limited in scope to only consider whether it is appropriate and necessary to regulate HAP emissions from coal- and oil-fired EGUs. While this action does not impose or modify any standards or other requirements, it provides the underpinning for the emission standards regulating HAP from EGUs. As documented in both the NAS Study and Mercury Study, fish and seafood consumption is the primary route of human exposure to methylmercury originating from U.S. EGUs, with populations engaged in subsistence-levels of consumption being of particular concern. As shown in section III.A.5 of this preamble, certain minority, low-income, and indigenous populations are more likely to experience elevated exposures, thus higher health risks relative of the general

population due to subsistence fishing. Furthermore, subpopulations with the higher exposure tend to overlap with those subpopulations that are particularly vulnerable to small changes in health risk because of other social determinants of health (e.g., lack of access to health care and access to strong schooling), thereby compounding the implications of the implications of mercury exposure. Reaffirming the appropriate and necessary determination assures that the reduction in risks achieved by MATS continue.

Michael S. Regan,
Administrator.

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Footnotes

(1) As explained in a memorandum to the docket, the docket for this action includes the documents and information, in whatever form, in Docket ID Nos. EPA-HQ-OAR-2009-0234 (National Emission Standards for Hazardous Air Pollutants for Coal- and Oil-fired Electric Utility Steam Generating Units), EPA-HQ-OAR-2002-0056 (National Emission Standards for Hazardous Air Pollutants for Utility Air Toxics; Clean Air Mercury Rule (CAMR)), and Legacy Docket ID No. A-92-55 (Electric Utility Hazardous Air Pollutant Emission Study). See memorandum titled *Incorporation by reference of Docket Number EPA-HQ-OAR-2009-0234, Docket Number EPA-HQ-OAR-2002-0056, and Docket Number A-92-55 into Docket Number EPA-HQ-OAR-2018-0794* (Docket ID Item No. EPA-HQ-OAR-2018-0794-0005).

(2) The 2020 Final Action, while reversing the 2016 Supplemental Finding as to the EPA's determination that it was "appropriate" to regulate HAP from EGUs, did not rescind the Agency's prior determination that it was necessary to regulate. See 84 FR 2674 (February 7, 2019). Instead, the 2020 rulemaking stated that its rescission was based on the appropriate prong alone: "CAA section 112(n)(1)(A) requires the EPA to determine that both the appropriate *and* necessary prongs are met. Therefore, if the EPA finds that either prong is not satisfied, it cannot make an affirmative appropriate and necessary finding. The EPA's reexamination of its determination . . . focuses on the first prong of that analysis." *Id.*

(3) U.S. EPA. 2011. *Regulatory Impact Analysis for the Final Mercury and Air Toxics Standards*. EPA-452/R-11-011. Available at: https://www3.epa.gov/ttn/ecas/docs/ria/utilities_ria_final-mats_2011-12.pdf.

(4) The statute includes a separate definition of "EGU" that includes both major and area source power plant facilities. CAA section 112(a)(8).

(5) U.S. EPA. *Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generating Units — Final Report to Congress*. EPA-453/R-98-004a. February 1998.

(6) U.S. EPA. 1997. *Mercury Study Report to Congress*. EPA-452/R-97-003 December 1997.

(7) National Institute of Environmental Health Sciences (NIEHS) Report on Mercury; available in the rulemaking docket at EPA-HQ-OAR-2009-0234-3053.

(8) National Research Council (NAS). 2000. *Toxicological Effects of Methylmercury*. Committee on the Toxicological Effects of Methylmercury, Board on Environmental Studies and Toxicology, National Research Council. Many of the peer-reviewed articles cited in this section are publications originally cited in the NAS report.

(9) In the same 2000 action, the EPA Administrator found that regulation of HAP emissions from natural gas-fired EGUs is not appropriate or necessary because the impacts due to HAP emissions from such units are negligible. See 65 FR 79831 (December 20, 2000).

(10) U.S. EPA. 2011. *Revised Technical Support Document: National-Scale Assessment of Mercury Risk to Populations with High Consumption of Self-caught Freshwater Fish in Support of the Appropriate and Necessary Finding for Coal- and Oil-Fired Electric Generating Units*. Office of Air Quality Planning and Standards. December 2011. EPA-452/R-11-009. Docket ID Item No. EPA-HQ-OAR-2009-0234-19913 (2011 Final Mercury TSD).

(11) U.S. EPA. 2011. *Supplement to the Non-Hg Case Study Chronic Inhalation Risk Assessment In Support of the Appropriate and Necessary Finding for Coal- and Oil-Fired Electric Generating Units*. Office of Air Quality Planning and Standards. November 2011. EPA-452/R-11-013. Docket ID Item No. EPA-HQ-OAR-2009-0234-19912 (2011 Non-Hg HAP Assessment).

(12) Although the 2012 MATS Final Rule has been amended several times, the amendments are not a result of actions regarding the appropriate and necessary determination and, therefore, are not discussed in this preamble. Detail regarding those amendatory actions can be found at <https://www.epa.gov/stationary-sources-air-pollution/mercury-and-air-toxics-standards>.

(13) Available at www.ecfr.gov/cgi-bin/text-idx?node=sp40.15.63.uuuuu.

(14) In discussing the 2011 Final Mercury TSD, the D.C. Circuit concluded that the EPA considered the available scientific information in a rational manner, and stated:

As explained in the technical support document (TSD) accompanying the Final Rule, EPA determined that mercury emissions posed a significant threat to public health based on an analysis of women of child-bearing age who consumed large amounts of freshwater fish. See [2011 Final] Mercury TSD The design of EPA's TSD was neither arbitrary nor capricious; the study was reviewed by EPA's independent Science Advisory Board, stated that it "support[ed] the overall design of and approach to the risk assessment" and found "that it should provide an objective, reasonable, and credible determination of potential for a public health hazard from mercury emissions emitted from U.S. EGUs." In addition, EPA revised the final TSD to address SAB's remaining concerns regarding EPA's data collection practices.

Id. at 1245-46.

(15) For example, see "Economic Impact and Small Business Analysis-Mineral Wool and Wool Fiberglass RTRs and Wool Fiberglass Area Source NESHAP" (U.S. EPA, 2015; https://www.epa.gov/sites/default/files/2020-07/documents/mwwf_eia_neshap_final_07-2015.pdf) or "Economic Impact Analysis of Final Coke Ovens NESHAP" (U.S. EPA, 2002; https://www.epa.gov/sites/default/files/2020-07/documents/coke-ovens_eia_neshap_final_08-2002.pdf).

(16) Order, *Murray Energy Corp. v. EPA*, No. 16-1127 (D.C. Cir. April 27, 2017), ECF No. 1672987. In response to a joint motion from the parties to govern future proceedings, the D.C. Circuit issued an order in February 2021 to continue to hold the consolidated cases in *Murray Energy Corp. v. EPA* in abeyance. Order, *Murray Energy Corp. v. EPA*, No. 16-1127 (D.C. Cir. February 25, 2021), ECF No. 1887125.

(17) This finding was based on *New Jersey v. EPA*, 517 F.3d 574 (D.C. Cir. 2008), which held that the EPA is not permitted to remove source categories from the CAA section 112(c)(1) list unless the CAA section 112(c)(9) criteria for delisting have been met.

(18) CAA section 112(f)(2) requires the EPA to conduct a one-time review of the risks remaining after imposition of MACT standards under CAA section 112(d)(2) within 8 years of the effective date of those standards (risk review). CAA section 112(d)(6) requires the EPA to conduct a review of all CAA section 112(d) standards at least every 8 years to determine whether it is necessary to establish more stringent standards after considering, among other things, advances in technology and costs of additional control (technology review). The EPA has always conducted the first technology review at the same time it conducts the risk review and collectively the actions are known as RTRs.

(19) Order, *Westmoreland Mining Holdings LLC v. EPA*, No. 20-1160 (D.C. Cir. September 28, 2020), ECF No. 1863712.

(20) Order, *American Academy of Pediatrics v. Regan*, No. 20-1221 (D.C. Cir. February 16, 2021), ECF No. 1885509.

(21) National Emissions Standards for Hazardous Air Pollutants: Benzene Emissions from Maleic Anhydride Plants, Ethylbenzene/Styrene Plants, Benzene Storage Vessels, Benzene Equipment Leaks, and Coke By-Product Recovery Plants (Benzene NESHAP). 54 FR 38044 (September 14, 1989).

(22) “In protecting public health with an ample margin of safety under section 112, EPA strives to provide maximum feasible protection against risks to health from hazardous air pollutants by (1) protecting the greatest number of persons possible to an individual lifetime risk level no higher than approximately 1 in 1 million and (2) limiting to no higher than approximately 1 in 10 thousand the estimated risk that a person living near a plant would have if he or she were exposed to the maximum pollutant concentrations for 70 years.” Benzene NESHAP, 54 FR 38044-5, September 14, 1989.

(23) Congress recognized as much:

“The Administrator may take the cost of achieving the maximum emission reduction and any non-air quality health and environmental impacts and energy requirements into account when determining the emissions limitation which is achievable for the sources in the category or subcategory. Cost considerations are reflected in the selection of emissions limitations which have been achieved in practice (rather than those which are merely theoretical) by sources of a similar type or character. ”

A Legislative History of the Clean Air Act Amendments of 1990 (CAA Legislative History), Vol 5, pp. 8508 -8509 (CAA Amendments of 1989; p. 168-169; Report of the Committee on Environment and Public Works S. 1630).

(24) Our proposal focuses on an analysis of the “appropriate” prong of the CAA section 112(n)(1)(A). The *Michigan* decision and subsequent EPA actions addressing that decision have been centered on supplementing the Agency’s record with a consideration of the cost of regulation as part of the “appropriate” aspect of the overall determination. As noted, the 2020 Final Action, while reversing the 2016 Supplemental Finding as to the EPA’s determination that it was “appropriate” to regulate HAP from EGUs, did not rescind the Agency’s prior determination that it was necessary to regulate. See 84 FR 2674 (February 7, 2019) (“CAA section 112(n)(1)(A) requires the EPA to determine that both the appropriate *and* necessary prongs are met. Therefore, if the EPA finds that either prong is not satisfied, it cannot make an affirmative appropriate and necessary finding. The EPA’s reexamination of its determination . . . focuses on the first prong of that analysis.”). The “necessary” determination rested on two primary bases: (1) In 2012, the EPA determined that the hazards posed to human health and the environment by HAP emissions from EGUs would not be addressed in its future year modeling, which accounted for all CAA requirements to that point; and (2) our conclusion that the only way to ensure permanent reductions in U.S. EGU emissions of HAP and the associated risks to public health and the environment was through standards set under CAA section 112. See 76 FR 25017 (May 23, 2011). We therefore continue our focus in this proposal on reinstating the “appropriate” prong of the determination, leaving undisturbed the Agency’s prior conclusions that regulation of HAP from EGUs is “necessary.” See 65 FR 79830 (December 20, 2000); 76 FR 25017 (May 3, 2011); 77 FR 9363 (February 16, 2012).

(25) The EPA was not challenged on this interpretation in *White Stallion*.

(26) U.S. EPA. 2011. *Revised Technical Support Document: National-Scale Assessment of Mercury Risk to Populations with High Consumption of Self-caught Freshwater Fish In Support of the Appropriate and Necessary Finding for Coal- and Oil-Fired Electric Generating Units*. Office of Air Quality Planning and Standards. November. EPA-452/R-11-009. Docket ID Item No. EPA-HQ-OAR-2009-0234-19913.

(27) The EPA determined the 1-in-1 million standard was the correct metric in part because CAA section 112(c)(9)(B)(1) prohibits the EPA from removing a source category from the list if even one person is exposed to a lifetime cancer risk greater than 1-in-1 million, and CAA section 112(f)(2)(A) directs the EPA to conduct a residual risk rulemaking if even one person is exposed to a lifetime excess cancer risk greater than 1-in-1 million. See *White Stallion* at 1235-36 (agreeing it was reasonable for the EPA to consider the 1-in-1 million delisting criteria in defining “hazard to public health” under CAA section 112(n)(1)(A)).

(28) The EPA had determined it was reasonable to consider environmental impacts of HAP emissions from EGUs in the appropriate determination because CAA section 112 directs the EPA to consider impacts of HAP emissions on the environment, including in the CAA section 112(n)(1)(B) Mercury Study. See *White Stallion* at 1235-36 (agreeing it was reasonable for the EPA to consider the environmental harms when making the appropriate and necessary determination).

(29) Subsistence fishers, who by definition obtain a substantial portion of their dietary needs from self-caught fish consumption, can experience elevated levels of exposure to chemicals that bioaccumulate in fish including, in particular, methylmercury. Subsistence fishing activity can be related to a number of factors including socio-economic status (poverty) and/or cultural practices, with ethnic minorities and tribal populations often displaying increased levels of self-caught fish consumption (Burger *et al.*, 2002, Shilling *et al.*, 2010, Dellinger 2004).

Burger J, (2002). *Daily consumption of wild fish and game: exposures of high end recreationalists*. International Journal of Environmental Health Research 12:4, p. 343-354.

Shilling F, White A, Lippert L, Lubell M, (2010). *Contaminated fish consumption in California's Central Valley Delta*. Environmental Research 110, p. 334-344.

Dellinger J, (2004). *Exposure assessment and initial intervention regarding fish consumption of tribal members in the Upper Great Lakes Region in the United States*. Environmental Research 95, p. 325-340.

(30) We recognize that mercury deposition over land with subsequent impacts to agricultural-sourced food may also represent a public health concern, however as noted below, primary exposure to the U.S. population is through fish consumption.

(31) In light of the methylmercury impacts, the EPA and the Food and Drug Administration have collaborated to provide advice on eating fish and shellfish as part of a healthy eating pattern (<https://www.fda.gov/food/consumers/advice-about-eating-fish>). In addition, states provide fish consumption advisories designed to protect the public from eating fish from waterbodies within the state that could harm their health based on local fish tissue sampling.

(32) National Research Council. 2000. *Toxicological Effects of Methylmercury*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/9899>.

(33) Burger J, 2002. *Daily consumption of wild fish and game: Exposures of high end recreationalists*. International Journal of Environmental Health Research 12:4, p. 343-354.

(34) U.S. EPA. 2001. *IRIS Summary for Methylmercury*. U.S. Environmental Protection Agency, Washington, DC. (USEPA, 2001).

(35) U.S. EPA. 2002. *A Review of the Reference Dose and Reference Concentration Processes*. EPA/630/P-02/002F, December 2002.

(36) The EPA chose this risk metric in part because CAA section 112(n)(1)(C) directed the NIEHS to develop a threshold for mercury concentration in fish tissue that can be consumed by even sensitive populations without adverse effect and because CAA section 112(c)(6) demonstrates a special interest in protecting the public from exposure to mercury.

(37) The 2011 MATS RfD-based risk assessment focusing on the subsistence fisher population was designed as a screening-level analysis to inform consideration for whether U.S. EGU-sourced mercury represented a public health hazard. As such, the most appropriate risk metric was modeled exposure (for highly-exposed subsistence fishers) compared to the RfD for methylmercury. By contrast, the 2011 RIA was focused on estimating the dollar benefits associated with MATS and as such focused on a health endpoint which could be readily enumerated and then monetized, which at the time was IQ for infants born to recreational anglers.

(38) Agency for Toxic Substances and Disease Registry (ATSDR). 1999. *Toxicological profile for mercury*. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

(39) https://iris.epa.gov/ChemicalLanding/&substance_nmbr=73.

(40) *Availability of the IRIS Assessment Plan for Methylmercury*. 84 FR 13286 (April 4, 2019).

(41) *Availability of the Systematic Review Protocol for the Methylmercury Integrated Risk Information System (IRIS) Assessment*. 85 FR 32037 (May 28, 2020).

- (42) Hu, X. F., Lowe, M., Chan, H.M., *Mercury exposure, cardiovascular disease, and mortality: A systematic review and dose-response meta-analysis*. Environmental Research 193 (2021),110538.
- (43) Roman HA, Walsh TL, Coull BA, Dewailly É, Guallar E, Hattis D, Mariën K, Schwartz J, Stern AH, Virtanen JK, Rice G. *Evaluation of the cardiovascular effects of methylmercury exposures: Current evidence supports development of a dose-response function for regulatory benefits analysis*. Environ Health Perspect. 2011 May;119(5):607-14. doi: 10.1289/ehp.1003012. Epub 2011 Jan 10.
- (44) Amorim MI, Mergler D, Bahia MO, Dubeau H, Miranda D, Lebel J, Burbano RR, Lucotte M. *Cytogenetic damage related to low levels of methyl mercury contamination in the Brazilian Amazon*. An Acad Bras Cienc. 2000 Dec;72(4):497-507. doi: 10.1590/s0001-37652000000400004.
- (45) International Agency for Research on Cancer (IARC) Working Group on the Evaluation of Carcinogenic Risks to Humans. *Beryllium, Cadmium, Mercury, and Exposures in the Glass Manufacturing Industry*. Lyon (FR): International Agency for Research on Cancer; 1993. (IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, No. 58.) Mercury and Mercury Compounds. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK499780>.
- (46) U.S. EPA. 2011. *Supplement to the Non-Hg Case Study Chronic Inhalation Risk Assessment In Support of the Appropriate and Necessary Finding for Coal- and Oil-Fired Electric Generating Units*. Office of Air Quality Planning and Standards. November. EPA-452/R-11-013. Docket ID Item No. EPA-HQ-OAR-2009-0234-19912.
- (47) U.S. EPA. *Integrated Science Assessment (ISA) for Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter Ecological Criteria* (Final Report). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-20/278, 2020.
- (48) Concentration-response functions relate levels of exposure for the chemical of interest to the probability or rate of response for the adverse health outcome in the exposed individual or population. Typically these mathematical relationships are based on data obtained either from human epidemiology studies, clinical studies, or toxicological (animal) studies. In this case, CR functions for MI-related mortality are based on epidemiology studies as discussed further below.
- (49) U.S. EPA. 2021. *National-Scale Mercury Risk Estimates for Cardiovascular and Neurodevelopmental Outcomes for the National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units—Revocation of the 2020 Reconsideration, and Affirmation of the Appropriate and Necessary Supplemental Finding; Notice of Proposed Rulemaking*.
- (50) Guallar E, Sanz-Gallardo MI, van't Veer P, Bode P, Aro A, Gómez-Aracena J, Kark JD, Riemersma RA, Martín-Moreno JM, Kok FJ; Heavy Metals and Myocardial Infarction Study Group. *Mercury, fish oils, and the risk of myocardial infarction*. N Engl J Med. 2002 Nov 28;347(22):1747-54. doi: 10.1056/NEJMoa020157.
- (51) Virtanen JK, Voutilainen S, Rissanen TH, Mursu J, Tuomainen TP, Korhonen MJ, Valkonen VP, Seppänen K, Laukkanen JA, Salonen JT. *Mercury, fish oils, and risk of acute coronary events and cardiovascular disease, coronary heart disease, and all-cause mortality in men in eastern Finland*. Arterioscler Thromb Vasc Biol. 2005 Jan;25(1):228-33. doi: 10.1161/01.ATV.0000150040.20950.61. Epub 2004 Nov 11.
- (52) Giang A, Selin NE. *Benefits of mercury controls for the United States*. Proc Natl Acad Sci U S A. 2016 Jan 12;113(2):286-91. doi: 10.1073/pnas.1514395113. Epub 2015 Dec 28.
- (53) Hu XF, Lowe M, Chan HM. *Mercury exposure, cardiovascular disease, and mortality: A systematic review and dose-response meta-analysis*. Environ Res. 2021 Feb;193:110538. doi: 10.1016/j.envres.2020.110538. Epub 2020 Dec 5.
- (54) Mozaffarian D, Rimm EB. *Fish intake, contaminants, and human health: Evaluating the risks and the benefits*. JAMA. 2006 Oct 18;296(15):1885-99. doi: 10.1001/jama.296.15.1885. Erratum in: JAMA. 2007 Feb 14;297(6):590.

- (55) NHANES has not continued to collect hair-mercury data in subsequent years since the NHANES dataset referenced here. While NHANES has continued with total blood-mercury monitoring, hair mercury is a better biomarker for characterizing methylmercury exposure over time. Given that the CR functions based on the KIHD study (as well as observations presented in Roman *et al.* 2011 regarding cardio-modeling) were all based on hair-mercury, this was chosen as the anchoring analytical biometric. The potential for bias due to the use of the 1999-2000 NHANES data is further discussed in the 2021 Risk TSD.
- (56) A detailed discussion of the Mercury Maps approach (establishing a proportional relationship between mercury deposition and methylmercury concentrations in fish at the watershed level) is presented in section 1.4.6.1 of the 2011 Final Mercury TSD which in turn references: *Mercury Maps—A Quantitative Spatial Link Between Air Deposition and Fish Tissue Peer Reviewed Final Report*. U.S. EPA, Office of Water, EPA-823-R-01-009, September, 2001.
- (57) Note that while the 2011 Final Mercury TSD, in utilizing an RfD-based approach reflecting neurodevelopmental effects, focused on female subsistence fishers; the analysis focused on MI-mortality risk covers all adult subsistence fishers, and we use our cutpoint bounding analysis because there is not an RfD focused specifically on cardiovascular effects for methylmercury.
- (58) Although we have used the MI-mortality CR function described in section III.A.3.a of this preamble to generate mortality incidence estimates for the general fish consuming population (see section III.A.3.c), this is not possible for subsistence fishers since we are not able at this point to enumerate them. Consequently, we use the confidence cutpoints associated with that CR function to identify exposures associated with MI mortality risk as described here.
- (59) Although the analysis presented here focuses on methylmercury exposure associated with fish consumption which, as noted earlier, is the primary source of methylmercury exposure for the U.S. population, EGU mercury deposited to land can also impact other food sources including those associated with agricultural production (e.g., rice). In the context of fish consumption, commercially-sourced fish refers to fish consumed in restaurants or from food stores.
- (60) Another way of stating this is that the lower-bound estimate reflects an assumption that U.S. EGU mercury is diluted as part of a global pool and impacts commercial fish sourced from across the globe (with lower levels of methylmercury contribution) while the upper-bound estimate reflects a focus on more near-field regional impacts by U.S. EGU mercury to fish sourced either within the continental U.S. or along its coastline (with greater relative contribution to methylmercury levels).
- (61) Inclusion of 95th percentile confidence intervals for the effect estimate used in modeling MI mortality extends this range to from 3 to 143 deaths (reflecting the 5th percentile associated with the 5 lower bound estimate to the 95th percentile for the upper bound estimate of 91).
- (62) Inclusion of 95th percentile confidence intervals for the effect estimate used in modeling this endpoint extends this range to from 80 to 12,600 IQ points lost (reflecting the 5th and 95th percentiles).
- (63) Maternal exposure (and hence IQ impacts to children) from U.S. EGU-sourced mercury can display considerable variation due to (a) spatial patterns of U.S. EGU mercury fate and transport (including deposition and methylation) which affects impacts on fish methylmercury and (b) variations in fish consumption by mothers (including differences in daily intake, types of fish consumed and geographical origins of that fish).
- (64) U.S. EPA Office of Air and Radiation, April 2011. *The Benefits and Costs of the Clean Air Act from 1990 to 2020*, Final Report—Rev. A. Available at https://www.epa.gov/sites/production/files/2015-07/documents/fullreport_rev_a.pdf.
- (65) U.S. EPA Advisory Council on Clean Air Act Compliance Analysis, Review of the Benzene Air Toxics Health Benefits Case Study. July 11, 2008. Available at <https://nepis.epa.gov/Exe/ZyPDF.cgi/P1000ZYP.PDF?Dockey=P1000ZYP.PDF>.
- (66) Jones-Lee, M.W. *Paternalistic Altruism and the Value of Statistical Life*. The Economic Journal, vol. 102, no. 410, 1992, pp. 80-90.

(67) Cropper M., Krupnick A., and W. Raich, *Preferences for Equality in Environmental Outcomes*, Working Paper 22644 <http://www.nber.org/papers/w22644> National Bureau of Economic Research, September 2016.

(68) Bell, Michelle L., and Keita Ebisu. *Environmental inequality in exposures to airborne particulate matter components in the United States*. *Environmental Health Perspectives* 120.12 (2012): 1699-1704.

(69) Note that the RfD-based analysis described in the 2011 Final Mercury TSD and referenced here addressed the potential for neurodevelopmental effects in children and therefore focused on the ingestion of methylmercury by female subsistence fishers. By contrast, the analysis focusing on increased MI-mortality risk for subsistence fishers described in the 2021 Risk TSD and referenced here was broader in scope and encompassed all adult subsistence fishers.

(70) Recognizing challenges in obtaining high-end consumption rates for tribal populations active in areas of high U.S. EGU impact (e.g., Ohio River valley, areas of the central Southeast such as northern Georgia, northern South Carolina, North Carolina and Tennessee) there is the potential for our analysis of tribal-associated risk to have missed areas of elevated U.S. EGU-sourced mercury exposure and risk. In that case, estimates simulated for other subsistence populations active in those areas (e.g., low-income whites and Blacks in the Southeast as reported here and in Table 3 of the 2021 Risk TSD) could be representative of the ranges of risk experienced by tribal populations to the extent that cultural practices result in similar levels of increased fish consumption.

(71) U.S. EPA. *Integrated Science Assessment for Sulfur Oxides—Health Criteria* (Final Report). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-17-451, December 2017.

(72) See https://19january2017snapshot.epa.gov/climatechange/social-cost-carbon_.html: “EPA and other federal agencies use estimates of the social cost of carbon (SC-CO₂) to value the climate impacts of rulemakings. The SC-CO₂ is a measure, in dollars, of the long-term damage done by a ton of carbon dioxide (CO₂) emissions in a given year. This dollar figure also represents the value of damages avoided for a small emission reduction (i.e., the benefit of a CO₂ reduction). The SC-CO₂ is meant to be a comprehensive estimate of climate change damages and includes changes in net agricultural productivity, human health, property damages from increased flood risk, and changes in energy system costs, such as reduced costs for heating and increased costs for air conditioning. However, given current modeling and data limitations, it does not include all important damages.”

(73) All costs were reported in 2007 dollars.

(74) IPM, developed by ICF International, is a state-of-the-art, peer-reviewed, dynamic, deterministic linear programming model of the contiguous U.S. electric power sector. IPM provides forecasts of least-cost capacity expansion, electricity dispatch, and emission control strategies while meeting electricity demand and various environmental, transmission, dispatch, and reliability constraints. The EPA has used IPM for over 2 decades to understand power sector behavior under future business-as-usual conditions and to evaluate the economic and emission impacts of prospective environmental policies.

(75) In 2009, coal-fired generation was by far the most important source of utility scale generation, providing more power than the next two sources (natural gas and nuclear) combined. By 2016, natural gas had passed coal-fired generation as the leading source of generation in the U.S. While natural gas-fired generation, nuclear generation and renewable generation have all increased since 2009, coal-fired generation has significantly declined.

(76) Affected sources were required to be in compliance with the requirements in MATS within 3 years after the effective date of the rule (i.e., by April 2015). However, sources were allowed to request an additional year to comply with the rule and the vast majority of sources were required to be in compliance with the rule's requirements by April 2016. We therefore think 2017 is a reasonable year in which to analyze installed controls on the EGU fleet.

(77) Kopits, E., A. McGartland, C. Morgan, C. Pasurka, R. Shadbegian, N. B. Simon, D. Simpson and A. Wolverton (2015). *Retrospective cost analyses of EPA regulations: a case study approach*. *Journal of Benefit-Cost Analysis* 5(2): 173-193.

(78) Linn, J. and K. McCormack (2019). *The Roles of Energy Markets and Environmental Regulation in Reducing Coal-Fired Plant Profits and Electricity* *RAND Journal of Economics* 50: 733-767.

(79) Coglianesi, J., et al. (2020). *The Effects of Fuel Prices, Environmental Regulations, and Other Factors on U.S. Coal Production, 2008-2016*. *The Energy Journal* 41(1): 55-82.

(80) 85 FR 53516 (August 28, 2020), 80 FR 67838 (November 3, 2015), and 85 FR 64650 (October 13, 2020), respectively.

(81) Declaration of James E. Staudt, Ph.D., CFA, at 3, *White Stallion Energy Center v. EPA*, No. 12-1100 (DC Cir., December 24, 2015). Also available at Docket ID Item No. EPA-HQ-OAR-2009-0234-20549.

(82) In addition to the 2015 study, Andover Technology Partners produced two other analyses in 2017 and 2019, respectively, that estimated the ongoing costs of MATS. The 2017 report estimated that the total annual operating cost for MATS-related environmental controls was about \$620 million, an estimate that does not include ongoing payments for installed environmental capital. The 2019 report estimates the total annual ongoing incremental costs of MATS to be about \$200 million; again, this estimate does not include ongoing MATS-related capital payment. The 2017 report is available in Docket ID Item No. EPA-HQ-OAR-2018-0794-0794. The 2019 report is available in Docket ID Item No. EPA-HQ-OAR-2018-0794-1175.

(83) Available in Docket ID Item No. EPA-HQ-OAR-2018-0794-1145.

(84) Available in Docket ID Item No. EPA-HQ-OAR-2018-0794-2267.

(85) U.S. EPA. 2021. *Supplemental Data and Analysis for the National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units—Revocation of the 2020 Reconsideration, and Affirmation of the Appropriate and Necessary Supplemental Finding; Notice of Proposed Rulemaking (“Cost TSD”)*.

(86) We projected that regulation of coal- and oil-fired EGUs under MATS would induce units to switch to natural gas, which in turn would increase the price of natural gas and the cost of those expenditures.

(87) *U.S. Crude Oil and Natural Gas Proved Reserves, Year-end 2019* (Table 9: U.S. proved reserves of natural gas). EIA, January 11, 2021 release available at <https://www.eia.gov/naturalgas/crudeoilreserves>. Accessed July 23, 2021.

(88) *Monthly Energy Review*, EIA (June 24, 2021) and *Today in Energy* (“U.S. total energy exports exceed imports in 2019 for the first time in 67 years”), EIA (April 20, 2020) available at <https://www.eia.gov/todayinenergy/detail.php?id=43395>. Accessed July 23, 2021.

(89) BP, *Statistical Review of World Energy 2021* available at <https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy.html>. Accessed July 23, 2021.

(90) Table 4.3, *Monthly Energy Review*, EIA, April 2021, available at <https://www.eia.gov/totalenergy/data/monthly/archive/00352104.pdf>.

(91) EIA, Electricity Data Browser, Net generation, United States, all sectors, annual, available at <https://www.eia.gov/electricity/data/browser/>.

(92) See <https://www.epa.gov/airmarkets/ipm-analysis-proposed-mercury-and-air-toxics-standards-mats>. Accessed July 23, 2021.

(93) See <https://www.epa.gov/airmarkets/documentation-supplement-base-case-v410mats>. Accessed July 23, 2021.

(94) *Id.*

(95) See https://www.epa.gov/sites/default/files/2019-03/documents/chapter_5.pdf. Accessed July 23, 2021.

(96) While we are unable to quantify precisely the impact that updating this assumption would have on the projected compliance costs, we can observe that most incremental DSI capacity (about 40 GW) would not require DSI controls in the 2011 RIA modeling, holding all else constant.

- (97) See https://www.epa.gov/sites/production/files/2015-07/documents/updates_to_epa_base_case_v4.10_ptox.pdf. Accessed July 23, 2021.
- (98) See *Dry Sorbent Injection Cost Development Methodology* at https://www.epa.gov/sites/production/files/2015-07/documents/append5_4.pdf. Accessed July 23, 2021.
- (99) See <https://www.epa.gov/airmarkets/documentation-epa-platform-v6-november-2018-reference-case-chapter-5-emission-control>. Accessed July 23, 2021.
- (100) See *Dry Sorbent Injection for SO₂/HCl Control Cost Development Methodology* at https://www.epa.gov/sites/production/files/2018-05/documents/attachment_5-5_dsi_cost_development_methodology.pdf. Accessed July 23, 2021.
- (101) Based on a 500 MW plant with a heat rate of 9,500 Btu/kWh burning bituminous coal.
- (102) *Analysis of PM and Hg Emissions and Controls from Coal-Fired Power Plants*. Andover Technology Partners (August 19, 2021), available in the rulemaking docket.
- (103) As discussed above, although we attributed all controls of these types to MATS in this analysis, even those controls that were installed were likely due in part or in whole for reasons other than MATS.
- (104) For example, the sales test is often used by the EPA when evaluating potential economic impacts of regulatory actions on small entities. In the context of a small entity analysis, an evaluation of the change in profits to owners is likely the best approach to assessing the economic burden to owners from a regulatory action. Data limitations prevent solely analyzing profit changes to EGU owners as a result of MATS in this proposal.
- (105) The EPA generally uses the term “reliability” to refer to the ability to deliver the resources to the projected electricity loads so the overall power grid remains stable, and the term “resource adequacy” generally refers to the provision of adequate generating resources to meet projected load and generating reserve requirements in each region.
- (106) U.S. EPA. 2011. *Resource Adequacy and Reliability in the Integrated Planning Model Projections for the MATS Rule* (Resource Adequacy and Reliability TSD), http://www3.epa.gov/ttn/atw/utility/revised_resource_adequacy_tsd.pdf, Docket ID Item No. EPA-HQ-OAR-2009-0234-19997.
- (107) U.S. EPA. 2011. *The Environmental Protection Agency's Enforcement Response Policy For Use of Clean Air Act Section 113(a) Administrative Orders In Relation To Electric Reliability And The Mercury and Air Toxics Standard*, <https://www.epa.gov/sites/default/files/documents/mats-erp.pdf>, Docket ID Item No. EPA-HQ-OAR-2009-0234-20577.
- (108) <https://www.epa.gov/enforcement/enforcement-response-policy-mercury-and-air-toxics-standard-mats>.
- (109) See, e.g., 65 FR 79829-30 (December 20, 2000); 76 FR 24983-85, 24993-97, 24999-25001, 25003-14, 25015-19 (May 3, 2011).
- (110) CAA section 112(n)(1)(B) also directs the EPA to study available technologies for controlling mercury and the cost of such controls, and we consider those in our assessment of cost.
- (111) The statute directed the EPA to complete all three CAA section 112(n)(1) studies within 4 years of the 1990 Amendments, expressing a sense of urgency with regard to HAP emissions from EGUs on par with addressing HAP emissions from other stationary sources. See CAA section 112(e) (establishing schedules for setting standards on listed source categories as expeditiously as practicable, but no later than between 2-10 years).
- (112) Unquantified effects include additional neurodevelopmental and cardiovascular effects from exposure to methylmercury, ecosystem effects, health risks from exposure to non-mercury HAP, and effects in EJ relevant subpopulations that face disproportionately high risks.
- (113) The NAS Study had also highlighted this population as one of particular concern due to the regular and frequent consumption of relatively large quantities of fish. See 65 FR 79830 (December 20, 2000).

(114) U.S. EPA Clean Air Markets Div., 2011, *National Acid Precipitation Assessment Program Report to Congress 2011: An Integrated Assessment*, National Science and Technology Council, Washington, DC.

(115) This estimate of premature mortality is for the EGU sector after imposition of the ARP and other CAA requirements, but before MATS implementation.

(116) See, e.g., Comment Letter from Edison Electric Institute, Docket ID Item No. EPA-HQ-OAR-2018-0794-2267; Comment Letter from Edison Electric Institute, NRECA, American Public Power Association, The Clean Energy Group, Class of '85 Regulatory Response Group, Large Public Power Council, Global Energy Institute, International Brotherhood of Electrical Workers, International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers & Helpers, and the Laborers' International Union of North America, Docket ID Item No. EPA-HQ-OAR-2018-0794-0577.

(117) See, e.g., Comment Letter from Attorneys General of Massachusetts, California, Connecticut, Delaware, Illinois, Iowa, Maine, Maryland, Michigan, Minnesota, Nevada, New Jersey, New Mexico, New York, North Carolina, Oregon, Rhode Island, Vermont, Virginia, Washington, and the District of Columbia, the Maryland Department of the Environment, the City Solicitor of Baltimore, the Corporation Counsels of Chicago and New York City, the County Attorney of the County of Erie, NY, and the County Counsel for the County of Santa Clara, CA, Docket ID Item No. EPA-HQ-OAR-2018-0794-1175.

(118) See, e.g., Comment Letter from ADA Carbon Solutions, LLC, Docket ID Item No. EPA-HQ-OAR-2018-0794-0794; Comment Letter from Advanced Emissions Solutions, Inc., Docket ID Item No. EPA-HQ-OAR-2018-0794-1181; Comment Letter from Exelon Corporation, Docket ID Item No. EPA-HQ-OAR-2018-0794-1158.

(119) We use the term “formal benefit-cost analysis” to refer to an economic analysis that attempts to quantify all significant consequences of an action in monetary terms in order to determine whether an action increases economic efficiency. Assuming that all consequences can be monetized, actions with positive net benefits (i.e., benefits exceed costs) improve economic efficiency.

(120) U.S. EPA. *Integrated Science Assessment (ISA) for Particulate Matter* (Final Report, Dec 2019). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-19/188, 2019.

(121) U.S. EPA. *Integrated Science Assessment (ISA) for Ozone and Related Photochemical Oxidants* (Final Report, Apr 2020). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-20/012, 2020.

(122) U.S. EPA. 2014. *Guidelines for Preparing Economic Analyses*. EPA-240-R-10-001. National Center for Environmental Economics, Office of Policy. Washington, DC. December. Available at <https://www.epa.gov/environmental-economics/guidelines-preparing-economic-analyses>, accessed July 23, 2021. Docket ID Item No. EPA-HQ-OAR-2009-0234-20503.

(123) U.S. OMB. 2003. *Circular A-4 Guidance to Federal Agencies on Preparation of Regulatory Analysis*. Available at <https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/circulars/A4/a-4.pdf>, accessed July 23, 2021.

(124) In addition, CAA section 112(n)(1)(A) directs the EPA to evaluate the hazards to public health from EGU HAP emissions that a reasonably anticipated “after imposition of the other requirements of the [CAA].” The direction to consider the impacts of non-CAA section 112 requirements on HAP emissions from EGUs demonstrates that Congress understood that criteria pollutant controls would achieve HAP reductions. Given this understanding, it is reasonable for the EPA to consider the consequent criteria pollutant reductions attributable to CAA section 112 standards if a BCA is used to evaluate cost in the context of the appropriate finding. Furthermore, CAA section 112 legislative history not specifically directed at EGUs also supports the consideration of criteria pollutant benefits attributable to the regulation of HAP emissions. Specifically, the Senate report for the 1990 CAA amendments states: “When establishing technology-based [MACT] standards under this subsection, the Administrator may consider the benefits which result from control of air pollutants that are not listed but the emissions of which are, nevertheless, reduced by control technologies or practices necessary to meet the prescribed limitation.” A Legislative History of the Clean Air Act Amendments of 1990 (CAA Legislative History), Vol. 5, pp. 8512 (CAA Amendments of 1989; p. 172; Report of the Committee on Environment and Public Works S. 1630).



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32,829

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2022-02343

CFR

40 CFR Part 63

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Federal Register for Wednesday, February 09, 2022 (87 FR 7624) (FRL-6716.2-01-OAR)

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EPA Restores California's Authority to Enforce Greenhouse Gas Emission Standards for Cars and Light Trucks

March 9, 2022

Contact Information

EPA Press Office (press@epa.gov)

WASHINGTON (March 9, 2022) – Today, EPA reinstated California's authority under the Clean Air Act to implement its own greenhouse gas (GHG) emission standards and zero emission vehicle (ZEV) sales mandate. This action concludes the agency's reconsideration of 2019's Safer Affordable Fuel-Efficient Vehicles Rule Part One: One National Program Rule (SAFE-1) by finding that the actions taken under the previous administration as a part of SAFE-1 were decided in error and are now entirely rescinded.

"Today we proudly reaffirm California's longstanding authority to lead in addressing pollution from cars and trucks," **said EPA Administrator Michael S. Regan**. "Our partnership with states to confront the climate crisis has never been more important. With today's action, we reinstate an approach that for years has helped advance clean technologies and cut air pollution for people not just in California, but for the U.S. as a whole."

With today's action, EPA is also withdrawing the SAFE-1 interpretation of the Clean Air Act that would prohibit other states from adopting the California GHG emission standards. As a result, other states may choose to adopt and enforce California's GHG emission standards in lieu of the Federal standards, consistent with section 177 of the Clean Air Act.

For more information on today's action click here <<https://epa.gov/regulations-emissions-vehicles-and-engines/notice-decision-reconsideration-previous-withdrawal>>.

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Docket (EPA-HQ-OA-2022-0050) (/docket/EPA-HQ-OA-2022-0050) / Document

Comment Period Ends: **Today**



White House Environmental Justice Advisory Council; Notification of Virtual Public Meeting

Posted by the **Environmental Protection Agency** on Mar 11, 2022

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Content

Action

Notification for a public meeting.

Summary

Pursuant to the Federal Advisory Committee Act (FACA), the U.S. Environmental Protection Agency (EPA) hereby provides notice that the White House Environmental Justice Advisory Council (WHEJAC) will meet on the dates and times described below. The meeting is open to the public. Members of the public are encouraged to provide comments relevant to the beta version of the Climate and Economic Justice Screening Tool that was developed by the Council on Environmental Quality (CEQ) and comments relevant to federal government agencies' implementation of the Justice40 Initiative. For additional information about registering to attend the meetings or to provide public comment, please see “ *Registration* ” under SUPPLEMENTARY INFORMATION . Pre-registration is required.

Dates

The WHEJAC will hold a virtual public meeting on Wednesday, March 30, 2022, and Thursday, March 31, 2022, from approximately 3:00 p.m.-7:00 p.m., Eastern Time each day. A public comment period relevant to the beta version of the Climate and Economic Justice Screening Tool and federal government agencies' implementation of the Justice40 Initiative will be considered by the WHEJAC during the meeting on March 30, 2022. (see SUPPLEMENTARY INFORMATION). Members of the public who wish to participate during the public comment period must pre-register by 11:59 p.m., Eastern Time, March 23, 2022.

For Further Information Contact

Karen L. Martin, WHEJAC Designated Federal Officer, U.S. EPA; email: whejac@epa.gov; telephone: (202) 564-0203. Additional information about the WHEJAC is available at <https://www.epa.gov/environmentaljustice/white-house-environmental-justice-advisory-council>.

Supplementary Information

The meeting discussion will focus on the beta version of the Climate and Economic Justice Screening Tool developed by the CEQ and WHEJAC draft recommendations on the implementation of the Justice40 Initiative. These two charges were established through Executive Order 14008, “Tackling the Climate Crisis at Home and Abroad.”

The Charter of the WHEJAC states that the advisory committee will provide independent advice and recommendations to the Chair of the CEQ and to the White House Environmental Justice Interagency Council (IAC). The WHEJAC will provide advice and recommendations about broad cross-cutting issues, related but not limited to, issues of environmental justice and pollution reduction, energy, climate change mitigation and resiliency, environmental health, and racial inequity. The WHEJAC's efforts will include a broad range of strategic, scientific, technological, regulatory, community engagement, and economic issues related to environmental justice.

Registration: Individual registration is required for the virtual public meeting. Information on how to register is located at <https://www.epa.gov/environmentaljustice/white-house-environmental-justice-advisory-council>. Registration for the meeting is available through the scheduled end time of the meeting. Registration to speak during the public comment period will close 11:59 p.m., Eastern Time, on March 23, 2022. When registering, please provide your name, organization, city and state, and email address for follow up. Please also indicate whether you would like to provide public comment during the meeting, and whether you are submitting written comments at the time of registration.

A. Public Comment

The WHEJAC is interested in receiving public comments relevant to the beta version of the Climate and Economic Justice Screening Tool that was developed by the CEQ and federal government agencies' implementation of the Justice40 Initiative. Every effort will be made to hear from as many registered public commenters during the time specified on the agenda. Individuals or groups providing remarks during the public comment period will be limited to three (3) minutes. Please be prepared to briefly describe your comments and recommendations on what you want the WHEJAC to advise CEQ and IAC to do regarding the beta version of the Climate and Economic Justice Screening Tool and federal government agencies' implementation of the Justice40 Initiative. Submitting written comments for the record are strongly encouraged. You can submit your written comments in three different ways, 1. by creating comments in the Docket ID No. EPA-HQ-OA-2022-0050 at <http://www.regulations.gov>, 2. by using the webform at <https://www.epa.gov/environmentaljustice/white-house-environmental-justice-advisory-council#whejacmeeting>, and 3. by sending comments via email to wheja@epa.gov. Written comments can be submitted through April 14, 2022.

B. Information About Services for Individuals With Disabilities or Requiring English Language Translation Assistance

For information about access or services for individuals requiring assistance, please contact Karen L. Martin, via email at whejac@epa.gov or contact by phone at (202) 564-0203. To request special accommodations for a disability or other assistance, please submit your request at least seven (7) working days prior to the meeting, to give EPA sufficient time to process your request. All requests should be sent to the email listed in the FOR FURTHER INFORMATION CONTACT section.

Matthew Tejada,
 Director for the Office of Environmental Justice.
 [FR Doc. 2022-05180 Filed 3-10-22; 8:45 am]
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Apr 14, 2022

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2022-05180

Abstract

Federal Register for Friday, March 11, 2022 (87 FR 14003) [FRL-9647-01-OA]

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BRIEFING ROOM

Executive Order on Climate-Related Financial Risk

MAY 20, 2021 • PRESIDENTIAL ACTIONS

By the authority vested in me as President by the Constitution and the laws of the United States of America, it is hereby ordered as follows:

Section 1. Policy. The intensifying impacts of climate change present physical risk to assets, publicly traded securities, private investments, and companies — such as increased extreme weather risk leading to supply chain disruptions. In addition, the global shift away from carbon-intensive energy sources and industrial processes presents transition risk to many companies, communities, and workers. At the same time, this global shift presents generational opportunities to enhance U.S. competitiveness and economic growth, while also creating well-paying job opportunities for workers. The failure of financial institutions to appropriately and adequately account for and measure these physical and transition risks threatens the competitiveness of U.S. companies and markets, the life savings and pensions of U.S. workers and families, and the ability of U.S. financial institutions to serve communities. In this effort, the Federal Government should lead by example by appropriately prioritizing Federal investments and conducting prudent fiscal management.

It is therefore the policy of my Administration to advance consistent, clear, intelligible, comparable, and accurate disclosure of climate-related financial risk (consistent with Executive Order 13707 of September 15, 2015 (Using Behavioral Science Insights to Better Serve the American People)), including both physical and transition risks; act to mitigate that risk and its drivers, while accounting for and addressing disparate impacts on disadvantaged communities and communities of color (consistent with Executive Order 13985 of January 20, 2021 (Advancing Racial Equity and Support for Underserved Communities Through the Federal Government)) and spurring the creation of well-paying jobs; and achieve our target of a net-zero emissions economy by no later than 2050. This policy will marshal the creativity, courage, and capital of the United States necessary to bolster the resilience of our rural and urban communities, States, Tribes, territories, and financial institutions in the face of the climate crisis, rather than exacerbate its causes, and position the United States to lead the global economy to a more prosperous and sustainable future.

Sec. 2. Climate-Related Financial Risk Strategy. The Assistant to the President for Economic Policy and Director of the National Economic Council (Director of the National Economic Council) and the Assistant to the President and National Climate Advisor (National Climate Advisor), in coordination with the Secretary of the Treasury and the Director of the Office of Management and Budget (OMB), shall develop, within 120 days of the date of this order, a comprehensive, Government-wide strategy regarding:

(a) the measurement, assessment, mitigation, and disclosure of climate-related financial risk to Federal Government programs, assets, and liabilities in order to increase the long-term stability of Federal operations;

(b) financing needs associated with achieving net-zero greenhouse gas emissions for the U.S. economy by no later than 2050, limiting global average temperature rise to 1.5 degrees Celsius, and adapting to the acute and chronic impacts of climate change; and

(c) areas in which private and public investments can play complementary roles in meeting these financing needs – while advancing economic opportunity, worker empowerment, and environmental mitigation, especially in disadvantaged communities and communities of color.

Sec. 3. Assessment of Climate-Related Financial Risk by Financial Regulators. In furtherance of the policy set forth in section 1 of this order and consistent with applicable law and subject to the availability of appropriations:

(a) The Secretary of the Treasury, as the Chair of the Financial Stability Oversight Council (FSOC), shall engage with FSOC members to consider the following actions by the FSOC:

(i) assessing, in a detailed and comprehensive manner, the climate-related financial risk, including both physical and transition risks, to the financial stability of the Federal Government and the stability of the U.S. financial system;

(ii) facilitating the sharing of climate-related financial risk data and information among FSOC member agencies and other executive departments and agencies (agencies) as appropriate;

(iii) issuing a report to the President within 180 days of the date of this order on any efforts by FSOC member agencies to integrate consideration of climate-related financial risk in their policies and programs, including a discussion of:

(A) the necessity of any actions to enhance climate-related disclosures by regulated entities to mitigate climate-related financial risk to the financial system or assets and a recommended implementation plan for taking those actions;

(B) any current approaches to incorporating the consideration of climate-related financial risk into their respective regulatory and supervisory activities and any impediments they faced in adopting those approaches;

(C) recommended processes to identify climate-related financial risk to the financial stability of the United States; and

(D) any other recommendations on how identified climate-related financial risk can be mitigated, including through new or revised regulatory standards as appropriate; and

(iv) including an assessment of climate-related financial risk in the FSOC's annual report to the Congress.

(b) The Secretary of the Treasury shall:

(i) direct the Federal Insurance Office to assess climate-related issues or gaps in the supervision and regulation of insurers, including as part of the FSOC's analysis of financial stability, and to further assess, in consultation with States, the potential for major disruptions of private insurance coverage in regions of the country particularly vulnerable to climate change impacts; and

(ii) direct the Office of Financial Research to assist the Secretary of the Treasury and the FSOC in assessing and identifying climate-related financial risk to financial stability, including the collection of data, as appropriate, and the development of research on climate-related financial risk to the U.S. financial system.

Sec. 4. Resilience of Life Savings and Pensions. In furtherance of the policy set forth in section 1 of this order and consistent with applicable law and subject to the availability of appropriations, the Secretary of Labor shall:

(a) identify agency actions that can be taken under the Employee Retirement Income Security Act of 1974 (Public Law 93-406), the Federal Employees' Retirement System Act of 1986 (Public Law 99-335), and any other relevant laws to protect the life savings and pensions of United States workers and families from the threats of climate-related financial risk;

(b) consider publishing, by September 2021, for notice and comment a proposed rule to suspend, revise, or rescind "Financial Factors in Selecting Plan Investments," 85 Fed. Reg. 72846 (November 13, 2020), and "Fiduciary Duties Regarding Proxy Voting and Shareholder Rights," 85 Fed. Reg. 81658 (December 16, 2020);

(c) assess – consistent with the Secretary of Labor's oversight responsibilities under the Federal Employees' Retirement System Act of 1986 and in consultation with the Director of the National Economic Council and the National Climate Advisor – how the Federal Retirement Thrift Investment Board has taken environmental, social, and governance factors, including climate-related financial risk, into account; and

(d) within 180 days of the date of this order, submit to the President, through the Director of the National Economic Council and the National Climate Advisor, a report on the actions taken pursuant to subsections (a), (b), and (c) of this section.

Sec. 5. Federal Lending, Underwriting, and Procurement. In furtherance of the policy set forth in section 1 of this order and consistent with applicable law and subject to the availability of appropriations:

(a) The Director of OMB and the Director of the National Economic Council, in consultation with the Secretary of the Treasury, shall develop recommendations for the National Climate Task Force on approaches related to the integration of climate-related financial risk into Federal financial management and financial reporting, especially as that risk relates to Federal lending programs. The recommendations should evaluate options to enhance accounting standards for Federal financial reporting where appropriate and should identify any opportunities to further encourage market adoption of such standards.

(b) The Federal Acquisition Regulatory Council, in consultation with the Chair of the Council on Environmental Quality and the heads of other agencies as appropriate, shall consider amending the Federal Acquisition Regulation (FAR) to:

(i) require major Federal suppliers to publicly disclose greenhouse gas emissions and climate-related financial risk and to set science-based reduction targets; and

(ii) ensure that major Federal agency procurements minimize the risk of climate change, including requiring the social cost of greenhouse gas emissions to be considered in procurement decisions and, where appropriate and feasible, give preference to bids and proposals from suppliers with a lower social cost of greenhouse gas emissions.

(c) The Secretary of Agriculture, the Secretary of Housing and Urban Development, and the Secretary of Veterans Affairs shall consider approaches to better integrate climate-related financial risk into underwriting standards, loan terms and conditions, and asset management and servicing procedures, as related to their Federal lending policies and programs.

(d) As part of the agency Climate Action Plans required by section 211 of Executive Order 14008 of January 27, 2021 (Tackling the Climate Crisis at Home and Abroad), and consistent with the interim instructions for the Climate Action Plans issued by the Federal Chief Sustainability Officer, heads of agencies must submit to the Director of OMB, the National Climate Task Force, and the Federal Chief Sustainability Officer actions to integrate climate-related financial risk into their respective agency's procurement process (subject to any changes to the FAR arising out of the Federal Acquisition Regulatory Council's review pursuant to subsection (b) of this section). The Director of OMB and the Federal Chief Sustainability Officer shall provide guidance to agencies on existing voluntary standards for use in agencies' plans.

(e) In Executive Order 13690 of January 30, 2015 (Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input), a Federal Flood Risk Management Standard (FFRMS) was established to address current and future flood risk and ensure that projects funded with taxpayer dollars last as long as intended. Subsequently, the order was revoked by Executive Order 13807 of August 15, 2017 (Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects). Executive Order 13690 is hereby reinstated, thereby reestablishing the FFRMS. The "Guidelines for Implementing Executive Order 11988,

Floodplain Management, and Executive Order 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input” of October 8, 2015, were never revoked and thus remain in effect.

Sec. 6. Long-Term Budget Outlook. The Federal Government has broad exposure to increased costs and lost revenue as a result of the impacts of unmitigated climate change. In furtherance of the policy set forth in section 1 of this order and consistent with applicable law and subject to the availability of appropriations:

(a) The Director of OMB, in consultation with the Secretary of the Treasury, the Chair of the Council of Economic Advisers, the Director of the National Economic Council, and the National Climate Advisor, shall identify the primary sources of Federal climate-related financial risk exposure and develop methodologies to quantify climate risk within the economic assumptions and the long-term budget projections of the President’s Budget;

(b) The Director of OMB and the Chair of the Council of Economic Advisers, in consultation with the Director of the National Economic Council, the National Climate Advisor, and the heads of other agencies as appropriate, shall develop and publish annually, within the President’s Budget, an assessment of the Federal Government’s climate risk exposure; and

(c) The Director of OMB shall improve the accounting of climate-related Federal expenditures, where appropriate, and reduce the Federal Government’s long-term fiscal exposure to climate-related financial risk through formulation of the President’s Budget and oversight of budget execution.

Sec. 7. General Provisions. (a) Nothing in this order shall be construed to impair or otherwise affect:

(i) the authority granted by law to an executive department or agency, or the head thereof; or

(ii) the functions of the Director of the Office of Management and Budget relating to budgetary, administrative, or legislative proposals.

(b) This order shall be implemented consistent with applicable law and subject to the availability of appropriations.

(c) This order is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or in equity by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.

JOSEPH R. BIDEN JR.

THE WHITE HOUSE,
May 20, 2021.

BRIEFING ROOM

Executive Order on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis

JANUARY 20, 2021 • PRESIDENTIAL ACTIONS

By the authority vested in me as President by the Constitution and the laws of the United States of America, it is hereby ordered as follows:

Section 1. Policy. Our Nation has an abiding commitment to empower our workers and communities; promote and protect our public health and the environment; and conserve our national treasures and monuments, places that secure our national memory. Where the Federal Government has failed to meet that commitment in the past, it must advance environmental justice. In carrying out this charge, the Federal Government must be guided by the best science and be protected by processes that ensure the integrity of Federal decision-making. It is, therefore, the policy of my Administration to listen to the science; to improve public health and protect our environment; to ensure access to clean air and water; to limit exposure to dangerous chemicals and pesticides; to hold polluters accountable, including those who disproportionately harm communities of color and low-income communities; to reduce greenhouse gas emissions; to bolster resilience to the impacts of climate change; to restore and expand our national treasures and monuments; and to prioritize both environmental justice and the creation of the well-paying union jobs necessary to deliver on these goals.

To that end, this order directs all executive departments and agencies (agencies) to immediately review and, as appropriate and consistent with applicable law, take action to address the promulgation of Federal regulations and other actions during the last 4 years that conflict with these important national objectives, and to immediately commence work to confront the climate crisis.

Sec. 2. Immediate Review of Agency Actions Taken Between January 20, 2017, and January 20, 2021. (a) The heads of all agencies shall immediately review all existing regulations, orders, guidance documents, policies, and any other similar agency actions (agency actions) promulgated, issued, or adopted between January 20, 2017, and January 20, 2021, that are or may be inconsistent with, or present obstacles to, the policy set forth in

section 1 of this order. For any such actions identified by the agencies, the heads of agencies shall, as appropriate and consistent with applicable law, consider suspending, revising, or rescinding the agency actions. In addition, for the agency actions in the 4 categories set forth in subsections (i) through (iv) of this section, the head of the relevant agency, as appropriate and consistent with applicable law, shall consider publishing for notice and comment a proposed rule suspending, revising, or rescinding the agency action within the time frame specified.

(i) Reducing Methane Emissions in the Oil and Gas Sector: “Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources Reconsideration,” 85 Fed. Reg. 57398 (September 15, 2020), by September 2021.

(ii) Establishing Ambitious, Job-Creating Fuel Economy Standards: “The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program,” 84 Fed. Reg. 51310 (September 27, 2019), by April 2021; and “The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks,” 85 Fed. Reg. 24174 (April 30, 2020), by July 2021. In considering whether to propose suspending, revising, or rescinding the latter rule, the agency should consider the views of representatives from labor unions, States, and industry.

(iii) Job-Creating Appliance- and Building-Efficiency Standards: “Energy Conservation Program for Appliance Standards: Procedures for Use in New or Revised Energy Conservation Standards and Test Procedures for Consumer Products and Commercial/Industrial Equipment,” 85 Fed. Reg. 8626 (February 14, 2020), with major revisions proposed by March 2021 and any remaining revisions proposed by June 2021; “Energy Conservation Program for Appliance Standards: Procedures for Evaluating Statutory Factors for Use in New or Revised Energy Conservation Standards,” 85 Fed. Reg. 50937 (August 19, 2020), with major revisions proposed by March 2021 and any remaining revisions proposed by June 2021; “Final Determination Regarding Energy Efficiency Improvements in the 2018 International Energy Conservation Code (IECC),” 84 Fed. Reg. 67435 (December 10, 2019), by May 2021; “Final Determination Regarding Energy Efficiency Improvements in ANSI/ASHRAE/IES Standard 90.1-2016: Energy Standard for Buildings, Except Low-Rise Residential Buildings,” 83 Fed. Reg. 8463 (February 27, 2018), by May 2021.

(iv) Protecting Our Air from Harmful Pollution: “National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units—Reconsideration of Supplemental Finding and Residual Risk and Technology Review,” 85 Fed. Reg. 31286 (May 22, 2020), by August 2021; “Increasing Consistency and Transparency in Considering Benefits and Costs in the Clean Air Act Rulemaking Process,” 85 Fed. Reg. 84130 (December 23, 2020), as

soon as possible; “Strengthening Transparency in Pivotal Science Underlying Significant Regulatory Actions and Influential Scientific Information,” 86 Fed. Reg. 469 (January 6, 2021), as soon as possible.

(b) Within 30 days of the date of this order, heads of agencies shall submit to the Director of the Office of Management and Budget (OMB) a preliminary list of any actions being considered pursuant to section (2)(a) of this order that would be completed by December 31, 2021, and that would be subject to OMB review. Within 90 days of the date of this order, heads of agencies shall submit to the Director of OMB an updated list of any actions being considered pursuant to section (2)(a) of this order that would be completed by December 31, 2025, and that would be subject to OMB review. At the time of submission to the Director of OMB, heads of agencies shall also send each list to the National Climate Advisor. In addition, and at the same time, heads of agencies shall send to the National Climate Advisor a list of additional actions being considered pursuant to section (2)(a) of this order that would not be subject to OMB review.

(c) Heads of agencies shall, as appropriate and consistent with applicable law, consider whether to take any additional agency actions to fully enforce the policy set forth in section 1 of this order. With respect to the Administrator of the Environmental Protection Agency, the following specific actions should be considered:

(i) proposing new regulations to establish comprehensive standards of performance and emission guidelines for methane and volatile organic compound emissions from existing operations in the oil and gas sector, including the exploration and production, transmission, processing, and storage segments, by September 2021; and

(ii) proposing a Federal Implementation Plan in accordance with the Environmental Protection Agency’s “Findings of Failure To Submit State Implementation Plan Revisions in Response to the 2016 Oil and Natural Gas Industry Control Techniques Guidelines for the 2008 Ozone National Ambient Air Quality Standards (NAAQS) and for States in the Ozone Transport Region,” 85 Fed. Reg. 72963 (November 16, 2020), for California, Connecticut, New York, Pennsylvania, and Texas by January 2022.

(d) The Attorney General may, as appropriate and consistent with applicable law, provide notice of this order and any actions taken pursuant to section 2(a) of this order to any court with jurisdiction over pending litigation related to those agency actions identified pursuant to section (2)(a) of this order, and may, in his discretion, request that the court stay or otherwise dispose of litigation, or seek other appropriate relief consistent with this order, until the completion of the processes described in this order.

(e) In carrying out the actions directed in this section, heads of agencies shall seek input from the public and stakeholders, including State local, Tribal, and territorial officials, scientists, labor unions, environmental advocates, and environmental justice organizations.

Sec. 3. Restoring National Monuments. (a) The Secretary of the Interior, as appropriate and consistent with applicable law, including the Antiquities Act, 54 U.S.C. 320301 *et seq.*, shall, in consultation with the Attorney General, the Secretaries of Agriculture and Commerce, the Chair of the Council on Environmental Quality, and Tribal governments, conduct a review of the monument boundaries and conditions that were established by Proclamation 9681 of December 4, 2017 (Modifying the Bears Ears National Monument); Proclamation 9682 of December 4, 2017 (Modifying the Grand Staircase-Escalante National Monument); and Proclamation 10049 of June 5, 2020 (Modifying the Northeast Canyons and Seamounts Marine National Monument), to determine whether restoration of the monument boundaries and conditions that existed as of January 20, 2017, would be appropriate.

(b) Within 60 days of the date of this order, the Secretary of the Interior shall submit a report to the President summarizing the findings of the review conducted pursuant to subsection (a), which shall include recommendations for such Presidential actions or other actions consistent with law as the Secretary may consider appropriate to carry out the policy set forth in section 1 of this order.

(c) The Attorney General may, as appropriate and consistent with applicable law, provide notice of this order to any court with jurisdiction over pending litigation related to the Grand Staircase-Escalante, Bears Ears, and Northeast Canyons and Seamounts Marine National Monuments, and may, in his discretion, request that the court stay the litigation or otherwise delay further litigation, or seek other appropriate relief consistent with this order, pending the completion of the actions described in subsection (a) of this section.

Sec. 4. Arctic Refuge. (a) In light of the alleged legal deficiencies underlying the program, including the inadequacy of the environmental review required by the National Environmental Policy Act, the Secretary of the Interior shall, as appropriate and consistent with applicable law, place a temporary moratorium on all activities of the Federal Government relating to the implementation of the Coastal Plain Oil and Gas Leasing Program, as established by the Record of Decision signed August 17, 2020, in the Arctic National Wildlife Refuge. The Secretary shall review the program and, as appropriate and consistent with applicable law, conduct a new, comprehensive analysis of the potential environmental impacts of the oil and gas program.

(b) In Executive Order 13754 of December 9, 2016 (Northern Bering Sea Climate Resilience), and in the Presidential Memorandum of December 20, 2016 (Withdrawal of Certain Portions of

the United States Arctic Outer Continental Shelf From Mineral Leasing), President Obama withdrew areas in Arctic waters and the Bering Sea from oil and gas drilling and established the Northern Bering Sea Climate Resilience Area. Subsequently, the order was revoked and the memorandum was amended in Executive Order 13795 of April 28, 2017 (Implementing an America-First Offshore Energy Strategy). Pursuant to section 12(a) of the Outer Continental Shelf Lands Act, 43 U.S.C. 1341(a), Executive Order 13754 and the Presidential Memorandum of December 20, 2016, are hereby reinstated in their original form, thereby restoring the original withdrawal of certain offshore areas in Arctic waters and the Bering Sea from oil and gas drilling.

(c) The Attorney General may, as appropriate and consistent with applicable law, provide notice of this order to any court with jurisdiction over pending litigation related to the Coastal Plain Oil and Gas Leasing Program in the Arctic National Wildlife Refuge and other related programs, and may, in his discretion, request that the court stay the litigation or otherwise delay further litigation, or seek other appropriate relief consistent with this order, pending the completion of the actions described in subsection (a) of this section.

Sec. 5. Accounting for the Benefits of Reducing Climate Pollution. (a) It is essential that agencies capture the full costs of greenhouse gas emissions as accurately as possible, including by taking global damages into account. Doing so facilitates sound decision-making, recognizes the breadth of climate impacts, and supports the international leadership of the United States on climate issues. The “social cost of carbon” (SCC), “social cost of nitrous oxide” (SCN), and “social cost of methane” (SCM) are estimates of the monetized damages associated with incremental increases in greenhouse gas emissions. They are intended to include changes in net agricultural productivity, human health, property damage from increased flood risk, and the value of ecosystem services. An accurate social cost is essential for agencies to accurately determine the social benefits of reducing greenhouse gas emissions when conducting cost-benefit analyses of regulatory and other actions.

(b) There is hereby established an Interagency Working Group on the Social Cost of Greenhouse Gases (the “Working Group”). The Chair of the Council of Economic Advisers, Director of OMB, and Director of the Office of Science and Technology Policy shall serve as Co-Chairs of the Working Group.

(i) **Membership.** The Working Group shall also include the following other officers, or their designees: the Secretary of the Treasury; the Secretary of the Interior; the Secretary of Agriculture; the Secretary of Commerce; the Secretary of Health and Human Services; the Secretary of Transportation; the Secretary of Energy; the Chair of the Council on Environmental Quality; the Administrator of the Environmental Protection Agency; the

Assistant to the President and National Climate Advisor; and the Assistant to the President for Economic Policy and Director of the National Economic Council.

(ii) Mission and Work. The Working Group shall, as appropriate and consistent with applicable law:

(A) publish an interim SCC, SCN, and SCM within 30 days of the date of this order, which agencies shall use when monetizing the value of changes in greenhouse gas emissions resulting from regulations and other relevant agency actions until final values are published;

(B) publish a final SCC, SCN, and SCM by no later than January 2022;

(C) provide recommendations to the President, by no later than September 1, 2021, regarding areas of decision-making, budgeting, and procurement by the Federal Government where the SCC, SCN, and SCM should be applied;

(D) provide recommendations, by no later than June 1, 2022, regarding a process for reviewing, and, as appropriate, updating, the SCC, SCN, and SCM to ensure that these costs are based on the best available economics and science; and

(E) provide recommendations, to be published with the final SCC, SCN, and SCM under subparagraph (A) if feasible, and in any event by no later than June 1, 2022, to revise methodologies for calculating the SCC, SCN, and SCM, to the extent that current methodologies do not adequately take account of climate risk, environmental justice, and intergenerational equity.

(iii) Methodology. In carrying out its activities, the Working Group shall consider the recommendations of the National Academies of Science, Engineering, and Medicine as reported in Valuing Climate Damages: Updating Estimation of the Social Cost of Carbon Dioxide (2017) and other pertinent scientific literature; solicit public comment; engage with the public and stakeholders; seek the advice of ethics experts; and ensure that the SCC, SCN, and SCM reflect the interests of future generations in avoiding threats posed by climate change.

Sec. 6. Revoking the March 2019 Permit for the Keystone XL Pipeline. (a) On March 29, 2019, the President granted to TransCanada Keystone Pipeline, L.P. a Presidential permit (the “Permit”) to construct, connect, operate, and maintain pipeline facilities at the international border of the United States and Canada (the “Keystone XL pipeline”), subject to express conditions and potential revocation in the President’s sole discretion. The Permit is hereby revoked in accordance with Article 1(1) of the Permit.

(b) In 2015, following an exhaustive review, the Department of State and the President determined that approving the proposed Keystone XL pipeline would not serve the U.S. national interest. That analysis, in addition to concluding that the significance of the proposed pipeline for our energy security and economy is limited, stressed that the United States must prioritize the development of a clean energy economy, which will in turn create good jobs. The analysis further concluded that approval of the proposed pipeline would undermine U.S. climate leadership by undercutting the credibility and influence of the United States in urging other countries to take ambitious climate action.

(c) Climate change has had a growing effect on the U.S. economy, with climate-related costs increasing over the last 4 years. Extreme weather events and other climate-related effects have harmed the health, safety, and security of the American people and have increased the urgency for combatting climate change and accelerating the transition toward a clean energy economy. The world must be put on a sustainable climate pathway to protect Americans and the domestic economy from harmful climate impacts, and to create well-paying union jobs as part of the climate solution.

(d) The Keystone XL pipeline disserves the U.S. national interest. The United States and the world face a climate crisis. That crisis must be met with action on a scale and at a speed commensurate with the need to avoid setting the world on a dangerous, potentially catastrophic, climate trajectory. At home, we will combat the crisis with an ambitious plan to build back better, designed to both reduce harmful emissions and create good clean-energy jobs. Our domestic efforts must go hand in hand with U.S. diplomatic engagement. Because most greenhouse gas emissions originate beyond our borders, such engagement is more necessary and urgent than ever. The United States must be in a position to exercise vigorous climate leadership in order to achieve a significant increase in global climate action and put the world on a sustainable climate pathway. Leaving the Keystone XL pipeline permit in place would not be consistent with my Administration's economic and climate imperatives.

Sec. 7. Other Revocations. (a) Executive Order 13766 of January 24, 2017 (Expediting Environmental Reviews and Approvals For High Priority Infrastructure Projects), Executive Order 13778 of February 28, 2017 (Restoring the Rule of Law, Federalism, and Economic Growth by Reviewing the "Waters of the United States" Rule), Executive Order 13783 of March 28, 2017 (Promoting Energy Independence and Economic Growth), Executive Order 13792 of April 26, 2017 (Review of Designations Under the Antiquities Act), Executive Order 13795 of April 28, 2017 (Implementing an America-First Offshore Energy Strategy), Executive Order 13868 of April 10, 2019 (Promoting Energy Infrastructure and Economic Growth), and Executive Order 13927 of June 4, 2020 (Accelerating the Nation's Economic Recovery from the COVID-19 Emergency by Expediting Infrastructure Investments and Other Activities), are

hereby revoked. Executive Order 13834 of May 17, 2018 (Efficient Federal Operations), is hereby revoked except for sections 6, 7, and 11.

(b) Executive Order 13807 of August 15, 2017 (Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects), is hereby revoked. The Director of OMB and the Chair of the Council on Environmental Quality shall jointly consider whether to recommend that a replacement order be issued.

(c) Executive Order 13920 of May 1, 2020 (Securing the United States Bulk-Power System), is hereby suspended for 90 days. The Secretary of Energy and the Director of OMB shall jointly consider whether to recommend that a replacement order be issued.

(d) The Presidential Memorandum of April 12, 2018 (Promoting Domestic Manufacturing and Job Creation Policies and Procedures Relating to Implementation of Air Quality Standards), the Presidential Memorandum of October 19, 2018 (Promoting the Reliable Supply and Delivery of Water in the West), and the Presidential Memorandum of February 19, 2020 (Developing and Delivering More Water Supplies in California), are hereby revoked.

(e) The Council on Environmental Quality shall rescind its draft guidance entitled, “Draft National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions,” 84 Fed. Reg. 30097 (June 26, 2019). The Council, as appropriate and consistent with applicable law, shall review, revise, and update its final guidance entitled, “Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews,” 81 Fed. Reg. 51866 (August 5, 2016).

(f) The Director of OMB and the heads of agencies shall promptly take steps to rescind any orders, rules, regulations, guidelines, or policies, or portions thereof, including, if necessary, by proposing such rescissions through notice-and-comment rulemaking, implementing or enforcing the Executive Orders, Presidential Memoranda, and draft guidance identified in this section, as appropriate and consistent with applicable law.

Sec. 8. General Provisions. (a) Nothing in this order shall be construed to impair or otherwise affect:

- (i) the authority granted by law to an executive department or agency, or the head thereof; or
- (ii) the functions of the Director of the Office of Management and Budget relating to budgetary, administrative, or legislative proposals.

(b) This order shall be implemented in a manner consistent with applicable law and subject to the availability of appropriations.

(c) This order is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or in equity by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.

JOSEPH R. BIDEN JR.

THE WHITE HOUSE,
January 20, 2021.

BRIEFING ROOM

FACT SHEET: President Biden Announces Steps to Drive American Leadership Forward on Clean Cars and Trucks

AUGUST 05, 2021 • STATEMENTS AND RELEASES

President Biden Outlines Target of 50% Electric Vehicle Sales Share in 2030 to Unleash Full Economic Benefits of Build Back Better Agenda and Advance Smart Fuel Efficiency and Emission Standards

President Biden's Build Back Better Agenda and the Bipartisan Infrastructure Deal invest in the infrastructure, manufacturing, and incentives that we need to grow good-paying, union jobs at home, lead on electric vehicles around the world, and save American consumers money. Today, the President will announce a set of new actions aimed at advancing these goals and increasing the impact of his proposed Build Back Better investments – positioning America to drive the electric vehicle future forward, outcompete China, and tackle the climate crisis.

Specifically, the President will sign an Executive Order that sets an ambitious new target to make half of all new vehicles sold in 2030 zero-emissions vehicles, including battery electric, plug-in hybrid electric, or fuel cell electric vehicles. The Executive Order also kicks off development of long-term fuel efficiency and emissions standards to save consumers money, cut pollution, boost public health, advance environmental justice, and tackle the climate crisis.

In addition, and consistent with the President's Day One Executive Order, the Environmental Protection Agency (EPA) and U.S. Department of Transportation (USDOT) will announce how they are addressing the previous administration's harmful rollbacks of near-term fuel efficiency and emissions standards. Through these coordinated notices of proposed rulemaking, the two agencies are advancing smart fuel efficiency and emissions standards that would deliver around \$140 billion in net benefits over the life of the program, save about 200 billion gallons of gasoline, and reduce around two billion metric tons of carbon pollution. For the average consumer, this means net benefits of up to \$900 over the life of the vehicle in fuel savings.

These new actions – paired with the investments in the President's Build Back Better Agenda –

will strengthen American leadership in clean cars and trucks by accelerating innovation and manufacturing in the auto sector, bolstering the auto sector domestic supply chain, and growing auto jobs with good pay and benefits. That is why today, American automakers Ford, GM, and Stellantis and the United Auto Workers (UAW), will stand with President Biden at the White House with aligned ambition: supporting the President's Build Back Better Agenda and the automakers' need to invest in and grow good-paying union jobs in the United States.

Build Back Better Investment Agenda

The global market is shifting to electric vehicles and tapping their potential to save families money, lower pollution, and make the air we breathe cleaner. Despite pioneering the technology, the U.S. is behind in the race to manufacture these vehicles and the batteries that go in them. Today, the U.S. market share of electric vehicle sales is only one-third that of the Chinese electric vehicle market. The President believes it is time for the U.S. to lead in electric vehicle manufacturing, infrastructure, and innovation, by investing in:

- Installing the first-ever national network of electric vehicle charging stations.
- Delivering point-of-sale consumer incentives to spur U.S. manufacturing and union jobs.
- Financing the retooling and expansion of the full domestic manufacturing supply chain.
- Innovating the next generation of clean technologies to maintain our competitive edge.

Through the investments in the Build Back Better Agenda and Bipartisan Infrastructure Deal, we can strengthen U.S. leadership in electric vehicles and batteries. These once-in-a-generation investments will position America to win the future of transportation and manufacturing and create good-paying, union jobs, dramatically expand American manufacturing, make electric vehicles more affordable for families, and export our electric vehicles around the world.

And, the President has already made a down payment on his vision for U.S. leadership in auto manufacturing. Last month, the Department of Commerce announced \$3 billion in currently available American Rescue Plan funds that can be used to advance the domestic electric vehicle industry in communities that have historically been the backbone of our auto industry.

Electric Vehicles Ambition for 2030

Over the last decade, we have seen a transformation in the technology costs, performance, and availability of electric vehicles. Since 2010:

- Battery pack costs dropped by 85 percent, paving the way to sticker price parity with gasoline-powered vehicles.
- Average vehicle range increased dramatically as charging times shortened.
- Electric models available to U.S. consumers expanded to over 40 last year – and growing.

Seeing this shift, countries are sprinting to lead. For example, China is increasingly cornering the global supply chain for electric vehicles and batteries with its fast-growing electric vehicle market. By setting clear targets for electric vehicle sale trajectories, these countries are becoming magnets for private investment into their manufacturing sectors – from parts and materials to final assembly.

President Biden is committed to changing that and delivering for the American people. That is why he will sign an Executive Order that sets a new target of electric vehicles representing half of new vehicles sold in 2030. This builds on the announcements today from automakers, representing nearly the entire U.S. auto market who have positioned around the goal of reaching 40 to 50 percent electric vehicle sales share in 2030. More than a deployment target, it is a goal to leverage once-in-generation investments and a whole-of-government effort to lift up the American autoworker and strengthen American leadership in clean cars and trucks. The 2030 target is calibrated to provide time for existing manufacturing facilities to upgrade without stranding assets, upgrades that will be catalyzed by the Build Back Better Agenda, and lean into a path that expands domestic U.S. manufacturing with union workers.

Smart Fuel Efficiency and Emissions Standards

Consistent with the President's Day One Executive Order, the Environmental Protection Agency (EPA) and U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA) will announce how they are addressing the previous administration's harmful rollbacks of near-term fuel efficiency and emissions standards. The two agencies' standards work in a compatible fashion through model year 2026, with the NHTSA proposed rule starting in model year 2024 and the EPA proposed rule taking effect a year sooner with model year 2023. The standards build on the momentum from "California Framework Agreement" – an agreement between the State of California and five automakers: Ford, Honda, Volkswagen Group, BMW, and Volvo.

Through these coordinated notices of proposed rulemaking, the two agencies are advancing smart fuel efficiency and emissions standards that would deliver around \$140 billion in net benefits over the life of the standards, including asthma attacks avoided and lives saved, save

about 200 billion gallons of gasoline, and reduce around two billion metric tons of carbon pollution. For the average consumer, this means net savings of up to \$900 over the life of the vehicle from fuel savings.

Building on these near-term steps, the Executive Order that the President will sign kicks off development of long-term fuel efficiency and emissions standards to save consumers money, cut pollution, boost public health, advance environmental justice, and tackle the climate crisis. Specifically, the Executive Order lays out a robust schedule for development of fuel efficiency and multi-pollutant emissions standards through at least model year 2030 for light-duty vehicles and for medium- and heavy-duty vehicles starting as early as model year 2027. The Executive Order also directs agencies to:

- Consult with the Secretaries of Commerce, Labor, and Energy on ways to accelerate innovation and manufacturing in the automotive sector, to strengthen the domestic supply chain for that sector, and to grow jobs that provide good pay and benefits.
- Engage with California and other states leading the way in reducing vehicle emissions.
- Secure input from a diverse range of stakeholders, including representatives from labor unions, industry, environmental justice organizations, and public health experts.

Together, today's announcements would put us on track to reduce greenhouse gas emissions from new passenger vehicle sales by more than 60 percent in 2030 compared to vehicles sold last year, and facilitate achieving the President's goal of 50-52 percent net economy-wide greenhouse gas emission reductions below 2005 levels in 2030.

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BRIEFING ROOM

FACT SHEET: President Biden Signs Executive Order Catalyzing America's Clean Energy Economy Through Federal Sustainability

DECEMBER 08, 2021 • STATEMENTS AND RELEASES

U.S. Government Will Lead by Example to Leverage Scale and Procurement Power to Drive Clean, Healthy, and Resilient Operations

Today, President Biden will sign an executive order that demonstrates how the United States will leverage its scale and procurement power to lead by example in tackling the climate crisis. The executive order will reduce emissions across federal operations, invest in American clean energy industries and manufacturing, and create clean, healthy, and resilient communities. The President is building on his whole-of-government effort to tackle the climate crisis in a way that creates well-paying jobs, grows industries, and makes the country more economically competitive.

The President's executive order directs the federal government to use its scale and procurement power to achieve five ambitious goals:

- 100 percent carbon pollution-free electricity (CFE) by 2030, at least half of which will be locally supplied clean energy to meet 24/7 demand;
- 100 percent zero-emission vehicle (ZEV) acquisitions by 2035, including 100 percent zero-emission light-duty vehicle acquisitions by 2027;
- Net-zero emissions from federal procurement no later than 2050, including a Buy Clean policy to promote use of construction materials with lower embodied emissions;
- A net-zero emissions building portfolio by 2045, including a 50 percent emissions reduction by 2032; and
- Net-zero emissions from overall federal operations by 2050, including a 65 percent emissions reduction by 2030.

In addition to the five new commitments that form the pillars of today's executive action, the President also directed the federal government to orient its procurement and operations efforts in line with the following principles and goals:

- Achieving climate resilient infrastructure and operations;
- Building a climate- and sustainability-focused workforce;
- Advancing environmental justice and equity;
- Prioritizing the purchase of sustainable products, such as products without added perfluoroalkyl or polyfluoroalkyl substances (PFAS); and
- Accelerating progress through domestic and international partnerships.

Today's executive action is a part of the President's broader commitment to increasing investments in America's manufacturing industries and workers to build back our country better. By transforming how the federal government builds, buys, and manages its assets and operations, the federal government will support the growth of America's clean energy and clean technology industries, while accelerating America's progress toward achieving a carbon pollution-free electricity sector by 2035.

President Biden's executive order demonstrates how the United States government will lead by example to provide a strong foundation for American businesses to compete and win globally in the clean energy economy while creating well paying, union jobs at home. Today's executive action further reinforces the President's directive to Buy American and ensure that equity and environmental justice are key considerations in federal operations planning and decision making.

The White House also released a detailed description of this plan: *The Federal Sustainability Plan: Catalyzing America's Clean Energy Industries and Creating Jobs Through Federal Sustainability*.

Together, the President's Bipartisan Infrastructure Law, Budget for Fiscal Year 2022, and Build Back Better Act will provide agencies with the funding necessary to achieve the goals of the executive order.

Catalyzing America's Clean Energy Industries and Jobs through Federal Sustainability Executive Order

Through this executive order, the federal government will transform its portfolio of 300,000 buildings, fleet of 600,000 cars and trucks, and annual purchasing power of \$650 billion in goods and services to:

1. Transition federal infrastructure to zero-emission vehicles and buildings powered by carbon pollution-free electricity, which will reduce the federal government's greenhouse gas emissions by 65 percent by 2030 and achieve net-zero emissions by 2050.
- Make federal agencies more adaptive and resilient to the impacts of climate change, and increase the sustainability of federal supply chains, achieving net-zero emissions from federal procurement by 2050.
 - Mainstream sustainability within the federal workforce, advance equity and environmental justice, and leverage partnerships to accelerate progress.

Transition federal infrastructure to zero-emission vehicles and energy efficient buildings powered by carbon pollution-free electricity:

- **Achieve 100 percent carbon pollution-free electricity use by 2030, including 50 percent on a 24/7 basis.** The federal government will work with utilities, developers, technology firms, financiers and others to purchase electricity produced from resources that generate no carbon emissions, including solar and wind, for all its operations by 2030. Half of the federal government's 100 percent carbon pollution-free annual electricity demand will be procured on a 24/7 basis, meaning that the federal government's real-time demand for electricity will be met with clean energy every hour, every day, and produced within the same regional grid where the electricity is consumed. With the scope and scale of this electricity demand, the federal government expects it will catalyze the development of at least 10 gigawatts of new American clean electricity production by 2030, spurring the creation of new union jobs and moving the country closer to achieving a carbon pollution-free electricity sector by 2035.
- **Transition to 100 percent acquisition of zero-emission vehicles by 2035 for the federal vehicle fleet, including 100 percent light duty vehicle acquisition by 2027.** The federal government will work with American vehicle, battery, and charging equipment manufacturers and installers to transform its fleet into the largest zero-emission vehicle fleet in the Nation, reaching 100 percent zero-emission vehicle acquisitions by 2035. This will accelerate the advancement of America's industrial capacity to supply zero-emission vehicles and electric vehicle batteries and create and sustain good union jobs in manufacturing, engineering, and skilled-trades.

- **Modernize the federal buildings portfolio to reach net-zero emissions by 2045, including a 50 percent reduction in building emissions by 2032.** The federal government will work across existing real property and during new building construction and major renovations to increase water and energy efficiency, reduce waste, electrify systems, and promote sustainable locations for federal facilities to strengthen the vitality and livability of the communities in which federal facilities are located. Additionally, the Biden-Harris Administration will implement the first-ever Federal Building Performance Standard, and will use performance contracting to improve buildings with no up-front costs.

Make federal agencies more adaptive and resilient to the impacts of climate change, and increase the sustainability of federal supply chains, achieving net-zero emissions from federal procurement by 2050.

- **Make federal agencies more adaptive and resilient to the impacts of climate change.** The intensifying impacts of climate change present physical, operational, and financial risks to federal infrastructure, agency missions, and our services to the American people. Agencies will implement the actions identified through their [October 7, 2021, Climate Adaptation and Resilience Plans](#) and modernize federal policy, programs, operations, and infrastructure to support climate resilience investment. By taking action now to better manage and mitigate climate risks, we will minimize future disruptions and destruction to federal operations, assets, and programs and ensure the federal government can continue providing critical services to the Nation.
- **Increase the sustainability of federal supply chains, achieving net-zero emissions from federal procurement by 2050.** The companies that supply the federal government are critical partners in achieving our climate goals and growing the economy and American jobs. Cutting emissions from the federal government's procurement also means buying materials with a lower carbon footprint. The federal government will launch a "buy clean" initiative for low-carbon materials and prioritize the purchase of sustainable products, such as products without added perfluoroalkyl or polyfluoroalkyl substances (PFAS). Through these actions, the federal government will provide a large and stable signal to the market for sustainable and low-carbon goods made in America, advancing America's industrial capacity to supply the goods and materials of the future while growing good jobs for American workers.

Mainstream sustainability within the federal workforce, advance equity and environmental justice, and leverage partnerships to accelerate progress.

- **Mainstream sustainability within the federal workforce.** The federal government's 4.2 million employees are critical stakeholders and leaders in the shift to sustainable and resilient operations. The federal government will build capacity through engagement, education, and training so that federal workers are ready to embed sustainability, climate adaptation, and environmental stewardship analysis and action in their jobs as we work to Build Back Better.
- **Advance equity and environmental justice.** The federal government will advance the goals of the Administration's Justice40 Initiative by ensuring that economic equity and environmental justice are key considerations in operations planning and decision making. A federal environmental justice representative will serve on the newly established Chief Sustainability Officer Council. To incorporate equity, agencies will implement this executive order consistent with the President's Executive Order on *Advancing Racial Equity and Support for Underserved Communities Through the Federal Government*, which helps ensure that government contracting and procurement opportunities are available on an equal basis.
- Collaboration with leading American unions, businesses, States, Tribes, municipalities, and other countries will accelerate progress and catalyze greater climate action at home and abroad. The federal government will build upon its newly launched Greening Government Initiative, which convenes governments around the world to collaborate on greening government operations. Further, the Administration will launch a Presidential Sustainability Executives Program, placing senior leaders from the private and non-profit sectors to serve across the federal government, bringing innovative perspectives and critical expertise to achieve these ambitious, and imperative, sustainability and climate preparedness goals.

Actions Agencies are Taking to Meet the Goals of the Sustainability Executive Order

Across the federal government, agencies are moving expeditiously to meet the President's call for action and are positioned to meet the ambitious goals of his executive order and Federal Sustainability Plan. Highlights are included below:

100 percent CFE by 2030, including 50 percent on a 24/7 Basis

- In 2022, the **Department of Defense's (DOD)** Edwards Air Force Base in California will add 520 megawatts (MW) of CFE to the grid by completing one of the country's largest solar photovoltaic (PV) array projects and in the process creating more than 1,000 union and other construction jobs.

- In 2022, **DOD's** Pacific Missile Range Facility in Hawaii will complete construction of the nation's largest 100 percent clean energy microgrid. By leveraging a 14-megawatt (MW) solar facility paired with a 70 megawatt-hour (MWh) battery energy storage system sited on the base, the Pacific Missile Range Facility can become self-sufficient for all its electricity needs in the event of a loss of transmission feed from the utility grid.

100 Percent ZEV Acquisitions by 2035, including 100 percent Light-Duty ZEV Acquisitions by 2027

- In 2021, the **Department of the Interior** (DOI) began transitioning its fleet of U.S. Park Police lightweight motorcycles and dirt bikes to 100 percent ZEVs at its Washington, D.C., New York City, and San Francisco locations, with plans to reach a 100 ZEV fleet by 2025.
- In early 2022, the **Department of Homeland Security (DHS)** will begin field testing the Ford Mustang Mach-E ZEV for use in its law enforcement fleet, which currently consists of over 30,000 vehicles.

Net-Zero Emissions Buildings by 2045, including a 50 percent reduction by 2032

- In 2023, the **Department of Transportation will complete its** Volpe Transportation Center project that collapses six buildings into a low-emissions building with rooftop solar PV panels, ZEV charging stations for the federal fleet and employee vehicles, green and cool roof technologies, a rainwater reclamation and reuse system, and a climate-resilient above-grade data center.
- By 2022, the **Department of the Treasury** will have completed the majority of its energy infrastructure improvements at an Internal Revenue Service Center outside of New York City through a 17-year, \$30.9 million energy savings performance contract (ESPC). The ESPC has so far delivered nearly \$14 million in capital improvements and \$2.2 million in annual utility bill savings. ESPCs allow federal agencies to procure energy savings and facility improvements with no up-front capital costs or special appropriations from Congress.

Net-Zero Emissions Procurement by 2050

- In 2021, **DOD** collected information from its suppliers on their efforts to measure and report greenhouse gas (GHG) emissions. DOD is using this information to develop low-carbon purchasing guidelines that will become part of its standard operating procedures.

- In 2022, the **General Services Administration (GSA)** will require contractors to disclose the embodied carbon of building materials for new building and major modernization contracts. Embodied carbon refers to the greenhouse gas emissions (mostly carbon dioxide) resulting from the mining, harvesting, processing, manufacturing, transportation, and installation of materials.

Net-Zero Emissions from overall Federal Operations by 2050, including a 65 percent reduction by 2030

- By January 2022, **DOD's** Marine Corps Logistics Base Albany in Georgia anticipates achieving net-zero energy status.

Climate Resilient Infrastructure and Operations

- In 2021, more than 20 major federal agencies released plans describing how they will integrate climate-readiness across missions and programs and bolster resilience of Federal assets. For example, the **Department of Housing and Urban Development (HUD)** is collecting building-level data across HUD programs to map existing climate risks to help inform the Department on how to best address climate impacts and protect HUD-assisted assets and their occupants.
- **DOD** is integrating climate change considerations across its strategic guidance and planning documents, including the National Defense Strategy, which will be released in 2022.

Develop a Climate- and Sustainability-Focused Workforce

- The **Department of State** is assessing its climate and sustainability management staffing and training gaps to inform a longer-term plan that will prioritize areas of concern and greatest needs.
- In 2022, the **Department of Labor** will launch a new training course for its senior leadership team on climate change management considerations and environmental justice principals. The Department will also include climate change literacy in new employee orientation material.

Advance Environmental Justice and Equity

- In 2021, **GSA** launched an Environmental Justice and Equity Task Group to identify and propose effective approaches to improve environmental justice and equity in federal

sustainable building processes, enhancing engagement with communities and key partners throughout the building lifecycle.

- In 2021, the **Department of Commerce's** National Oceanic and Atmospheric Administration (NOAA) convened Climate and Equity roundtables across the country to gather feedback to inform how NOAA provides climate services, engages with underserved and vulnerable communities, and strengthens internal processes to respond to expressed needs.
- As outlined in its October 2021 Strategic Framework for Addressing Climate Change, **DHS** is incorporating the need to achieve equity as guiding principle through all lines of effort described in the framework.

Accelerate Progress Through Domestic and International Partnerships

- In 2021, the United States and Canada launched the Greening Government Initiative, a first-of-its-kind initiative that will enable countries to share lessons learned, promote innovation, and accelerate national efforts to green government operations and help meet Paris Agreement commitments. Today, the 39 GGI participating countries are beginning share key organizational features and policies and identify potential areas for collaboration.
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Certification of New Interstate Natural Gas Facilities

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Content

Action

Updated Policy Statement on Certification of New Interstate Natural Gas Facilities.

Summary

This Updated Policy Statement describes how the Commission will evaluate all factors bearing on the public interest in determining whether a new interstate natural gas transportation project is required by the public convenience and necessity under the Natural Gas Act.

Dates

Comments that pertain to the Paperwork Reduction Act are due May 2, 2022.

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Supplementary Information

1. On April 19, 2018, and February 18, 2021, the Commission issued Notices of Inquiry (NOI) ⁽¹⁾ to help the Commission explore whether, and if so how, it should revise the approach established by its currently effective policy statement on the certification of new interstate natural gas transportation facilities (1999 Policy Statement) ⁽²⁾ to determine whether a proposed natural gas project “is or will be required by the present or future public convenience and necessity,” as that standard is established in section 7 of the Natural Gas Act (NGA). ⁽³⁾

2. Based on the comments received in this proceeding and the significant changes that have occurred since issuance of the 1999 Policy Statement, and in order to provide stakeholders with more clarity on the Commission's decision-making process, we are issuing this Updated Certificate Policy Statement (Updated Policy Statement).

3. This Updated Policy Statement does not establish binding rules and is intended to explain how the Commission will consider applications to construct new interstate natural gas transportation facilities.

I. Background

A. Statutory Authority and Obligations

4. Section 7 of the NGA authorizes the Commission to issue certificates of public convenience and necessity for the construction and operation of facilities transporting natural gas in interstate commerce. ⁽⁴⁾ Under section 7(e), the Commission shall issue a certificate to any qualified applicant upon finding that the construction and operation of a proposed project “is or will be required by the present or future public convenience and necessity.” ⁽⁵⁾ The public convenience and necessity standard encompasses all factors bearing on the public interest. ⁽⁶⁾

5. The NGA authorizes the Commission to attach to a certificate “such reasonable terms and conditions as the public convenience and necessity may require.” ⁽⁷⁾ The Commission can also deny an application for a certificate if a balancing of all public interest factors weighs against authorization of the proposed project. ⁽⁸⁾ If an applicant receives a certificate from the Commission, section 7(h) of the NGA authorizes the certificate holder to acquire the property rights necessary to construct and operate its project by use of eminent domain if it cannot reach an agreement with a landowner. ⁽⁹⁾

6. The Commission's consideration of an application generally triggers environmental review under the National Environmental Policy Act of 1969 (NEPA). ⁽¹⁰⁾ NEPA and its implementing regulations require that, before taking or authorizing a major Federal action that may significantly affect the quality of the human environment, Federal agencies take a “hard look” at the environmental consequences of the proposed action and disclose their analyses to the public. ⁽¹¹⁾ NEPA also requires that agencies consider whether there are steps that could be taken to mitigate any adverse environmental consequences. ⁽¹²⁾ While NEPA is a procedural statute and does not require an agency to reject a proposed project based on its adverse effects or to take action to mitigate those effects, ⁽¹³⁾ an agency may require mitigation measures as a condition of its approval under the NGA, ⁽¹⁴⁾ or withhold approval based on significant adverse effects. ⁽¹⁵⁾

B. Historical Context and the 1999 Certificate Policy Statement

7. From the enactment of the NGA in 1938 to the 1990s, as a result of statutory and regulatory revisions, the natural gas industry evolved away from a system of limited competition among vertically integrated companies selling bundled commodity and transportation services at Commission-regulated prices to one where pipelines provide open-access transportation of gas supplies purchased pursuant to non-Commission regulated agreements between producers and other parties. Consequently, consumers benefitted from competition among non-pipeline entities in an unregulated commodity market and from competition among pipeline companies providing open-access, unbundled transportation services at Commission-regulated rates or, if authorized under certain circumstances, market-based rates.

8. At the same time that natural gas commodity and transportation markets were becoming more competitive, the 1990s saw significant growth in natural gas consumption in the industrial and electric generation sectors. The resultant expansion of the pipeline system to meet this demand raised issues as to who should bear the costs of new construction. Before the Commission adopted the 1999 Policy Statement, the Commission's pricing policy for new construction generally allowed for the costs of expansion projects to be rolled into a pipeline company's existing system costs to derive rolled-in rates in a future rate case under section 4 of the NGA. ⁽¹⁶⁾ All shippers bore some burden of the expansion project's cost, regardless of whether they would benefit from the project. Local distribution companies (LDC) and other parties believed that this pricing policy sent the wrong price signals by masking the real costs of an expansion project and could result in overbuilding and subsidization of expansion by a pipeline's existing shippers.

9. In response to these and other concerns, in 1998, the Commission issued a Notice of Proposed Rulemaking ⁽¹⁷⁾ and an NOI ⁽¹⁸⁾ to explore issues related to its policies on the certification and pricing of new pipeline projects. Based on the information received from stakeholders in response to these notices, the Commission issued the 1999 Policy Statement "to foster competitive markets, protect captive customers, and avoid unnecessary environmental and community impacts while serving increasing demands for natural gas." ⁽¹⁹⁾ These objectives were realized primarily by a shift from a presumption of rolled-in pricing to a presumption of incremental pricing. ⁽²⁰⁾ Under incremental pricing, existing customers using only existing facilities do not subsidize the cost of constructing and operating new projects. ⁽²¹⁾

10. Pursuant to the 1999 Policy Statement, when reviewing applications to construct new interstate transportation facilities the Commission would first determine whether a threshold requirement of no financial subsidization from existing customers was met. If so, the Commission would next consider whether the applicant eliminated or minimized any residual adverse effects the project might have on: (1) The applicant's existing customers; (2) existing pipelines in the market and their captive customers; and (3) landowners and communities affected by the proposed project. ⁽²²⁾ Any residual adverse effects would be balanced against the anticipated benefits from the project. ⁽²³⁾ The Commission allowed an applicant to rely on a variety of factors to demonstrate that its proposed project was needed, ⁽²⁴⁾ but, in practice, applicants generally elected to submit, and the Commission accepted, precedent agreements with prospective customers for long-term firm service as the principal factor in demonstrating project need.

11. The 1999 Policy Statement introduced a sliding scale approach to balance public benefits with adverse effects, where the "more interests adversely affected or the more adverse impact a project would have on a particular interest, the greater the showing of public benefits from the project required to balance the adverse impact." ⁽²⁵⁾ The 1999 Policy Statement provided that, if the Commission found that project benefits outweighed adverse impacts on economic interests, then the Commission would proceed to consider the environmental impacts of the project. ⁽²⁶⁾

C. Developments After Issuance of the 1999 Certificate Policy Statement

12. Much has changed since the Commission issued the 1999 Policy Statement. In the last decade, increases in both domestic and international demand for natural gas produced in the United States, combined with the available supply of competitively-priced gas from shale reserves, have reduced prices

and price volatility and have resulted in more proposals for natural gas transportation and export projects. ⁽²⁷⁾ Much of the increased production is attributable to the development of the Marcellus and Utica shale formations in Pennsylvania, West Virginia, Ohio, and New York; shale formations in the Permian Basin in West Texas and Eastern New Mexico; Eagle Ford Shale in South Texas; and Bakken Shale Formation in North Dakota, among others; as well as associated new extraction technologies.

13. Contracting patterns are changing significantly as a result of this supply growth. In the past, LDCs contracted for a large percentage of interstate pipeline capacity, obtaining supplies from the production area for their customers. Increasingly, however, LDCs are purchasing gas supplies further downstream at market area pooling points or at their city gates as other parties increasingly contract for pipeline capacity. Natural gas producers are now contracting for a significant amount of firm pipeline capacity on expansion projects in an effort to provide a secured commercial outlet for their gas.

14. Over the past decade, there has been greater interest and participation by affected landowners and communities, Tribes, environmental organizations, and others in natural gas project proceedings. Part of this may be attributable to the increase in proposals for new natural gas infrastructure in more densely populated areas of the eastern half of the nation. These stakeholders have raised various concerns with, among other things, the use of eminent domain, the need for new projects, and the environmental impacts of project construction and operation, including impacts on climate change and environmental justice communities.

15. The Commission's consideration of climate change and greenhouse gas emissions (GHG) has also evolved since issuance of the 1999 Policy Statement. In the last decade, the Commission began including estimates of GHG emissions from project construction (e.g., tailpipe emissions from construction equipment) and operation (e.g., fuel combustion at compressor stations and gas venting and leaks) in its NEPA documents. ⁽²⁸⁾ Then, starting in late 2016, the Commission began to estimate GHG emissions from downstream combustion and upstream production. ⁽²⁹⁾ In 2018, however, the Commission reversed this practice, ⁽³⁰⁾ resulting in a number of judicial decisions finding fault with the Commission's approach. ⁽³¹⁾ Concurrent with this Updated Policy Statement, the Commission is issuing a new policy statement to explain how it will assess project impacts on climate change in its NEPA and NGA reviews going forward (GHG Policy Statement). ⁽³²⁾

16. Another development since issuance of the 1999 Policy Statement is an increasing recognition of the need for Federal agencies to focus on environmental justice and equity. In 1994, under Executive Order 12898, agencies were directed to identify and address “disproportionately high and adverse human health or environmental effects” of their actions on minority and low-income populations (i.e., environmental justice communities). ⁽³³⁾ In 2021, President Biden issued two executive orders to renew and expand upon this directive. Specifically, Executive Order 13985, issued on January 20, 2021, requires agencies to conduct Equity Assessments to identify and remove barriers to underserved communities and “to increase coordination, communication, and engagement with community-based organizations and civil rights organizations.” ⁽³⁴⁾ And Executive Order 14008, issued on January 27, 2021, directs agencies to develop “programs, policies, and activities to address the disproportionately high and adverse human health, environmental, climate-related and other cumulative impacts on disadvantaged communities, as well as the accompanying economic challenges of such impacts.” ⁽³⁵⁾

II. Notices of Inquiry and Comments

17. As noted above, on April 19, 2018, the Commission issued an NOI (2018 NOI) seeking information and stakeholder perspectives to help the Commission explore whether, and if so how, it should revise the approach established by the 1999 Policy Statement. The Commission identified four general areas for examination in the 2018 NOI: (1) The reliance on precedent agreements to demonstrate need for a

proposed project; (2) the potential exercise of eminent domain and landowner interests; (3) the Commission's evaluation of alternatives and environmental effects under NEPA and the NGA; and (4) the efficiency and effectiveness of the Commission's certificate processes. In response to the 2018 NOI, the Commission received more than 3,000 comments from a diverse range of stakeholders.

18. On February 18, 2021, the Commission issued another NOI (2021 NOI) seeking to build upon the existing record established by the 2018 NOI. The 2021 NOI noted that a number of changes had occurred since the Commission issued the 2018 NOI, including regulatory changes, the issuance of new executive orders, and increased stakeholder interest in certain topics. Accordingly, the 2021 NOI provided stakeholders with an opportunity to refresh the record and provide updated information and additional viewpoints to help the Commission assess its policy.

19. The 2021 NOI included the four general areas of examination identified in the 2018 NOI, with modifications to the specific questions asked, including new questions on how the Commission should assess and consider the impacts of proposed projects on climate change. The 2021 NOI also identified a fifth area of examination—the Commission's identification and consideration of disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on environmental justice communities and the mitigation of those adverse impacts and burdens, as well as the Commission's identification of potentially affected environmental justice communities and measures for ensuring effective participation by these communities in the certificate review process. In response to the 2021 NOI, the Commission received more than 35,000 comments, including more than 150 unique comment letters, from a diverse range of stakeholders.

20. The comments received in response to the 2018 and 2021 NOIs are summarized at a high level below. Comments related to GHG emissions are summarized in the aforementioned GHG Policy Statement.⁽³⁶⁾ The considerable number of comments submitted in this proceeding indicates substantial public interest in the Commission's policy for reviewing proposed interstate natural gas facilities.

A. The Commission's Determination of Need

21. A wide range of commenters request that the Commission change how it makes its public need determination. Many of these commenters argue that the Commission should rely less on precedent agreements.⁽³⁷⁾ Additionally, commenters request that, in assessing need, there be greater consideration of climate change impacts,⁽³⁸⁾ increased transparency,⁽³⁹⁾ and an enlarged participatory role for stakeholders.⁽⁴⁰⁾ Some commenters recommend that applicants be required to provide specific evidence that need exists, the proposed facilities serve that need, and the asserted need cannot be met by existing infrastructure.⁽⁴¹⁾ In contrast, regulated companies and industry trade organizations are nearly unanimous in their general support of the 1999 Policy Statement as it relates to the public need determination.⁽⁴²⁾

22. Several commenters argue that the public benefits recognized in the 1999 Policy Statement are skewed, overly narrow, and outdated.⁽⁴³⁾ Additionally, some commenters recommend that the Commission create clear guidelines for benefits like reliability and resilience.⁽⁴⁴⁾ Some commenters suggest that the Commission consider additional factors in its benefits analysis, such as infrastructure security and how an applicant's proposal fits with, or advances, new Federal and State policies and goals.⁽⁴⁵⁾ In contrast, industry trade organizations generally support the Commission's existing benefits analysis under the 1999 Policy Statement, arguing that the Commission's responsibilities under the NGA have not changed, and, thus, any changes to the Commission's review of public benefits should not impede those responsibilities.⁽⁴⁶⁾ However, some regulated companies recommend that the Commission more heavily weigh certain benefits, such as reliability and resilience, in light of recent extreme cold weather events and ransomware attacks.⁽⁴⁷⁾

23. Regarding what evidence the Commission should examine to determine project need, many non-governmental organizations (NGO), individual commenters, and other entities argue that the Commission should analyze factors beyond precedent agreements, such as future markets, opportunity costs, Federal and State public policies, and effects on competition. ⁽⁴⁸⁾ NGOs request that the Commission take a more “holistic” approach and assess proposed projects in conjunction with other projects that are designed to serve the same market, serve similar markets, or pass through the same region, ⁽⁴⁹⁾ and that there be increased coordination with State agencies, including allowing State regulators to review and approve precedent agreements prior to the Commission making a need determination. ⁽⁵⁰⁾ In contrast, regulated companies and industry trade organizations State that precedent agreements remain powerful indicators of need, as they represent long-term, binding contractual and financial commitments to a project and are more objective evidence than market studies. ⁽⁵¹⁾

24. Several commenters recommend that when applicants provide precedent agreements with affiliates as evidence of need, the Commission look beyond those agreements, given that companies with common profit interests might have incentives to inflate costs which can then be passed on to captive ratepayers. ⁽⁵²⁾ Additionally, several commenters argue that the terms of precedent agreements should be subject to close scrutiny ⁽⁵³⁾ and that the Commission should consider the potential for an asset to be rendered obsolete before the end of its useful life, as well as the length of time over which an asset's costs are recovered. ⁽⁵⁴⁾ In contrast, regulated companies and industry trade organizations argue that the Commission should not distinguish between affiliate and non-affiliate agreements, as standards of conduct and nondiscrimination require pipeline companies to treat all customers equitably, regardless of whether the customer is an affiliate or a non-affiliate. ⁽⁵⁵⁾ These entities allege that economic risk, financial obligation, and oversight by State and local regulators associated with precedent agreements demonstrate that they are clear evidence of need, regardless of whether the shipper is an affiliate. ⁽⁵⁶⁾

25. A wide range of commenters assert that the Commission must consider the end use of the natural gas to be transported in its assessment of need, even if end use could change over time. ⁽⁵⁷⁾ Some commenters also note that climate change issues cannot be appropriately addressed without a firm understanding of end use. ⁽⁵⁸⁾ However, regulated companies and industry trade organizations argue against consideration of expected end use given the practical challenges of dynamic gas markets, ⁽⁵⁹⁾ the Commission's regulations prohibiting pipelines from unduly discriminating among shippers based on end use, ⁽⁶⁰⁾ and the fact that regulating end use is outside the scope of the Commission's statutory authority. ⁽⁶¹⁾

26. Many commenters recommend that the Commission assess need in a regional planning context, including consideration of existing infrastructure, in order to avoid unnecessary environmental harm, “underutilized or stranded” assets, and needlessly higher rates for captive consumers. ⁽⁶²⁾ Regulated companies and industry trade organizations, however, generally oppose the Commission using a regional approach to review natural gas pipeline projects, asserting that this could needlessly delay construction, ⁽⁶³⁾ the proximity of pipeline projects does not necessarily indicate that projects serve the same need in a region, ⁽⁶⁴⁾ and the open season process already serves to ensure duplicative projects are not constructed. ⁽⁶⁵⁾ Also, these entities do not support the Commission further examining whether existing infrastructure could sufficiently meet demand. ⁽⁶⁶⁾

27. Additionally, several commenters assert that the Commission must consider future demand as facilities age, as well as national and State decarbonization policies and targets. ⁽⁶⁷⁾ In contrast, regulated companies and industry trade organizations contend that assessment of future demand is not necessary or prudent, given that sophisticated market participants already make these calculations, and do not support the Commission performing a comparative or future-looking analysis of energy sources. ⁽⁶⁸⁾ These entities emphasize that demand for natural gas projects will be correlated with demand for, and deployment of, variable energy resources. ⁽⁶⁹⁾

28. Generally, commenters are split on whether, and if so how, the Commission should consider the economic, energy security, and social attributes of domestic production and use of natural gas in reviewing proposed projects. Some regulated companies State that consideration of these factors should be limited; ⁽⁷⁰⁾ however, others argue that the Commission should consider attributes such as job creation and tax revenues. ⁽⁷¹⁾ Several individuals and NGOs State that the Commission could consider these attributes for particular projects, but that the Commission should then also consider the costs of natural gas projects associated with increased noise, lowered property values, lowered air quality, a lowered tax base, and the loss of landowners' potential use of their land. ⁽⁷²⁾ Commenters also recommend that any need analysis be focused on the specific benefits of a proposed project rather than hypothetical or general benefits ⁽⁷³⁾ and that the Commission assess the magnitude or extent of both the benefits and burdens of a proposed project, including whether the jobs created are temporary or permanent, as well as the proportion of the jobs that will be filled by low- to middle-income local workers. ⁽⁷⁴⁾

B. The Exercise of Eminent Domain and Landowner Interests

29. Many commenters suggest that the Commission adjust its approach to considering the possible use of eminent domain. For example, some commenters assert that eminent domain should only be an option for projects that can guarantee domestic use or local benefit, or that the Commission should deny certificates that would rely on eminent domain for more than twenty percent of the proposed route. ⁽⁷⁵⁾ In contrast, regulated companies and industry trade organizations State that the Commission should maintain its current approach, as it adequately protects landowners from the unnecessary use of eminent domain by ensuring that only projects that are needed and that do not require subsidization from existing customers are approved. ⁽⁷⁶⁾ These entities also note that it is not possible for the Commission to reliably estimate the amount of eminent domain that will ultimately be used prior to issuance of a certificate. ⁽⁷⁷⁾

30. Some commenters assert that additional measures should be taken to minimize the use of eminent domain for projects, including routing pipelines in existing utility corridors when possible, requiring proof that an applicant's efforts to negotiate with landowners have failed, or reporting to the Commission each easement as it is agreed upon. ⁽⁷⁸⁾ However, many regulated companies state that additional measures to minimize the use of eminent domain are unnecessary, as companies have already taken steps to ensure it is used infrequently. ⁽⁷⁹⁾

31. Several commenters recommend that the Commission give greater weight to the concerns of impacted landowners and communities. ⁽⁸⁰⁾ Some assert that landowners have unequal bargaining power with applicants and that the Commission should consider whether an applicant's pre-certificate actions related to landowners demonstrate that the applicant acted in good faith. ⁽⁸¹⁾ Additionally, some commenters argue that the Commission should expand the regulatory definition of "affected landowners" to ensure all impacted landowners and residents are included in the Commission's consideration. ⁽⁸²⁾

32. Multiple commenters state that it is the Commission's responsibility to explain the certificate process to landowners and to ensure that they have the necessary tools to fully participate. ⁽⁸³⁾ Regulated companies and industry trade organizations support the creation of the Commission's Office of Public Participation (OPP) to guide landowners' understanding of, and participation in, the pipeline development and review process. ⁽⁸⁴⁾ Several commenters recommend that the Commission designate certain staff as non-decisional to act as official procedural case managers. ⁽⁸⁵⁾

33. Numerous commenters also recommend changes to the Commission's process and resources to assist landowners, including incorporating non-traditional outreach methods to notify and engage stakeholders early and throughout the process, improving the Commission's website and eLibrary system, conducting public meetings and site visits focused on landowner issues, and providing longer public comment periods. ⁽⁸⁶⁾ Some commenters propose that the Commission automatically grant all affected landowners party status to project proceedings, or, at a minimum, provide an updated step-by-step guide for landowners on

how to intervene. ⁽⁸⁷⁾ Industry trade organizations support longer intervention periods for landowners, ⁽⁸⁸⁾ while some regulated companies argue that the Commission should limit interventions to entities that have a direct interest in a specific project. ⁽⁸⁹⁾

34. A wide range of commenters argue that, in order to prevent needless condemnations while routes are still subject to change and it is uncertain if a project will be authorized, the Commission could defer issuing a certificate or condition a certificate holder's exercise of eminent domain until an applicant obtains all final Federal and State permits and issuance of such permits is sustained if appeal is filed. ⁽⁹⁰⁾ In contrast, many regulated companies and industry trade organizations assert that the Commission has no authority under the NGA to condition a certificate holder's exercise of eminent domain because eminent domain is a right that arises directly from the NGA. ⁽⁹¹⁾ These commenters express concern that if the Commission defers issuing a certificate until an applicant has all authorizations needed to commence construction, it would create practical challenges and could result in unintended consequences (e.g., a pipeline may need survey access in order to obtain information necessary for another permit). ⁽⁹²⁾

C. The Commission's Consideration of Environmental Impacts

35. Many commenters suggest that the Commission revise its approach to analyzing alternatives under NEPA. Some commenters recommend that the Commission consider a broader scope of alternatives (e.g., modifications to existing infrastructure, co-location with existing infrastructure, and alternative sources of energy generation) ⁽⁹³⁾ or a broader range of factors to compare alternatives (e.g., the quantified and monetized impact of GHG emissions; impact of natural gas exports on domestic energy prices; and cost-effectiveness when accounting for all significant health, productivity, and opportunity costs). ⁽⁹⁴⁾ Additionally, commenters assert that the Commission should not blindly adopt a project sponsor's project purpose and, consistent with *Citizens Against Burlington, Inc. v. Busey*, ⁽⁹⁵⁾ must evaluate alternatives to achieve the Commission's goals, shaped by the application before it and the Commission's function in the decisional process. ⁽⁹⁶⁾ In contrast, regulated companies and industry trade organizations state that the current scope of the Commission's alternatives analysis is appropriate and consistent with NEPA, and has been upheld by the courts. ⁽⁹⁷⁾ These entities also assert that *Busey* prohibits the Commission from considering alternatives that would not meet the purpose and need of the proposed Federal action. ⁽⁹⁸⁾

36. Many commenters request that the Commission change how it conducts its cumulative effects analysis under NEPA. For example, NGOs and other commenters recommend that the Commission conduct regional evaluations ⁽⁹⁹⁾ and prepare programmatic environmental impact statement (EIS) ⁽¹⁰⁰⁾ to address cumulative effects. To determine the geographic scope for regional evaluations, commenters recommend that the Commission use a radius around the proposed project (e.g., 100 miles) ⁽¹⁰¹⁾ or consider the project scale, gas source, and end-use location. ⁽¹⁰²⁾ In contrast, industry trade organizations and regulated companies recommend that the Commission continue to use a project-specific geographic scope for its cumulative effects analysis. ⁽¹⁰³⁾ These entities assert that the Commission does not have the authority under section 7 of the NGA to conduct regional evaluations, as the Commission only reviews individual pipeline applications, not broader Federal programs or regional actions where a programmatic review might be appropriate. ⁽¹⁰⁴⁾

37. NGOs and individual commenters state that how the Commission balances environmental impacts against favorable economic impacts is unclear, lacks transparency, and requires updating. ⁽¹⁰⁵⁾ Several commenters request that the Commission give environmental impacts greater weight. ⁽¹⁰⁶⁾ Other commenters criticize the Commission's phased approach to addressing project impacts under the 1999 Policy Statement, and recommend that the Commission balance economic and environmental impacts together. ⁽¹⁰⁷⁾ In contrast, industry trade organizations state that the Commission's approach under the 1999 Policy Statement properly balances economic and environmental impacts, giving proportionate

consideration to all impacted stakeholders. ⁽¹⁰⁸⁾ These entities contend that broadening the balancing would exceed the Commission's discretion under the NGA ⁽¹⁰⁹⁾ and that the NEPA requirement to take a "hard look" at environmental consequences should remain separate from consideration of economic impacts. ⁽¹¹⁰⁾

38. Regulated companies and industry trade organizations support the adoption of other agencies' categorical exclusions under NEPA, including those referenced in Commission staff's presentation at the January 19, 2021 Commission meeting (Docket No. RM21-10-000). ⁽¹¹¹⁾ Additionally, these entities state that a categorical exclusion should apply to certain actions that do not currently qualify for the Commission's blanket certificate authority (e.g., project amendments that would result in no, or minimal, changes to the environment). ⁽¹¹²⁾ In contrast, NGOs suggest that there is no need for the Commission to expand its existing categorical exclusions, and they request that the Commission provide a public notice and comment period for all projects in which an applicant proposes to use a categorical exclusion. ⁽¹¹³⁾

D. The Efficiency and Effectiveness of the Commission's Review Process

39. Many commenters recommend changes to the Commission's application review process. For example, some commenters recommend that all affected stakeholders be brought into the process as early as possible, ⁽¹¹⁴⁾ that decisions regarding information requirements be summarized in a comprehensive application completeness checklist, and that the Commission's regulations be amended to encourage applicants to submit complete applications at the outset. ⁽¹¹⁵⁾ Additionally, several commenters recommend changes to the Commission's environmental review process, including that the Commission not prepare a NEPA document absent substantive environmental data for the entirety of the proposed route, ⁽¹¹⁶⁾ that the Commission consider issuing final EISs and certificates at the same time, ⁽¹¹⁷⁾ or, alternatively, that the Commission issue certificates within 90 days of issuance of a final NEPA document. ⁽¹¹⁸⁾ Some commenters also state that the Commission should not inject additional regulatory uncertainty into its review process by requiring open-ended or unduly expansive environmental reviews. ⁽¹¹⁹⁾

40. Commenters also make a variety of recommendations to increase transparency in the Commission's review process and schedules. For example, some commenters propose that the Commission issue a public notice when a draft order has been circulated by Commission staff to the Commissioners, ⁽¹²⁰⁾ establish "permitting timetables" for NGA section 7(c) projects, ⁽¹²¹⁾ and clarify deadlines for parties to intervene or submit studies. ⁽¹²²⁾ Some commenters also recommend that there be a "cooling off" period after the issuance of a draft EIS to resolve disputes between an applicant and stakeholders with assistance from the Commission's Dispute Resolution Service. ⁽¹²³⁾

41. Several commenters recommend changes to the duration of the pre-filing process. Recommendations include shortening the pre-filing process and extending the application review process, ⁽¹²⁴⁾ collapsing pre-filing into the post-filing process to eliminate lengthy processing times, ⁽¹²⁵⁾ and condensing the application review process by consolidating as much activity as possible in the pre-filing process and requiring all interested parties planning to object to a project to do so during pre-filing. ⁽¹²⁶⁾

42. Many commenters also propose ways to make stakeholder participation more effective. For example, some commenters propose that applicants provide transportation or access to public transportation to public meetings, adequate parking at venues, and options for remote participation. ⁽¹²⁷⁾ Several commenters also recommend that the Commission provide notices and related materials in multiple languages ⁽¹²⁸⁾ and issue guidance to ensure that pipeline project developers provide sufficient and timely information. ⁽¹²⁹⁾ Additionally, some commenters recommend that the Commission's new OPP be a neutral resource to landowners and other stakeholders seeking more information on the Commission's review process. ⁽¹³⁰⁾ Other commenters recommend that staff prioritize input provided by stakeholders that will be directly impacted by a project, ⁽¹³¹⁾ and that all comments submitted to a docket receive a response or some other indication that a member of Commission staff has read the comments. ⁽¹³²⁾

43. Several commenters note the importance of transparency and coordination in the interagency review process. Some regulated companies recommend that the Commission strengthen its role as the lead agency under NEPA by focusing on educating and training cooperating agencies to be better prepared to meet their own statutory deadlines.⁽¹³³⁾ Other commenters suggest that the Commission consider standardized schedules for its review processes, such as publishing timelines that include pre-filing, preparation of the NEPA document, and issuance of final orders and authorizations by other agencies,⁽¹³⁴⁾ and that the Commission create a dedicated task force for coordinating with other agencies.⁽¹³⁵⁾

44. Many commenters support the separate treatment of different classes of projects, recommending that the Commission provide more timely review of projects with minimal impacts and certain qualifying benefits,⁽¹³⁶⁾ or expedite approvals for projects where only an environmental assessment is required and there is no opposition.⁽¹³⁷⁾ However, other commenters oppose the separate treatment of different classes of projects, expressing concern that separate treatment would be arbitrary or discriminatory⁽¹³⁸⁾ and that some projects would be left in limbo while the Commission takes action on what it perceives as priority projects.⁽¹³⁹⁾ Some commenters also suggest changes to the Commission's blanket certificate program, including changing the filing requirements to reduce the number of required resource reports, eliminating the need for weekly reports,⁽¹⁴⁰⁾ increasing both the automatic and prior notice cost limits,⁽¹⁴¹⁾ and adding consideration of other factors such as a project's acreage to determine eligibility for blanket certificate authority.⁽¹⁴²⁾

E. The Commission's Consideration of Effects on Environmental Justice Communities

45. Many commenters suggest that the Commission revise its approach for identifying environmental justice communities in certificate proceedings. For example, some commenters recommend that the Commission use census block-level data;⁽¹⁴³⁾ on-the-ground surveys;⁽¹⁴⁴⁾ social, environmental, and health indicators;⁽¹⁴⁵⁾ and other data and tools to identify such communities.⁽¹⁴⁶⁾ Additionally, several commenters recommend that the Commission consult with other Federal and State agencies for assistance with identifying environmental justice communities⁽¹⁴⁷⁾ or allow communities to identify themselves as environmental justice communities.⁽¹⁴⁸⁾

46. Many commenters also recommend changes to how the Commission evaluates project impacts on environmental justice communities. For example, NGOs assert that the Commission should always use a reference or comparison group when evaluating disproportionately high and adverse impacts on such communities⁽¹⁴⁹⁾ and ensure that such a group is neither too geographically narrow nor too demographically similar to avoid masking disproportionate impacts.⁽¹⁵⁰⁾ NGOs and individual commenters recommend that the Commission consider the existing burden from specific environmental and health indicators when it evaluates cumulative and historic exposures, including the presence of other infrastructure and existing pollution levels in the project area.⁽¹⁵¹⁾ Additionally, these commenters recommend changes to how the Commission evaluates the impacts of direct and indirect air pollution on environmental justice communities.⁽¹⁵²⁾ In contrast, regulated companies and industry trade organizations state that the Commission should not make substantive changes to how it evaluates impacts on environmental justice communities at this time, and recommend that the Commission wait for further guidance from the White House, EPA, and the Council on Environmental Quality (CEQ) to ensure consistency across the Federal Government.⁽¹⁵³⁾

47. Many commenters state that there are barriers to the participation of environmental justice communities in Commission proceedings, including inadequate translation services and the Commission's reliance on electronic media.⁽¹⁵⁴⁾ Other commenters state that Commission proceedings can be highly technical in nature, rendering them inaccessible to the general public unless a participant can invest significant time and resources.⁽¹⁵⁵⁾ A wide range of commenters recommend changes to the Commission's public notice and outreach processes to ensure meaningful engagement with environmental justice communities,⁽¹⁵⁶⁾ including the Commission's process for consulting with Tribes.⁽¹⁵⁷⁾ Many commenters also support the

Commission's formation of OPP ⁽¹⁵⁸⁾ and recommend that the Commission coordinate with community-based organizations and institutions to further encourage the participation of environmental justice communities in Commission proceedings. ⁽¹⁵⁹⁾

48. Several commenters assert that section 7(e) of the NGA provides the Commission with broad conditioning authority to address project impacts on environmental justice communities in its certificates. ⁽¹⁶⁰⁾ Some commenters state that the Commission should use its NEPA alternatives analysis to identify and evaluate ways to mitigate impacts on environmental justice communities. ⁽¹⁶¹⁾ If mitigating adverse impacts on environmental justice communities is not possible, other commenters assert that the Commission should deny a certificate. ⁽¹⁶²⁾

49. In contrast, many regulated companies and industry trade organizations state that no Federal statute requires the Commission to implement specific remedial measures to address project impacts on environmental justice communities, but they assert that NEPA provides an appropriate framework in which to analyze such impacts. ⁽¹⁶³⁾ These entities also contend that that the Commission's conditioning authority under section 7(e) of the NGA is limited to direct project impacts and the Commission could not require measures to redress prior industrial impacts on environmental justice communities or impacts outside of the Commission's jurisdiction. ⁽¹⁶⁴⁾

III. Goals and Objectives of the Updated Certificate Policy Statement

50. While significant changes have occurred in the past 23 years, the Commission's goals and objectives with this Updated Policy Statement remain consistent with those of the 1999 Policy Statement, including to: (1) "appropriately consider the enhancement of competitive transportation alternatives, the possibility of over building, the avoidance of unnecessary disruption of the environment, and the unneeded exercise of eminent domain;" ⁽¹⁶⁵⁾ (2) "provide appropriate incentives for the optimal level of construction and efficient customer choices;" ⁽¹⁶⁶⁾ and (3) "provide an incentive for applicants to structure their projects to avoid, or minimize, the potential adverse impacts that could result from construction of the project." ⁽¹⁶⁷⁾

51. As discussed above, the 1999 Policy Statement included an analytical framework for how the Commission would evaluate the effects of certificating new projects on economic interests. With this Updated Policy Statement, the Commission intends to provide a more comprehensive analytical framework for its decision-making process. Specifically, we provide clarity on how the Commission will evaluate all factors bearing on the public interest, including the balancing of economic and environmental interests in determining whether a project is required by the public convenience and necessity, thus providing more regulatory certainty in the Commission's review process and public interest determinations.

IV. Updated Certificate Policy Statement

A. Factors To Be Balanced in Assessing the Public Convenience and Necessity

52. In determining whether to issue a certificate of public convenience and necessity, the Commission will weigh the public benefits of a proposal, the most important of which is the need that will be served by the project, against its adverse impacts.

1. Consideration of Project Need

53. To demonstrate that a project is required by the public convenience and necessity, an applicant must first establish that the proposed project is needed. As indicated above, the Commission's expectations and requirements for how applicants should demonstrate project need have evolved over time. In the 1999 Policy Statement, the Commission noted concerns associated with relying "primar[i]ly" ⁽¹⁶⁸⁾ or "almost exclusively" ⁽¹⁶⁹⁾ on contracts to establish need for a new project. Those concerns included the "additional

issues [that arise] when the contracts are held by pipeline affiliates” ⁽¹⁷⁰⁾ and the difficulty such a policy creates for “articulat[ing] to landowners and community interests why their land must be used for a new pipeline project.” ⁽¹⁷¹⁾ Thus, the 1999 Policy Statement provided that:

[r]ather than relying only on one test for need, the Commission will consider *all relevant factors* reflecting on the need for the project. These might include, but would not be limited to, precedent agreements, demand projections, potential cost savings to consumers, or a comparison of projected demand with the amount of capacity currently serving the market. ⁽¹⁷²⁾

54. However, in practice, the Commission has relied almost exclusively on precedent agreements to establish project need. Although courts have upheld the Commission's practice in certain contexts, ⁽¹⁷³⁾ we find that we cannot adequately assess project need without also looking at evidence beyond precedent agreements. After all, as the Commission's 1999 Policy Statement noted, many different factors may indicate the need—or lack thereof—for a new interstate pipeline. While precedent agreements may indicate one or more shipper's willingness to contract for new capacity, such willingness may not in all circumstances be sufficient to sustain a finding of need— *e.g.*, in the face of contrary evidence or where there is reason to discount the probative value of those precedent agreements. Accordingly, we find that looking only to precedent agreements, and ignoring other, potentially contrary, evidence may cause the Commission to reach a determination on need that is inconsistent with the weight of the evidence in any particular proceeding, in violation of both the NGA and the Commission's responsibilities under the Administrative Procedure Act. ⁽¹⁷⁴⁾ We reaffirm the Commission's commitment to consider *all* relevant factors bearing on the need for a project. Although precedent agreements remain important evidence of need, and we expect that applicants will continue to provide precedent agreements, the existence of precedent agreements may not be sufficient in and of themselves to establish need for the project. The Commission will also consider, as relevant, the circumstances surrounding the precedent agreements (*e.g.*, whether the agreements were entered into before or after an open season and the results of the open season, including the number of bidders, whether the agreements were entered into in response to LDC or generator requests for proposals (RFP) and, if so, the details around that RFP process, including the length of time from RFP to execution of the agreement), as well as other evidence of need, as discussed below.

55. For all categories of proposed projects, we encourage applicants to provide specific information detailing how the gas to be transported by the proposed project will ultimately be used, why the project is needed to serve that use, and the expected utilization rate of the proposed project. To the extent applicants do not have information on the end use of the gas, they are encouraged to work with their prospective shippers to obtain it. The absence of this information may prevent an applicant from meeting its burden to demonstrate that a project is needed.

56. For a market-driven project that is responding to increased natural gas demand, the evidence relating to the need for the project could include a market study that projects volumetric or peak day load growth. An applicant may rely on publicly available analyses by the Energy Information Administration or other third parties showing projections of market growth. The applicant could also provide its best assessment, based on publicly available information or data, of whether other transportation suppliers may be able to meet the incremental demand with existing capacity to demonstrate why new pipeline construction is necessary. For individual shippers, load growth profiles, gas supply portfolios, and any advanced approval of contracts by State public service commissions would also be helpful in showing evidence of project need.

57. Some projects may not directly serve a customer but rather are being undertaken to add supplies of natural gas to the market. Such projects may be driven by natural gas producers or natural gas utilities attempting to provide supply at lower cost or support reliability by increasing the volumes of natural gas available to customers. For these projects, evidence to demonstrate consumer benefits may include projections of the net benefits, for example projected lower natural gas prices for consumers due to

increased supply competition, compared to the incremental costs of transportation on the new pipeline. The Commission will consider record evidence of regional projections for both gas supply and market growth, as well as pipeline-specific studies in these areas.

58. Other pipeline projects may be intended to support more efficient system operations by replacing older and inefficient facilities (e.g., compressors and leak-prone pipes) and performing other infrastructure improvements, or to respond to changing State and Federal Government pipeline safety or environmental requirements. For these projects, applicants may document how proposed facilities, for example pipeline or compressor replacements, provide expected system benefits, such as reduced operating costs, improved pipeline integrity, or reduced natural gas leaks. In addition, an applicant may document how a project avoids adverse impacts or satisfies any changing State or Federal Government regulations.

59. The Commission will consider both current and projected future demand for a project based on the evidence in the record. Applicants are encouraged to submit analyses showing how market trends as well as current and expected policy and regulatory developments would affect future need for the project. Applicants are also encouraged to provide a thorough assessment of alternatives, including supporting data, to facilitate the Commission's review. In assessing the strength of the applicant's need showing, the Commission will consider record evidence of alternatives to the proposed project. The Commission's evaluation will include information indicating that other suppliers would be able to meet some or all of the needs to be served by the proposed project on a timely, competitive basis or whether other factors may eliminate or curtail such needs.

60. As the Commission noted in the 1999 Policy Statement, projects supported by precedent agreements with affiliates raise unique concerns regarding need for the project. ⁽¹⁷⁵⁾ And, as the United States Court of Appeals for the District of Columbia Circuit (D.C. Circuit) recently held in *Environmental Defense Fund v. FERC*, "evidence of 'market need' is too easy to manipulate when there is a corporate affiliation between the proponent of a new pipeline and a single shipper who have entered into a precedent agreement." ⁽¹⁷⁶⁾ Given those concerns, affiliate precedent agreements will generally be insufficient to demonstrate need. Instead, where projects are backed primarily by precedent agreements with affiliates, the Commission will consider additional information, such as the evidence outlined above. ⁽¹⁷⁷⁾ We will determine how much additional evidence is required on a case-by-case determination.

61. To the extent the Commission receives information in the record from third parties addressing the need for a project, that too will be considered in our analysis. Where an applicant fails to carry its burden of demonstrating the proposed project is needed, the Commission will not undertake any further consideration of the project's benefits or adverse effects.

2. Consideration of Adverse Effects

62. In determining whether to issue a certificate of public convenience and necessity, the Commission will consider four major interests that may be adversely affected by the construction and operation of new projects: (1) The interests of the applicant's existing customers; (2) the interests of existing pipelines and their captive customers; (3) environmental interests; and (4) the interests of landowners and surrounding communities, including environmental justice communities. The Commission may deny an application based on any of these types of adverse impacts.

a. Impacts on Existing Customers of the Pipeline Applicant

63. Existing customers of the pipeline applicant may be adversely affected if a proposed project causes an increase in rates or a degradation in service. Regarding potential rate increases, although we are no longer characterizing this issue as a "threshold question" in this Updated Policy Statement, our policy of no financial subsidies remains unchanged. ⁽¹⁷⁸⁾ That is, the pipeline applicant must be prepared to financially

support its proposed project without relying on subsidization by its existing customers. As to other potential impacts to existing customers, like a degradation in service, we will consider the applicant's efforts to eliminate or minimize any such impacts.

64. As the Commission stated in the 1999 Policy Statement, the policy of no financial subsidies does not mean that a project sponsor has to bear all the financial risk of the project; the risk can be shared with new customers, but it generally cannot be shifted to existing customers. ⁽¹⁷⁹⁾ One of the Commission's regulatory goals is to protect captive customers from rate increases during the terms of their contracts that are unrelated to the costs associated with their service. And existing customers of the expanding pipeline should not have to subsidize a project that does not serve them.

65. The 1999 Policy Statement also stated that the requirement that a new project must be financially viable without subsidies does not eliminate the possibility that, in some instances, project costs should be rolled into the rates of existing customers. ⁽¹⁸⁰⁾ In most instances, incremental pricing will avoid subsidies for the new project, but the situation may be different in cases of inexpensive expansibility that is made possible because of earlier, costly construction. ⁽¹⁸¹⁾ In that instance, because the existing customers bear the cost of the earlier, more costly construction in their rates, incremental pricing could result in the new customers receiving a subsidy from the existing customers because the new customers would not face the full cost of the construction that makes their new service possible.

66. Additionally, expansion costs could still be included in existing shippers' rates when proposed projects are designed to improve service for existing customers. ⁽¹⁸²⁾ Increasing the rates of existing customers to pay for projects designed to benefit those customers (*i.e.*, by replacing existing capacity, improving reliability, or providing flexibility) is not a subsidy. ⁽¹⁸³⁾

b. Impacts on Existing Pipelines and Their Customers

67. As the Commission stated in the 1999 Policy Statement, existing pipelines that already serve the market to be served by the proposed new capacity may be affected by the potential loss of market share and the possibility that they may be left with unsubscribed capacity investment. ⁽¹⁸⁴⁾ Additionally, captive customers of existing pipelines may be affected if they must pay for the resulting unsubscribed capacity in their rates. These remain important concerns.

68. It has been the Commission's long-standing position that it has an obligation to ensure fair competition, but that it is not the role of the Commission to protect existing pipelines from the effects of competition. ⁽¹⁸⁵⁾ While we continue to maintain this position, we also emphasize that it is not just unfair competition that can harm captive customers. The Commission must consider the possible harm to captive customers that can result from a new pipeline, regardless of whether there is evidence of unfair competition.

69. Congress enacted the NGA "with the principal aim of encouraging the orderly development of plentiful supplies of . . . natural gas at reasonable prices, and protecting consumers against exploitation at the hands of natural gas companies." ⁽¹⁸⁶⁾ Ensuring the orderly development of natural gas supplies includes preventing overbuilding. One way that the Commission can prevent overbuilding is through careful consideration of a proposed project's impacts on existing pipelines. To the extent that a proposed project is designed to substantially serve demand already being met on existing pipelines, that could be an indication of potential overbuilding. Nevertheless, in such instances, the Commission will also consider whether the proposed project would offer certain advantages (*e.g.*, providing lower costs to consumers or enhancing system reliability).

70. Comments from existing pipelines and their captive customers about the potential impacts from a proposed project will be an important piece of our review. Additionally, comments from State utility or public service commissions as to how a proposed project may impact existing pipelines will be particularly useful.

c. Environmental Impacts

71. As noted above, the 1999 Policy Statement included an analytical framework for how the Commission would evaluate the effects of certificating new projects on economic interests. However, the 1999 Policy Statement did not describe how the Commission would consider environmental interests in its decision-making process and, more specifically, how it would balance these interests with the economic interests of a project. Instead, it stated that environmental interests would be “separately considered” in a certificate proceeding after the balancing of public benefits against the residual adverse effects on economic interests. (187)

72. While the 1999 Policy Statement focused on economic impacts, the consideration of environmental impacts is an important part of the Commission's responsibility under the NGA to evaluate all factors bearing on the public interest. (188) In the years immediately following issuance of the 1999 Policy Statement, the Commission would sometimes issue a preliminary determination on the non-environmental issues associated with a proposed project, and then issue a subsequent decision on the certificate application following the environmental review process; however, in practice, Commission staff would begin review of both the economic and environmental impacts following the filing of an application. Today, the Commission no longer issues preliminary determinations on non-environmental issues, and the Commission and staff continue to review the economic and environmental impacts of projects concurrently. Thus, the sequential framing of these analyses in the 1999 Policy Statement has created some confusion and incorrectly conveyed how the Commission considers environmental impacts. In addition to questions about sequencing, we have seen a significant increase in comments from a range of stakeholders expressing concerns about how the Commission considers environmental impacts, including impacts on climate change and environmental justice communities, in its public interest determinations.

73. To provide more clarity and regulatory certainty to all participants in certificate proceedings, we explain here how the Commission will consider environmental impacts. (189) The Commission will balance all impacts, including economic and environmental impacts, together in its public interest determinations under the NGA. As discussed further below, the potential adverse impacts will be weighed against the evidence of need and other potential benefits of a proposal in determining whether to issue a certificate of public convenience and necessity.

74. We will consider environmental impacts and potential mitigation in both our environmental reviews under NEPA and our public interest determinations under the NGA. The Commission expects applicants to structure their projects to avoid, or minimize, potential adverse environmental impacts. Additionally, we expect applicants to propose measures for mitigating impacts, and we will consider those measures—or the lack thereof—in balancing adverse impacts against the potential benefits of a proposal. Further, the NGA grants the Commission broad authority to attach reasonable terms and conditions to certificates of public convenience and necessity. (190) Should we deem an applicant's proposed mitigation of impacts inadequate to enable us to reach a public interest determination, we may condition the certificate to require additional mitigation. We may also deny an application based on any of the types of adverse impacts described herein, including environmental impacts, if the adverse impacts as a whole outweigh the benefits of the project and cannot be mitigated or minimized.

75. As noted above, since issuance of the 1999 Policy Statement, the Commission's policy for considering climate impacts has evolved. (191) In addition to the significant increase in comments from stakeholders, the courts have issued several decisions addressing the Commission's evaluation of GHG emissions in certificate proceedings. The D.C. Circuit recently held that reasonably foreseeable downstream GHG emissions are an indirect effect of the Commission authorizing proposed projects (192) and are relevant to the Commission's determination of whether proposed projects are required by the public convenience and necessity. (193)

76. Concurrently with this Updated Policy Statement, we are issuing a separate policy statement to explain how the Commission will assess project impacts on climate change in certificate proceedings going forward. ⁽¹⁹⁴⁾ This separate policy statement describes Commission procedures for evaluating climate impacts under NEPA and explains how the Commission will integrate climate considerations into its public convenience and necessity findings under the NGA, including how the Commission will consider measures to mitigate climate impacts. When making public interest determinations, we intend to fully consider climate impacts, in addition to other environmental impacts.

d. Impacts on Landowners and Surrounding Communities

77. The construction and operation of new natural gas infrastructure has the potential to result in adverse impacts on the landowners and communities surrounding a project. As the Commission stated in the 1999 Policy Statement:

[L]andowners whose land would be condemned for the new pipeline right-of-way, under eminent domain rights conveyed by the Commission's certificate, have an interest as does the community surrounding the right-of-way. The interest of these groups is to avoid unnecessary construction, and any adverse effects on their property associated with a permanent right-of-way. ⁽¹⁹⁵⁾

In the over 20 years that have passed since issuance of the 1999 Policy Statement, the Commission has seen an increase in proposals for projects in more densely populated areas, as well as a significant increase in comments from landowners raising a multitude of economic, environmental, and others concerns with proposed projects.

78. While the 1999 Policy Statement focused primarily on the economic impact associated with a permanent right-of-way on a landowner's property, ⁽¹⁹⁶⁾ going forward, and as discussed below, our analysis of impacts to landowners will be more expansive. This fuller consideration of landowner impacts is consistent with the Commission's approach in recent years of more fully engaging with landowners to ensure that their concerns are properly considered in our proceedings. For example, in June 2021, the Commission established OPP, in part, to facilitate public participation in Commission proceedings.

79. In addition to the increase in comments from landowners since issuance of the 1999 Policy Statement, the Commission has also seen a significant increase in comments raising environmental justice concerns. In recent years, issues surrounding environmental justice and equity have received increased focus and attention at both the State and Federal levels, as demonstrated by the recent issuance of Executive Orders 13985 and 14008, referenced above. ⁽¹⁹⁷⁾ The Commission is committed to ensuring that environmental justice and equity concerns are better incorporated into our decision-making processes. Accordingly, we clarify that our consideration of impacts to communities surrounding a proposed project will include an assessment of impacts to any environmental justice communities and of necessary mitigation to avoid or lessen those impacts.

80. The Commission and applicants have a shared responsibility to engage communities that may be impacted by a proposed project. This responsibility includes ensuring effective communication with landowners and environmental justice communities about potential impacts and giving careful consideration to the input of such parties during the agency proceeding. Below, we further discuss our expectations for how pipeline applicants will engage with landowners, steps the Commission has taken to protect landowner interests, and how the Commission will consider potential impacts to landowners and environmental justice communities.

i. Impacts on Landowners

81. As noted above, once the Commission grants a certificate of public convenience and necessity, section 7(h) of the NGA authorizes a certificate holder to acquire the necessary land or property to construct the approved facilities by exercising the right of eminent domain for those lands for which it could not negotiate an easement with landowners. ⁽¹⁹⁸⁾ As the Commission has previously recognized:

[t]here is no question that eminent domain is among the most significant actions that a government may take with regard to an individual's private property. And the harm to an individual from having their land condemned is one that may never be fully remedied, even in the event they receive their constitutionally-required compensation. ⁽¹⁹⁹⁾

Thus, looking only at the economic impacts associated with eminent domain does not sufficiently account for the full scope of impact on landowners. Landowners whose property is subject to eminent domain often experience intangible impacts, which cannot always be monetized. Our consideration of landowner impacts will be based upon robust early engagement with all interested landowners, as well as continued evaluation of input from such parties during the course of any given proceeding. And we will, to the extent possible, assess a wider range of landowner impacts.

82. Given the serious impacts associated with the use of eminent domain, we expect pipeline applicants to take all appropriate steps to minimize the future need to use eminent domain. This includes engaging with the public and interested stakeholders during the planning phase of projects to solicit input on route concerns and incorporate reroutes, where practicable, to address landowner concerns, as well as providing landowners with all necessary information. Additionally, we expect pipelines to take seriously their obligation to attempt to negotiate easements respectfully and in good faith with impacted landowners. The Commission will look unfavorably on applicants that do not work proactively with landowners to address concerns.

83. Additionally, we note that that, while a certificate provides the holder with significant rights and privileges, it also imposes concomitant responsibilities, including complying with all certificate conditions. Specifically, certificate holders must comply with requirements regarding restoration of the pipeline right-of-way. Failure to comply with such requirements could mean that a pipeline is out of compliance with its certificate, and could lead to compliance action by the Commission, including referral to the Commission's Office of Enforcement for further investigation and potential civil penalties. ⁽²⁰⁰⁾

84. Although the Commission does not have the authority to deny or restrict the power of eminent domain in a section 7 certificate, ⁽²⁰¹⁾ or to oversee the acquisition of property rights through eminent domain, including issues regarding the timing of and just compensation for the acquisition of property rights, ⁽²⁰²⁾ the Commission has recently taken steps within its authority to protect landowner interests. Specifically, the Commission issued Order No. 871-B, which precludes authorization of construction during the rehearing period for certificate orders and pending resolution of rehearing requests reflecting opposition to project construction, operation, or need (subject to a time limitation), and which establishes a general policy, subject to a case-by-case determination, of staying certificate orders during the rehearing period and pending Commission resolution of any timely requests for rehearing filed by landowners (also subject to a time limitation). ⁽²⁰³⁾

85. We acknowledge that in many cases pipeline applicants will not be able to acquire all the necessary right-of-way by negotiation and in such instances may need to use eminent domain. In assessing potential impacts to landowners, the Commission will consider the steps a pipeline applicant has already taken to acquire lands through respectful and good faith negotiation, as well as the applicant's plans to minimize the use of eminent domain upon receiving a certificate. And, as discussed further below, the potential adverse impacts to landowners, along with other adverse impacts, will be weighed against the evidence of need and potential benefits of a proposal in determining whether to issue a certificate of public convenience and necessity.

ii. Impacts on Environmental Justice Communities

86. Our evaluation of the impacts of a proposed interstate natural gas pipeline will include a robust consideration of its impacts on environmental justice communities. ⁽²⁰⁴⁾ We recognize that environmental justice communities have long borne a disproportionate share of the impacts associated with industrial development near their residences, workplaces, religious institutions, and schools. That history often comes with significant, deleterious consequences. For example, environmental justice communities frequently experience health disparities, such as higher rates of asthma and certain cancers relative to society at large, which can render individuals in those communities particularly susceptible to incremental pollution and other adverse impacts that may be caused by a new project. ⁽²⁰⁵⁾ The Commission's public interest responsibility demands that we seriously evaluate these considerations and incorporate them into the balancing test outlined below. ⁽²⁰⁶⁾

87. For the Commission to adequately evaluate the impacts of a proposed project on environmental justice communities, it is essential to promptly and properly identify such communities. Commenters noted the insufficiency of relying only on initial screening tools to identify environmental justice communities. ⁽²⁰⁷⁾ While data from screening tools such as the EPA's EJSCREEN may be useful, additional data collection methods may be necessary to properly identify environmental justice communities. We encourage applicants to consult with guidance provided by EPA, CEQ, and other authoritative sources, ⁽²⁰⁸⁾ to ensure that the Commission has before it all the data needed to adequately identify environmental justice communities potentially affected by a proposed project. We will evaluate and incorporate, as appropriate, any subsequently issued guidance when considering how to identify environmental justice communities affected by a proposed project. We encourage project developers to do the same.

88. Many commenters encourage the Commission to factor in demographic considerations—such as disability, age, household income, pre-existing health conditions, and level of education. ⁽²⁰⁹⁾ We recognize that such demographic considerations may be appropriate to consider on a project-by-project basis or as Federal guidance evolves.

89. Additionally, we recognize that proper selection of both the geographic unit of analysis (*e.g.*, census block group) within the affected environment and the reference community (*e.g.*, county/parish, or State) is necessary to ensure that affected environmental justice communities are properly identified for consideration in the Commission's analysis. ⁽²¹⁰⁾ The affected environment for environmental justice analysis purposes may vary according to the characteristics of the particular project and the surrounding communities. ⁽²¹¹⁾ Accordingly, the Commission will ensure that the delineation of the affected area, selected geographic unit of analysis, and reference community are consistent with best practices and Federal guidance and will not be limited to a one-size-fits-all approach. ⁽²¹²⁾

90. The consideration of cumulative impacts ⁽²¹³⁾ is particularly important when it comes to conducting an environmental justice analysis. ⁽²¹⁴⁾ An environmental analysis that, for example, considers incremental impacts of a project in isolation will, almost by definition, fail to adequately consider the project's impact on a community that already experiences elevated levels of pollution or other adverse impacts. To adequately capture the effects of cumulative impacts, it is essential that the Commission consider those pre-existing conditions and how the adverse impacts of a proposed project may interact with and potentially exacerbate them. To that end, several commenters provide recommendations for specific health and environmental indicators that the Commission should consider when it evaluates cumulative exposures. These include factors such as air pollution, heat vulnerability, as well as the effects of pre-existing infrastructure (*e.g.*, bus depots, highways, and waste facilities). ⁽²¹⁵⁾ That analysis can be informed by a wide range of data, including, for example, health statistics such as cancer clusters, asthma rates, social vulnerability data, and

community resilience data. ⁽²¹⁶⁾ We will carefully examine cumulative impacts on environmental justice communities and encourage applicants to identify and submit any such data that may be relevant for the particular environmental justice communities affected by their proposed project.

91. The Commission will also consider measures to eliminate or mitigate a project's adverse impacts on environmental justice communities. We recognize that mitigation must be tailored to the needs of different environmental justice communities. This will require close consultation between the project developer, the communities in question, and the Commission, consistent with our *ex parte* regulations. ⁽²¹⁷⁾ We will look with disfavor on mitigation proposals that are proposed without sufficient community input. In addition, we note that effective mitigation will require the Commission to consider, among other things, the feasibility of proposed mitigation and methods for ensuring compliance, the timing of proposed mitigation, and, where useful, a range of potential mitigation options.

92. As described above, in June 2021, the Commission established OPP to help facilitate public participation in Commission proceedings. We anticipate that OPP will similarly play an important role in ensuring that environmental justice communities are able to participate meaningfully in section 7 certificate proceedings that affect their interests. We also recognize the adverse impacts that natural gas infrastructure can have on Native American Tribes and Tribal resources, and we will continue to review our existing processes to ensure that the Commission is engaging in effective government-to-government consultation with Tribes and receiving and considering Tribal input on proposals.

93. In sum, we recognize that “environmental justice is not merely a box to be checked” ⁽²¹⁸⁾ and we commit to ensuring that such concerns are fully considered in our public interest analysis under NGA section 7. We expect the principles and concerns outlined above will guide that consideration as the Commission continues to develop its environmental justice precedent. Finally, as noted above, we recognize that Federal agencies, including EPA and CEQ, are in the process of updating their guidance regarding environmental justice and we will review and incorporate, as appropriate, any future guidance in our case-by-case decision-making process.

B. Assessing Public Benefits and Adverse Effects

94. In deciding whether to issue a certificate of public convenience and necessity, the Commission must decide whether, on balance, the project will serve the public interest. In order to make such a determination, the Commission must consider all of the benefits of a proposal together with all of the adverse impacts, including the economic and environmental impacts.

95. As discussed above, under the 1999 Policy Statement, the Commission would first determine whether, given an applicant's efforts to mitigate or minimize impacts, there would be any residual adverse effects on the economic interests of the existing customers of the pipeline applicant, existing pipelines in the market and their captive customers, or landowners and communities affected by the proposal. If so, the Commission would balance the evidence of public benefits to be achieved by the project against those residual adverse effects on economic interests. If the benefits outweighed the adverse economic effects, the Commission would then consider the environmental impacts associated with the proposal. ⁽²¹⁹⁾

96. As noted above, today, the Commission and staff review the economic and environmental impacts of projects concurrently. Thus, the sequential framing of these analyses in the 1999 Policy Statement has created some confusion and incorrectly conveyed how the Commission considers economic and environmental impacts. Accordingly, to provide clarity regarding our decision-making process, we explain that, in order to determine whether a proposed project is in the public interest, we must look at the entirety of a proposal and balance all its benefits against all of its adverse impacts.

97. In assessing the public benefits of a project, the Commission intends to consider all benefits that will be provided by the project. The most important consideration in assessing benefits will be the evidence demonstrating that a project is needed, as discussed in more detail above. The Commission will also consider any benefits beyond demand that are alleged by the applicant and supported in the record, which may include evidence that the project will displace more pollution-heavy generation sources, facilitate the integration of renewable energy sources, and/or result in a significant source of jobs or tax revenues (we note that temporary impacts associated with a proposal will generally be given less weight).

98. In assessing the adverse impacts of a proposal, we will consider the range of impacts to: (1) Existing customers of the pipeline applicant; (2) existing pipelines in the market and their captive customers; (3) environmental resources; and (4) landowners and surrounding communities, including environmental justice communities. In reviewing those adverse impacts, the Commission will carefully consider the extent to which an applicant will be able to mitigate any adverse impacts through applicant-proposed measures or additional measures that the Commission could require.

99. Consistent with the 1999 Policy Statement, we believe that “[t]he more interests adversely affected or the more adverse impact a project would have on a particular interest, the greater the showing of public benefits from the project required to balance the adverse impact.”⁽²²⁰⁾ And, as the Commission did in the 1999 Policy Statement, we decline to adopt any bright-line standards for how we will carry out this balancing;⁽²²¹⁾ rather, the approach must remain flexible enough for the Commission to resolve specific cases and take into account the different interests that must be considered. We do make clear, however, that there may be proposals denied solely on the magnitude of a particular adverse impact to any of the four interests described above if the adverse impacts, as a whole, outweigh the benefits of the project and cannot be mitigated or minimized. On the other hand, there may be proposals that have significant impacts but are still found to be in the public interest if the public benefits outweigh those impacts.

V. Applicability of the Updated Certificate Policy Statement

100. A major purpose of this Updated Policy Statement is to provide clarity and regulatory certainty regarding the Commission's decision-making process. Therefore, the Updated Policy Statement will not be applied retroactively to cases where a certificate has already been issued and investment decisions have been made. However, the Commission will apply the Updated Policy Statement to any currently pending applications for new certificates. Applicants will be given the opportunity to supplement the record and explain how their proposals are consistent with this Updated Policy Statement, and stakeholders will have an opportunity to respond to any such filings.

VI. Information Collection Statement

101. The collection of information discussed in the Updated Policy Statement is being submitted to the Office of Management and Budget (OMB) for review under section 3507(d) of the Paperwork Reduction Act of 1995⁽²²²⁾ and OMB's implementing regulations.⁽²²³⁾ OMB must approve information collection requirements imposed by agency rules.⁽²²⁴⁾ Respondents will not be subject to any penalty for failing to comply with a collection of information if the collection does not display a valid OMB control number.

102. The Commission solicits comments from the public on the Commission's need for this information, whether the information will have practical utility, the accuracy of the burden estimates, recommendations to enhance the quality, utility, and clarity of the information to be collected, and any suggested methods for minimizing respondents' burden, including the use of automated information techniques. *Public comments are due* May 2, 2022. The burden estimates are focused on implementing the voluntary information collection pursuant to this Updated Policy Statement. The Commission asks that any revised burden estimates submitted by commenters include the details and assumptions used to generate the estimates.

103. The following estimate of reporting burden is related only to this Updated Policy Statement.

104. *Public Reporting Burden:* The collection of information related to this Updated Policy Statement falls under FERC-537 and impacts the burden estimates associated with the “Interstate Certificate and Abandonment Applications” component of FERC-537. The Updated Policy Statement will not impact the burden estimates related to any other component of FERC-537. ⁽²²⁵⁾ The estimated annual burden ⁽²²⁶⁾ and cost ⁽²²⁷⁾ follow.

Modifications to FERC-537 (Gas Pipeline Certificates: Construction, Acquisition, and Abandonment)

as a Result of PL18-1-000

	Number of respondents	Annual number of responses per respondent	Total number of responses	Average burden & cost per response	Total annual burden hours & total annual cost	Cost per respondent(\$)
	(1)	(2)	(1) * (2) = (3)	(4)	(3) * (4) = (5)	(5) ÷ (1)
Interstate Certificate and Abandonment Applications	40	1	40	880 hours; \$76,560 Increase	35,200 hours; \$3,062,400 Increase	\$76,560 Increase.

105. *Title:* FERC-537, Gas Pipeline Certificates: Construction, Acquisition and Abandonment.

106. *Action:* Proposed revisions to an existing information collection.

107. *OMB Control No.:* 1902-0060.

108. *Respondents:* Entities proposing natural gas projects under section 7 of the NGA.

109. *Frequency of Information Collection:* On occasion.

110. *Necessity of Voluntary Information Collection:* The Commission's existing FERC-537 information collection pertains to regulations implementing section 7 of the NGA, which authorizes the Commission to issue certificates of public convenience and necessity for the construction and operation of facilities transporting natural gas in interstate commerce. The information collected pursuant to this Updated Policy Statement should help the Commission in making its public interest determinations.

111. *Internal Review:* The opportunity to file the information conforms to the Commission's plan for efficient information collection, communication, and management within the natural gas pipeline industry. The Commission has assured itself, by means of its internal review, that there is specific, objective support for the burden estimates associated with the opportunity to file the information.

112. Interested persons may provide comments on this information collection by one of the following methods:

- *Electronic Filing (preferred)*: Documents must be filed in acceptable native applications and print-to-PDF, but not in scanned or picture format.
- *USPS*: Federal Energy Regulatory Commission, Office of the Secretary, 888 First Street NE, Washington, DC 20426.
- *Hard copy other than USPS*: Federal Energy Regulatory Commission, Office of the Secretary, 12225 Wilkins Avenue, Rockville, Maryland 20852.

VII. Document Availability

113. In addition to publishing the full text of this document in the Federal Register , the Commission provides all interested persons an opportunity to view and/or print the contents of this document via the internet through the Commission's Home Page (<http://www.ferc.gov>). At this time, the Commission has suspended access to the Commission's Public Reference Room due to the President's March 13, 2020 proclamation declaring a National Emergency concerning the Novel Coronavirus Disease (COVID-19).

114. From the Commission's Home Page on the internet, this information is available on eLibrary. The full text of this document is available on eLibrary in PDF and Microsoft Word format for viewing, printing, and/or downloading. To access this document in eLibrary, type the docket number excluding the last three digits of this document in the docket number field.

115. User assistance is available for eLibrary and the Commission's website during normal business hours from the Commission's Online Support at (202) 502-6652 (toll free at 1-866-208-3676) or email at ferconlinesupport@ferc.gov, or the Public Reference Room at (202) 502-8371, TTY (202) 502-8659. Email the Public Reference Room at public.referenceroom@ferc.gov.

By the Commission. Commissioner Danly is dissenting with a separate statement attached.

Commissioner Christie is dissenting with a separate statement attached.

Issued: February 18, 2022.

Kimberly D. Bose,
Secretary.

DEPARTMENT OF ENERGY FEDERAL ENERGY REGULATORY COMMISSION

Certification of New Interstate Natural Gas Facilities

Docket No. PL18-1-000

DANLY, Commissioner, *dissenting*:

1. I dissent from the issuance of the *Updated Policy Statement on Certification of New Interstate Natural Gas Facilities*.⁽¹⁾ Before I explain my reasons for dissenting, I would like to state from the outset that I voted for the Commission's most recent revised Notice of Inquiry⁽²⁾ considering changes to its Original Policy Statement.⁽³⁾

2. I cannot, however, support today's issuance because it will, in combination with the Interim Greenhouse Gas (GHG) Policy Statement,⁽⁴⁾ have profound implications for the ability of natural gas companies to secure capital, on the timelines for Natural Gas Act (NGA) section 7⁽⁵⁾ applications to be processed, and on the costs that a pipeline and its customers will bear as a result of the potentially unmeasurable mitigation that the majority *expects* each company to propose when filing its application⁽⁶⁾ and the possibility of

further mitigation measures added unilaterally by the Commission. As I explain in more detail below, this policy statement contravenes the purpose of the NGA which, as the Supreme Court has held, is to “encourage the orderly development of plentiful supplies of . . . natural gas at reasonable prices.” (7)

I. The Commission's Jurisdiction and the Public Convenience and Necessity Standard Are Not as Broad as the Updated Policy Statement Suggests

3. As an initial matter, the Commission “is a ‘creature of statute,’ having ‘no constitutional or common law existence or authority, but *only* those authorities conferred upon it by Congress.’” (8) The applicable statute is the NGA, and the statutory standard applicable to NGA section 7(c) certificate applications (9) is whether a proposed project “is or will be required by the present or future public convenience and necessity.” (10)

4. Notably, *public convenience and necessity* is not anywhere defined in the language of the NGA. (11) That phrase is famously ambiguous, and the statute fails to provide factors to be weighed in arriving at a determination that a proposed project “is or will be required by the present or future public convenience and necessity.” (12) Accordingly, “the Natural Gas Act ‘vests the Commission with broad discretion to invoke its expertise in balancing competing interests and drawing administrative lines.’” (13) This does not, of course, mean that we are wholly without guideposts in construing the meaning of the public convenience and necessity standard. As recognized by my colleagues, the Supreme Court has found that NGA section “7(e) requires the Commission to evaluate all factors bearing on the public interest.” (14) This finding, however, cannot not be read in a vacuum. The Court has explained that the inclusion of the phrase “public interest” in a statute is not “a broad license to promote the general public welfare”—instead, it “take[s] meaning from the purposes of the regulatory legislation.” (15) Thus, we turn, as we must, to the purpose of the NGA: “to encourage the orderly development of plentiful supplies of . . . natural gas at reasonable prices.” (16) Any balancing under the public convenience and necessity standard should “take meaning” from that purpose.

5. We also know that “[n]othing contained in [NGA section 7] shall be construed as a limitation upon the power of the Commission to grant certificates of public convenience and necessity for service of an area already being served by another natural-gas company.” (17) Therefore, the Commission is not barred from finding a proposed project required by the public convenience and necessity when it is in an area that is already served by another company. (18)

6. Another consideration relevant to the Commission's evaluation of the public interest is our jurisdiction and, specifically, which areas of regulation Congress identified as being reserved to states—and thus outside of our jurisdiction. NGA section 1(b) sets forth that division of jurisdiction, providing that,

[t]he provisions of [the NGA] shall apply to the transportation of natural gas in interstate commerce, to the sale in interstate commerce of natural gas for resale for ultimate public consumption for domestic, commercial, industrial, or any other use, and to natural-gas companies engaged in such transportation or sale, and to the importation or exportation of natural gas in foreign commerce and to persons engaged in such importation or exportation, but *shall not apply to any other transportation or sale of natural gas or to the local distribution of natural gas or to the facilities used for such distribution or to the production or gathering of natural gas.* (19)

The Commission's authority therefore extends to: (1) The “transportation of natural gas in interstate commerce,” (2) the “sale in interstate commerce of natural gas for resale,” and (3) “natural-gas companies engaged in such transportation or sale.” (20) Exempted from our jurisdiction are production, gathering and local distribution. (21) From these exemptions, it may be gleaned that the Commission does not have jurisdiction over the “gas once it moves beyond the high-pressure mains into the hands of an end user.” (22) Another exemption from federal regulation is contained in NGA section 1(c), which states:

The provisions of this chapter shall not apply to any person engaged in or legally authorized to engage in the transportation in interstate commerce or the sale in interstate commerce for resale, of natural gas received by such person from another person within or at the boundary of a State if all the natural gas so received is ultimately consumed within such State, or to any facilities used by such person for such transportation or sale, provided that the rates and service of such person and facilities be subject to regulation by a State commission. ⁽²³⁾

By declaring the foregoing exemptions from federal regulation, Congress has carefully delineated the limits of the Commission's jurisdiction. ⁽²⁴⁾

7. These limits on the Commission's jurisdiction are not extended by the National Environmental Policy Act (NEPA). ⁽²⁵⁾ In fact, NEPA cannot extend our jurisdiction because NEPA is not a means of "mandating that agencies achieve particular substantive environmental results"; ⁽²⁶⁾ rather, it serves to "impose[] only procedural requirements on federal agencies with a particular focus on requiring agencies to undertake analyses of the environmental impact of their proposals and actions." ⁽²⁷⁾ Indeed, "NEPA not only does not require agencies to discuss any particular mitigation plans that they might put in place, it does not require agencies—or third parties—to effect any." ⁽²⁸⁾ It is necessary to acknowledge the limited, procedural nature of NEPA's requirements since it almost appears as though some of my colleagues have become convinced that it is necessary to ensure that environmental impacts are mitigated before one can make a finding that a proposed project is required by the public convenience and necessity. ⁽²⁹⁾ Neither NEPA nor the NGA establishes such a requirement.

8. And, any attempt to justify such action through the Commission's conditioning authority is unsupported. ⁽³⁰⁾ Under its conditioning authority, "[t]he Commission shall have the power to attach to the issuance of the certificate and to the exercise of the rights granted thereunder such reasonable terms and conditions as the public convenience and necessity may require." ⁽³¹⁾ But the Commission's conditioning authority cannot be used to impose conditions beyond the Commission's jurisdiction. ⁽³²⁾ Nor can the Commission find support under NEPA for its expectation that applicants propose mitigation measures in order for a project to be deemed required by the public convenience and necessity. ⁽³³⁾

II. A Number of the Changes to the Certificate Policy Statement Are Misguided

• Changes in the Commission's Need Determination

9. In the Original Policy Statement, the Commission stated that, in evaluating the need for a project, it would:

consider all relevant factors reflecting on the need for the project. These might include, but would not be limited to, precedent agreements, demand projections, potential cost savings to consumers, or a comparison of projected demand with the amount of capacity currently serving the market. The objective would be for the applicant to make a sufficient showing of the public benefits of its proposed project to outweigh any residual adverse effects discussed below. ⁽³⁴⁾

Although the Commission stated in its Original Policy Statement that it would consider other factors, the Commission has also "explained that the [Original] Policy Statement does not require a certain percentage of a proposed project's capacity be subscribed, and that with respect to affiliate shippers, `it is . . . Commission policy to not look beyond precedent or service agreements to make judgments about the needs of individual shippers.'" ⁽³⁵⁾

10. In the Updated Policy Statement, the Commission now is revising how it determines need. The Updated Policy Statement explains that "[i]n determining whether to issue a certificate of public convenience and necessity, the Commission will weigh the public benefits of a proposal, *the most important of which is the*

need that will be served by the project, against its adverse impacts.”⁽³⁶⁾ The Commission acknowledges that its prior reliance on precedent agreements to determine need has been upheld by courts,⁽³⁷⁾ but then proclaims that “we cannot adequately assess project need without also looking at evidence beyond precedent agreements.”⁽³⁸⁾ An expectation is then established that applicants continue to provide precedent agreements but “the existence of precedent agreements may not be sufficient in and of themselves to establish need for the project.”⁽³⁹⁾

11. The Commission underscores what it views as necessary for the Commission to determine need for all categories of proposed projects: “specific information detailing how the gas to be transported by the proposed project will ultimately be used,” *i.e.*, the end use and, “why the project is needed to serve that use.”⁽⁴⁰⁾ And if the applicant does not have information regarding the intended end use? Applicants are “encouraged” to turn to their shippers to obtain it.⁽⁴¹⁾ In the absence of such information, the Commission suggests that the applicant may not satisfy its burden to demonstrate need for the proposed project.⁽⁴²⁾ The projected end use and an explanation of the reasons *why* the project is needed to serve that use are not the only information the Commission requests—“[f]or all categories of proposed projects,” the majority also “encourage[s] applicants to provide specific information detailing . . . the expected utilization rate of the proposed project.”⁽⁴³⁾ The majority also suggests types of “evidence” for various categories of projects.⁽⁴⁴⁾

12. And when precedent agreements are with an affiliate of the applicant, the majority states that those precedent agreements, will generally not be sufficient to demonstrate need.⁽⁴⁵⁾

13. I agree that, as a legal matter, the Commission may take into account considerations other than precedent agreements in its need determination. I also agree that there may be circumstances—such as when there is evidence of self-dealing in the execution of a precedent agreement with an affiliated shipper—where “the existence of precedent agreements may not be sufficient in and of themselves to establish need for the project.”⁽⁴⁶⁾

14. To the extent, however, that today's order suggests that the Commission must look beyond precedent agreements in every circumstance to determine need, I disagree. In my view, precedent agreements are strong evidence of need and the Commission need not look further in most circumstances. As my colleagues acknowledge, courts have upheld on numerous occasions the Commission's application of its Original Policy Statement and the Commission's reliance on precedent agreements to support multiple findings of market need.⁽⁴⁷⁾

15. In terms of precedent agreements with affiliates, the Commission recently received guidance in the form of the narrow holding in *Environmental Defense Fund v. FERC*.⁽⁴⁸⁾ There, the court found the Commission's public convenience and necessity determination to be arbitrary and capricious due to the Commission's rel[iance] solely on a precedent agreement to establish market need for a proposed pipeline when (1) there was a single precedent agreement for the pipeline; (2) that precedent agreement was with an affiliated shipper; (3) all parties agreed that projected demand for natural gas in the area to be served by the new pipeline was flat for the foreseeable future; and (4) the Commission neglected to make a finding as to whether the construction of the proposed pipeline would result in cost savings or otherwise represented a more economical alternative to existing pipelines.⁽⁴⁹⁾

That case does not stand for the proposition that in every circumstance, the Commission must always look beyond the precedent agreements. Instead, that case should be read as a failure on the part of the Commission to engage in reasoned decision making based on the facts presented.

16. Next, I disagree with the majority's position that the Commission should weigh end use in its determination of need. I agree with Enbridge Gas Pipeline that “[p]rioritizing certain end uses in determining project need would be inconsistent with the Commission's policies of open access, open seasons and awarding capacity to those that value the capacity the most.”⁽⁵⁰⁾ More importantly, the Commission does

not have jurisdiction over the end use of the gas and has been purposefully deprived of its upstream and downstream authorities by Congress. The breadth of the subject matters that inform our public interest determinations must be informed by the limits of our jurisdiction.

17. I recognize that in *Transco* the Supreme Court stated that “`end-use' . . . was properly of concern to the Commission.”⁽⁵¹⁾ As commenters observe,⁽⁵²⁾ however, the *Transco* decision was made prior to Congress' enactment of the Natural Gas Policy Act of 1978 (NGPA)⁽⁵³⁾ and the Natural Gas Wellhead Decontrol Act of 1989 (Wellhead Decontrol Act).⁽⁵⁴⁾ These later enactments are instructive as to whether the Commission should consider end use as part of its public convenience and necessity determination.

18. The NGPA “was designed to phase out regulation of wellhead prices charged by producers of natural gas, . . . to `promote gas transportation by interstate and intrastate pipelines' for third parties”⁽⁵⁵⁾ and also “to provide investors with adequate incentives to develop new sources of supply.”⁽⁵⁶⁾ Later, the enactment of the Wellhead Decontrol Act resulted in deregulating upstream natural gas production, and the legislative history suggests the enactment would serve to encourage competition of natural gas at the wellhead.⁽⁵⁷⁾ In combination, these acts effectively deprived the Commission of authority upstream of the jurisdictional pipeline.

19. In 1987, Congress repealed sections of the Power Plant and Industrial Fuel Use Act of 1978 (Fuel Use Act), further deregulating downstream considerations. My former colleague, Commissioner McNamee previously explained that the Fuel Use Act had “restricted the use of natural gas in electric generation so as to conserve it for other uses” and “[w]ith the repeal of the Fuel Use Act, Congress made clear that natural gas could be used for electric generation and that the regulation of the use of natural gas by power plants unnecessary.”⁽⁵⁸⁾ A House report stated:

By amending [the Fuel Use Act], H.R. 1941 will remove artificial government restrictions on the use of oil and gas; allow energy consumers to make their own fuel choices in an increasingly deregulated energy marketplace; encourage multifuel competition among oil, gas, coal, and other fuels based on their price, availability, and environmental merits; preserve the `coal option' for new baseload electric powerplants which are long-lived and use so much fuel; and provide potential new markets for financially distressed domestic oil and gas producers.⁽⁵⁹⁾

These later, deregulatory enactments were not at play in *Transco*. And I agree that “the current framework requires equal access to a plentiful gas supply for all buyers and sellers.”⁽⁶⁰⁾ Taking the foregoing into account, I am not convinced that the Commission has authority to deny a certificate of public convenience and necessity on the basis of end use, and the Commission should not consider end use in its need determination.

b. Consideration of Adverse Effects

20. The Commission explains in its Updated Policy Statement that it will consider four categories of adverse impacts from the construction and operation of new projects: (1) The interests of the applicant's existing customers; (2) the interests of existing pipelines and their captive customers; (3) environmental interests; and (4) the interests of landowners and surrounding communities, including environmental justice communities.⁽⁶¹⁾ The Commission also states that it may deny an application based on any of the foregoing types of adverse impacts.⁽⁶²⁾ Further, the Commission will “consider environmental impacts *and potential mitigation* in both our environmental reviews under NEPA and our public interest determinations under the NGA.”⁽⁶³⁾ And the Commission “expects applicants to structure their projects to avoid, or minimize, potential adverse environmental impacts.”⁽⁶⁴⁾

21. First, regarding the interests of the applicant's existing customers, the Commission announces that while our policy of no financial subsidies remains unchanged, the Commission will no longer treat this as a threshold requirement.⁽⁶⁵⁾ This reprioritization is fine; it is merely a policy choice with no obvious legal

infirmary.

22. Next, the Commission turns to its considerations of existing pipelines and their customers with an emphasis on the prevention of overbuilding. In an order clarifying the Original Policy Statement, the Commission discussed the consideration of overbuilding and explained that “[s]ending the wrong price signals to the market can lead to inefficient investment and contracting decisions which can cause pipelines to build capacity for which there is not a demonstrated market need,” and that “[s]uch overbuilding, in turn, can exacerbate adverse environmental impacts, distort competition between pipelines for new customers, and financially penalize existing customers of expanding pipelines and customers of the pipelines affected by the expansion.” ⁽⁶⁶⁾ I agree that the concern of overbuilding is worthy of consideration in the Commission's balancing and consistent with the purpose of “encourag[ing] the *orderly development* of plentiful supplies of . . . natural gas at reasonable prices.” ⁽⁶⁷⁾

23. The Commission also states that “[t]o the extent that a proposed project is designed to substantially serve demand already being met on existing pipelines, that could be an indication of potential overbuilding.” ⁽⁶⁸⁾ In my view, the Commission should weigh this consideration with NGA section 7(g) in mind, which provides that “[n]othing contained in [NGA section 7] shall be construed as a limitation upon the power of the Commission to grant certificates of public convenience and necessity for service of an area already being served by another natural-gas company.” ⁽⁶⁹⁾ In considering whether a proposed project is designed to substantially serve demand that is already met, the Commission should also consider whether the proposed project would allow for further competition, send appropriate price signals and improve the efficiency or reliability of service to existing customers. This is worth noting because of the statement in today's order that states that “[t]he Commission may deny an application based on *any* of these types of adverse impacts,” ⁽⁷⁰⁾ including impacts to existing pipelines and their customers.

24. Third, the majority addresses environmental impacts, stating: “While the 1999 Policy Statement focused on economic impacts, the consideration of environmental impacts is an important part of the Commission's responsibility under the NGA to evaluate all factors bearing on the public interest.” ⁽⁷¹⁾ As explained by the majority, the Original Policy Statement “included an analytical framework for how the Commission would evaluate the effects of certificating new projects on economic interests,” and it “did not describe how the Commission would consider environmental interests in its decision-making process and, more specifically, how it would balance these interests with the economic interests of a project.” ⁽⁷²⁾ The Commission now adjusts that framework to include environmental impacts as a consideration in its Updated Policy Statement.

25. The Commission explains that it will consider environmental impacts and potential mitigation in both our environmental reviews under NEPA and our public interest determinations under the NGA. ⁽⁷³⁾ The majority “expect[s] applicants to propose measures for mitigating impacts,” for consideration in the Commission's balancing of adverse impacts against the potential benefits of a proposal. ⁽⁷⁴⁾ The Commission may condition the certificate with further mitigation. ⁽⁷⁵⁾ Moreover, the Commission states that it may “deny an application based on . . . environmental impacts, if the adverse impacts as a whole outweigh the benefits of the project and cannot be mitigated or minimized.” ⁽⁷⁶⁾ Finally, the majority indicates its intent when making its public convenience and necessity determination to fully consider climate impacts. ⁽⁷⁷⁾

26. I discuss the reasons why I disagree with the majority's Interim GHG Policy Statement in my dissent to that order. ⁽⁷⁸⁾ In terms of the change from an economic focus in the Original Policy Statement, my view is that the Commission should retain its economic framework as the basis of its policy statement. I am concerned that several of the changes made in today's Updated Policy Statement include issues outside the scope of that which the Commission is able to consider under the NGA. Though time has passed since the NGA's enactment, it is Congress' role to amend the statute should it see fit to include in the Commission's authority matters such as the conditioning of certificates to mitigate GHG emissions.

Congress has done so before and could do so again. ⁽⁷⁹⁾ To restate the approach that should be taken to determine the public convenience and necessity: Any balancing under that standard must “take meaning” from the interests articulated in the NGA.

27. Although courts have recognized that the Commission's NGA section 7(e) “conditioning authority is ‘extremely broad,’” ⁽⁸⁰⁾ such authority is not without limit. “The Commission may not, however, when it lacks the power to promote the public interest directly, do so indirectly by attaching a condition to a certificate that is, in unconditional form, already in the public convenience and necessity.” ⁽⁸¹⁾ There have been circumstances where the courts have found the Commission exceeded its conditioning authority. ⁽⁸²⁾ Its use must be consistent with the other provisions of the NGA and the Commission may not use conditions under the guise of acting in the public interest in order to do something it would otherwise not have authority to do.

28. There are also practical considerations in the Commission finding in today's policy statement that “[s]hould [the Commission] deem an applicant's proposed mitigation of impacts inadequate to enable us to reach a public interest determination, we may condition the certificate to require additional mitigation.” ⁽⁸³⁾ The costs that attend the proposed mitigation of GHG emissions may be unmeasurable, may not be readily apparent, and may also be more than the natural gas companies and its shippers are willing or able to bear. There will perhaps be difficulty in measuring the costs of conditions, such as market-based mitigation, ⁽⁸⁴⁾ when the costs are determined based on a changing market. For instance, the cost of purchasing renewable energy credits may be different at the time an application is filed in comparison to when the certificate is issued. And there is no guarantee that the potentially extraordinary costs incurred by a pipeline to comply with the Commission's public interest determination will be recovered in the pipeline's rates. ⁽⁸⁵⁾ These practical considerations have not been taken into account by the Commission. Without these considerations, I am not convinced that the Commission has engaged in reasoned decision making.

29. Turning to the Commission's consideration of impacts on landowners and surrounding communities, as the majority recognizes, the Original Policy Statement's primary focus was on economic impacts associated with a permanent right-of-way on a landowner's property. ⁽⁸⁶⁾ Going forward, the consideration “of impacts to landowners will be more expansive.” ⁽⁸⁷⁾ The majority clarifies that the “consideration of impacts to communities surrounding a proposed project will include an assessment of impacts to any environmental justice communities and of necessary mitigation to avoid or lessen those impacts.” ⁽⁸⁸⁾ And “expectations” are established “for how pipeline applicants will engage with landowners.” ⁽⁸⁹⁾

30. The majority also commits itself to “robust early engagement with all interested landowners, as well as continued evaluation of input from such parties during the course of any given proceeding” and states that the Commission “will, to the extent possible, assess a wider range of landowner impacts.” ⁽⁹⁰⁾ Further, the majority states that it “expect[s] pipeline applicants to take all appropriate steps to minimize the future need to use eminent domain,” including “engage[ment] with the public and interested stakeholders during the planning phase of projects to solicit input on route concerns and incorporate reroutes, where practicable, to address landowner concerns, as well as providing landowners with all necessary information.” ⁽⁹¹⁾

31. The majority states that it “expect[s] pipelines to take seriously their obligation to attempt to negotiate easements respectfully and in good faith with impacted landowners” and indicates that “[t]he Commission will look unfavorably on applicants that do not work proactively with landowners to address concerns.” ⁽⁹²⁾ Does this mean that the majority plans to weigh, in its balancing of interests, allegations concerning whether the applicant has engaged in good faith negotiation of easements and collaboration with landowners to address concerns? It appears so. The Commission later states that “[i]n assessing potential impacts to landowners, the Commission will consider the steps a pipeline applicant has already taken to acquire lands through respectful and good faith negotiation, as well as the applicant's plans to minimize the use of eminent domain upon receiving a certificate.” ⁽⁹³⁾

32. It is worth reminding my colleagues that on the very same meeting that this order is issued, the Commission also issues an order ⁽⁹⁴⁾ that reaffirms a decision to deny landowners' request for the Commission to interpret the scope of NGA section 7(h) because, in my colleagues' view, NGA section 7(h) is "a provision that gives courts a particular implementing role" and therefore "is better resolved by the courts than the Commission." ⁽⁹⁵⁾ And yet here, the Commission contemplates considering in its balancing whether applicants have engaged in good faith negotiations for easements pursuant to NGA section 7(h).

33. Finally, the Commission discusses how it will consider impacts to environmental justice communities. In explaining its objectives, the majority states that "[t]he consideration of cumulative impacts is particularly important when it comes to conducting an environmental justice analysis." ⁽⁹⁶⁾ In support, the Commission has the following footnote:

"`Cumulative impact' is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." 40 CFR 1508.7 (1978). ⁽⁹⁷⁾

34. There is no problem with announcing the paradigm by which a particular type of analysis will be conducted, but this looks very much as though my colleagues have decided that they can disregard currently-effective regulations and adopt their own definition of the "effects" that should be considered in the Commission's analysis. ⁽⁹⁸⁾ The *current* NEPA regulations repealed the definition of "Cumulative impact" previously contained in 40 CFR 1508.7. ⁽⁹⁹⁾ The Commission, in attempting to go farther than the CEQ's regulations, reasons that "[t]o adequately capture the effects of cumulative impacts, it is essential that the Commission consider those pre-existing conditions and how the adverse impacts of a proposed project may interact with and potentially exacerbate them." ⁽¹⁰⁰⁾

35. I disagree with the Commission's decision to disregard CEQ's regulations. ⁽¹⁰¹⁾ The Commission, in its *own* regulations, states that it "will comply with the regulations of the [CEQ] except where those regulations are inconsistent with the statutory requirements of the Commission." ⁽¹⁰²⁾ Regardless of the latitude the majority thinks we may enjoy when conducting our analyses, it is a matter of black letter law that we are constrained by our regulations which adopt CEQ's regulations; we are also unable to conjure rubrics out of thin air without explanation.

III. The Commission's Approach of "Expecting" Self-Imposed Mitigation Appears Calculated To Circumvent Statutory Limits on the Commission's Authority

36. In the Updated Policy Statement, as well as in the Interim GHG Policy Statement, the Commission has asserted a dramatic expansion of its conditioning authority. As explained above, the Commission likely does not have the statutory authority to enter this new territory. It is not surprising, therefore, to see a consistent theme in the Updated Policy Statement that the Commission has expectations of applicants. ⁽¹⁰³⁾ The Commission *expects* more of applicants going forward. Should those expectations not be met to the Commission's satisfaction, the Commission suggests that it will weigh that against finding that the project is required by the public convenience and necessity. ⁽¹⁰⁴⁾

37. Instead of saying that it is imposing or requiring the legally dubious conditions itself, the Commission is *expecting* the natural gas companies to play a game of "sentence first—verdict afterwards," ⁽¹⁰⁵⁾ where the applicants choose their own sentence—their proposed mitigation measures—in an effort to guess at the Commission's expectations. Only then will the Commission rule on whether the project is required by the public convenience and necessity and reveal whether the proposed mitigation is sufficient.

38. It works in the Commission's favor for applicants to impose their own mitigation measures. If the applicant proposes the mitigation instead of having it imposed by the Commission, it is less likely that a court would deem such condition unreasonable or beyond the Commission's authority should it come to be challenged at all. ⁽¹⁰⁶⁾ How can a condition be unreasonable or beyond the Commission's jurisdiction if it is imposed at the suggestion of the applicant—the party who needs to satisfy such conditions?

IV. It Is Unclear Whether the Updated Policy Statement Is Actually Binding and Whether the Commission Should Have Proceeded Through Rulemaking

39. Whether the Commission can impose mitigation as contemplated here, or whether the Commission lacks authority to do so with its conditioning authority will ultimately be addressed by the courts. I recognize the Commission's assertion that the Updated Policy Statement is not binding. ⁽¹⁰⁷⁾ I question whether that is actually the case. ⁽¹⁰⁸⁾

40. Given the non-binding designation, there may indeed be well-founded concerns by parties seeking to challenge the Updated Policy Statement. ⁽¹⁰⁹⁾ But as explained above, the Commission has established its *expectations* regarding what information it wants included in certificate applications and plans to apply the Updated Policy Statement to both currently-pending ⁽¹¹⁰⁾ and future applications for a certificate of public convenience and necessity. For parties hesitant to challenge a “non-binding” policy statement, I submit that a court may perhaps be receptive to arguments of aggrievement based on the interests of shippers who will now likely have to renegotiate their agreements for proposed projects with currently-pending certificate applications.

41. Moreover, natural gas companies ⁽¹¹¹⁾ and their shippers likely have not contemplated the increased costs that will come with the Commission's new policies. It is likely that companies with pending applications have not yet presented proposals for mitigation of the proposed project's GHG emissions. But the need for developing such proposals will arise—the Commission has requested that companies with pending applications supplement their applications. ⁽¹¹²⁾ The resulting cost increases will, at a minimum, make these projects more expensive and thus increase pipeline rates that may ultimately be passed on to consumers. But it is entirely possible that, in at least some cases, applicants will not accept the certificate.

42. One final thought is that it may have been more appropriate for the Commission to have proceeded through rulemaking instead of through a policy statement. The Commission details the types of information that it expects to be included in applications. However, the Commission's regulations already address what the “General content[s] of [an] application” should include in 18 CFR 157.6(b). Nothing in that section supports the Commission's *expectation* for information regarding end use and proposals for mitigation measures. ⁽¹¹³⁾ Our regulations do state that “[a]pplications under section 7 of the Natural Gas Act shall set forth all information necessary to advise the Commission fully concerning the operation, sales, service, construction, extension, or acquisition for which a certificate is requested” ⁽¹¹⁴⁾ But nowhere do our regulations permit the Commission to add to the requirements set forth therein regarding the contents necessary for an NGA section 7(c) application. The Commission may, of course, request information from an applicant through a data request to assist with its determination of whether the project is required by the public convenience and necessity. But to *expect* (in other words require) information, such as that regarding end use and proposals for mitigation of impacts, is perhaps something that should have been done through a rulemaking. Can a party ignore the Commission's requests for additional information? Yes, but the cost would be the potential further delay to the issuance of already stalled certificates and perhaps the ultimate rejection of a proposal that fails to meet the Commission's expectations.

V. Today's Decision Will Have Profound Reliability Implications

43. I cannot overstate the implications of the Updated Policy Statement. ⁽¹¹⁵⁾ It will subvert the purpose of the NGA: To “encourage the orderly development of plentiful supplies of . . . natural gas at reasonable prices.” ⁽¹¹⁶⁾ Further, we leave the public and the regulated community—including investors upon whom we rely to provide billions of dollars for critical infrastructure—with profound uncertainty regarding how the Commission will determine whether a proposed project is required by the public convenience and necessity. With that uncertainty comes reliability concerns.

44. The North American Electric Reliability Corporation (NERC) recently highlighted just how important natural gas is to our electric system when it explained in its most recent Long Term Reliability Assessment that “[n]atural gas is the reliability ‘fuel that keeps the lights on,’ and *natural gas policy must reflect this reality.*” ⁽¹¹⁷⁾ Today’s issuance is unlikely to allay NERC’s reliability concerns. I began this statement with the consequences that could attend today’s issuance of the Updated Policy Statement. As a reminder those consequences include, but are not limited to, further delay in the issuance of certificates, the incurrence of unmeasurable and unrecoverable costs that may result from the Commission’s imposition of mitigation measures to address GHG and environmental justice impacts (which are now both considered in the Commission’s balancing), and difficulty in securing capital for proposed projects. It is foreseeable that the result will be to cause a reliability crisis in areas that need the gas the most. This arises because of the uncertain criteria to be applied by the Commission, the delays in obtaining the Commission’s approval, and the resulting increases in costs—including the cost of mitigation. Individually and collectively, these could be so severe that a natural gas company might be unable to accept the conditions of its certificate and proceed with a project that otherwise is needed to maintain reliability.

VI. Conclusion

45. Many in the industry have asked for certainty. The majority says that they have provided it. ⁽¹¹⁸⁾ Regrettably, the majority is wrong on that point, as well. The only certainty to be found in the Updated Policy Statement is that confusion will reign hereafter, at the expense of those who depend on natural gas.

For these reasons, I respectfully dissent.

James P. Danly,

Commissioner

DEPARTMENT OF ENERGY FEDERAL ENERGY REGULATORY COMMISSION

Certification of New Interstate Natural Gas Facilities

Docket No. PL18-1-000

CHRISTIE, Commissioner, *dissenting*:

1. Last year I voted to re-issue this Notice of Inquiry (NOI) for another round of comment ⁽¹⁾ because I believed—and still do—that there are reasonable updates to the 1999 policy statement that would be worthwhile. ⁽²⁾ For example, I agree that precedent agreements between corporate affiliates, because of the obvious potential for self-dealing, should not, in and of themselves and without additional evidence, prove need. ⁽³⁾ I also believe that the Commission’s procedures for guaranteeing due process to affected property owners, which, as Justice Frankfurter taught, consists of the two core elements of notice and opportunity to be heard, ⁽⁴⁾ could be strengthened.

2. Unfortunately, the new certificate policy the majority approves today ⁵ does not represent a reasonable update to the 1999 statement. On the contrary, what the majority does today is arrogate to itself the power to rewrite both the Natural Gas Act (NGA) ⁽⁶⁾ and the National Environmental Policy Act (NEPA), ⁽⁷⁾ a power

that *only* the elected legislators in Congress can exercise. Today's action represents a truly radical departure from decades of Commission practice and precedent implementing the NGA.

3. The fundamental changes the majority imposes today to the Commission's procedures governing certificate applications are wrong as both law *and* policy. They clearly exceed the Commission's legal authority under the NGA and NEPA and, in so doing, violate the United States Supreme Court's major questions doctrine. ⁽⁸⁾

4. The new policy also threatens to do fundamental damage to the nation's energy security by making it even more costly and difficult to build the infrastructure that will be critically needed to maintain reliable power service to consumers as the generation mix changes to incorporate lower carbon-emitting resources such as wind and solar. And as recent events in Europe and Ukraine graphically illustrate, America's energy security is an inextricable part of our national security. ⁽⁹⁾ The majority's proposal on GHG impacts is obviously motivated by a desire to address climate change, but will actually make it *more* difficult to expand the deployment of low or no-carbon resources, because it will make it more difficult to build or maintain the gas infrastructure essential to keep the lights on as more intermittent resources are deployed. ⁽¹⁰⁾ In addition to the essential need for natural gas to keep our power supply reliable, a dependable and adequate natural gas supply is critically needed for our manufacturing industries and the millions of jobs for American workers in those industries. ⁽¹¹⁾

5. And while I agree that reducing carbon emissions that impact the climate is a compelling policy goal, ⁽¹²⁾ this Commission—an administrative agency that only has the powers Congress has explicitly delegated to it—has no open-ended license under the U.S. Constitution or the NGA to address climate change or any other problem the majority may wish to address.

I. Legal Questions

6. The long-running controversy over the role and use of GHG analyses in natural-gas facility certificate cases raises two central questions of law and a third that flows from the first two:

7. *First*, whether the Commission can use a GHG analysis to *reject* a certificate—or attach conditions (including the use of coercive deficiency letters) amounting to a *de facto* rejection by rendering the project unfeasible—based on the NGA's “public convenience and necessity” ⁽¹³⁾ provision, even when the evidence otherwise supports a finding under the NGA that the facility is both “convenient and necessary” to provide the public with essential gas supply? Today's orders assume that the answer is yes. ⁽¹⁴⁾

8. *Second*, whether the Commission can, or is required to, *reject* a certificate—or attach conditions (including the use of coercive deficiency letters) amounting to a *de facto* rejection by rendering the project unfeasible—based on a GHG analysis conducted as part of an environmental review under NEPA, ⁽¹⁵⁾ when the certificate application would otherwise be approved as both “convenient and necessary” under the NGA? Again, today's orders assume the answer is yes. ⁽¹⁶⁾

9. *Third*, which, if any, conditions related to a GHG analysis may be attached to a certificate under NGA section 7(e), ⁽¹⁷⁾ or demanded through the use of deficiency letters? Today's orders seem to assume that there is essentially no limit to the conditions the Commission can impose. ⁽¹⁸⁾

10. As discussed below, today's orders get each of these questions wrong.

A. The “Public Interest” in the Natural Gas Act

11. The starting point for answering all of these questions must be what “public interest” analysis the NGA empowers the Commission to make. Can the Commission's statutory responsibility to determine the “public convenience and necessity” be used to *reject* a project otherwise needed by the public based *solely* on

adverse impacts to “environmental interests” ⁽¹⁹⁾ (a term today's orders leave undefined but which could be reduced to an unspecified level of GHG emissions) as the Commission today asserts? ⁽²⁰⁾ Or can the Commission reject a project *solely* due to “the interests of landowners and environmental justice communities” as the majority also asserts? ⁽²¹⁾ The short answer is no. There is nothing in the text or history of the NGA to support such a claim about, or application of, the Commission's public interest responsibilities under the NGA.

12. As discussed herein, any claim that a “public interest” analysis under the NGA gives FERC the authority to reject a project based solely on GHG emissions is specious and ahistorical. The history of the NGA indicates that Congress intended the statute to *promote* the development of pipelines and other natural-gas facilities. As one Federal judge has observed, “nothing in the text of [the NGA] . . . empowers the Commission to entirely deny the construction of an export terminal or the issuance of a certificate based solely on an adverse indirect environmental effect regulated by another agency.” ⁽²²⁾

13. I recognize that the Commission and the courts have construed “public convenience and necessity” to require the Commission to consider “all factors bearing on the public interest,” ⁽²³⁾ but the Supreme Court has been very clear that any public interest analysis undertaken in the course of determining “public necessity and convenience” is constrained by the purposes and limitations of the statute. ⁽²⁴⁾ It is not an open-ended license to use this Commission's certificating authority to promote whatever a majority of Commissioners from time to time may happen to view as the “public interest.”

14. With regard to GHG emissions that may be associated with upstream production activities or downstream distribution to, or consumption by, retail consumers, the Commission simply has *no* authority over such activities. That authority was left to the states. ⁽²⁵⁾ Congress intended for the NGA to fill “a regulatory gap” over the “*interstate* shipment and sale of gas.” ⁽²⁶⁾

15. Even if the Commission were to undertake some estimate of the indirect GHG impacts of third-party activities that it has no authority to regulate, it does not follow that the Commission can then reject a certificate based on those impacts. ⁽²⁷⁾ To do so would be to ignore the undeniable purpose of the NGA, which was enacted to facilitate the development and bringing to market of natural gas resources. The Commission's role under the NGA is to *promote* the development of the nation's natural gas resources and to safeguard the interests of ratepayers. ⁽²⁸⁾ Any consideration of environmental impacts, while important, is necessarily subsidiary to that role. ⁽²⁹⁾

16. It is a truism that FERC is an economic regulator, *not* an environmental regulator. This Commission was not given certification authority in order to advance environmental goals; ⁽³⁰⁾ it was given certification authority to *ensure the development* of natural gas resources and their availability—this includes pipeline infrastructure—at just and reasonable rates. To construe the Commission's analysis of the public convenience and necessity as a license to *prohibit* the development of *needed* natural gas resources using the public interest language in the NGA would be to negate the very legislative purpose of the statute. ⁽³¹⁾ Put another way, the premise of the NGA is that the production and transportation of natural gas for ultimate consumption by end users is socially valuable and should be promoted, not that the use of natural gas (which inevitably results in some discharge of GHGs) is inherently destructive and must be curbed, mitigated, or discouraged.

17. To those who say “well, times have changed and Congress was not thinking about climate change when it passed the NGA,” here's an inconvenient truth: *If Congress wants to change the Commission's mission under the NGA it has that power; FERC does not.*

18. Any authority to perform a public interest analysis under the NGA must be construed with reference to the animating purposes of the Act. It is not a free pass to pursue any policy objective—however important or compelling it may be—that is related in some way to jurisdictional facilities. ⁽³²⁾ As the Court of Appeals for

the D.C. Circuit has explained:

Any such authority to consider all factors bearing on “the public interest” must take into account what “the public interest” means *in the context of the Natural Gas Act*. FERC’s authority to consider all factors bearing on the public interest when issuing certificates means authority to look into those factors which reasonably relate to the purposes for which FERC was given certification authority. *It does not imply authority to issue orders regarding any circumstance in which FERC’s regulatory tools might be useful.* ⁽³³⁾

19. Whereas the Commission’s role in certifying facilities under the NGA is explicit, ⁽³⁴⁾ any purported authority for the Commission to regulate GHGs is conspicuously absent. The claim that the Commission can reject a needed facility due to GHG emissions using the public interest component in the NGA seems to be based on the following logic: To ascertain whether a facility serves the public convenience and necessity, the Commission must first determine whether the facility is in “the public interest,” which in turn entails considering factors such as “environmental” impacts from construction and operation of the proposed facility, as well as estimating and quantifying greenhouse gas emissions from the proposed facility, including both upstream emissions associated with gathering the gas and downstream emissions associated with its use, which the Commission is somehow empowered to deem to be too excessive to grant the certificate. ⁽³⁵⁾ Suffice it to say, this tortured logic breaks apart in multiple places. ⁽³⁶⁾

20. Surely if Congress had any intention that GHG analyses should (or could) be the basis for rejecting certification of natural-gas facilities, it would have given the Commission clear statutory guidance as to when to reject on that basis. Instead, those who want the Commission to conjure up a standard on GHG emissions for deciding how much is *too much* are advocating for a standard resembling Justice Stewart’s famous method for identifying obscenity, to wit, that he could not describe it, but “I know it when I see it.” ⁽³⁷⁾ And the Supreme Court eventually had the good sense to abandon that ocular standard. ⁽³⁸⁾

21. Using GHG analysis to reject a certificate implicates an important judicial doctrine used in evaluating just how far an administrative agency can go in essentially *creating* public policy without clear textual support in statutory law. Now let’s turn to that doctrine in this context.

B. The Major Questions Doctrine and the NGA

22. The Commission’s actions today implicate the “major questions doctrine,” which Justice Gorsuch has recently explained as follows:

The federal government’s powers . . . are not general, but limited and divided. Not only must the federal government properly invoke a constitutionally enumerated source of authority to regulate in this area or any other, it must also act consistently with the Constitution’s separation of powers. And when it comes to that obligation, this Court has established at least one firm rule: “We expect Congress to speak clearly” if it wishes to assign to an executive agency decisions “of vast economic and political significance.” We sometimes call this the major questions doctrine. ⁽³⁹⁾

In short, the major questions doctrine presumes that Congress reserves major issues to itself, so unless a grant of authority to address a major issue is explicit in a statute administered by an agency, it cannot be inferred to have been granted.

23. Whether this Commission can reject a certificate based on a GHG analysis—a certificate that otherwise would be approved under the NGA—is undeniably a major question of public policy. It will have enormous implications for the lives of everyone in this country, given the inseparability of energy security from economic security. Yet the Supreme Court has made it clear that broad deference to administrative agencies on major questions of public policy is *not* in order when statutes are lacking in any explicit statutory grant of authority. ⁽⁴⁰⁾ “*When much is sought from a statute, much must be shown.* . . . [B]road assertions of administrative power demand *unmistakable legislative* support.” ⁽⁴¹⁾

24. There is no “unmistakable legislative support” for the powers the Commission asserts today. A broad power to regulate upstream and downstream GHG emissions and their global impacts has simply *not* been delegated to this Commission. ⁽⁴²⁾ To the extent the federal government has such power, it has been delegated elsewhere. “Of necessity, Congress selects different regulatory regimes to address different problems.” ⁽⁴³⁾ The U.S. Environmental Protection Agency (EPA) is charged with regulating greenhouse gas emissions under the Clean Air Act. ⁽⁴⁴⁾ By contrast, Congress established in the NGA a regulatory regime to address entirely different problems, namely, the need to develop the nation's natural gas resources and to protect ratepayers from unjust and unreasonable rates for gas shipped in the flow of interstate commerce. If it chose, Congress could enact legislation that would invest the Commission with authority to constrain the development and bringing to market of natural gas resources, but the fact is that Congress has chosen *not* to do so. On the contrary, every time Congress has enacted natural gas legislation, it has been to *promote* the development of natural gas resources, not throw up barriers to them. ⁽⁴⁵⁾

25. The fact that the NGA requires the Commission to make some form of public interest determination in the course of a certificate proceeding does not furnish a basis for the Commission to arrogate to itself the authority to constrain the development of natural gas resources on the grounds of their potential greenhouse gas emissions. As now-Justice Kavanaugh has explained: “If an agency wants to exercise expansive regulatory authority over some major social or economic activity . . . *regulating greenhouse gas emitters, for example* —an ambiguous grant of statutory authority is not enough. Congress must *clearly authorize* an agency to take such a major regulatory action.” ⁽⁴⁶⁾ Congress has *not* “clearly authorize[d]” this Commission to regulate greenhouse gas emitters, nor to deny certificates to facilities whose construction and operation would be in the public convenience and necessity, simply because the construction and operation of such infrastructure may result in some amount of greenhouse gas emissions. ⁽⁴⁷⁾ “Even if the text were ambiguous, the sheer scope of the . . . claimed authority . . . would counsel against” such an expansive interpretation. ⁽⁴⁸⁾

26. The fact that the Commission has absolutely no standard against which to measure the impact of natural gas production upstream or use downstream of the facilities it certifies is also important. In order for Congress to delegate any authority to an executive agency, it must legislatively set forth an intelligible principle for the agency to follow. ⁽⁴⁹⁾ There is no such “intelligible principle” for the Commission to follow when it comes to greenhouse gas emissions.

27. Although the NGA requires the Commission to determine whether a proposed facility is in the “public convenience and necessity,” the term “has always been understood to mean ‘need’ for the service. To the extent the environment is considered, such consideration is limited to the effects stemming from the construction and operation of the proposed facilities.” ⁽⁵⁰⁾ The term “public convenience and necessity” has long been understood to refer most essentially to the public's need for service on terms that are just and reasonable, *i.e.*, that are low enough for the public to pay the rates and high enough for the provider to maintain a profitable business. ⁽⁵¹⁾ That understanding was reflected in various statutes employing the term, including the Natural Gas Act. ⁽⁵²⁾ And it was further reflected in the earliest “public convenience and necessity” analyses under the NGA. ⁽⁵³⁾

28. To summarize: Whether and how to regulate GHG emissions is a major question of vast economic and political significance. Congress has not explicitly authorized the Commission to regulate in this area as required under the major questions doctrine, nor has it laid down an intelligible principle for the Commission to follow as required by the non-delegation doctrine. Moreover, EPA, in coordination with the states, already has authority to regulate in this area as specified in Federal statutes, which is far removed from this Commission's core expertise and traditional responsibilities.

29. Let's now turn to the second major question.

C. GHG Analysis Under NEPA

30. Is this Commission required or allowed by NEPA ⁽⁵⁴⁾ to *reject* a certificate for a natural gas facility— *one that would otherwise be approved under the NGA* —based on a GHG analysis conducted as part of the NEPA environmental review? And rejection includes attaching mitigation conditions so onerous (or coercing through deficiency letters) that they render the project unfeasible. ⁽⁵⁵⁾

31. Again, the short answer is no. NEPA does not contain a shred of specific textual authority requiring or allowing the Commission to *reject* based on a NEPA review of estimated GHG impacts (indirect or direct) a certificate application for a facility that otherwise would be found necessary to serve the public under the NGA. Nor would it: As an information-forcing statute, NEPA imposes no substantive obligations. ⁽⁵⁶⁾

32. Even conducting an analysis of indirect GHG effects under NEPA goes too far. The Supreme Court has explicitly rejected the idea that an “an agency’s action is considered a cause of an environmental effect [under NEPA] even when the agency has no statutory authority to prevent that effect.” ⁽⁵⁷⁾ Rather, NEPA “requires a reasonably close causal relationship between the environmental effect and the alleged cause,” that is analogous to “the familiar doctrine of proximate cause from tort law.” ⁽⁵⁸⁾ While this might leave some difficult judgments at the margins, estimates of the potential global impacts of possible non-jurisdictional upstream or downstream activity—as today’s orders purport to require ⁽⁵⁹⁾ —is not a close call.

33. First off, in determining how far an agency’s NEPA responsibilities run, one “must look to the underlying policies or legislative intent in order to draw a manageable line between those causal changes that may make an actor responsible for an effect and those that do not.” ⁽⁶⁰⁾ As discussed at length above, there is no way of drawing a plausible line, much less a manageable one, from the Commission’s certifying responsibilities under the NGA and the possible consequences of global climate change—consequences which, however potentially grave, are remote from this agency’s limited statutory mission under the NGA.

34. Second, speculating about the possible future impact on global climate change of a facility’s potential GHG emissions does not assist the Commission in its decision-making and therefore violates the “rule of reason”: Where an agency lacks the power to do anything about the possible environmental impacts, it is not obligated to analyze them under NEPA. ⁽⁶¹⁾ Again, the Supreme Court has explained, “inherent in NEPA and its implementing regulations is a ‘rule of reason,’ which ensures that agencies determine whether and to what extent to prepare an EIS based on the usefulness of any new potential information to the decision-making process. Where the preparation of an EIS would serve ‘no purpose’ in light of NEPA’s regulatory scheme as a whole, no rule of reason worthy of the title would require an agency to prepare an EIS.” ⁽⁶²⁾

35. This conclusion becomes even more obvious when considered alongside the undeniable fact that neither NEPA nor any other statute contains a scintilla of guidance as to which specific metrics are to be used to determine when the Commission can or must reject a project based on a GHG analysis. The Commission today establishes a threshold of 100,000 metric tons of CO₂e of annual project emissions for purposes of its analysis of natural gas projects under NEPA ⁽⁶³⁾ The rationale for establishing this threshold has literally *nothing* to do with the Commission’s NGA obligations, or even with its NEPA obligations. It consists of little more than piggybacking on EPA’s approach to regulating stationary sources. ⁽⁶⁴⁾ Today’s order boasts that this new threshold will capture projects “transporting an average of 5,200 dekatherms per day and projects involving the operation of *one* or more compressor stations or LNG facilities” ⁽⁶⁵⁾ and that this threshold “will capture over 99% of GHG emissions from Commission-regulated natural gas projects.” ⁽⁶⁶⁾

36. These are just arbitrarily chosen numbers. A proliferation of quantification does not constitute reasoned decision-making. All of the important questions about the creation and application of this threshold remain unanswered: Is there anything in either the NGA or NEPA to indicate how much is too much and should be rejected? Or how little is low enough to get under the red line? No. If the Commission is attempting to quantify *indirect* global GHG impacts, as EPA now suggests we do, ⁽⁶⁷⁾ how much global impact is too much and requires rejection of the certificate? How much impact is *not* too much? Should rejection only be based

on impacts on the United States? North America? The Western Hemisphere? The planet? Where is the line? Again, there is absolutely no statutory provision that answers these questions as to the application of GHG metrics in a certificate proceeding brought under the NGA. The complete absence of any statutory guidance on the seminal question of “how much is too much?” would render any action by the Commission to reject a certificate based on any metric as “arbitrary and capricious” in the fullest sense. ⁽⁶⁸⁾

37. I recognize that the 100,000 metric tons marker adopted in today's orders is not a threshold for rejecting a proposed project but only for subjecting it to further scrutiny in the form of an EIS. But this is no small matter—completion of an EIS is extremely cost-intensive and time-consuming and, in addition, creates a plethora of opportunities for opponents of the project who otherwise lack meritorious objections to it, to run up the costs, to cause delays, and to create new grounds for the inevitable appeals challenging the certificate even if the applicant does manage to obtain it. ⁽⁶⁹⁾

38. NEPA provides no statutory authority to reject a gas project that would otherwise be approved under the NGA. How could it? As is well-known, the duties NEPA imposes are essentially procedural and informational. ⁽⁷⁰⁾ The Commission's regulations implementing NEPA reflect its limits by noting that, “[t]he Commission will comply with the regulations of the Council on Environmental Quality *except where those regulations are inconsistent with the statutory requirements of the Commission.*” ⁽⁷¹⁾

39. It's not actually very difficult to see how the approach the majority adopts today is “inconsistent with the statutory requirements of the Commission.” ⁽⁷²⁾ I will repeat that the purpose of the NGA is to *promote* the development, transportation, and sale at reasonable rates of natural gas. I will repeat that the NGA conveys only *limited* jurisdictional authority; that NEPA conveys *no* jurisdictional authority; that a *different* agency is responsible for regulating GHGs; and that such regulation is a *major issue* that Congress would have to speak to *unambiguously*, which it clearly has *not* done. And yet under the analysis embraced by the majority today, this Commission purports to impose onerous—possibly fatal—regulatory requirements on certificate applicants in order to generate reams of highly speculative data that have no meaningful role to play in the execution of this agency's statutory duties. ⁽⁷³⁾ In fact, it contravenes the purposes of the NGA in at least two obvious ways: First, by bringing extrinsic considerations to bear on the Commission's decision-making, and second, by causing needless delay in the process. ⁽⁷⁴⁾

40. There is no meaningful way of evaluating any of the critical issues, and no statutory authority to actually do anything about upstream or downstream emissions, ⁽⁷⁵⁾ but unlimited ways to find fault with any analysis. Even though they aren't supposed to “flyspeck” an agency's NEPA analysis, judges who wish to impose their own policy preferences will be tempted to do exactly that. And once the agency undertakes to address an issue in its NEPA analysis, it is subject to the APA's “reasoned decision-making” standard of review. ⁽⁷⁶⁾ Thus the effect is to ramp up dramatically the legal uncertainties and costs facing any certificate applicant.

D.

41. Today's orders rely to a remarkable degree on a smattering of statements from a handful of recent orders. Simply put, these authorities are simply “too slender a reed” ⁽⁷⁷⁾ to support the great weight today's orders place on them.

42. Neither *Sabal Trail* ⁽⁷⁸⁾ nor *Birckhead*, ⁽⁷⁹⁾ nor the more recent *Vecinos* ⁽⁸⁰⁾ opinion from the D.C. Circuit changes any of the analysis above. Indeed, to the extent language from those cases is interpreted as requiring the Commission to exercise authority *not* found in statutes—and these opinions are more confusing than clear, as well as inconsistent with the D. C. Circuit's own precedent—then such an interpretation would be contrary to the Supreme Court's major question doctrine. Be that as it may, while I recognize that *Sabal Trail* and *Vecinos* are presently applicable to this Commission, neither of those cases

individually nor both of them together provide a lawful basis for *rejecting* a certificate for a facility that is otherwise found to be needed under the NGA solely because of its estimated potential impacts on global climate change. ⁽⁸¹⁾

43. Virtually the entire structure of the majority's fundamental policy changes rests on a single line from *Sabal Trail*. ⁽⁸²⁾ That statement is itself predicated on an idiosyncratic reading of *Public Citizen* and the D.C. Circuit's own precedents. ⁸³ *Sabal Trail* rather facilely distinguished existing D.C. Circuit precedent on the grounds that, in contrast to those cases, the same agency that was performing the EIS was also authorized to approve or deny the certificate. ⁽⁸⁴⁾ It reasoned that because the Commission could take "environmental" issues into account in its public interest analysis, and GHG emissions raise "environmental" issues, it must therefore follow that the Commission could deny a certificate based on projected GHG emissions estimates.

44. *Sabal Trail* acknowledged that "*Freeport* and its companion cases rested on the premise that FERC had no legal authority to prevent the adverse environmental effects of natural gas exports." ⁽⁸⁵⁾ Specifically, "FERC was forbidden to rely on the effects of gas exports as a justification for denying an upgrade license." ⁽⁸⁶⁾ In contrast with those cases—all of which addressed certification of LNG facilities under NGA section 3 as opposed to interstate transportation facilities under NGA section 7—the court in *Sabal Trail* concluded that, under NGA section 7, by contrast, "FERC is not so limited. Congress broadly instructed the agency to consider 'the public convenience and necessity' when evaluating applications to construct and operate interstate pipelines." ⁽⁸⁷⁾ It thus concluded that, "[b]ecause FERC could deny a pipeline certificate on the ground that the pipeline would be too harmful for the environment, the agency is a 'legally relevant cause' of the direct and indirect environmental effects of pipelines that it approves. See *Freeport*, 827 F.3d at 47. *Public Citizen* thus did not excuse FERC from considering these indirect effects." ⁽⁸⁸⁾

45. But the *Sabal Trail* court never considered with reference to the Commission's statutory authority the proper scope of that public interest analysis or the extent to which "environmental" issues could be considered in that context. It simply assumed the Commission's authority to be unlimited. But as discussed above, Congress drafted the NGA for the purpose of filling a specific gap in regulatory authority. The only way *Sabal Trail* would be correct is if Congress had "clearly authorized" the Commission to evaluate geographically and temporally remote impacts of non-jurisdictional activity in its "public convenience and necessity" determinations. As discussed above, that conclusion is clearly, irredeemably, wrong. ⁽⁸⁹⁾

46. As for *Vecinos*, there, the court compounds that error both by relying uncritically on *Sabal Trail* and by finding fault with the Commission for failing to connect its decision not to use the Social Cost of Carbon to Petitioners' argument that it was required to do so under 40 CFR 1502.21(c). ⁽⁹⁰⁾ That regulation sets forth an agency's obligations when "information relevant to reasonably foreseeable significant adverse impacts cannot be obtained." ⁽⁹¹⁾ But global climate change is only a "foreseeable significant adverse impact" of the Commission's action *if* the Commission's authority extends as far as the *Sabal Trail* court said it does. For the reasons set out in this statement, I respectfully disagree. Nor am I alone in my disagreement. ⁽⁹²⁾

47. Finally, as to the contention that the Commission is bound to follow *Sabal Trail* notwithstanding its errors, I would simply point out that intervening Supreme Court precedents—such as *NFIB* ⁽⁹³⁾ and *Ala. Ass'n*. ⁽⁹⁴⁾—have not just significantly weakened, but utterly eviscerated the conceptual underpinnings of *Sabal Trail*'s limitless construction of the Commission's public interest inquiry under the NGA's "public convenience and necessity" analysis. ⁽⁹⁵⁾ It is folly for this Commission to proceed heedless of the Supreme Court's recent rulings that agencies may not use ambiguous or limited grants of statutory authority in unprecedented ways to make policy on major questions that Congress has reserved for itself. But that's exactly what the Commission does today. ⁽⁹⁶⁾

48. We are indeed bound to follow judicial precedent, but we don't get to "cherry pick" one precedent such as *Sabal Trail* because we like that particular opinion, while ignoring the many other conflicting precedents, especially those more recent rulings from the Supreme Court itself applying the major question doctrine.

These more recent opinions light up *Sabal Trail* as a clear outlier.

II. The Real Debate Is About Public Policy Not Law

49. Preventing the construction of each and every natural gas project is the overt public-policy goal of many well-funded interest groups working to reduce or eliminate natural gas usage. ⁽⁹⁷⁾ Today's orders, whatever the intent, will have the undeniable effect of advancing that *policy* goal, and we should not deny the obvious. Rather than bringing legal certainty to the Commission's certificate orders, ⁽⁹⁸⁾ today's orders will greatly increase the costs and uncertainty associated with this Commission's own handling of certificate applications. In fact, by purporting to apply today's new policy retroactively on applications that have already been submitted (and in many instances pending for years), today's action is deeply unfair: It judges by an entirely new set of standards applications that were prepared and submitted to meet the old standards and essentially opens all of them to be relitigated. ⁽⁹⁹⁾ The undoubted effect of these orders will be to interpose additional months or years of delay on project applicants and to increase exponentially the vulnerability on appeal of any Commission orders that do approve a project.

50. Recently I said the Commission's new rule on unlimited late interventions in certificate cases was “not a legal standard, but a legal weapon.” ⁽¹⁰⁰⁾ The new certificate policy approved today is the mother of all legal weapons. There is no question that it will be wielded against each and every natural gas facility both at the Commission and in the inevitable appeals, making the costs of even pursuing a natural gas project insuperable.

51. Let me emphasize that every person or organization pursuing the policy goal of ending the use of natural gas by opposing every natural gas facility has an absolute right under the First Amendment to engage in such advocacy. However, whether to end the use of natural gas by banning the construction of all new natural gas projects is a public policy question of immense importance, one that affects the lives and livelihoods of tens of millions of Americans and their communities, as well as the country's national security. In a democracy, such a huge policy question should *only* be decided by legislators elected by the people, not by unelected judges or administrative agencies. ⁽¹⁰¹⁾

52. This public-policy context is absolutely relevant to these orders because it illustrates that the long-running controversy at this Commission over the use of GHG analyses in natural-gas certificate cases, whether it's a demand to quantify indirect impacts from upstream production and downstream use, ⁽¹⁰²⁾ or a demand to apply an administratively-constructed metric such as the Social Cost of Carbon ⁽¹⁰³⁾—and then use GHG analyses to *reject* (or mitigate to death, or impose costly delays on) a gas project—has far less to do with the law itself and far more to do with promoting preferred *public policy* goals.

53. EPA admits as much in a remarkably (perhaps unwittingly) revealing passage in a letter to this Commission:

EPA reaffirms the suggestion that the Commission avoid expressing project-level emissions as a percentage of national or State emissions. Conveying the information in this way *inappropriately diminishes* the significance of project-level GHG emissions. Instead, EPA continues to recommend disclosing *the increasing conflict between GHG emissions and national, State, and local GHG reduction policies and goals* . . . ⁽¹⁰⁴⁾

54. So according to EPA, this Commission—which is supposed to be *independent* of the current (or any) presidential administration, by the way—should literally manipulate how it presents GHG data in order to avoid “inappropriately” diminishing the impact. As EPA reveals, this is really not about data or any specific GHG metric at all, but is really about pursuing *public policy* goals, especially those of the current presidential administration that runs EPA. ⁽¹⁰⁵⁾

55. The EPA's purported guidance to this Commission illustrates that the real debate here is not over the minutiae of one methodology versus another, or whether one methodology is "generally accepted in the scientific community" and another is not, ⁽¹⁰⁶⁾ or whether one particular esoteric formula is purportedly required by a regulation issued by the CEQ ⁽¹⁰⁷⁾ and another does not meet the CEQ's directives.

56. The real debate over the use of GHG analyses in certificate proceedings is about public policy, not law, and ultimately comes down to these questions: *Who makes major decisions of public policy in our constitutional system?* Legislators elected by the people or unelected administrative agencies or judges? *Who decides?* ⁽¹⁰⁸⁾

III. Conclusions

57. Based on the analysis above the following legal conclusions can be drawn:

58. *First*, the Commission may not reject a certificate based solely on an estimate of the impacts of GHG emissions, indirect or direct. Nor, on the basis of such GHG estimates, may the Commission attach to a certificate (or coerce through deficiency letters) conditions that represent a *de facto* rejection by rendering the project financially or technically unfeasible.

59. *Second*, the Commission can consider the direct GHG impacts of the specific facility for which a certificate is sought, just as it analyzes other direct environmental impacts of a project, and can attach reasonable and feasible conditions to the certificate designed to reduce or minimize the direct GHG impacts caused by the facility, just as it does with other environmental impacts.

60. *Third*, the conditions the Commission can impose are, like its other powers, limited to the authorities granted to it by Congress and the purposes for which they are given. So, no, the Commission may not impose conditions on a certificate to mitigate upstream or downstream GHG emissions arising from non-jurisdictional activity.

61. These legal conclusions do not mean that responding to climate change is not a compelling policy necessity for the nation. In my view it is, as I stated above. ⁽¹⁰⁹⁾

62. However, neither my policy views—nor those of any other member of this Commission—can confer additional legal authority on FERC. ⁽¹¹⁰⁾ For in our democracy, it is the *elected* legislators who have the exclusive power to determine the major policies that respond to a global challenge such as climate change. Further, the argument that administrative agencies must enact policies to address major problems whenever Congress is too slow, too polarized, or too prone to unsatisfying compromises, must be utterly rejected. ⁽¹¹¹⁾ That is not how it is supposed to work in a democracy.

63. For if democracy means anything at all, it means that the people have an inherent right to choose the legislators to whom the people grant the power to decide the major questions of public policy that impact how the people live their daily lives. Unelected Federal judges and executive-branch administrators, no matter how enlightened they and other elites may regard themselves to be, do not have the power to decide such questions; they only have the power to carry out the duly-enacted laws of the United States, including the most important law of all, the Constitution. That is the basic constitutional framework of the United States and it is the same for any liberal democracy worth the name.

For these reasons, I respectfully dissent.

Mark C. Christie,

Commissioner.

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Footnotes

- (1) *Certification of New Interstate Natural Gas Facilities*, 83 FR 18020 (Apr. 25, 2018), 163 FERC ¶ 61,042 (2018); *Certification of New Interstate Natural Gas Facilities*, 86 FR 11268 (Feb. 24, 2021), 174 FERC ¶ 61,125 (2021).
- (2) *Certification of New Interstate Natural Gas Pipeline Facilities*, 88 FERC ¶ 61,227 (1999), *clarified*, 90 FERC ¶ 61,128, *further clarified*, 92 FERC ¶ 61,094 (2000) (1999 Policy Statement).
- (3) 15 U.S.C. 717f(e).
- (4) *Id.* 717f.
- (5) *Id.* 717f(e).
- (6) *Atl. Ref. Co. v. Pub. Serv. Comm'n of N.Y.*, 360 U.S. 378, 391 (1959) (“This is not to say that rates are the only factor bearing on the public convenience and necessity, for [section] 7(e) requires the Commission to evaluate all factors bearing on the public interest.”).
- (7) 15 U.S.C. 717f(e).
- (8) *See, e.g., FPC v. Transcon. Gas Pipe Line Corp.*, 365 U.S. 1, 17 (1961) (the Commission “can only exercise a veto power over proposed transportation . . . when a balance of all the circumstances weighs against certification”).
- (9) 15 U.S.C. 717f(h).
- (10) 42 U.S.C. 4321-4370j.
- (11) *Id.* 4332(2)(C); 40 CFR 1500.1-1508.1; *Baltimore Gas & Elec. Co. v. Nat. Res. Def. Council, Inc.*, 462 U.S. 87, 97 (1983) (discussing the twin aims of NEPA—to consider environmental impacts and to disclose the agency’s consideration to the public).
- (12) *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 351 (1989) (“To be sure, one important ingredient of an [environmental impact statement] is the discussion of steps that can be taken to mitigate adverse environmental consequences.”).
- (13) *Id.* at 352 (“There is a fundamental distinction, however, between a requirement that mitigation be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated, on the one hand, and a substantive requirement that a complete mitigation plan be actually formulated and adopted, on the other.”); *see also Baltimore Gas & Elec. Co.*, 462 U.S. at 97 (citing *Stryckers’ Bay Neighborhood Council v. Karlen*, 444 U.S. 223, 227 (1980)).
- (14) *Final Guidance for Federal Departments and Agencies on the Appropriate Use of Mitigation and Monitoring and Clarifying the Appropriate use of Mitigated Findings of No Significant Impact*, 76 FR 3843, 3848 (Jan. 21, 2011).
- (15) *See, e.g., Sierra Club v. FERC*, 867 F.3d 1357, 1373 (D.C. Cir. 2017) (*Sabal Trail*) (explaining that the Commission may “deny a pipeline certificate on the ground that the pipeline would be too harmful to the environment”).
- (16) *Pricing Policy for New and Existing Facilities Constructed by Interstate Natural Gas Pipelines*, 71 FERC ¶ 61,241 (1995), *order on reh’g*, 75 FERC ¶ 61,105 (1996). Under this pricing policy, expansion projects received a determination for rolled-in pricing upon a showing that the new costs would not increase existing

rates by more than five percent.

(17) *Regulation of Short-Term Natural Gas Transportation Services*, Notice of Proposed Rulemaking, 63 FR 42,982 (July 29, 1998), FERC Stats. & Regs. ¶ 32,533 (1998) (cross-referenced at 84 FERC ¶ 61,085).

(18) *Regulation of Interstate Natural Gas Transportation Services*, NOI, 63 FR 42974 (Aug. 9, 1998), FERC Stats. & Regs. ¶ 35,533 (1998) (cross-referenced at 84 FERC ¶ 61,087).

(19) 1999 Policy Statement, 88 FERC at 61,743.

(20) Although incremental pricing was presumed, an applicant could demonstrate that a proposed project qualified for a pre-determination of rolled-in rate treatment through showing that inexpensive expansibility was made possible because of earlier, costly construction or that the project was designed to improve existing service for existing customers. *Id.* at 61,746 and n.12.

(21) *Id.* at 61,746.

(22) *Id.* at 61,745.

(23) *Id.* at 61,748.

(24) *Id.* at 61,747.

(25) *Id.* at 61,749.

(26) *Id.* at 61,745-46. While the Commission only moved to the stage of balancing environmental impacts and other considerations if a proposed project passed this economic test established by the 1999 Policy Statement, Commission staff would begin review of the environmental impacts following the filing of an application. If a project did not pass this economic test, it could be rejected without further consideration of environmental factors.

(27) In the early 2000s, there were a number of proposals for natural gas import projects. However, as natural gas supplies increased and prices decreased, the Commission began to see more proposals for natural gas export projects.

(28) See, e.g., Environmental Assessment for the Philadelphia Lateral Expansion Project, Docket No. CP11-508-000, at 24 (Jan. 18, 2012) (construction emissions); Environmental Assessment for the Minisink Compressor Project, Docket No. CP11-515-000, at 29 (Feb. 29, 2012) (operation emissions).

(29) See, e.g., *Columbia Gas Transmission, LLC*, 158 FERC ¶ 61,046, at PP 116-120 (2017); *Tex. E. Transmission, LP*, 157 FERC ¶ 61,223, at P 41 (2016), *reh'g granted*, 161 FERC ¶ 61,226 (2017).

(30) *Dominion Transmission, Inc.*, 163 FERC ¶ 61,128 (2018), *pet. dismissed*, *Otsego 2000 v. FERC*, 767 F.App'x 19 (D.C. Cir. 2019) (unpublished opinion).

(31) See *infra* P 70.

(32) *Consideration of Greenhouse Gas Emissions in Natural Gas Infrastructure Project Reviews*, 178 FERC ¶ 61,108 (2022) (GHG Policy Statement).

(33) E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, 59 FR 7629, at 7629, 7632 (Feb. 11, 1994).

(34) E.O. 13985, *Advancing Racial Equity and Support for Underserved Communities Through the Federal Government*, 86 FR 7009, 7010-11.

- (35) E.O. 14008, *Tackling the Climate Crisis at Home and Abroad*, 86 FR 7619, 7629; see also The White House, *Fact Sheet: President Biden Takes Executive Actions to Tackle the Climate Crisis at Home and Abroad, Create Jobs, and Restore Scientific Integrity Across Federal Government* (2021).
- (36) GHG Policy Statement, 178 FERC ¶ 61,108.
- (37) *E.g.*, Public Interest Organizations (PIO) 2021 Comments at 12; Delaware Riverkeeper Network 2018 Comments at 67; Friends of the Central Shenandoah 2018 Comments at 36-38. The PIO 2021 Comments represent 54 entities from around the country that advocate for the protection of environmental resources, including Natural Resources Defense Council, Sierra Club, Public Citizen, Conservation Law Foundation, and Southern Environmental Law Center.
- (38) See, *e.g.*, Environmental Protection Agency (EPA) 2021 Comments at 1-2.
- (39) *E.g.*, New Jersey Conservation Foundation, Sabin Center for Climate Change Law, Watershed Institute, Clean Air Council, PennFuture, and New Jersey League of Conservation Voters (collectively, New Jersey Conservation Foundation et al.) 2021 Comments at 31-32.
- (40) *E.g.*, Ann W. Woll 2021 Comments at 1; Jessica Greenwood 2021 Comments at 1; Rev. Betsy Sowers 2021 Comments at 1.
- (41) *E.g.*, Environmental Defense Fund (EDF) 2021 Comments at 8-12.
- (42) See, *e.g.*, American Gas Association (AGA) 2021 Comments at 10-11.
- (43) See, *e.g.*, Delaware Riverkeeper Network & Berks Gas Truth 2021 Comments at 4.
- (44) *E.g.*, EDF 2021 Comments at 18.
- (45) See, *e.g.*, New Jersey Division of Rate Counsel 2021 Comments at 4-8.
- (46) See, *e.g.*, Natural Gas Supply Association (NGSA) 2021 Comments at 23.
- (47) Iroquois Gas Transmission System, L.P. (Iroquois) 2021 Comments at 10-11.
- (48) See, *e.g.*, Niskanen Center, Hopewell Township, Horizons Village Property Owners Association, Inc., and 28 affected landowners (collectively, Niskanen Center et al.) 2021 Comments at 18; Delaware Riverkeeper Network & Berks Gas Truth 2021 Comments at 9; New Jersey Division of Rate Counsel 2021 Comments at 8-9; Carolyn Elefant 2021 Comments at 2-3.
- (49) PIO 2018 Comments at 10. The PIO 2018 Comments represent 64 entities from around the country that advocate for the protection of environmental resources; many of these entities also signed on to the PIO 2021 Comments.
- (50) Delaware Riverkeeper Network & Berks Gas Truth 2021 Comments at 18.
- (51) See, *e.g.*, WBI Energy Transmission, Inc. (WBI Energy) 2021 Comments at 3; National Fuel Gas Supply Corporation (National Fuel) 2021 Comments at 9; Energy Transfer LP 2021 Comments at 4-5; Interstate Natural Gas Association of America (INGAA) 2021 Comments at 17-19; Boardwalk Pipeline Partners LP (Boardwalk) 2021 Comments at 28.
- (52) See, *e.g.*, Natural Resources Defense Council, Sierra Club, Earthjustice, GreenFaith, Southern Environmental Law Center, Conservation Law Foundation, Public Citizen, Catskill Mountainkeeper, New Jersey Conservation Foundation, Riverkeeper, Inc., and Acadia Center (collectively, Joint NGOs) April 2018 Comments at 2; Jim Steitz 2018 Comments at 2.
- (53) See, *e.g.*, Friends of the Central Shenandoah 2018 Comments at 47-49; Upstate Forever 2018 Comments at 2.

- (54) New Jersey Division of Rate Counsel 2021 Comments at 10.
- (55) *See, e.g.*, WBI Energy 2021 Comments at 5; INGAA 2021 Comments at 19-20; DTE Energy Company 2018 Comments at 5; Iroquois 2018 Comments at 12-13.
- (56) *E.g.*, WBI Energy 2021 Comments at 5.
- (57) *See, e.g.*, Delaware Riverkeeper Network & Berks Gas Truth 2021 Comments at 29-32; Deb Evans and Rob Schaaf 2018 Comments at 3-5.
- (58) *E.g.*, Fore River Residents Against the Compressor Station, Inc. (FRRACS) 2021 Comments at 2.
- (59) Enbridge Gas Pipelines (Enbridge) 2021 Comments at 46; WBI Energy 2021 Comments at 6.
- (60) INGAA 2021 Comments at 22 (citing 18 CFR 284.7(b)).
- (61) Cheniere Energy, Inc. (Cheniere) 2018 Comments at 6.
- (62) *See, e.g.*, EPA 2021 Comments at 1-3; New Jersey Division of Rate Council 2018 Comments at 13-15; Friends of Central Shenandoah 2018 Comments at 57-59.
- (63) *E.g.*, INGAA 2021 Comments at 23.
- (64) *E.g.*, INGAA 2021 Comments at 24.
- (65) *E.g.*, Cheniere 2018 Comments at 8.
- (66) *See, e.g.*, Energy Transfer LP 2021 Comments at 6; Iroquois 2021 Comments at 12.
- (67) *See, e.g.*, New Jersey Division of Rate Counsel 2021 Comments at 13-14.
- (68) *See, e.g.*, Williams Companies, Inc. (Williams) 2021 Comments at 14; Enbridge 2021 Comments at 51; INGAA 2021 Comments at 25-26.
- (69) INGAA 2021 Comments at 25-26; Boardwalk 2021 Comments at 38.
- (70) *E.g.*, Southern Company Services, Inc. 2021 Comments at 4.
- (71) *See, e.g.*, Williams 2021 Comments at 11-12; Boardwalk 2021 Comments at 39-40; *see also* American Forest & Paper Association, Industrial Energy Consumers of America, Process Gas Consumers Group, and the Fertilizer Institute (collectively, American Forest & Paper Association et al.) 2021 Comments at 17; INGAA 2021 Comments at 26-28; AGA 2021 Comments at 32; United Association of Journeymen and Apprentices of the Plumbing, Pipe Fitting and Sprinkler Fitting Industry of the United States and Canada, AFL-CIO (United Association) 2021 Comments at 26-28; NGSA 2021 Comments at 16.
- (72) *See, e.g.*, PIO 2021 Comments at 12-13; Delaware Riverkeeper Network & Berks Gas Truth 2021 Comments at 42; Edward Woll 2021 Comments at 2; William F. Limpert 2021 Comments at 7-8; Massachusetts PipeLine Awareness Network (PLAN) 2021 Comments at 2; Rev. Betsy Sowers 2021 Comments at 2.
- (73) EDF 2021 Comments at 50.
- (74) EPA 2021 Comments at 4.
- (75) *See, e.g.*, Delaware Riverkeeper Network & Berks Gas Truth 2021 Comments at 43; Upstate Forever 2018 Comments at 3; Jane Twitmyer 2018 Comments at 2; Franklin Regional Council of Gov'ts 2018 Comments at 2.
- (76) *See, e.g.*, Boardwalk 2021 Comments at 61-63; TC Energy Corporation 2021 Comments at 16; INGAA 2018 Comments at 56.

- (77) *See, e.g.*, TC Energy Corporation 2021 Comments at 19; Spectra Energy Partners LP (Spectra) 2018 Comments at 54; American Petroleum Institute (API) 2018 Comments at 13.
- (78) *See, e.g.*, William F. Limpert 2021 Comments at 9; Tom Russo 2021 Comments at 12; Friends of the Central Shenandoah 2018 Comments at 67.
- (79) *See, e.g.*, Cheniere 2021 Comments at 9-10; Kinder Morgan Entities (Kinder Morgan) 2021 Comments at 18-20; API 2021 Comments at 11-13; INGAA 2021 Comments at 29.
- (80) EDF 2021 Comments at 5; Dr. Susan F. Tierney 2018 Comments at 8, 46-48.
- (81) *See, e.g.*, New Jersey Conservation Foundation, Watershed Institute, and Sierra Club 2018 Comments at 35-36; Jody McCaffree 2018 Comments at 7.
- (82) *See, e.g.*, Sari DeCesare 2021 Comments at 1; Gary Salata 2021 Comments at 1.
- (83) *See, e.g.*, Duke Energy Corporation 2018 Comments at 45; Upstate Forever 2018 Comments at 3.
- (84) *See, e.g.*, Kinder Morgan 2021 Comments at 20-21; BHE Pipeline Group 2021 Comments at 6-8; INGAA 2021 Comments at 31-32.
- (85) Tom Russo 2021 Comments at 13; American Midstream Partners LP, Canyon Midstream Partners LLC, and Cureton Midstream LLC 2018 Comments at 7-8; Giles County and Roanoke County, Virginia 2018 Comments at 13-14.
- (86) *See, e.g.*, Carolyn Elefant 2021 Comments at 5-6; Niskanen Center et al. 2021 Comments at 36-38; Kinder Morgan 2021 Comments at 22-26; Friends of Central Shenandoah 2018 Comments at 69; Spectra 2018 Comments at 5.
- (87) *See* Niskanen Center et al. 2021 Comments at 28; Deb Evans and Ron Schaaf 2021 Comments at 13; Carolyn Elefant 2018 Comments at 2-3.
- (88) *See* INGAA 2021 Comments at 32.
- (89) *See* Adelpia Gateway LLC 2018 Comments at 13-14.
- (90) *See, e.g.*, Land Trust Alliance 2021 Comments at 9; Jackie Freedman 2021 Comments at 1; Pipeline Safety Trust 2021 Comments at 2; Terese and Joseph Buchanan May 18, 2021 Comments at 1; Gary Salata 2021 Comments at 1.
- (91) *See, e.g.*, INGAA 2021 Comments at 36-38; API 2021 Comments at 15-16; Enbridge 2021 Comments at 70; Cheniere 2021 Comments at 9.
- (92) *See, e.g.*, API 2021 Comments at 17-18; Boardwalk 2021 Comments at 63-65.
- (93) *See* Friends of the Central Shenandoah 2018 Comments at 75; EPA June 21, 2018 Comments at 1; Leslie Sauer 2018 Comments at 2.
- (94) *See* New Jersey Conservation Foundation et al. 2021 Comments at 21-22; Institute for Policy Integrity at New York University School of Law (Policy Integrity) 2018 Comments at 16, 23-24; Pennsylvania Departments of Environmental Protection, Conservation and Natural Resources, and Community and Economic Development 2018 Comments at 6; Carolyn Sellars 2018 Comments at 6.
- (95) 938 F.2d 190, 199 (D.C. Cir. 1991).
- (96) *See, e.g.*, PIO 2021 Comments at 21-22.
- (97) *E.g.*, INGAA 2021 Comments at 39-41.

- (98) INGAA 2021 Comments at 41; Iroquois 2021 Comments at 13-14; API 2021 Comments at 19-20; Competitive Enterprise Institute 2021 Comments at 2-3; *see also* Kinder Morgan 2021 Comments at 26-28.
- (99) *See, e.g.*, Joint NGOs April 2018 Comments at 2.
- (100) *E.g.*, Nature Conservancy 2018 Comments at 2-3; Appalachian Trail Conservancy 2018 Comments at 3.
- (101) Kirk Frost May 26, 2021 Comments at 8.
- (102) Delaware Riverkeeper Network & Berks Gas Truth 2021 Comments at 57.
- (103) *See, e.g.*, INGAA 2018 Comments at 75; Duke Energy Corporation 2018 Comments at 51-53; Edison Electric Institute 2018 Comments at 16.
- (104) *E.g.*, Williams 2021 Comments at 34; INGAA 2021 Comments at 44-45; Boardwalk 2021 Comments at 73.
- (105) *See, e.g.*, Delaware Riverkeeper Network 2018 Comments at 92-93; Friends of the Central Shenandoah 2018 Comments at 92-94; Deb Evans and Rob Schaaf 2018 Comments at 12.
- (106) *E.g.*, PIO 2021 Comments at 56; Elaine Mroz 2018 Comments at 4.
- (107) *See, e.g.*, New Jersey Conservation Foundation et al. 2021 Comments at 18-22; Policy Integrity 2021 Comments at 4; Chesapeake Bay Foundation 2018 Comments at 4.
- (108) *E.g.*, API 2021 Comments at 23.
- (109) Williams 2021 Comments at 39.
- (110) INGAA 2018 Comments at 85-89.
- (111) INGAA 2021 Comments at 83-85; Enbridge 2021 Comments at 149-150.
- (112) *E.g.*, INGAA 2021 Comments at 84; Enbridge 2021 Comments at 150.
- (113) PIO 2021 Comments at 72-76.
- (114) PIO 2021 Comments at 78; *see also* Dr. Susan F. Tierney 2021 Comments at 41-42.
- (115) New Jersey Conservation Foundation et al. 2021 Comments at 30-31.
- (116) New Jersey Conservation Foundation et al. 2021 Comments at 31.
- (117) Energy Infrastructure Council (EIC) 2021 Comments at 33; Spectra 2018 Comments at 95.
- (118) WBI Energy 2021 Comments at 11; INGAA 2018 Comments at 94.
- (119) *See, e.g.*, GPA Midstream Association 2021 Comments at 1; Laborers' International Union of North America 2021 Comments at 2.
- (120) Kinder Morgan 2021 Comments at 46.
- (121) WBI Energy 2021 Comments at 11.
- (122) Carolyn Elefant 2021 Comments at 7; Spectra 2018 Comments at 94-95; INGAA 2018 Comments at 96.
- (123) Tom Russo 2021 Comments at 23.
- (124) Carolyn Elefant 2021 Comments at 6.

- (125) American Forest & Paper Association et al. 2021 Comments at 26-27; Spectra 2018 Comments at 98-99.
- (126) United Association 2021 Comments at 35-36; INGAA 2018 Comments at 102.
- (127) *E.g.*, PLAN 2021 Comments at 3; Edward Woll 2021 Comments at 4; Rev. Betsy Sowers 2021 Comments at 3; Kim Robinson 2021 Comments at 2; Surfrider Foundation 2018 Comments at 2; Delaware Riverkeeper Network 2018 Comments at 57.
- (128) Egan Millard 2021 Comments at 3; Robert Kearns 2021 Comments at 3; Inbal Goldstein 2021 Comments at 4.
- (129) Dr. Susan F. Tierney 2021 Comments at 42.
- (130) WBI Energy 2021 Comments at 10.
- (131) Kinder Morgan 2021 Comments at 47-48.
- (132) *See, e.g.*, Kim Robinson 2021 Comments at 2; Leslie Sauer Jones and Stephanie Jones June 2021 Comments at 1; James and Kathy Chandler 2018 Comments at 1.
- (133) *E.g.*, Kinder Morgan 2021 Comments at 42-43.
- (134) Enbridge 2021 Comments at 157.
- (135) Kirk Frost May 26, 2021 Comments at 13.
- (136) Iroquois 2021 Comments at 18-19.
- (137) Kinder Morgan 2021 Comments at 44.
- (138) Americans for Prosperity 2021 Comments at 2.
- (139) AGA 2021 Comments at 39.
- (140) EIC 2021 Comments at 34; TransCanada Corporation 2018 Comments at 32.
- (141) API 2021 Comments at 36.
- (142) WEC Energy Group, Inc. 2018 Comment at 6-7.
- (143) *See, e.g.*, PIO 2021 Comments at 86-87; New Jersey Conservation Foundation et al. 2021 Comments at 38-40.
- (144) *See, e.g.*, Delaware Riverkeeper Network & Berks Gas Truth 2021 Comments at 69; Tom Russo 2021 Comments at 24-25; William F. Limpert 2021 Comments at 19.
- (145) New Jersey Conservation Foundation et al. 2021 Comments at 35-38; North Carolina Department of Environmental Quality 2021 Comments at 2; EDF 2021 Comments at 57.
- (146) Quincy Democratic City Committee 2021 Comments at 1-2; Natural Resources Defense Council May 2021 Comments at 14-15.
- (147) EPA 2021 Comments at 7; Jeannie Ambrose 2021 Comments at 2.
- (148) *See* Save Our Illinois Land (SOIL) 2021 Comments at 1; William F. Limpert 2021 Comments at 19; Delaware Riverkeeper Network & Berks Gas Truth 2021 Comments at 69.
- (149) New Jersey Conservation Foundation et al. 2021 Comments at 39-40.
- (150) Policy Integrity 2021 Comments at 49-52.

- (151) *See, e.g.*, New Jersey Conservation Foundation et al. 2021 Comments at 36-37; Ann W. Woll 2021 Comments at 5; SOIL 2021 Comments at 3.
- (152) Delaware Riverkeeper Network & Berks Gas Truth 2021 Comments at 77-82; EDF 2021 Comments at 58.
- (153) API 2021 Comments at 37-39; Enbridge 2021 Comments at 167-168.
- (154) Terese and Joseph Buchanan May 18, 2021 Comments at 1; PIO 2021 Comments at 87-89; Robert Kearns 2021 Comments at 4; Jackie Freedman 2021 Comments at 1; Deborah Brown 2021 Comments at 1.
- (155) New Jersey Conservation Foundation et al. 2021 Comments at 34.
- (156) *See, e.g.*, Kinder Morgan 2021 Comments at 58-59; Ohio Environmental Council 2021 Comments at 3.
- (157) Coharie Intra-Tribal Council, Haliwa-Saponi Indian Tribe, Lumbee Tribe of North Carolina, Meherrin Indian Nation of North Carolina, Nottoway Indian Tribe of Virginia, and Occaneechi Band of Saponi Nation 2021 Comments at 2; Haliwa-Saponi Indian Tribe 2021 Comments at 2; Delaware Riverkeeper Network & Berks Gas Truth 2021 Comments at 71.
- (158) *See, e.g.*, API 2021 Comments at 41; EPA 2021 Comments at 8; National Fuel 2021 Comments at 22.
- (159) New Jersey Conservation Foundation et al. 2021 Comments at 33-35; Delaware Riverkeeper Network & Berks Gas Truth 2021 Comments at 73-74.
- (160) New Jersey Division of Rate Counsel 2021 Comments at 23; PIO 2021 Comments at 105.
- (161) INGAA 2021 Comments at 98-99; EPA 2021 Comments at 8-9.
- (162) *See, e.g.*, Attorneys General of Massachusetts, Connecticut, Maryland, Minnesota, New Jersey, New York, Oregon, Rhode Island, and the District of Columbia 2021 Comments at 32-33 (Attorneys General of Massachusetts et al.); *see also* PLAN 2021 Comments at 5; Katherine Manuel 2021 Comments at 5; Elizabeth Moulds 2021 Comments at 4; Jessica Greenwood 2021 Comments at 4; Shayna Gleason 2021 Comments at 3; Rick Mattila 2021 Comments at 3.
- (163) *See, e.g.*, Williams 2021 Comments at 60-62, 65; Enbridge 2021 Comments at 178-180, 186; Kinder Morgan 2021 Comments at 48, 57; INGAA 2021 Comments at 88-90.
- (164) *See, e.g.*, Enbridge 2021 Comments at 181; API 2021 Comment at 44-45.
- (165) 1999 Policy Statement, 88 FERC at 61,737.
- (166) *Id.* at 61,743.
- (167) *Id.*
- (168) *Id.* at 61,744.
- (169) *Id.*
- (170) *Id.*
- (171) *Id.*
- (172) *Id.* at 61,747 (emphasis added).

(173) See, e.g., *Minisink Residents for Env'tl. Pres. & Safety v. FERC*, 762 F.3d 97, 110 n.10 (D.C. Cir. 2014) (noting that the 1999 Policy Statement “permits” but does not “require[]” the Commission to “look[] beyond the market need reflected by the applicant's existing contracts with shippers”). But see *Environmental Defense Fund v. FERC*, 2 F.4th 953, 973 (D.C. Cir. 2021) (finding that it was arbitrary and capricious for the Commission to rely solely on a single precedent agreement with an affiliate shipper to establish need when demand for natural gas in the area was flat and the Commission neglected to make a finding as to whether the proposed pipeline would result in a more economical alternative to existing pipelines).

(174) Under the Administrative Procedure Act, an agency cannot ignore substantial evidence bearing on the agency decision. See 5 U.S.C. 706; see also, e.g., *Motor Vehicles Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (holding that an agency decision is arbitrary and capricious if it “entirely fail[s] to consider an important aspect of the problem”).

(175) 1999 Policy Statement, 88 FERC at 61,739-40 (noting that the “use of contracts with affiliates to demonstrate market support for projects has generated opposition from affected landowners and competitor pipelines who question whether the contracts represent real market demand”) and 61,744 (stating that “[u]sing contracts as the primary indicator of market support for the proposed pipeline project also raises additional issues when the contracts are held by pipeline affiliates.”).

(176) 2 F.4th at 973.

(177) See *supra* P 55.

(178) 1999 Policy Statement, 88 FERC at 61,746-47, *clarified*, 90 FERC at 61,391-96.

(179) 1999 Policy Statement, 88 FERC at 61,746. For new pipeline companies, without existing customers, this requirement has no application.

(180) *Id.*

(181) *Id.*

(182) *Order Clarifying Statement of Policy*, 90 FERC at 61,391.

(183) *Id.* at 61,393.

(184) 1999 Policy Statement, 88 FERC at 61,748.

(185) See *Ruby Pipeline, L.L.C.*, 128 FERC ¶ 61,224, at PP 37-39 (2009); see also 1999 Policy Statement, 88 FERC at 61,748.

(186) *City of Clarksville, Tennessee v. FERC*, 888 F.3d at 479 (quoting *NAACP v. FPC*, 425 U.S. at 669-70 and *FPC v. Hope Nat. Gas Co.*, 320 U.S. at 610).

(187) 1999 Policy Statement, 88 FERC at 61,747.

(188) See *Atl. Ref. Co. v. Pub. Serv. Comm'n of N.Y.*, 360 U.S. at 391 (holding that the NGA requires the Commission to consider “all factors being on the public interest”); see also *Sabal Trail*, 867 F.3d at 1373 (explaining that the Commission must consider a pipeline's direct and indirect GHG emissions because the Commission may “deny a pipeline certificate on the ground that the pipeline would be too harmful to the environment”).

(189) Recognizing that CEQ is in the process of revising its NEPA regulations, the Commission will consider the comments in this docket regarding NEPA in our future review of our regulations, procedures, and practices for implementing NEPA.

(190) 15 U.S.C. 717f(e); *see also, e.g., ANR Pipeline Co. v. FERC*, 876 F.2d 124, 129 (D.C. Cir. 1989) (noting the Commission's "extremely broad" conditioning authority).

(191) *Supra* P 15.

(192) *Sabal Trail*, 867 F.3d at 1374.

(193) *Id.* at 1373. In *Birckhead v. FERC*, 925 F.3d 510, 518 (D.C. Cir. 2019), the D.C. Circuit rejected the Commission's position that *Sabal Trail* is limited to the narrow facts of that case. While the court in *Birckhead* acknowledged that downstream emissions may not always be a foreseeable effect of natural gas projects, it rejected the notion that downstream GHG emissions are a reasonably foreseeable indirect effect of a natural gas project only if a specific end destination is identified. The court further noted that the Commission should attempt to obtain information on downstream uses to determine whether downstream GHG emissions are a reasonably foreseeable effect of the project. *Birckhead*, 925 F.3d at 518-19.

(194) GHG Policy Statement, 178 FERC ¶¶ 61,108.

(195) 1999 Policy Statement, 88 FERC at 61,748.

(196) *Id.* at 61,749 ("The balancing of interests and benefits that will precede the environmental analysis will largely focus on economic interests such as the property rights of landowners.").

(197) *Supra* P 16.

(198) 15 U.S.C. 717f(h).

(199) *Limiting Authorizations to Proceed with Construction Activities Pending Rehearing*, Order 871-B, 86 FR 26150 (May 13, 2021), 175 FERC ¶¶ 61,098, at P 47 (2021).

(200) *See, e.g., Midship Pipeline Co., LLC*, 177 FERC ¶¶ 61,187 (2021).

(201) *See Midcoast Interstate Transmission, Inc. v. FERC*, 198 F.3d 960, 973 (D.C. Cir. 2000) ("The Commission does not have the discretion to deny a certificate holder the power of eminent domain.").

(202) *PennEast Pipeline Co., LLC*, 174 FERC ¶¶ 61,056, at P 10 (2021) (citing *Atl. Coast Pipeline, LLC*, 164 FERC ¶¶ 61,100, at P 88 (2018); *Mountain Valley Pipeline, LLC*, 163 FERC ¶¶ 61,197, at P 76 (2018); *PennEast Pipeline Co., LLC*, 164 FERC ¶¶ 61,098, at P 33 n.82 (2018)).

(203) *Limiting Authorizations to Proceed with Construction Activities Pending Rehearing*, Order 871-B, 86 FR 26150 (May 13, 2021), 175 FERC ¶¶ 61,098, *order on reh'g*, Order 871-C, 86 FR 43077 (Aug. 6, 2021), 176 FERC ¶¶ 61,062 (2021).

(204) We recognize that the Commission's environmental justice analysis will also apply to the Commission's authorization of liquefied natural gas facilities, pursuant to section 3 of the NGA. While those authorizations are not the subject of this Updated Policy Statement, this commitment is worth noting in this discussion of impacts on environmental justice communities.

(205) Policy Integrity 2021 Comments at 46-47, 55-56.

(206) *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321 (D.C. Cir. 2021) (*Vecinos*) (remanding a Commission order based in part on a "deficient" environmental justice analysis).

(207) For example, screening tool data "may need to be supplemented with additional or more localized information and/or ground truthing." EPA 2021 Comments at 7, 9.

(208) This may include, for example, relevant State or local agencies. We also note that Federal agencies, including EPA and CEQ, are in the process of updating their guidance regarding environmental justice.

(209) North Carolina DEQ 2018 Comments at 8. See *also* Niskanen Center 2018 Comments at 17-19.

(210) An overly broad geographic unit of analysis, for example, could dilute the presence of environmental justice communities. See Policy Integrity 2021 Comments at 46-48; see *also* Federal Interagency Working Group on Environmental Justice & NEPA Committee, *Promising Practices for EJ Methodologies in NEPA Reviews* at 21, 26 (March 2016), https://www.epa.gov/sites/production/files/2016-08/documents/nepa_promising_practices_document_2016.pdf (EJ IWG & NEPA Committee).

(211) See *Vecinos*, 6 F.4th at 1330 (“When conducting an environmental justice analysis, an agency’s delineation of the area potentially affected by the project must be ‘reasonable and adequately explained,’ . . . and include ‘a rational connection between the facts found and the decision made.’” (citations omitted)).

(212) See EJ IWG & NEPA Committee at 21-28.

(213) “‘Cumulative impact’ is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” 40 CFR 1508.7 (1978).

(214) See EDF 2021 Comments at 58; Attorneys General of Massachusetts et al. 2021 Comments at 31; Delaware Riverkeeper & Berks Gas Truth 2021 Comments at 78 and 83; and SOIL 2021 Comments at 3.

(215) New Jersey Conservation Foundation et al. 2021 Comments 2021 at 36-37.

(216) EPA, *EnviroAtlas Interactive Map*, <https://www.epa.gov/enviroatlas/enviroatlas-interactive-map> (last visited Feb. 1, 2022); Centers for Disease Control and Prevention, *Social Vulnerability Index Interactive Map*, <https://svi.cdc.gov/map.html> (last visited Feb. 1, 2022).

(217) 18 CFR 385.2201.

(218) *Friends of Buckingham v. State Air Pollution Control Bd.*, 947 F.3d 68, 92 (4th Cir. 2020).

(219) 1999 Policy Statement, 88 FERC at 61,745-46.

(220) *Id.* at 61,749.

(221) *Id.*

(222) 44 U.S.C. 3507(d).

(223) 5 CFR 1320.

(224) This Updated Policy Statement does not require the collection of any information, but rather discusses information that entities may elect to provide. The Commission is following Paperwork Reduction Act procedures to ensure compliance with that act.

(225) The Updated Policy Statement will not impact burden estimates to the following components of FERC-537: Pipeline Purging/Testing Exemptions, Blanket Certificates Prior Notice Filings, Blanket Certificates-Annual Reports, Section 311 Construction-Annual Reports, Request for Waiver of Capacity Release Regulations, Interstate and Intrastate Bypass Notice, Blanket Certificates, or Hinshaw Blanket Certificates.

(226) Burden is defined as the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. See 5 CFR 1320 for additional information on the definition of information collection burden.

(227) Commission staff estimates that the industry’s average hourly cost for this information collection is approximated by the Commission’s average hourly cost (for wages and benefits) for 2021, or \$87.00/hour.

- (1) *Certification of New Interstate Nat. Gas Facilities*, 178 FERC ¶¶ 61,107 (2022) (Updated Policy Statement).
- (2) *Certification of New Interstate Nat. Gas Facilities*, 174 FERC ¶¶ 61,125 (2021).
- (3) *Certification of New Interstate Nat. Gas Pipeline Facilities*, 88 FERC ¶¶ 61,227 (1999), *clarified*, 90 FERC ¶¶ 61,128, *further clarified*, 92 FERC ¶¶ 61,094 (2000) (Original Policy Statement).
- (4) *Consideration of Greenhouse Gas Emissions in Nat. Gas Infrastructure Project Reviews*, 178 FERC ¶¶ 61,108 (2022) (Interim GHG Policy Statement). I note that today's issuance in Docket No. PL21-3-000 "is subject to revision" and is described as an "interim" policy statement. *Id.* P 1.
- (5) 15 U.S.C. 717f.
- (6) See Updated Policy Statement, 178 FERC ¶¶ 61,107 at P 74 ("[W]e expect applicants to propose measures for mitigating impacts, and we will consider those measures—or the lack thereof—in balancing adverse impacts against the potential benefits of a proposal.").
- (7) *NAACP v. FPC*, 425 U.S. 662, 669-70 (1976) (citations omitted) (*NAACP*); *accord Myersville Citizens for a Rural Cmty., Inc. v. FERC*, 783 F.3d 1301, 1307 (D.C. Cir. 2015) (quoting *NAACP*, 425 U.S. at 669-70) (*Myersville*).
- (8) *Atl. City Elec. Co. v. FERC*, 295 F.3d 1, 8 (D.C. Cir. 2002) (quoting *Michigan v. EPA*, 268 F.3d 1075, 1081 (D.C. Cir. 2001)) (emphasis in original).
- (9) 15 U.S.C. 717f(c).
- (10) *Id.* § 717f(e) ("[A] certificate shall be issued to any qualified applicant therefor, . . . if it is found that the applicant is able and willing properly to do the acts and to perform the service proposed and to conform to the provisions of this chapter and the requirements, rules, and regulations of the Commission thereunder, and that the proposed service, sale, operation, construction, extension, or acquisition, to the extent authorized by the certificate, *is or will be required by the present or future public convenience and necessity*; otherwise such application shall be denied.") (emphasis added); see *Okla. Nat. Gas Co. v. FPC*, 257 F.2d 634, 639 (D.C. Cir. 1958) ("The granting or denial of a certificate of public convenience and necessity is a matter peculiarly within the discretion of the Commission.").
- (11) *Cf. ICC v. Parker*, 326 U.S. 60, 65 (1945) ("Public convenience and necessity is not defined by the statute. The nouns in the phrase possess connotations which have evolved from the half-century experience of government in the regulation of transportation."); see *generally* S. Rep. No. 75-1162 at 5 (1937) (recognizing similarities in the provisions requiring certificates for public convenience and necessity under the other statutes, e.g., the Interstate Commerce Act).
- (12) 15 U.S.C. 717f(e).
- (13) *Env'tl. Def. Fund v. FERC*, 2 F.4th 953, 975 (D.C. Cir. 2021) (internal quotation marks omitted).
- (14) Updated Policy Statement, 178 FERC ¶¶ 61,107 at P 4 n.6 (quoting *Atl. Ref. Co. v. Pub. Serv. Comm'n of N.Y.*, 360 U.S. 378, 391 (1959)).
- (15) *NAACP*, 425 U.S. at 669.
- (16) *Id.* at 669-70; *accord Myersville*, 783 F.3d at 1307 (quoting *NAACP*, 425 U.S. at 669-70). I note that the Supreme Court has also recognized the Commission has authority to consider "other subsidiary purposes," such as "conservation, environmental, and antitrust questions." *NAACP*, 425 U.S. at 670 & n.6 (citations omitted). But all subsidiary purposes are, necessarily, subordinate to the statute's primary purpose.
- (17) 15 U.S.C. 717f(g).

- (18) See *Panhandle E. Pipe Line Co. v. FPC*, 169 F.2d 881, 884 (D.C. Cir. 1948) (“[N]othing in the Natural Gas Act suggests that Congress thought monopoly better than competition or one source of supply better than two, or intended for any reason to give an existing supplier of natural gas for distribution in a particular community the privilege of furnishing an increased supply.”).
- (19) 15 U.S.C. 717(b) (emphasis added).
- (20) *Id.*
- (21) See *id.*
- (22) *Pub. Utils. Comm’n of Cal. v. FERC*, 900 F.2d 269, 277 (D.C. Cir. 1990).
- (23) 15 U.S.C. 717(c).
- (24) See *FPC v. Transcon. Gas Pipe Line Corp.*, 365 U.S. 1, 8 (1961) (*Transco*) (“Congress, in enacting the Natural Gas Act, did not give the Commission comprehensive powers over every incident of gas production, transportation, and sale. Rather, Congress was ‘meticulous’ only to invest the Commission with authority over certain aspects of this field leaving the residue for State regulation.”) (citation omitted); see also *FPC v. Panhandle E. Pipe Line Co.* 337 U.S. 498, 502-03 (1949) (“[S]uffice it to say that the Natural Gas Act did not envisage federal regulation of the entire natural-gas field to the limit of constitutional power. Rather it contemplated the exercise of federal power as specified in the Act, particularly in that interstate segment which the states were powerless to regulate because of the Commerce Clause of the Federal Constitution.”) (footnote omitted).
- (25) See *Nat. Res. Def. Council, Inc. v. EPA*, 822 F.2d 104, 129 (D.C. Cir. 1987) (“NEPA, as a procedural device, does not work a broadening of the agency’s substantive powers.”) (citations omitted); *Cape May Greene, Inc. v. Warren*, 698 F.2d 179, 188 (3d Cir. 1983) (“The National Environmental Policy Act does not expand the jurisdiction of an agency beyond that set forth in its organic statute.”) (citations omitted); *Gage v. U.S. Atomic Energy Comm’n*, 479 F.2d 1214, 1220 n.19 (D.C. Cir. 1973) (“NEPA does not mandate action which goes beyond the agency’s organic jurisdiction.”) (citation omitted).
- (26) *Marsh v. Or. Nat. Res. Council*, 490 U.S. 360, 371 (1989); accord *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989) (*Methow Valley*) (“[I]t is now well settled that NEPA itself does not mandate particular results, but simply prescribes the necessary process.”); see also *Baltimore Gas & Elec. Co. v. Nat. Res. Def. Council, Inc.*, 462 U.S. 87, 97 (1983) (“Congress in enacting NEPA . . . did not require agencies to elevate environmental concerns over other appropriate considerations.”).
- (27) *Dep’t of Transp. v. Pub. Citizen*, 541 U.S. 752, 756-57 (2004) (citation omitted); accord *Winter v. Nat. Res. Def. Council, Inc.*, 555 U.S. 7, 23 (2008) (“NEPA imposes only procedural requirements to ‘ensur[e] that the agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts.’”) (quoting *Methow Valley*, 490 U.S. at 349); see also *Vt. Yankee Nuclear Power Corp. v. Nat. Res. Def. Council, Inc.*, 435 U.S. 519, 558 (1978) (“NEPA does set forth significant substantive goals for the Nation, but its mandate to the agencies is essentially procedural.”) (citations omitted).
- (28) *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 206 (D.C. Cir. 1991) (citing *Methow Valley*, 490 U.S. at 353 & n.16).
- (29) See Updated Policy Statement, 178 FERC ¶61,107 at P 74 (“We will consider environmental impacts and potential mitigation in both our environmental reviews under NEPA and our public interest determinations under the NGA. The Commission expects applicants to structure their projects to avoid, or minimize, potential adverse environmental impacts.”); *id.* (“Should we deem an applicant’s proposed mitigation of impacts inadequate to enable us to reach a public interest determination, we may condition the

certificate to require additional mitigation.”); *id.* P 79 (“[W]e clarify that our consideration of impacts to communities surrounding a proposed project will include an assessment of impacts to any environmental justice communities and of necessary mitigation to avoid or lessen those impacts.”).

(30) *But see id.* P 74 (concluding because the Commission's conditioning authority is broad, if the Commission determines that the applicant's proposed mitigation of impacts are inadequate, the Commission has the authority to condition the certificate to require additional mitigation).

(31) 15 U.S.C. 717f(e).

(32) *See Richmond Power & Light of City of Richmond, Ind. v. FERC*, 574 F.2d 610, 620 (D.C. Cir. 1978) (“What the Commission is prohibited from doing directly it may not achieve by indirection.”) (footnote omitted).

(33) *See Methow Valley*, 490 U.S. at 352-53 (“There is a fundamental distinction, however, between a requirement that mitigation be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated, on the one hand, and a substantive requirement that a complete mitigation plan be actually formulated and adopted, on the other. . . . Even more significantly, it would be inconsistent with NEPA's reliance on procedural mechanisms—as opposed to substantive, result-based standards—to demand the presence of a fully developed plan that will mitigate environmental harm before an agency can act.”) (citing *Baltimore Gas & Elec. Co.*, 462 U.S. at 100 (“NEPA does not require agencies to adopt any particular internal decisionmaking structure”)).

(34) Original Policy Statement, 88 FERC ¶ 61,227 at 61,747.

(35) *NEXUS Gas Transmission, LLC*, 172 FERC ¶ 61,199, at P 5 (2020) (citation omitted).

(36) Updated Policy Statement, 178 FERC ¶ 61,107 at P 52 (emphasis added).

(37) *See id.* P 54 (citing *Minisink Residents for Env'tl. Pres. & Safety v. FERC*, 762 F.3d 97, 110 n.10 (D.C. Cir. 2014) (noting that the 1999 Policy Statement “permits” but does not “require[]” the Commission to “look[] beyond the market need reflected by the applicant's existing contracts with shippers”)).

(38) *Id.*

(39) *Id.* P 54 (listing other considerations that it views as relevant to a need determination, including whether the agreements were entered into before or after an open season, the results of the open season, the number of bidders, whether the agreements were entered into in response to a local distribution company or generator request for proposals (RFP), the details of any such RFP process, demand projections underlying the capacity subscribed, estimated capacity utilization rates, potential cost savings to customers, regional assessments, and filings or statements from State regulatory commissions or local distribution companies regarding the proposed project).

(40) *Id.* P 55.

(41) *Id.*

(42) *See id.*

(43) *Id.*

(44) *See id.* PP 55-59.

(45) *Id.* P 60.

(46) *Id.* P 54. I am generally skeptical of affiliate transactions and think that in most circumstances, the Commission should scrutinize agreements with an affiliate. As I have previously explained, I agree with the U.S. Court of Appeals for District of Columbia Circuit's decision to remand the Commission's orders and the court's explanation for doing so in *Environmental Defense Fund v. FERC*, 2 F.4th 953. See *Spire STL Pipeline LLC*, 176 FERC ¶ 61,160 (2021) (Danly, Comm'r, dissenting at P 9).

(47) See, e.g., *City of Oberlin, Ohio v. FERC*, 937 F.3d 599, 606 (D.C. Cir. 2019) (“[T]his Court has also recognized that ‘it is Commission policy to not look behind precedent or service agreements to make judgments about the needs of individual shippers.’”) (citation omitted); *Minisink Residents for Env'tl. Pres. & Safety v. FERC*, 762 F.3d at 111 (“Petitioners identify nothing in the policy statement or in any precedent construing it to suggest that it requires, rather than permits, the Commission to assess a project's benefits by looking beyond the market need reflected by the applicant's existing contracts with shippers. To the contrary, the policy statement specifically recognizes that such agreements ‘always will be important evidence of demand for a project.’”) (quoting Original Policy Statement, 88 FERC ¶ 61,227 at 61,748); see also *Myersville Citizens for a Rural Cmty., Inc. v. FERC*, 783 F.3d 1301, 1311 (D.C. Cir. 2015) (explaining that “[f]or a variety of reasons related to the nature of the market, ‘it is Commission policy to not look behind precedent or service agreements to make judgments about the needs of individual shippers.’ . . . In keeping with its policy, the Commission concluded that the evidence that the Project was fully subscribed was adequate to support the finding of market need.”) (citation omitted).

(48) *Env'tl. Def. Fund v. FERC*, 2 F.4th 953.

(49) *Id.* at 976.

(50) Enbridge Gas Pipelines May 26, 2021 Comments at 42. “[U]nder the Commission's open-access regulatory regime, pipelines must provide transportation service without ‘undue discrimination or preference of any kind.’” *NEXUS Gas Transmission, LLC*, 172 FERC ¶ 61,199, at P 17 (2020) (quoting 18 CFR 284.7(b)). The Commission's new consideration of the intended end use of the gas and why the gas is needed to serve that use may also cause tension with NGA section 4. Updated Policy Statement, 178 FERC ¶ 61,107 at P 52. NGA section 4(b) states that “[n]o natural-gas company shall, with respect to any transportation or sale of natural gas subject to the jurisdiction of the Commission, (1) make or grant any undue preference or advantage to any person or subject any person to any undue prejudice or disadvantage, or (2) maintain any unreasonable difference in rates, charges, service, facilities, or in any other respect, either as between localities or as between classes of service.” 15 U.S.C. 717c(b).

(51) *Transco*, 365 U.S. at 22.

(52) See, e.g., TC Energy Corporation May 26, 2021 Comments at 12-13 (explaining that after the Supreme Court's *Transco* decision “was issued in 1961, Congress passed the NGPA, the Wellhead Decontrol Act, EPA Act 1992, and the Commission issued Orders Nos. 636 and 637. These statutes and regulatory orders fundamentally altered the natural gas markets by acting to facilitate the development of competitive natural gas markets served by competitive interstate natural gas transportation.”); *id.* (“Under the current regulatory framework, there is no basis for the Commission to deny a certificate application based on end use, because the current framework requires equal access to a plentiful gas supply for all buyers and sellers. The end use of natural gas is outside the objectives of the current statutory framework, and the Commission should not take end use into consideration when assessing the public need for a pipeline project under the NGA.”); Boardwalk Pipeline Partners, LP May 26, 2021 Comments at 34 (“*FPC v. Transco* was decided prior to the NGPA's and Wellhead Decontrol Act's creation of a competitive natural gas market that allows all consumers to benefit from the United States' plentiful gas supplies [G]iven all of the changes that have occurred over the past 60 years” and “[u]nder the current open-access regime, there is no legal basis for the Commission to deny a certificate application based on end use.”) (emphasis omitted).

- (53) 15 U.S.C. 3301-3432.
- (54) Natural Gas Wellhead Decontrol Act of 1989, Public Law 101-60, 103 Stat. 157 (1989).
- (55) *Gen. Motors Corp. v. Tracy*, 519 U.S. 278, 283 (1997) (quoting 57 FR 13271 (1992)).
- (56) *Pub. Serv. Comm'n of State of N.Y. v. Mid-Louisiana Gas Co.*, 463 U.S. 319, 334 (1983).
- (57) See S. Rep. No. 101-39, at 1 (1989) (“[T]he purpose . . . is to promote competition for natural gas at the wellhead in order to ensure consumers an adequate and reliable supply of natural gas at the lowest reasonable price.”); H.R. Rep. No. 101-29, at 6 (1989) (“All sellers must be able to reasonably reach the highest-bidding buyer in an increasingly national market. All buyers must be free to reach the lowest-selling producer, and obtain shipment of its gas to them on even terms with other supplies.”).
- (58) *Adelphia Gateway, LLC*, 169 FERC ¶ 61,220 (2019) (McNamee, Comm'r, concurring at P 36).
- (59) H.R. Rep. 100-78, at 2 (1987).
- (60) TC Energy Corporation May 26, 2021 Comments at 13.
- (61) Updated Policy Statement, 178 FERC ¶ 61,107 at P 62.
- (62) *Id.*
- (63) *Id.* P 74 (emphasis added).
- (64) *Id.*
- (65) *Id.* P 63.
- (66) *Certification of New Interstate Nat. Gas Pipeline Facilities*, 90 FERC ¶ 61,128, at 61,391.
- (67) *NAACP*, 425 U.S. at 670 (emphasis added).
- (68) Updated Policy Statement, 178 FERC ¶ 61,107 at P 69.
- (69) 15 U.S.C. 717f(g).
- (70) Updated Policy Statement, 178 FERC ¶ 61,107 at P 62 (emphasis added); see also *id.* P 99 (“[T]here may be proposals denied solely on the magnitude of a particular adverse impact to any of the four interests described above if the adverse impacts, as a whole, outweigh the benefits of the project and cannot be mitigated or minimized.”).
- (71) *Id.* P 72 (citation omitted).
- (72) *Id.* P 71.
- (73) *Id.* P 74.
- (74) *Id.*
- (75) *Id.*
- (76) *Id.*
- (77) *Id.* P 76.
- (78) See Interim GHG Policy Statement, 178 FERC ¶ 61,108 (Danyl, Comm'r, dissenting).
- (79) See *Whitman v. Am. Trucking Ass'ns, Inc.*, 531 U.S. 457, 468 (2001) (“Congress, we have held, does not alter the fundamental details of a regulatory scheme in vague terms or ancillary provisions—it does not, one might say, hide elephants in mouseholes.”) (citations omitted).

- (80) *ANR Pipeline Co. v. FERC*, 876 F.2d 124, 129 (D.C. Cir. 1989) (citation omitted).
- (81) *Nat'l Fuel Gas Supply Corp. v. FERC*, 909 F.2d 1519, 1522 (D.C. Cir. 1990) (citing *Sunray Mid-Continent Oil Co. v. FPC*, 364 U.S. 137, 152 (1960) (“once want of power to do this directly were established, the existence of power to achieve the same end indirectly through the conditioning power might well be doubted”); *Richmond Power & Light v. FERC*, 574 F.2d 610, 620 (D.C. Cir. 1978) (the Commission may not achieve indirectly through conditioning power of Federal Power Act what it is otherwise prohibited from achieving directly)); see also *Am. Gas Ass'n v. FERC*, 912 F.2d 1496, 1510 (D.C. Cir. 1990) (“[T]he Commission may not use its section 7 conditioning power to do indirectly . . . things that it cannot do at all.”).
- (82) See, e.g., *Nat'l Fuel Gas Supply Corp. v. FERC*, 909 F.2d at 1520, 1522 (D.C. Cir. 1990) (finding that the Commission exceeded the scope of its NGA section 7(e) authority in conditioning the approval of an off-system sales certificate upon certificate holder's acceptance of a blanket transportation certificate because “the Commission squarely found that National's proposed `sales are required by the public convenience and necessity,' quite apart from conditioning their certification upon the pipeline's filing for a blanket transportation certificate.”); *N. Nat. Gas Co., Div. of InterNorth v. FERC*, 827 F.2d 779, 792-93 (D.C. Cir. 1987) (granting rehearing en banc, reaffirming the holding in *Panhandle E. Pipe Line Co. v. FERC*, 613 F.2d 1120, 1133 (D.C. Cir. 1979), which provides “that `the Commission does not have authority under section 7 to compel flow-through of revenues to customers of services not under consideration in that proceeding for certification,'” and vacating a condition that violates that holding).
- (83) Updated Policy Statement, 178 FERC ¶ 61,107 at P 74.
- (84) See Interim GHG Policy Statement, 178 FERC ¶ 61,108 at PP 114-115 (encouraging project sponsors to propose mitigation measures, stating that project sponsors “are free to propose any type of mitigation mechanism,” and providing the following examples of market-based mitigation: “[the] purchase [of] renewable energy credits, participat[ion] in a mandatory compliance market (if located in a State that requires participation in such a market), or participat[ion] in a voluntary carbon market”).
- (85) See *id.* P 129 (“Pipelines may seek to recover GHG emissions mitigation costs through their rates, similarly to how they seek to recover other costs associated with constructing and operating a project, such as the cost of other construction mitigation requirements or the cost of fuel. Additionally, the Commission's process for section 7 and section 4 rate cases is designed to protect shippers from unjust or unreasonable rates and will continue to do so with respect to the recovery of costs for mitigation measures.”).
- (86) See Updated Policy Statement, 178 FERC ¶ 61,107 at P 78 (citing Original Policy Statement, 88 FERC ¶ 61,227 at 61,749 (“The balancing of interests and benefits that will precede the environmental analysis will largely focus on economic interests such as the property rights of landowners.”))
- (87) *Id.*
- (88) *Id.* P 79.
- (89) *Id.* P 80.
- (90) *Id.* P 81.
- (91) *Id.* P 82.
- (92) *Id.*
- (93) *Id.* P 85.
- (94) See *Spire STL Pipeline LLC*, 178 FERC ¶ 61,109 at P 10 (2022) (citation omitted).

- (95) *Spire STL Pipeline LLC*, 177 FERC ¶¶ 61,147, at P 70 (2021) (citation omitted); see *id.* (Danly, Comm'r, concurring in part and dissenting in part) (disagreeing with the Commission's decision to not interpret NGA section 7(h) in the first instance and to leave the interpretation to the courts).
- (96) Updated Policy Statement, 178 FERC ¶¶ 61,107 P 90 (relying on a repealed definition for "cumulative impacts," formerly 40 CFR 1508.7 (1978), in the Council on Environmental Quality's (CEQ) regulations) (citations omitted).
- (97) *Id.* P 90 n.213.
- (98) *Cf.* Updated Policy Statement, 178 FERC ¶¶ 61,107 at P 74 n.189 ("Recognizing that CEQ is in the process of revising its NEPA regulations, the Commission will consider the comments in this docket regarding NEPA in our future review of our regulations, procedures, and practices for implementing NEPA.)
- (99) See 40 CFR 1508.1(g)(3) ("An agency's analysis of effects shall be consistent with this paragraph (g). Cumulative impact, defined in 40 CFR [§] 1508.7 (1978), is repealed.").
- (100) Updated Policy Statement, 178 FERC ¶¶ 61,107 at P 90.
- (101) See 40 CFR 1508.1(g) (defining "effects or impacts").
- (102) 18 CFR 380.1.
- (103) See Updated Policy Statement, 178 FERC ¶¶ 61,107 at P 53 (stating that "the Commission's expectations and requirements for how applicants should demonstrate project need have evolved over time").
- (104) See, e.g., *id.* P 74 ("Should we deem an applicant's proposed mitigation of impacts inadequate to enable us to reach a public interest determination, we may condition the certificate to require additional mitigation. We may also deny an application based on any of the types of adverse impacts described herein, including environmental impacts, if the adverse impacts as a whole outweigh the benefits of the project and cannot be mitigated or minimized."); *id.* P 82 ("[W]e expect pipelines to take seriously their obligation to attempt to negotiate easements respectfully and in good faith with impacted landowners. The Commission will look unfavorably on applicants that do not work proactively with landowners to address concerns.").
- (105) Lewis Carroll, *Alice's Adventures in Wonderland and Through the Looking-Glass* 107 (Hugh Haughton ed., Penguin Classics 1998).
- (106) See 15 U.S.C. 717f(e) ("The Commission shall have the power to attach to the issuance of the certificate and to the exercise of the rights granted thereunder such *reasonable terms and conditions* as the public convenience and necessity may require.") (emphasis added).
- (107) Updated Policy Statement, 178 FERC ¶¶ 61,107 at P 3 (stating that the Updated Policy Statement does not establish binding rules, but rather it is intended to explain how the Commission will consider NGA section 7 certificate applications).
- (108) See *Interstate Nat. Gas Ass'n of Am. v. FERC*, 285 F.3d 18, 59 (D.C. Cir. 2002) ("The distinction between substantive rule and policy statement is said to turn largely on whether the agency position is one of 'present binding effect,' i.e., whether it 'constrains the agency's discretion.'") (citations omitted); *Brown Express, Inc. v. United States*, 607 F.2d 695, 701 (5th Cir. 1979) ("An announcement stating a change in the method by which an agency will grant substantive rights is not a 'general statement of policy.'").
- (109) See *Panhandle E. Pipe Line Co. v. FERC*, 198 F.3d 266, 270 (D.C. Cir. 1999) (denying the petition for review because "[t]he challenged opinions [were] non-binding policy statements" and therefore, the court found that the party petitioning for review was "not aggrieved and has not suffered an injury-in-fact").

(110) See Updated Policy Statement, 178 FERC ¶ 61,107 at P 100 (“[T]he Commission will apply the Updated Policy Statement to any currently pending applications for new certificates. Applicants will be given the opportunity to supplement the record and explain how their proposals are consistent with this Updated Policy Statement, and stakeholders will have an opportunity to respond to any such filings.”).

(111) “ ‘Natural-gas company’ means a person engaged in the transportation of natural gas in interstate commerce, or the sale in interstate commerce of such gas for resale.” 15 U.S.C. 717a(6).

(112) See Updated Policy Statement, 178 FERC ¶ 61,107 at P 100.

(113) See 18 CFR 157.6(b) (“Each application filed other than an application for permission and approval to abandon pursuant to section 7(b) shall set forth the following information . . .”).

(114) *Id.* § 157.5(a).

(115) *Cf. MCI Telecomms. Corp. v. Am. Tel. & Tel. Co.*, 512 U.S. 218, 228 (1994) (“It might be good English to say that the French Revolution ‘modified’ the status of the French nobility—but only because there is a figure of speech called understatement and a literary device known as sarcasm.”).

(116) *NAACP*, 425 U.S. at 669-70 (citations omitted); *accord Myersville*, 783 F.3d at 1307 (quoting *NAACP*, 425 U.S. at 669-70).

(117) NERC, Long Term Reliability Assessment, at 5 (Dec. 2021), https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2021.pdf (emphasis added).

(118) See Updated Policy Statement, 178 FERC ¶ 61,107 at P 51 (asserting that the Commission is “providing more regulatory certainty in the Commission’s review process and public interest determinations”); *id.* P 73 (“To provide more clarity and regulatory certainty to all participants in certificate proceedings, we explain here how the Commission will consider environmental impacts.”); *id.* P 100 (“A major purpose of this Updated Policy Statement is to provide clarity and regulatory certainty regarding the Commission’s decision-making process.”).

(1) *Certification of New Interstate Natural Gas Facilities*, 174 FERC ¶ 61,125 (2021).

(2) I also voted for the 2021 changes to the procedures for imposing a stay on the certificate and use of eminent domain during periods when petitions for reconsideration and appeals were pending. *Limiting Authorizations to Proceed with Construction Activities Pending Rehearing*, Order No. 871-B, 175 FERC ¶ 61,098 (2021). These changes were largely opposed by the pipeline industry, but in my opinion represented a reasonable approach to bring more certainty and fairness to our procedures for handling petitions for reconsideration and the use of eminent domain during the pending period.

(3) See *Certification of New Interstate Natural Gas Facilities*, 178 FERC ¶ 61,107 (2022) (Certificate Policy Statement) at PP 53-57. The need for enhanced scrutiny of contracts among corporate affiliates is recognized in State utility regulation. See, e.g., Va. Code § 56-76 *et seq.*, known as the “Virginia Affiliates Act.”

(4) See *Joint Anti-Fascist Refugee Comm. v. McGrath*, 341 U.S. 123 (1951) (Frankfurter, J., concurring).

(5) *Certificate Policy Statement; Consideration of Greenhouse Gas Emissions in Natural Gas* 178 FERC ¶ 61,108 (2022) (GHG Policy Statement). Although styled as an “interim” policy statement, it goes into effect immediately and will inflict major new costs and uncertainties on certificate applications that have been pending with the Commission for months or years. *Id.* at PP 1, 130. I consider both policy statements to be indivisible parts of a new policy governing certificates. Thus, my statement applies to both, and I am entering this dissent in both dockets.

(6) 15 U.S.C. 717 *et seq.* See, e.g., Certificate Policy Statement at P 62.

(7) 42 U.S.C. 4321 *et seq.*

(8) *Nat'l Fed'n of Indep. Bus. v. Dep't of Labor, OSHA*, 142 S. Ct. 661 (2022) (*NFIB*); *Alabama Ass'n. of Realtors v. Dep't of Health and Human Services*, 141 S. Ct. 2485 (2021) (*Ala. Ass'n.*); *Util. Air Regulatory Grp. v. EPA*, 573 U.S. 302 (2014) (*UARG*); *FDA v. Brown & Williamson Tobacco Corp.*, 529 U.S. 120 (2000) (*Brown & Williamson*). I discuss this doctrine in Section I.B., *infra*.

(9) See, e.g., Natasha Bertrand, *US putting together 'global' strategy to increase gas production if Russia invades Ukraine, officials say*, CNN (Jan. 24, 2022), available at <https://www.cnn.com/2022/01/23/politics/us-gas-production-strategy-russia-ukraine-invasion/index.html> and <https://www.cnn.com/2022/01/23/politics/us-gas-production-strategy-russia-ukraine-invasion/index.html>; and, Stephen Stapczynski and Sergio Chapa, *U.S. Became World's Top LNG Exporter, Spurred by Europe Crisis*, Bloomberg (Jan 4, 2022), available at <https://www.bloomberg.com/news/articles/2022-01-04/u-s-lng-exports-top-rivals-for-first-time-on-shale-revolution>.

(10) See *NERC December 2021 Long-Term Reliability Assessment*, at 5 (Dec. 2021) (“Natural gas is the reliability ‘fuel that keeps the lights on,’ and *natural gas policy must reflect this reality.*”) (emphasis added) (available at https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2021.pdf); *id.* at 6 (“Sufficient flexible [dispatchable] resources are needed to support increasing levels of variable [intermittent] generation *uncertainty*. Until storage technology is fully developed and deployed at scale, (which cannot be presumed to occur within the time horizon of this LTRA), natural gas-fired generation will remain a necessary balancing resource to provide increasing flexibility needs.”) (emphasis added); *NERC 2020 Long-Term Reliability Assessment, December 2020*, at 7 (Dec. 2020) (“As *more solar and wind* generation is added, *additional* flexible resources are needed to offset their resources' variability. This is placing *more* operating pressure on those (*typically natural gas*) resources and makes them *the key* to securing [Bulk Power System] reliability.”) (emphases added) (available at https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2020.pdf).

(11) Letter from Industrial Energy Consumers of America to Sen. Joe Manchin III, Sen. John Barrasso, Sen. Frank Pallone, Jr., Sen. Cathy McMorris Rodgers, *Lack of Interstate Natural Gas Pipeline Capacity Threatens Manufacturing Operations, Investments, Jobs, and Supply Chain* (Feb. 9, 2022).

(12) Since we are regulators with an advisory role, not Article III judges, my personal view is that the most politically realistic and sustainable way to reduce carbon emissions significantly without threatening the reliability of our grid and punishing tens of millions of American workers and consumers with lost jobs and skyrocketing energy prices (see, e.g., Europe) is by massive *public* investment in the research, development and deployment of the technologies that can achieve that goal economically and effectively. See, e.g., Press Release, Bipartisan Policy Center, *New AEIC Report Recommends DOE Combine Loan and Demonstration Offices, Jumpstart American Clean Energy Deployment* (Jan. 21, 2022), available at <https://bipartisanpolicy.org/press-release/new-aeic-report-recommends-doe-combine-loan-and-demonstration-offices-jumpstart-american-clean-energy-deployment/> (citing to American Energy Innovation Council, *Scaling Innovation: A Proposed Framework for Scaling Energy Demonstrations and Early Deployment* (Jan. 2022)). Once developed to commercial scale, marketable technologies will roll out globally on their own, without the market-distorting mandates and subsidies that only enrich rent-seekers and impoverish consumers. More specifically with regard to natural gas facilities, there is also the potential with available technology to reduce direct methane emissions from the existing oil and gas system within existing legal authority. And such initiatives do not obviate the need for near-term mitigation measures, such as preparing the electric grid to maintain power during extreme weather events.

(13) 15 U.S.C. 717f.

- (14) Certificate Policy Statement at P 62; GHG Policy Statement at PP 4, 99.
- (15) See Certificate Policy Statement at P 6, GHG Policy Statement at P 27.
- (16) Certificate Policy Statement at P 62; GHG Policy Statement at PP 27, 99.
- (17) 15 U.S.C. 717f(e).
- (18) See Certificate Policy Statement at P 74; GHG Policy Statement at P 99.
- (19) Certificate Policy Statement at P 62.
- (20) *Id.*
- (21) *Id.* The notion that a certificate could be rejected based solely on the interests of “landowners” or “environmental justice communities” (a term the majority leaves largely undefined) illustrates the radical divergence from both law and long Commission practice of what the Commission purports to do today. While a regulatory commission should always be mindful of and sensitive to the impacts on affected property owners and communities in every case involving the potential use of eminent domain—particularly on the question of the project’s route or siting—and should generally seek wherever possible to reduce or minimize such impacts, specific measures to reduce or minimize such impacts are governed by the statutes applicable to each proceeding. Under both the Constitution and the NGA, if a project is needed for a public purpose, then landowners are made whole through just compensation. U.S. Const. amend. V. Questions of compensation are adjudicated in State or Federal court—not by this Commission. NGA section 7(h), 15 U.S.C. 717f(h). Bringing such extra-jurisdictional considerations into the Commission’s public convenience and necessity analyses under NGA section 7 is just another expansion of Commission power far beyond anything justified in law.
- (22) *Sabal Trail*, 867 F.3d 1357, 1382 (D.C. Cir. 2017) (*Sabal Trail*) (Brown, J., dissenting in part and concurring in part).
- (23) *Atl. Refining Co. v. Pub. Serv. Comm’n of State of N. Y.*, 360 U.S. 378, 391 (1959) (“This is not to say that rates are the only factor bearing on the public convenience and necessity, for § 7(e) requires the Commission to evaluate all factors bearing on the public interest.”); *N.C. Gas Corp.*, 10 FPC 469, 476 (1950) (“Public convenience and necessity comprehends a question of the public interest. Or, stated another way: Is the proposal conducive to the public welfare? Is it reasonably required to promote the accommodation of the public? The public interest we referred to has many facets. *To the limit of our authority under the law* our responsibility encompasses them all”) (emphasis added) (quoting *Commonwealth Nat. Gas Corp.*, 9 FPC 70 (1950)).
- (24) *NAACP v. FPC*, 425 U.S. 662, 669 (1976) (“This Court’s cases have consistently held that the use of the words ‘public interest’ in a regulatory statute is not a broad license to promote the general public welfare. Rather, the words take meaning from the purposes of the regulatory legislation.”). Where the Supreme Court has permitted the Commission to consider end use, those considerations have related directly to its core statutory responsibilities under the NGA, namely, ensuring adequate supply at reasonable rates. See *FPC v. Transcontinental Pipe Line Co.*, 365 U.S. 1 (1961) (permitting the Commission to consider whether the end use was “wasteful” of limited gas resources).
- (25) NGA section 1(b), 15 U.S.C. 717(b).
- (26) *ONEOK, Inc. v. Learjet, Inc.*, 575 U.S. 373, 378 (2015) (emphasis added); see also, *FPC v. Panhandle E. Pipe Line Co.*, 337 U.S. 498, 502-503 (1949) (“suffice it to say that the Natural Gas Act did not envisage federal regulation of the entire natural-gas field to the limit of constitutional power. Rather it contemplated the exercise of federal power as specified in the Act, particularly in that interstate segment which states were powerless to regulate because of the Commerce Clause of the Federal Constitution. The jurisdiction

of the Federal Power Commission was to *complement* that of the state regulatory bodies.”) (emphasis added) (footnotes omitted); *Myersville Citizens for a Rural Cmty., Inc. v. FERC*, 783 F.3d 1301, 1315 (D.C. Cir. 2015) (“the Commission’s power to preempt state and local law is circumscribed by the Natural Gas Act’s savings clause, which saves from preemption the ‘rights of States’ under the Clean Air Act and two other statutes.”) (citations omitted).

(27) *Ofc. of Consumers’ Counsel v. FERC*, 655 F.2d 1132, 1142 (D.C. Cir. 1980) (“We bear in mind the caveat that an agency may not bootstrap itself into an area in which it has no jurisdiction by violating its statutory mandate.”) (citations, quotation marks, ellipsis omitted).

(28) *City of Clarksville, Tenn. v. FERC*, 888 F.3d 477, 479 (D.C. Cir. 2018) (*City of Clarksville*) (“Congress enacted the Natural Gas Act with the principal aim of ‘encouraging the orderly development of plentiful supplies of natural gas at reasonable prices,’ and ‘protect[ing] consumers against exploitation at the hands of natural gas companies,”) (citations omitted); see also Alexandra B. Klass & Danielle Meinhardt, *Transporting Oil and Gas: U.S. Infrastructure Challenges*, 100 *Iowa L. Rev.* 947, 990-99 (Mar. 2015).

(29) *City of Clarksville*, 888 F.3d. at 479. (“Along with those main objectives, there are also several ‘subsidiary purposes including conservation, environmental, and antitrust issues.’”) (quoting *Pub. Utils. Comm’n of Cal. v. FERC*, 900 F.2d 269, 281 (D.C. Cir. 1990)) (cleaned up). This does not mean that the Commission cannot properly impose conditions or mitigation to address environmental impacts *directly* related to the jurisdictional project; it merely recognizes that the Commission’s main objective is to facilitate the expansion and preservation of natural gas service at just and reasonable rates and that doing so will inevitably entail some measure of environmental costs. These can sometimes be reduced or minimized, but never completely eliminated. Every project ever built has some degree of environmental impacts. The standard under the NGA cannot be zero impacts.

(30) Congress could easily have conferred that authority if it had wanted to. There is no indication that Congress intended or expected FERC to perform any environmental regulation when it created the agency. See generally, Clark Bye, *The Department of Energy Organization Act: Structure and Procedure*, 30 *Admin. L. Rev.* 193 (1978). This Commission’s predecessor, the Federal Power Commission, existed for decades before EPA was created in 1970. And Congress began enacting legislation bearing on emissions decades before then as well. See Christopher D. Ahlers, *Origins of the Clean Air Act: A New Interpretation*, 45 *Env’tl. L.* 75 (2015). Nor were the effects of GHG emissions unknown at that time. See Danny Lewis, *Scientists Have Been Talking About Greenhouse Gases for 191 Years*, *Smithsonian Magazine* (Aug. 3, 2015) (citing to Nobel Laureate Svante Arrhenius’ 1896 paper “On the Influence of Carbonic Acid in the Air upon the Temperature of the Ground”).

(31) See *United States v. Pub. Utils. Comm’n of Cal.*, 345 U.S. 295, 315 (1953) (explaining that recourse to legislative history is appropriate where “the literal words would bring about an end completely at variance with the purpose of the statute.”) (citations omitted). The present circumstance is very nearly the opposite: We are urged to pursue “an end completely at variance with the purpose of the statute” and for which there is *no* support in the “literal words.” *Id.*; see also *Ctr. for Biological Diversity v. U.S. Army Corps of Eng’rs*, 941 F.3d 1288, 1299 (11th Cir. 2019) (*Ctr. for Biological Diversity*) (“Regulations cannot contradict their animating statutes or manufacture additional agency power.”) (citing *Brown & Williamson*, 529 U.S. at 125-26).

(32) *NAACP v. FPC*, 425 U.S. at 665-670 (noting that, although “the eradication of discrimination in our society is an important national goal,” the Supreme Court has “consistently held that the use of the words ‘public interest’ in a regulatory statute is not a broad license to promote the general welfare. Rather, the words take meaning from the purposes of the regulatory legislation” which, for the [Federal Power Act] and [Natural Gas Act], are “to encourage the orderly development of plentiful supplies of electricity and natural gas at reasonable prices.”); see also *Brown & Williamson*, 529 U.S. at 161 (“no matter how important,

conspicuous, and controversial the issue, and regardless of how likely the public is to hold the Executive Branch politically accountable, . . . an administrative agency's power to regulate in the public interest must always be grounded in a valid grant of authority from Congress.”) (quotation marks, citation omitted).

(33) *Office of Consumers' Counsel v. FERC*, 655 F.2d at 1147 (emphases added).

(34) See, e.g., NGA section 7(e), 15 U.S.C. 717f(e) (apart from statutory exceptions, “a certificate *shall* be issued to any qualified applicant . . . if it is found that the applicant is able and willing properly to do the acts and to perform the service proposed,” and, among other things, to comply with “the requirements, rules and regulations of the Commission . . .”) (emphasis added).

(35) Certificate Policy Statement at PP 4-6; GHG Policy Statement at P 39 (citing *Sabal Trail*, 867 F.3d at 1372-73).

(36) I won't belabor the point, but just to reiterate: A “public convenience and necessity” analysis is not a generalized “public interest” analysis, as courts have recognized. See, *supra*, P 13 & n.24 and *infra*, P 27. The “environmental” impacts appropriately considered in a certification proceeding must surely be limited in some way to the proposed facility itself since both upstream gathering and downstream use are beyond the Commission's statutory jurisdiction. See *City of Clarksville*, 888 F.3d at 479 (identifying “environmental” concerns as a “subsidiary” purpose of the NGA).

(37) *Jacobellis v. Ohio*, 378 U.S. 184, 197 (1964) (Stewart, J., concurring); see also Catherine Morehouse, *Glick, Danly spar over gas pipeline reviews as FERC considers project's climate impacts for first time, Utility Dive* (Mar. 19, 2021) (quoting Chairman Glick regarding use of GHG emissions analysis in *N. Natural Gas Co.*, 174 FERC ¶ 61,189 (2021): “We essentially used the eyeball test. . .”). Shorn of its irrelevant disquisition on EPA's stationary source regulations, today's GHG policy statement enshrines an eyeball test as the trigger for subjecting virtually all certificate applicants to the time-consuming and costly EIS process. GHG Statement at PP 88-95.

(38) *Miller v. California*, 413 U.S. 15 (1973).

(39) *NFIB*, 142 S. Ct. at 667 (Gorsuch, J., concurring) (citations omitted).

(40) *UARG*, 573 U.S. 302, 324 (2014) (“When an agency claims to discover in a long-extant statute an unheralded power to regulate ‘a significant portion of the American economy,’ *Brown & Williamson*, 529 U.S. at 159 . . . , we typically greet its announcement with a measure of skepticism. We expect Congress to speak clearly if it wishes to assign to an agency decisions of vast ‘economic and political significance.’ *Id.* at 160.”); *Gundy v. United States*, 139 S. Ct. 2116, 2141-42 (2019) (*Gundy*) (Gorsuch, J., dissenting) (“Under our precedents, an agency can fill in statutory gaps where ‘statutory circumstances’ indicate that Congress meant to grant it such powers. But we don't follow that rule when the ‘statutory gap’ concerns ‘a question of deep economic and political significance’ that is central to the statutory scheme. So we've rejected agency demands that we defer to their attempts to rewrite rules for billions of dollars in healthcare tax credits, to assume control over millions of small greenhouse gas sources, and to ban cigarettes.) (citations omitted).

(41) *In re MCP No. 165*, 20 F.4th 264, 267-268 (6th Cir. 2021) (Sutton, C.J., dissenting from denial of initial hearing en banc) (emphases added).

(42) *Panhandle E. Pipe Line Co. v. Pub. Serv. Comm'n of Ind.*, 332 U.S. 507, 516 (1947) (“three things, and three things only Congress drew within its own regulatory power, delegated by the [Natural Gas] Act to its agent, the Federal Power Commission. These were: (1) The transportation of natural gas in interstate commerce; (2) its sale in interstate commerce for resale; and (3) natural gas companies engaged in such transportation or sale.”); cf. *Ala. Assn.*, 141 S. Ct. at 2488 (invalidating the CDC's eviction moratorium because the “downstream connection between eviction and the interstate spread of disease is markedly different from the direct targeting of disease that characterizes the measures identified in the statute”).

(43) *Am. Elec. Power Co. v. Conn.*, 564 U.S. 410, 426 (2011).

(44) *Id.* (“ Congress delegated to EPA the decision whether and how to regulate carbon-dioxide emissions from powerplants”) (emphasis added); *Am. Lung Ass'n. v. EPA*, 985 F.3d at 959-60 (D.C. Cir. 2021) (“there is no question that the regulation of greenhouse gas emissions by power plants across the Nation falls squarely within the EPA’s wheelhouse.”). Consider for a moment how strange it would be for Congress to delegate regulation of GHG emissions from electric power plants to EPA, while somehow delegating regulation of GHG emissions from natural gas fired power plants to FERC. Yet that is what today’s orders presuppose.

(45) See *Mountain Valley Pipeline, LLC*, 171 FERC ¶ 61,232 (2020) (McNamee, Comm’r, concurring at PP 32-40) (discussing decades’ worth of legislative enactments, all of which “indicates that the Commission’s authority over upstream production and downstream use of natural gas has been further limited by Congress.”).

(46) *U.S. Telecom Ass’n v. FCC*, 855 F.3d 381, 422 (Kavanaugh, J. dissenting) (emphases added); see also *NFIB*, 142 S. Ct. at 665 (“the question . . . is whether the Act plainly authorizes the Secretary’s mandate. It does not.”).

(47) We cannot assume a Congressional intent to regulate every incidence of greenhouse gas emissions. As Justice Ginsberg observed, “we each emit carbon dioxide merely by breathing.” *Am. Elec. Power Co. v. Conn.*, 564 U.S. at 426.

(48) *Ala. Ass’n.*, 141 S. Ct. at 2489.

(49) Congress may “delegate power under broad general directives” so long as it sets forth “an intelligible principle” to guide the delegee. *Mistretta v. United States*, 488 U.S. 361, 372 (1989). See *Gundy*, 139 S. Ct. at 2129 (“a delegation is constitutional so long as Congress has set out an ‘intelligible principle’ to guide the delegee’s exercise of authority. Or in a related formulation, the Court has stated that a delegation is permissible if Congress has made clear to the delegee the general policy he must pursue and the boundaries of his authority.”) (citations, internal quotations omitted).

(50) *Mountain Valley*, 171 FERC ¶ 61,232 (McNamee, Comm’r, concurring at P 41); see also *id.* PP 15-47.

(51) See generally, Ford P. Hall, *Certificates of Public Convenience and Necessity*, 28 Mich. L. Rev. 276 (1930) (analyzing the meaning of “public convenience and necessity” in State laws antedating passage of the NGA, and concluding that it is the need of the consuming public, without which it will be inconvenienced, that is the critical question to be answered).

(52) The first such statute appears to have been the Interstate Commerce Act (ICA). The Supreme Court explicitly held that the use of the term “public convenience and necessity” was chosen in the knowledge that it would be understood against the background of its historical usage. *ICC v. Parker*, 326 U.S. 60, 65 (1945) (construing “public convenience and necessity” under the ICA and recognizing that Congress’ decision to use a term with such a long history indicated Congress intended “a continuation of the administrative and judicial interpretation of the language.”) When it passed the NGA, Congress was similarly cognizant of having employed the same concept as in the ICA. See, Robert Christin et al., *Considering the Public Convenience and Necessity in Pipeline Certificate Cases under the Natural Gas Act*, 38 Energy L.J. 115, 120 (2017) (citing Comm. on Interstate Commerce, Interstate Transportation and Sale of Natural Gas, S. Rep. No. 75-1162, at 5 (Aug. 9, 1937) and noting that “the concept of a regulatory agency determining whether a private entity’s proposal was in the public convenience and necessity was an established practice when the NGA was enacted.”).

(53) See *In re Kan. Pipe Line & Gas Co.*, 2 FPC 29, 56 (1939) (“We view the term [public convenience and necessity] as meaning a public need or benefit without which the public is inconvenienced to the extent of being handicapped in pursuit of business or comfort or both without which the public generally in the area involved is denied to its detriment that which is enjoyed by the public of other areas similarly situated.”)

(54) NEPA, 42 U.S.C. 4321 *et seq.*, requires all federal agencies to undertake an “environmental assessment” of their actions, typically including the preparation of an “environmental impact statement” of proposed “major federal actions.” As discussed below, the purpose of the EA and EIS is for the agency to be fully informed of the impact of its decisions. NEPA does not mandate any specific action by the agency in response to an EA or EIS, other than to make an informed decision. See, e.g., Steven M. Siros, et al., *Pipeline Projects—The Evolving Role of Greenhouse Gas Emissions Analyses under NEPA*, 41 Energy L.J. 47 (May 2020); see also *Sabal Trail*, 867 F.3d at 1367-68 (describing NEPA as “primarily information-forcing” and noting that courts “should not ‘flyspeck’ an agency’s environmental analysis, looking for any deficiency no matter how minor.”) (quoting *Nevada v. Dep’t of Energy*, 457 F.3d 78, 93 (D.C. Cir. 2006)).

(55) NGA section 7(e), 15 U.S.C. 717f(e), authorizes the Commission to attach to a certificate “such reasonable terms and conditions as the public convenience and necessity may require.” There is no analytical difference between the Commission’s authority to reject a certificate application and its authority to mitigate it. See *Nat’l Fuel Gas Supply Corp. v. FERC*, 909 F.2d 1519, 1522 (D.C. Cir. 1990) (“The Commission may not, . . . when it lacks the power to promote the public interest directly, do so indirectly by attaching a condition to a certificate that is, in its unconditional form, already in the public convenience and necessity.”) (citations omitted). That the Commission may be tempted to abuse its conditioning authority has long been recognized. See Carl I. Wheat, *Administration by the Federal Power Commission of the Certificate Provisions of the Natural Gas Act*, 14 Geo. Wash. L. Rev. 194, 214-215 (1945) (“It is particularly important that the Commission . . . steel itself against the somewhat natural temptation to attempt to use such ‘conditions’ as substitutes or ‘shortcuts’ for other (and more appropriate) methods of regulation prescribed in the statute. . . . [W]hatever may be said with respect to conditions concerning rates and other matters over which the Commission has specific authority under other provisions of the Act, it would appear clear that the power to prescribe ‘reasonable conditions’ in certificates cannot be greater in scope than the statutory authority of the Commission.”)

(56) “[I] t is now well settled that NEPA itself does not mandate particular results, but simply prescribes the necessary process. If the adverse environmental effects of the proposed action are adequately identified and evaluated, the agency is not constrained by NEPA from deciding that other values outweigh the environmental costs. . . . Other statutes may impose substantive environmental obligations on federal agencies, . . . but NEPA merely prohibits uninformed—rather than unwise—agency action.” *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350-51 (1989) (citations omitted; emphases added). See also, e.g., *Minisink Residents for Env’tl. Preserv. & Safety v. FERC*, 762 F.3d 97, 112 (D.C. Cir. 2014) (same).

(57) *Dep’t. of Transp. v. Pub. Citizen*, 541 U.S. 752, 767 (2004) (*Pub. Citizen*). This principle has been incorporated into the implementing regulations of the Council of Environmental Quality (CEQ), an executive branch agency. See 40 CFR 1508.1(g)(2) (2021) (“Effects do not include those effects that the agency has no ability to prevent due to its limited statutory authority or would occur regardless of the proposed action”).

(58) *Pub. Citizen*, 541 U.S. at 767 (citations omitted).

(59) Certificate Policy Statement at PP 73-76; GHG Policy Statement at PP 28-31.

(60) *Pub. Citizen*, 541 U.S. at 767 (citations omitted).

(61) See, e.g., *Sabal Trail*, 867 F.3d at 1372 (citing *Pub. Citizen*, 541 U.S. at 770) (“when the agency has no legal power to prevent a certain environmental effect, there is no decision to inform, and the agency need not analyze the effect in its NEPA review.”) (emphasis in original); *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 195 (D.C. Cir. 1991) (“an agency need follow only a ‘rule of reason’ in preparing an EIS . . . and . . . this rule of reason governs both *which* alternatives the agency must discuss, and the *extent* to which it must discuss them.”) (internal citations and quotations omitted, emphasis in original). To state the obvious: We have absolutely no way of knowing how much an individual project may or may not contribute to global climate change for any number of reasons, including because there is no way for us to meaningfully evaluate the release of GHG emissions if the facility in question were not to be certificated. Notwithstanding, today, the majority boasts of forcing virtually every certificate applicant into the EIS process. GHG Policy Statement at PP 80, 88.

(62) *Pub. Citizen*, 541 U.S. at 767 (citations omitted).

(63) GHG Policy Statement at P 80, 88. For purposes of determining what emissions count toward the 100,000 metric tons per year threshold, the majority states that this number is measured based on “the construction, operational, downstream, and, where determined to be reasonably foreseeable, upstream GHG emissions that reoccur annually over the life of the project.” *Id.* P 80 & n.197.

(64) *Id.* PP 88-93 (acknowledging that the Supreme Court has partially invalidated EPA's regulatory regime).

(65) *Id.* P 89 (emphasis added).

(66) *Id.* P 95. It appears that the majority's intent is to force all applicants into the EIS process. This will undeniably cause each application to become far more costly and time-consuming, both obvious disincentives to even trying.

(67) EPA Comments, *Iroquois Gas Transmission Sys., L.P.*, Docket No. CP20-48-000 at 1-2 (filed Dec. 20, 2021) (EPA Dec. 20, 2021 Letter).

(68) And yet, as a practical matter, applicants must spend years of work and possibly millions of dollars (or more) in preparatory tasks like lining up financing, securing local political support, obtaining permits, etc. All this extensive legwork is needed just to put an application in to the Commission. Today's orders effectively tell applicants that their application could be rejected for any reason or no reason at all. Nor does the majority even do the courtesy of providing a target for the applicant to aim at.

(69) See Bradley C. Karkkainen, *Whither NEPA?*, N.Y.U. Envtl. L.J. 333, 339 & n.31 (2004) (noting that “Department of Energy EISs produced prior to 1994 had a mean cost of \$6.3 million and a median cost of \$1.2 million; following an aggressive effort to reduce costs, after 1994 the mean cost fell to \$5.1 million, but the median cost rose to \$2.7 million.”)

(70) See, *Nat. Res. Def. Council, Inc. v. EPA*, 822 F.2d 104, 129 (D.C. Cir. 1987) (“NEPA, as a procedural device, does not work a broadening of the agency's substantive powers. Whatever action the agency chooses to take must, of course, be within its province in the first instance.”) (citations omitted, emphasis added); *Balt. Gas & Elec. Co. v. Natural Res. Defense Council, Inc.*, 462 U.S. 87, 97 (1983) (acknowledging NEPA's “twin aims” as obligating an agency “to consider every significant aspect of the environmental impact of a proposed action” and ensuring “that the agency will inform the public that it has indeed considered environmental concerns in its decision-making process,” but noting that “Congress in enacting NEPA, however, did not require agencies to elevate environmental concerns over other appropriate considerations.”) (citations, alterations omitted).

- (71) 18 CFR 380.1 (2021) (emphasis added); see also 40 CFR 1500.3(a) (2021) (compliance with the CEQ regulations “is applicable to and binding on all Federal agencies . . . except where compliance would be inconsistent with other statutory requirements”).
- (72) 18 CFR 380.1 (2021). See The Hon. Joseph T. Kelliher Jan. 7, 2022 Comments, *Technical Conference on Greenhouse Gas Mitigation: Natural Gas Act Sections 3 and 7 Authorizations*, Docket No. PL21-3-000 at 2 (The Hon. Joseph T. Kelliher Jan. 7, 2022 Comments) (“if imposing mitigation for direct and indirect emissions discourages or forestalls pipeline development, the mitigation policy is directly contrary to the principal purpose of the Natural Gas Act and must be set aside.”).
- (73) Bradley C. Karkkainen, *Whither NEPA?*, N.Y.U. Envtl. L.J. at 345-346 (noting that fear of NEPA challenges has led agencies to “kitchen sink” EISs to reduce the risk of reversal, but that almost nobody actually reads them “and those who attempt to do so may find it difficult to separate the good information from the junk. Contrary to conventional wisdom, more information is not always better.”); see also, *Pub. Citizen*, 541 U.S. at 768-769 (“NEPA’s purpose is not to generate paperwork—even excellent paperwork—but to foster excellent action.”) (quoting then-in effect 40 CFR 1500.1(c) (2003)).
- (74) The delay is clearly part of the point. Why else funnel virtually every certificate applicant into the EIS process? See e.g., Bradley C. Karkkainen, *Whither NEPA?*, N.Y.U. Envtl. L.J. at 339-40 (observing that NEPA has become “a highly effective tool that environmental NGOs and others can use to raise the financial and political costs of projects they oppose and stretch out decisions over an extended time frame, giving time to rally political opposition.”). See also P 47, *infra*.
- (75) In fact, even if the Commission had the authority to impose upstream or downstream GHG emissions mitigation, or to deny certificates of public convenience and necessity on that basis, the majority admits that it is by no means obvious that doing so would actually prevent or even meaningfully reduce global climate change or the problems associated with it. See GHG Policy Statement at P 88 (noting that “[e]ven if deep reductions in GHG emissions are achieved, the planet is projected to warm by at least 1.5 degrees Celsius (°C) by 2050,” and that “even relatively minor GHG emissions pose a significant threat”).
- (76) *Vecinos Para El Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321, 1329 (D.C. Cir. 2021) (*Vecinos*) (“Because the Commission failed to respond to significant opposing viewpoints concerning the adequacy of its analyses of the projects’ greenhouse gas emissions, we find its analyses deficient under NEPA and the APA.”).
- (77) Cf. The Hon. Joseph T. Kelliher Jan. 7, 2022 Comments at 3.
- (78) *Sabal Trail*, 867 F.3d 1357. In support of its assertion of broad discretion in attaching conditions to a certificate, the majority also cites to *ANR Pipeline Co. v. FERC*, 876 F.2d 124, 129 (D.C. Cir. 1989) (*ANR Pipeline*). Certificate Policy Statement at P 74 & n. 190. Since the Commission’s conditioning authority is limited in the same way as its certificating authority, there is little reason to discuss it separately. I will only note in passing that, although the court described the Commission’s conditioning authority as “extremely broad,” the only issue actually before the court in *ANR Pipeline* was the validity of certificate terms imposed in furtherance of the Commission’s core duty to ensure that rates are non-discriminatory. *Id.*
- (79) *Birckhead v. FERC*, 925 F.3d 510 (D.C. Cir. 2019) (rejecting, for failure to raise the issue before the Commission, a claim that NEPA requires FERC to analyze downstream GHG emissions). Since *Birckhead* was decided on jurisdictional grounds, any substantive commentary in that order is mere dicta and I will not discuss it further.
- (80) *Vecinos*, 6 F.4th 1321.

(81) Both orders suffer from a number of infirmities that don't bear belaboring in this context. In brief, however, *Sabal Trail* reads the Commission's duty to "balance `the public benefits against the adverse effects of the project, including adverse environmental effects,'" *Sabal Trail*, 867 F.3d at 1373 (quoting *Minisink Residents for Env'tl. Pres. & Safety v. FERC*, 762 F.3d 97 at 101-02 and citing *Myersville Citizens for a Rural Cmty. v. FERC*, 783 F.3d at 1309), far too expansively, and *Vecinos* compounds that error. Both orders are discussed below.

(82) Namely, "[b]ecause FERC could deny a pipeline certificate on the ground that the pipeline would be too harmful for the environment, the agency is a `legally relevant cause' of the direct and indirect environmental effects of pipelines that it approves." *Sabal Trail*, 867 F.3d at 1373. The other orders the majority relies on depend vitally on this statement. See, e.g., Certificate Policy Statement at PP 75 & n. 192 (citing *Birckhead*); 86 & n. 207 (citing *Vecinos*); GHG Policy Statement at PP 13, 36-38 (citing *Birckhead*) and P 14 & n. 38 (citing *Vecinos*).

(83) See *Ctr. for Biological Diversity*, 941 F.3d at 1300 ("the legal analysis in *Sabal Trail* is questionable at best. It fails to take seriously the rule of reason announced in *Public Citizen* or to account for the untenable consequences of its decision. The *Sabal Trail* court narrowly focused on the reasonable foreseeability of the downstream effects, as understood colloquially, while breezing past other statutory limits and precedents—such as *Metropolitan [Edison Co. v. People Against Nuclear Energy]*, 460 U.S. 776 (1983)] and *Public Citizen*—clarifying what effects are cognizable under NEPA.").

(84) *Sabal Trail*, 867 F.3d at 1372-1373. In each of the D.C. Circuit orders *Sabal Trail* purported to distinguish, the court had found that FERC did not have to analyze, because it could not regulate, downstream emissions.

(85) *Id.* at 1373 (citing *Sierra Club v. FERC (Freeport)*, 827 F.3d 36, 47 (D.C. Cir. 2016). The "companion cases" are *Sierra Club v. FERC (Sabine Pass)*, 827 F.3d 59 (D.C. Cir. 2016) and *EarthReports, Inc. v. FERC*, 828 F.3d 949 (D.C. Cir. 2016).

(86) *Sabal Trail*, 867 F.3d at 1373 (emphasis in original).

(87) *Id.* (citations omitted).

(88) *Id.*

(89) *Supra*, Section I.B. Cf. *ICC v. Parker*, 326 U.S. 60, 65 (1945) (construing "public convenience and necessity" under the Interstate Commerce Act and recognizing that Congress' decision to use a term with such a long history indicated Congress intended "a continuation of the administrative and judicial interpretation of the language."). Far from being "a continuation of the administrative and judicial interpretation of the language," construing it to extend to an analysis of global GHG emissions is novel and unprecedented.

(90) *Vecinos*, 6 F.4th at 1328-30.

(91) 40 CFR 1502.21(c).

(92) See *supra*, n. 83.

(93) *NFIB*, 142 S. Ct. 661.

(94) *Ala. Ass'n.*, 141 S. Ct. 2485 at 2489.

(95) See generally, *Allegheny Def. Project v. FERC*, 964 F.3d 1, 18 (D.C. Cir. 2020) (noting that circuit court precedent may be departed from "when intervening developments in the law—such as Supreme Court decisions—have removed or weakened the conceptual underpinnings of the prior decision.") (cleaned up, citation omitted).

(96) In his *NFIB* concurrence, Justice Gorsuch states: “Sometimes Congress passes broadly worded statutes seeking to resolve important policy questions in a field while leaving an agency to work out the details of implementation. Later, the agency may seek to exploit some gap, ambiguity, or doubtful expression in Congress’s statutes to assume responsibilities far beyond its initial assignment. The major questions doctrine guards against this possibility by recognizing that Congress does not usually hide elephants in mouseholes.” 142 S. Ct. at 669 (Gorsuch, J., concurring) (citations, alterations omitted). It would be hard to find a better description of the path the Commission has taken to arrive at today’s orders.

(97) See, e.g., Bloomberg Philanthropies, <https://www.bloomberg.org/environment/moving-beyond-carbon/> (“Launched in 2019 with a \$500 million investment from Mike Bloomberg and Bloomberg Philanthropies, Beyond Carbon . . . works . . . to . . . *stop the construction of proposed gas plants.*”) (last visited Feb. 8, 2022) (emphasis added); Sierra Club, <https://www.sierraclub.org/policy/energy/fracking>, (“There are no ‘clean’ fossil fuels. The Sierra Club is committed to *eliminating the use of fossil fuels*, including coal, *natural gas* and oil, as soon as possible”) (emphases added) (last visited Feb. 8, 2022); Natural Resources Defense Council, <https://www.nrdc.org/issues/reduce-fossil-fuels> (“Oil, *gas*, and other fossil fuels come with grave consequences for our health and our future. . . . *NRDC is pushing America to move beyond these dirty fuels. We fight dangerous energy development on all fronts*”) (emphases added) (last visited Feb. 8, 2022); Press Release, *NRDC Receives \$100 million from Bezos Earth Fund to Accelerate Climate Action* (Nov. 16, 2020), available at <https://www.nrdc.org/media/2020/201116> (“The Bezos Earth Fund grant will be used to help NRDC advance climate solutions and legislation at the State level, move the needle on policies and programs focused on *reducing oil and gas production*”) (emphasis added) (last visited Feb. 8, 2022); Sebastian Herrera, *Jeff Bezos Pledges \$10 Billion to Tackle Climate Change*, Wall Street Journal (Feb. 17, 2020) (“Mr. Bezos . . . said the *Bezos Earth Fund* would help back scientists, *activists, [non-governmental organizations]*”) (emphasis added); see also, Ellie Potter, *Environmentalists launch campaign to ban gas from US clean energy program*, S&P Global Platts (Sep. 2, 2021) (quoting Collin Rees, U.S. Campaign Manager for Oil Change International, “Clean energy means *no gas* and no other fossil fuels, period.”) (emphases added); Sean Sullivan, *FERC sets sights on gas infrastructure policy in 2022*, S&P Capital IQ (Dec. 31, 2021) (quoting Maya van Rossum, head of Delaware Riverkeeper Network, “we are not changing course at all: We continue to take on every pipeline, LNG, and fracked gas project as urgently as we did before, knowing we will have to *invest heavily to stop it . . .*”) (emphases added).

(98) See Letter of Chairman Richard Glick to Sen. John Barasso, M.D. (Feb. 1, 2022) (“Preparing an EIS to consider the reasonably foreseeable GHG emissions that may be attributed to a project proposed under section 7 of the NGA allows the Commission to issue more legally durable orders on which all stakeholders can depend, including project developers.”); Letter of Commissioner Allison Clements to Sen. John Barasso, M.D. (Feb. 1, 2022) (“I will do my part to assure that the updated policy will be a legally durable framework for fairly and efficiently considering certificate applications—one that serves the public interest and increases regulatory certainty for all stakeholders.”); see also, Corey Paul, *FERC Dems argue legal benefits from climate reviews outweigh gas project delays*, S&P Capital IQ Pro (Feb. 3, 2022).

(99) Certificate Policy Statement at P 100 (“the Commission will apply the Updated Policy Statement to any currently pending applications for new certificates. Applicants will be given the opportunity to supplement the record and explain how their proposals are consistent with this Updated Policy Statement, and stakeholders will have an opportunity to respond to any such filings.”)

(100) *Adelphia Gateway, LLC*, 178 FERC ¶ 61,030 (2022) (Christie, Comm’r concurring at P 4) (available at: <https://www.ferc.gov/news-events/news/item-c-3-commissioner-christies-partial-concurrence-and-partial-dissent-adelphia>).

(101) See *Am. Lung Ass'n v. EPA*, 985 F.3d at 1003 (Walker, J., concurring in part and dissenting in part) (“whatever multi-billion-dollar regulatory power the federal government might enjoy, it’s found on the open floor of an accountable Congress, not in the impenetrable halls of an administrative agency—even if that agency is an overflowing font of good sense.”) (citing U.S. Const. art I, section 1).

(102) GHG Policy Statement at PP 27-28, 31, & n.97. See also, EPA Dec. 20, 2021 Letter.

(103) GHG Policy Statement at P 96. See also, e.g., *Vecinos*, 6 F.4th at 1328-1329.

(104) EPA Dec. 20, 2021 Letter at 4 (emphases added).

(105) This Commission’s independence reflects a conscious choice on Congress’ part to insulate certain of its functions from the vicissitudes of political pressure. See generally, Sharon B. Jacobs, *The Statutory Separation of Powers*, 129 Yale L.J. 378 (2019) (explaining that some but not all of the Federal Power Commission’s authorities were transferred to FERC, which was intended at least in part to counterbalance presidential influence). Succumbing to the pressure of EPA and others would sacrifice that crucial independence in meaningful ways.

(106) Cf. *Vecinos*, 6 F.4th at 1329.

(107) It has been observed that the values associated with the imputed social costs of GHG emissions have fluctuated dramatically from one administration to the next. See, e.g., Garrett S. Kral, *What’s In a Number: The Social Cost of Carbon*, Geo. Envtl. L. Rev. Online 1 (Aug. 19, 2021) (comparing the social cost of GHG emissions under the Trump administration with the interim social cost under the Biden administration and noting “the value of SC-GHGs have fluctuated. A lot.”). This degree of abrupt fluctuation— e.g., the social cost of carbon increasing from \$7 per ton to \$51 per ton—can only be explained by politics, not science.

(108) *NFIB*, 142 S. Ct. at 667 (Gorsuch, J. Concurring). (“The central question we face today is: *Who decides?*”) (emphasis added).

(109) See P 5 and n.12, *supra*.

(110) *Office of Consumers Counsel*, 655 F.2d at 1142 (“an agency may not bootstrap itself into an area in which it has no jurisdiction by violating its statutory mandate”) (quoting *FMC v. Seatrain Lines, Inc.*, 411 U.S. 726, 745 (1973)) (ellipsis omitted); see also *In re MCP No. 165*, 20 F.4th 264, 269 (6th Cir. 2021) (Sutton, C.J., dissenting) (“As the Supreme Court recently explained in invalidating an eviction moratorium promulgated by the Center for Disease Control, ‘our system does not permit agencies to act unlawfully even in pursuit of desirable ends.’ *Ala. Ass’n of Realtors*, 141 S. Ct. at 2490. Shortcuts in furthering preferred policies, even urgent policies, rarely end well, and *they always undermine, sometimes permanently, American vertical and horizontal separation of powers, the true mettle of the U.S. Constitution, the true long-term guardian of liberty.*”) (emphasis added).

(111) This argument is often put forth by the legal, academic, and corporate elites who assume that an administrative agency will enact the public policies they prefer when Congress will not. Such an expectation is perfectly rational since these elites disproportionately have the resources that are most effective in achieving desired outcomes in the administrative process, which is largely an insiders’ game. The body of work on the economic theory of regulatory capture over the past half-century is relevant to this topic. See generally, Susan E. Dudley, *Let’s Not Forget George Stigler’s Lessons about Regulatory Capture*, Regulatory Studies Center (May 20, 2021) (available at <https://regulatorystudies.columbian.gwu.edu/let%E2%80%99s-not-forget-george-stigler%E2%80%99s-lessons-about-regulatory-capture>). And it is not just for-profit corporate elites at work here, so are other special interests who seek desired policy outcomes from administrative action rather than from the often messy and hard democratic processes of seeking to persuade voters to elect members of Congress who agree with you. See, e.g., n. 97, *supra*.



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[Start Printed Page 74236](#)**AGENCY:**

National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

ACTION:

Final rule.

SUMMARY:

This document finalizes NHTSA's proposal to repeal in full "The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program," published September 27, 2019 (SAFE I Rule), in which NHTSA codified regulatory text and made additional pronouncements regarding the preemption of state and local laws related to fuel economy standards. NHTSA originally proposed to repeal the SAFE I Rule in a Notice of Proposed Rulemaking entitled "Corporate Average Fuel Economy Preemption," which was published on May 12, 2021. After evaluating all public comments submitted for this Proposal, the Agency is finalizing the Proposal. As such, the Agency is repealing all regulatory text and appendices promulgated in

the SAFE I Rule. In doing so, the Agency underscores that any positions announced in preambulatory statements of prior NHTSA rulemakings, including in the SAFE I Rule, which purported to define the scope of preemption under the Energy Policy and Conservation Act (EPCA), do not reflect the Agency's reconsidered understanding of its proper role in matters of EPCA preemption. Through this final rule, NHTSA makes clear that no prior regulations or positions of the Agency reflect ongoing NHTSA views on the scope of preemption of states or local jurisdictions under EPCA.

DATES:

This action is effective on January 28, 2022.

Petitions for Reconsideration: Pursuant to 49 CFR 553.35 (<https://www.ecfr.gov/current/title-49/section-553-35>), petitions for reconsideration of this final rule must be received not later than February 14, 2022.

ADDRESSES:

Any petitions for reconsideration should refer to the docket number of this document and be submitted to: Deputy Administrator, National Highway Traffic Safety Administration, 1200 New Jersey Avenue SE, West Building, Fourth Floor, Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT:

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I. Overview of Final Rule

A. Summary of Proposal

On May 12, 2021, NHTSA published in the **Federal Register** a Notice of Proposed Rulemaking (NPRM or Proposal) entitled “Corporate Average Fuel Economy (CAFE) Preemption,” which set forth the proposal that NHTSA is finalizing today.^[1] As explained in the Proposal, this NPRM considered a repeal of NHTSA's portion of a joint agency action completed by NHTSA and the Environmental Protection Agency (EPA) in 2019, “The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program” (SAFE I Rule or Rule).^[2] In the SAFE I Rule, NHTSA and EPA finalized a joint agency action relating to the state regulation of greenhouse gas (GHG) emissions from motor vehicles and state mandates for zero emission vehicles (ZEVs). In that action, NHTSA codified regulatory text and appendices, which expressly declared that certain types of state regulation were preempted due to a perceived irreconcilable conflict with the Agency's fuel economy standards. In addition, the Agency published further statements in the preambles of the SAFE I rulemaking, which described various types of state regulations as preempted. As part of the SAFE I action, EPA also withdrew portions of a waiver that EPA had previously extended to the California Air Resources Board (CARB) under Section 209 of the Clean Air Act to regulate new motor vehicle emissions through GHG standards and a ZEV mandate.^[3]

On January 20, 2021, President Biden signed Executive Order 13990 (/executive-order/13990), “Protecting Public Health and the Environment and Restoring Science To Tackle the Climate Crisis,” which, among other actions, directed DOT, NHTSA, and EPA to immediately review and consider suspending, revising, or rescinding their respective portions of the SAFE I Rule. NHTSA's resulting comprehensive assessment of the SAFE I Rule identified potential problems relating to both the legal authority claimed by NHTSA for the rulemaking and the degree to which the categorical prohibitions announced by the Agency failed to appropriately account for the substantial and often nuanced state interests in the measures purportedly preempted by the SAFE I Rule. As a result of these considerations, NHTSA published the NPRM, to propose a repeal of the SAFE I Rule and to solicit public comment on the Agency's concerns about the legality and prudence of the rulemaking. On April 28, 2021, EPA outlined its own review of the EPA aspects of the SAFE I joint agency action, publishing a Notice of Opportunity for Public Hearing and Comment that proposed a reconsideration of EPA's withdrawal of California's waiver under the Clean Air Act.^[4] Both agencies have expressly recognized that their respective reconsideration proposals are separate, independent proceedings.^[5]



In the CAFE Preemption NPRM, NHTSA proposed to repeal the SAFE I Rule for several independent reasons. First, the Agency repeatedly expressed substantial doubts regarding the legal validity of the Rule. As the NPRM explained, NHTSA became concerned about whether the Agency possesses the authority to define the scope of EPCA through rulemaking. Accordingly, NHTSA proposed to repeal and withdraw the codified regulations and appendices, as well as any associated interpretations or views on EPCA preemption contained in the SAFE I Rule, including in the regulatory text of Sections 531.7, 533.7, and appendices B to Parts 531 and 533.

In the Proposal, NHTSA recognized that the statutory preemption provision in EPCA, Section 32919, was self-executing. In this respect, Section 32919 is able to preempt state or local laws directly, without the need for a DOT or NHTSA regulation that further implements either EPCA preemption or this particular statutory provision. As such, the statutory provision is both standalone and fails to articulate any role for the Agency in further dictating a preemptive scope. Accordingly, the NPRM proposed that Section 32919 and EPCA were more appropriately read as indicating that Congress did not intend to empower NHTSA to define preemption in this manner. As a result, NHTSA's Proposal expressed concern that in the SAFE I Rule, the Agency acted outside of its delegated authority by publishing regulations and pronouncements that sought to do just such a thing. Accordingly, the NPRM proposed to repeal the SAFE I Rule.

In addition, the Proposal also articulated a separate basis for repealing the entirety of the SAFE I Rule, which rested upon the inappropriateness of such a sweeping pronouncement of preemption. Even if EPCA had imbued NHTSA with power to dictate preemption through regulations, the expansive manner in which this authority was wielded in the SAFE I rulemaking failed to appropriately account for a variety of important considerations. These include legally relevant factors, such as the substantial federalism interests of states and local jurisdictions who had long relied on programs to address environmental hazards in their local communities or comply with other federal air pollution requirements. In addition, the categorical and generally applicable scope of the SAFE I Rule also precluded consideration of other fact-specific attributes of particular programs, many of which represent diverse characteristics that bear upon the application of EPCA preemption and the accuracy of any ensuing preemption analysis. Many of these factors—some of which were not even discussed in the SAFE I rulemaking—strongly suggest that a more considered and circumscribed dispensation of any preemption authority would more narrowly tailor any preemptive pronouncements to better account for the diverse, nuanced, and relied upon federalism interests of the preempted state governments and their constituents. As described further below, these concerns were raised and expressed by a significant number of public comments, especially from those local jurisdictions most affected by the rulemaking. These jurisdictions described numerous unique considerations regarding their programs that the SAFE I Rule's absolute proclamation of preemption did not fully contemplate. These considerations reflected the Agency's similar concerns in the NPRM, which proposed to repeal the SAFE I Rule in its entirety in order to establish a “clean slate,” that restores NHTSA's longstanding practice of undertaking a more careful and particularized role in the EPCA preemption discourse.

Finally, even apart from the lack of rulemaking authority and the overly broad manner of the SAFE I Rule's prohibitions, the NPRM also proposed a repeal of the SAFE I Rule in order to remove the regulation that overcomplicated or potentially confused an otherwise direct application of Section 32919's statutory standards. In connection with a proposed repeal of the regulatory text from the SAFE I Rule, the NPRM also proposed to clarify that, to the extent prior statements from rulemaking preambles (from the SAFE I Rule or otherwise) discussed aspects of EPCA preemption or could be read as interpretative views on the subject, those statements should not be read as continuing views of the Agency. While this clarification was not

legally necessary, NHTSA still considered it worthwhile because the inconsistent nature of many of the Agency's prior statements on EPCA preemption and the oftentimes imperative language utilized in such statements—especially during the SAFE I rulemaking—risked a confusing landscape in which regulated entities and the public were unsure of the precise legal effect of Agency statements that purported to control EPCA's preemptive reach. Moreover, NHTSA felt that many of those statements, particularly in the preambles of the SAFE I Rule, contained sweeping and definitive language on preemption, which left no room for nuance or further deliberation about particular programs, and obscured the Agency's ongoing internal consideration of whether EPCA actually enacted a narrower scope of preemption than claimed in the rulemaking. In light of these considerations, the NPRM proposed to expressly disclaim any of these prior statements to make clear they no longer accurately reflected the Agency's position on the issue.

B. Public Participation Opportunities and General Overview of Comments

The public docket opened for this rulemaking following the **Federal Register** publication of the NPRM on May 12, 2021. The public comment period spanned 30 days, with comments due on June 11, 2021. During that time, the Agency received 445 comments. As of the date of today's final rule, NHTSA has not received any late comments posted after the close of the comment period.^[6]

NHTSA closely reviewed each of the comments posted to the docket for this Proposal. While NHTSA is responding to the particular comments in further detail in the substantive analysis in the following sections of this final rule, at a high level, the public comments spanned a diverse array of state and local jurisdictions, regulated entities and trade associations for regulated industries, public interest groups and other nonprofit organizations, and individual members of the public. The Agency appreciates the time and effort dedicated by these parties in submitting their comments and is grateful for the diversity and depth of views, both for and against the Proposal, expressed by the commenters.

Overall, the Agency received comments spanning the entire spectrum of perspectives with respect to the Proposal. The vast majority of comments from the entities most immediately affected by the rulemaking, *i.e.*, states and local jurisdictions, strongly supported the Proposal. In particular, as explained further below, many of these comments provided tangible examples of hardships imposed by the SAFE I Rule and identified nuanced aspects of their affected programs that were not fully considered during the SAFE I rulemaking. Likewise, comments from entities or associations in the automotive industry, who are directly affected by motor vehicle emission regulations, largely tended to support the Proposal or offer more neutral views. With a few exceptions, most other institutional commenters strongly supported the rulemaking as well. Such commenters consisted of public interest groups, such as environmental or consumer advocacy organizations, who overwhelmingly supported the Proposal and urged a swift repeal of the SAFE I Rule for many of the same reasons expressed in the NPRM.

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The Agency also received several institutional comments that expressly opposed the Proposal. While these comments are discussed in depth later in this final rule, in a general sense, these comments urged the Agency to retain the SAFE I Rule in its entirety. Many of these comments defended the substantive validity of the preemption scope announced in the SAFE I Rule, and construed NHTSA's governing authorities as delegating to the Agency the power to regulate preemption in the manner attempted in that rulemaking. Several of these comments also questioned the sufficiency of NHTSA's proposed justifications to repeal the SAFE I Rule, essentially arguing that NHTSA could not reasonably repeal a substantive position on preemption without replacing it with an alternative substantive view. While a number of individuals commented in support of the Proposal, the Agency recognizes that many individual members of the public also opposed a repeal of the SAFE I Rule.^[7]

Finally, a significant portion of the comments raised, either in full or in part, issues beyond the narrow scope on which NHTSA proposed to repeal the SAFE I Rule. Such topics, which appeared in comments both supportive of and opposed to the Proposal, tended to focus on the substantive aspects of the CAFE program, such as the appropriate levels of fuel economy stringency, the effect of any particular state programs on the environment or vehicle fleets, or specific vehicle technologies, such as electrification. Likewise, as anticipated in the NPRM, many of the commenters also articulated substantive views on the appropriate scope of EPCA preemption.^[8] NHTSA recognizes that many of these issues pose important societal or public policy questions and, in fact, analyzed a number of these topics in significant detail as part of its standard-setting analysis proposed in the **Federal Register** on September 3, 2021, “Corporate Average Fuel Economy Standards for Model Years 2024-2026 Passenger Cars and Light Trucks.”^[9] Nevertheless, most of these issues do not directly speak to the proposed bases of NHTSA’s repeal of the SAFE I Rule, given the very narrow scope of this rulemaking, which principally arose from a reconsideration of the discrete legal issues that underpinned the exercise of Agency authority in the SAFE I rulemaking. As such, while NHTSA greatly appreciates the efforts of commenters to submit such views and thoroughly reviewed them as part of the Agency’s continuous efforts to understand broader public perspectives on NHTSA’s fuel economy responsibilities, such views do not directly bear upon today’s final rule.

C. Finalized Approach

Today’s final rule finalizes the proposal set forth in the CAFE Preemption NPRM. As such, this final rule repeals all aspects of the SAFE I Rule, both the codified regulatory text and the accompanying pronouncements about the scope of CAFE preemption. Specifically, the final rule repeals 49 CFR Sections 531.7 (“Preemption”) and 533.7 (“Preemption”), as well as each Appendix B in 49 CFR part 531 (<https://www.ecfr.gov/current/title-49/part-531>) (“APPENDIX B TO PART 531—PREEMPTION”) and Part 533 (“APPENDIX B TO PART 533—PREEMPTION”). In doing so, NHTSA’s regulations will return to the same state for which they existed throughout the nearly 50-year history of the Agency’s CAFE program—in which no regulation existed to purport to broadly define the scope of EPCA preemption.

In finalizing this Proposal, NHTSA concludes that it lacked authority to dictate the scope of EPCA preemption enacted in Section 32919. The plain language of Section 32919 establishes a clearly executable preemptive framework that can be applied by any reviewing court in the absence of an Agency regulation purporting to further dictate EPCA’s preemptive scope. This conclusion is not simply presupposition, but as NHTSA’s Proposal referenced and many commenters subsequently emphasized, the self-sufficiency of Section 32919 is a straightforward historical observation demonstrated by the provision’s repeated application by Federal courts across the country—both to uphold and to preempt various state and local laws. The text of Section 32919 does not mention any role for NHTSA in codifying binding preemption requirements, nor does it state that the Agency is conferred with preemption rulemaking authority. Instead, the statute is self-executing and suffices to control the preemption analysis. The courts retain their authority to decide preemption questions; furthermore, the Agency may, consistent with law, provide interpretations of CAFE preemption questions other than by legislative rule. Thus, repeal of the SAFE I Rule is not simply appropriate, but a necessary measure to ensure that NHTSA is acting within the appropriate scope of its authority under EPCA.

In addition, today’s final rule also concludes that a repeal of the SAFE I Rule is appropriate irrespective of whether NHTSA had legal authority for the SAFE I rulemaking. Through both its regulations and preambulatory language, the SAFE I Rule sweepingly preempted expansive categories of state and local motor vehicle emissions regulations. In doing so, the SAFE I Rule imposed immutable preemption requirements of general applicability, while ignoring the substantially important federalism interests affected

by such prohibitions. Many of the comments from states and local jurisdictions underscored this position, identifying specific state programs affected by the SAFE I Rule that those states had previously relied on to protect their citizens from environmental hazards and to meet federal obligations, such as attainment goals for National Ambient Air Quality Standards for criteria pollutants.^[10] By imposing categorical preemption prohibitions without regard for such considerations, the SAFE I Rule impermissibly failed to account for legally relevant factors, such as reliance interests of states and local jurisdictions in longstanding programs potentially affected by the Rule. In doing so, the SAFE I Rule precluded potential avenues for a more tailored approach that considered programs in a more particularized setting rather than prematurely overriding those federalism interests in a categorical manner.

Moreover, by purporting to preempt abstract categories of regulation, the SAFE I Rule's prohibitions were both categorical and anticipatory—largely precluding entire subjects of state regulations without analyzing important factual questions or variables, such as the particulars of state programs, their specific manners of implementation, or possible scientific developments that may affect the relevant technologies. Therefore, even if the SAFE I Rule constituted a legitimate exercise of the Agency's authority, it represented an overly broad attempt to preempt state and local laws that precluded more detailed, and therefore potentially more accurate, considerations of specific programs. As such, NHTSA considers the SAFE I Rule's categorical and anticipatory scope to express an inappropriately broad and restrictive view on EPCA preemption. Accordingly, independent from the authority question, the SAFE I Rule conflicts with the need for a more focused consideration of preemption issues and, as such, must be repealed.

Finally, as part of today's notice, NHTSA is also expressly emphasizing that language in the preamble statements of other rulemakings, including the SAFE I Rule, which purport to dictate the scope of EPCA preemption, should no longer be viewed as the position of the Agency.^[11] Indeed, several commenters expressed a view that those statements should be naturally understood as defunct upon a formal repeal of any attendant regulatory text.^[12] In any event, given the degree to which many of these statements—especially in the SAFE I Rule—employ absolute language and purport to outright prohibit certain regulations, the Agency feels that it is important to make abundantly clear that these statements should not be read out of context to suggest that they remain current views of the Agency. This ensures that parties otherwise affected by such statements are not confused about whether the admonitions and prohibitions contained in the statements, which remain published in the **Federal Register** even after the repeal of the actual regulations from the Code of Federal Regulations, continue to apply.

II. Final Rule

A. This Final Rule Is a Proper Exercise of NHTSA's Reconsideration Authority

As emphasized in the Proposal, NHTSA, like any other Federal agency, is afforded an opportunity to reconsider prior views and, when warranted, to adopt new positions. Indeed, as a matter of good governance, agencies *should* revisit their positions when appropriate, especially to ensure that their actions and regulations reflect legally sound interpretations of the agency's authority and remain consistent with the agency's views and practices.

The need for an ongoing reconsideration of prior positions applies to both reevaluations of an agency's statutory authority, as well as reassessments of policy decisions. Overwhelmingly, commenters to this Proposal did not question the general discretion of NHTSA, as a Federal agency, to reconsider either statutory or policy-based decisions. Indeed, most commenters expressly supported NHTSA's reconsideration efforts and articulated numerous reasoned justifications for the undertaking. The few commenters who

opposed the reconsideration tended to focus on the adequacy of the *reasons* for the reconsideration rather than NHTSA's prerogative to conduct the reconsideration. Such objections are addressed below within the specific reconsideration basis to which they were directed. However, a small number of dissenting comments raised issues more broadly applicable to the reconsideration process.

I. THE AGENCY'S RECONSIDERATION AUTHORITY APPLIES IRRESPECTIVE OF ANY CHANGES IN FACTS OR CIRCUMSTANCES

Several commenters contended that the Agency lacks a sufficient legal basis to withdraw the SAFE I Rule, arguing that no legal or factual circumstances changed between the issuance of the SAFE I Rule and the Proposal.^[13] At the outset, it is important to be clear that the procedural question of whether an agency may reconsider a prior action is separate from whether the reconsideration is itself reasonable. We discuss the first here, while we address the second issue below in Part II.B. NHTSA does not agree that no relevant legal or factual developments occurred following the SAFE I Rule. But even before reaching this question, the Agency stresses that the governing administrative law framework does not require that any such changes occur before an agency may reconsider a prior position. A change in factual circumstances is only one amongst a host of different reasons that may cause an Agency to reconsider a prior agency action. Agencies may reconsider an issue “for example, in response to changed factual circumstances, or a change in administrations.”^[14] Pure policy reconsiderations also remain sufficient grounds, with “evolving notions” about the appropriate balance of varying policy considerations constituting sufficient reason for a change in position.^[15] This is all part of the natural and appropriate role of an agency engaging in informed rulemaking, which “must consider varying interpretations and the wisdom of its policy on a continuing basis.”^[16]

This reconsideration exemplifies the types of reassessments for which a change in facts is not required or even particularly pertinent. As described throughout this notice, NHTSA's repeal of the SAFE I Rule is especially necessary because the Agency no longer reads EPCA as providing NHTSA the authority to dictate the scope of preemption through regulations. This is principally a narrow legal determination, which focuses on whether Congress intended to provide the requisite rulemaking authority to the Agency. Such a question does not turn upon factual circumstances, but instead depends upon a statutory construction of Section 32919. Further, as discussed below, even if the prior rule was a valid exercise of its authority, NHTSA concludes that the SAFE I Rule was overly broad and restrictive as it ignored important reliance interests and distinctions within state and local laws.

Even so, NHTSA notes that new factual developments since the SAFE I Rule's 2019 promulgation have □ occurred. Commenters stressed many of these factual updates as illustrative of the sweeping scope of the SAFE I Rule. For example, since the SAFE I Rule's promulgation, several additional states have expressed a desire to adopt future motor vehicle emissions measures under Section 177 of the Clean Air Act.^[17] Moreover, many commenters stressed that every successive year, additional information and scientific data emerges regarding the climate crisis.^[18] Multiple other comments emphasized that technological progress on motor vehicle emissions reduction strategies creates a dynamic regulatory landscape in which compliance paths are more complex than the static assumptions in the SAFE I Rule.^[19] Thus, even though a change in facts is not necessary for NHTSA's reconsideration to occur, the Agency disagrees with several commenters who argued that no factual circumstances have changed since the SAFE I rulemaking occurred.

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II. THE AGENCY CAN RECONSIDER THE SAFE I RULE WITHOUT THE NEED TO ANNOUNCE NEW SUBSTANTIVE POSITIONS ON EPCA PREEMPTION

Several other commenters opposed the Proposal by arguing that any repeal of the SAFE I Rule that did not announce a new substantive position on EPCA preemption was arbitrary and capricious. These comments especially criticized aspects of the Proposal, such as footnote 8, that expressly clarified that any new substantive conclusions on EPCA preemption were “outside the scope of this Proposal.”^[20] For instance, a joint comment submitted by a collection of entities, including the Competitive Enterprise Institute (CEI), labeled the Proposal “the first-ever assertion of regulatory cancel culture” because “the NPRM declines to debate the opinions it proposes to delete.”^[21] Ultimately, these commenters suggested that NHTSA could not repudiate the views of EPCA preemption announced in the SAFE I Rule without simultaneously replacing those views with a new substantive position on preemption.

NHTSA understands that many commenters feel strongly about the important policy dynamics underlying the scope of EPCA preemption. This applies both to commenters such as CEI, who support sweeping EPCA preemption and seek to defend the substance of the SAFE I Rule’s scope,^[22] and to commenters who prefer NHTSA to declare expressly that EPCA preemption is inapplicable to state programs.^[23] Several such comments that oppose the rulemaking argue that unless the agency announces new substantive positions on EPCA preemption, it has failed to provide a legally adequate justification for a repeal.^[24]

However, by advancing directly to substantive policy questions, such comments skip a critical step in the rulemaking analysis. As an agency, NHTSA’s exercise of rulemaking authority is bound by specific statutory and legal frameworks that govern not only the substantive scope of available policies, but also the manner in which such policies may be articulated.^[25] Therefore, NHTSA may not proceed directly to the policy questions surrounding EPCA preemption without first carefully considering whether the manner in which its views are expressed is appropriate and permissible. In this respect, both the Proposal and final rule are based on issues that arise prior to reaching any substantive conclusions about EPCA preemption. Namely, this reconsideration principally evaluates the legal authority for NHTSA to issue legislative rules implementing Section 32919 and the overly broad form in which NHTSA promulgated those regulations. As such, this action addresses these threshold questions while establishing space for the Agency to more thoroughly consider whether, when, and how to express its views on the subsequent substantive matters, such as whether particular state and local programs are preempted. In fact, the Proposal expressly acknowledged that NHTSA continues to deliberate further about “the scope of preemption under EPCA” and in the future may “announc[e] new interpretative views regarding Section 32919.”^[26] But before doing so, NHTSA must ensure that the manner in which the issues are raised—including the manner in which the Agency has spoken about them in the past—conforms to the authority delegated to the Agency by Congress and is otherwise appropriate, as discussed in Part II.B. That is the focus of this rulemaking and a principal impetus for today’s repeal of the SAFE I Rule.

As described throughout this Final Rule, NHTSA has concluded that the SAFE I Rule exceeded the Agency’s authority by attempting to dictate the scope of EPCA preemption through regulations. Upon such a determination, the most responsible and legally essential course of action is for the Agency to exercise its reconsideration authority to rectify the overstep. The importance of the policy interests underlying the EPCA preemption issue do not compel a different approach. Instead, they only underscore the need for NHTSA to ensure that when it attempts to speak to these notable policy issues, it only does so as properly authorized and through an appropriate scope.

Moreover, now that NHTSA has determined that the SAFE I Rule exceeded the Agency’s authority for the reasons expressed in Part II.B.i. below and also impermissibly ignored important federalism interests without regard for the availability of a more circumscribed approach instead, as explained in Part II.B.ii.

below, it would be problematic to delay a repeal of the □ Rule until new interpretative positions on EPCA preemption (following the appropriate process) can be formulated. Many commenters, and particularly local jurisdictions directly affected by the SAFE I Rule's preemption determination, urged a swift finalization of this rulemaking in order to resolve their federalism interests.^[27] Although the Agency agrees with these commenters about the need to repeal the SAFE I Rule swiftly, NHTSA stresses that today's action is not intended to determine that any particular State or local law is or is not preempted. As evidenced by other comments' diversity and depth of views on the substance of EPCA preemption, applying Section 32919 to particular state programs or types of regulations requires a more careful and comprehensive analysis, that is attentive to the legal and factual issues presented by a particular action. As explained further in Section II.B.ii., these intricacies are best addressed through careful deliberation and attention to the factual context relevant to the respective preemption considerations. Accordingly, requiring new substantive views on EPCA preemption to accompany any repeal of the SAFE I Rule would require the Agency to either delay a repeal of the SAFE I Rule even though the Agency considers it an invalid rule or, conversely, formulate a new overly broad substantive view on EPCA preemption that risks similar overgeneralizations as exhibited in the SAFE I Rule. However, this false dichotomy is avoidable by first focusing on a repeal of the SAFE I Rule before subsequently—and separately—taking the time needed to fully consider how to best approach any nuanced substantive issues that remain, if the Agency determines that such action is necessary.

Finally, it is worth emphasizing that EPCA does not state that NHTSA *must* speak substantively on EPCA preemption. This clear reading of Section 32919 was affirmed by commenters both supportive of and opposed to the Proposal. For instance, a supportive comment submitted by the State of California, together with numerous other states and local jurisdictions, emphasized that “even if EPCA did give NHTSA that authority [for the SAFE I Rule], the statute does not compel NHTSA to issue such rules.”^[28] Similarly, a comment from the National Automobile Dealers Association (NADA), who opposed the Proposal, echoed the sentiment that the SAFE I Rule was “not specifically required by EPCA to be issued” as it was “not a necessary predicate to EPCA preemption.”^[29]

Such comments recognize, as they must, that EPCA is totally silent as to any role for NHTSA in further defining EPCA preemption. They simply disagree on what that silence means. But even construing this silence permissively, as commenters such as NADA urged,^[30] whether to speak substantively about EPCA preemption is, at most, a matter of Agency discretion. In this respect, EPCA contrasts sharply with other enactments in which Congress expressly instructed NHTSA or DOT to promulgate implementing regulations about a particular subject. Examples of such enactments abound even within EPCA, such as the unambiguous instruction in Section 32902 that “the Secretary of Transportation *shall prescribe by regulation* average fuel economy standards for automobiles manufactured by a manufacturer in that model year.”^[31] In comparison to such statutorily mandated regulations, the silence of Section 32919 cannot reasonably be read as a requirement that NHTSA promulgate any particular preemption regulations or even opine on the substance of preemption at all. Under the framework advanced by these commenters, an agency could never return to silence after speaking substantively on a topic, even if it had good reasons to do so and the statute did not require the agency to speak on the issue. This unsustainable standard would permanently erode any NHTSA discretion to remain silent under Section 32919.

Therefore, regardless of the authority question, EPCA at most only afforded NHTSA discretion to decide how or even whether to speak on matters of preemption. Thus, even if Section 32919 is construed as commenters such as NADA urge, EPCA still must be read to permit NHTSA to remain silent on EPCA preemption. This includes neither codifying regulations on preemption nor making broadly applicable statements on EPCA preemption where the Agency has valid reason not to do so. And here, as discussed in Section II.B., NHTSA

has identified multiple clear grounds to repeal the SAFE I Rule. Such silence remains a viable option because, as commenters across the board recognized, the self-executing language of Section 32919 is fully capable of controlling the preemption question without the presence of Agency regulations.^[32]

III. THE NARROW SCOPE OF THIS RECONSIDERATION RENDERS SUBSTANTIVE POLICY ISSUES RAISED IN THE COMMENTS OUTSIDE OF THE SCOPE OF THIS RULEMAKING

The narrow legal scope of this rulemaking renders many of the substantive issues raised in the comments irrelevant to NHTSA's reconsideration and repeal of the SAFE I Rule. Comments on both sides of the spectrum—both for and against the Proposal—fall outside of this narrow scope. The Agency carefully evaluated such comments, both to identify any nuances that may yet bear upon this rulemaking and to cultivate a greater understanding of how the public views broader issues associated with the CAFE program. Nevertheless, NHTSA does not consider such issues as informing the narrow legal focus of today's repeal of the SAFE I Rule. Several categories of such comments are identified below, along with an explanation of how they fail to intersect with the specific grounds that motivated this reconsideration.

Many commenters, both supportive of the Proposal and opposed to a repeal of the SAFE I Rule, advanced their views about the proper scope of EPCA preemption and, in particular, how “related to” in Section 32919 should be substantively construed. Some of these commenters expressly recognized that such views fell outside of the Proposal, but nevertheless included them in the event the Agency elected to delve into substantive issues in another context, such as an interpretation or in a subsequent action after this rulemaking.^[33] Likewise, many commenters supportive of the Proposal identified what they viewed as the SAFE I Rule's erroneous legal conclusions on the scope of EPCA preemption, as part of their broader support for any action that repealed the Rule.^[34] Other comments mistook the Proposal as setting forth substantive views and welcomed the new positions the Agency was assumed to have adopted.^[35] Moreover, multiple comments opposing the Proposal sought to defend the SAFE I Rule on substantive grounds, labeling the original rulemaking a correct interpretation of EPCA.^[36] These comments tended to focus on the meaning of “related to” under Section 32919 and essentially tracked the reasoning of the SAFE I Rule in construing the phrase's substantive scope.^[37]

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While all of these comments raise the important questions of how far EPCA's scope extends and which state programs may be affected by such a scope, as the Agency explained both in the Proposal and in today's final rule, those issues are distinct from the narrow legal considerations that factor into this rulemaking. NHTSA's statutory authority to codify standalone requirements for EPCA preemption is a separate question from whether the substance of those requirements exceeds the scope of Section 32919. Likewise, even if the Agency had authority for the SAFE I Rulemaking, it remains possible for NHTSA to have wielded this authority in an inappropriately broad or inattentive manner, irrespective of the ultimate substantive preemption scope propounded in such an action. Consequently, none of the grounds invoked in this rulemaking for a repeal of the SAFE I Rule depend upon a particular interpretation of EPCA's preemptive scope. As such, as NHTSA explained elsewhere in this notice, finalizing this rulemaking without delving into those issues presents the most responsible option, which best satisfies the need for a swift repeal of the SAFE I Rule while preserving space for an ongoing thoughtful consideration of these complex substantive issues.

In a similar vein, several comments opposing the NPRM argued that NHTSA's Proposal was inadequately justified because the proposed repeal of the SAFE I Rule was not accompanied by a detailed economic analysis, such as a regulatory impact statement. These commenters, such as the American Fuel and Petrochemical Manufacturers (AFPM), contended that NHTSA could not repeal the SAFE I Rule without “fully analyz[ing] the impacts” or “examin[ing] the relevant data” behind economic impacts from this

rulemaking.^[38] For example, AFPM argued that such an analysis must undertake a detailed economic estimate of a litany of considerations, including “the foreseeable impacts” to “vehicle cost, jobs, low-income households, small businesses, etc.,” as well as an evaluation of how possible programs that may be initiated by states following a repeal affect other estimates, such as electric vehicle pricing or the stringency of subsequent CAFE standards.^[39] Other commenters argued similarly, insisting that a repeal of the SAFE I Rule would “almost certainly lead to” more stringent fuel economy standards and inflated vehicle prices, thereby eroding consumer choice.^[40] Additional commenters propounding this view submitted their own voluminous impacts analyses of a repeal of the SAFE I Rule, which included submissions of material such as declarations from academics, published journal articles analyzing particular regulatory programs, and past regulatory analyses conducted by EPA and CARB regarding specific regulatory programs.^[41]

To the extent commenters articulated these positions as reasons NHTSA failed to satisfy various Executive Orders, the National Environmental Policy Act (NEPA), and other broadly applicable requirements, those aspects of the arguments are addressed in Section III (Rulemaking Analyses and Notices).^[42] However, insofar as those comments suggest that the absence of a detailed economic analysis inadequately justifies a repeal, NHTSA rejects such arguments as misconstruing the nature of this rulemaking.

As explained throughout this final rule, NHTSA has concluded that the SAFE I Rule was legally flawed in a manner that legally necessitates a repeal. First, as Section II.B.i. of the final rule concludes, NHTSA issued the SAFE I Rule in excess of its authority. Accordingly, the Agency believes that the only legally appropriate course of action is to repeal the SAFE I Rule in order to undo the legally invalid action. Similarly, as Section II.B.ii. of this notice explains, NHTSA also ignored significant and legally relevant factors when promulgating the SAFE I Rule. Overlooking these considerations also renders the SAFE I Rule legally invalid and in need of repeal. Each of these grounds is governed by a legal determination, such as the legal standards and questions of statutory construction applicable to an agency's delegation of authority. These principles of law dictate a repeal of the SAFE I Rule irrespective of the policy concerns or impacts asserted by such commenters, which cannot cure the legal deficits in the SAFE I Rule. Therefore, the concerns raised by such commenters do not alter either the legal frameworks or the legally necessitated outcomes described in Sections II.B.ii. and II.B.iii. of this notice.

Moreover, such commenters also fail to account for the fact that, through this repeal, NHTSA's regulations are simply returning to the status quo as it existed prior to the legally invalid action of the SAFE I Rule. Thus, in this rulemaking, NHTSA is not taking a position on whether any individual program is preempted or not. And, even after this final rule, the viability of individual state or local programs and any associated policy impacts from those programs will be dependent on a host of particularized and contingent variables. In light of this, it is difficult to project, even for illustrative purposes, the incremental impacts of this regulatory action.^[43]

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In addition, because the Agency does not consider an analysis of those programs in the abstract or aggregate appropriate, doing so here for purposes of analyzing impacts would risk the same sort of sweeping and overly broad preemption conclusions characteristic of the SAFE I Rule. As described in Section II.B.ii., the Agency has determined that the SAFE I Rule was both far too broad and too restrictive and did not take into account a host of legally relevant considerations, such as reliance interests, the important reasons for the state and local laws it sought to preempt, and, most importantly, the actual details of those laws. Accordingly, hypothesizing about the substantive scope of EPCA preemption for purposes of a cost-benefit analysis would undermine one of the principal goals of this rulemaking, which seeks to defer assessments of programs until the times and places in which they can be more particularly and thoroughly considered. Moreover,

hypothesizing as such also further diminishes the extent to which the results of a cost-benefit analysis could inform this rulemaking because those programs are more appropriately and accurately considered in more particular contexts where it is not necessary to make abstract projections or theorize about programs or technologies that may not even exist yet.

Furthermore, in this repeal, the Agency is not declaring any particular program preempted or not preempted. Instead, this repeal simply makes the point that any such preemption analysis should be undertaken more narrowly and carefully and does not seek to alter the preemption landscape already established by Section 32919. In contrast, it was the SAFE I Rule that marked a departure from the Agency's longstanding practice of refraining from issuing EPCA preemption rules. In reality, as both the Proposal and this final rule have stressed, EPCA preemption is properly governed by the self-executing statutory language of Section 32919. That language remains in place, unchanged, irrespective of this rulemaking. The courts, of course, retain their usual authority to decide matters of EPCA preemption. In turn, the Agency may also at some point offer interpretations as guidance on its views on questions of EPCA preemption, though not through the mechanism of a legislative rule. Nevertheless, the preemption framework established by the statutory language in Section 32919 continues to govern the ultimate preemption analysis.

Moreover, it is worth noting that the SAFE I Rule itself did not include a quantitative analysis of the costs or benefits that these commenters now argue should accompany its repeal, but rather only provided a "qualitative discussion of the impacts" of the preemption regulations it promulgated.^[44] This is despite the fact that the SAFE I Rule purported to preempt many state and local programs that were already in place, which would have had significant economic effects. This provides a clear contrast to this final rule, which takes no position on whether any particular programs are preempted.

Various commenters raised other issues that are clearly outside the scope of this rulemaking. A joint comment submitted by the State of Ohio along with several other states did not explicitly support or oppose the Proposal, but simply expressed the view that by permitting California to seek a waiver, Section 209 of the Clean Air Act unconstitutionally violates the equal sovereignty doctrine by affording preferential treatment to the State of California.^[45] The comment thus concludes that "any agencies that issue such a waiver are therefore acting unconstitutionally."^[46] NHTSA need not wade into the substance of the equal sovereignty doctrine in response to this comment. This rulemaking is conducted solely by NHTSA, and any EPA adjudication of a California waiver application under Section 209 constitutes a separate, independent proceeding.^[47] Repealing the SAFE I Rule merely removes the impermissible layer of regulatory preemption from NHTSA's own regulations. The broad preemption framework codified by the SAFE I Rule applied equally to all states and repealing this framework likewise refreshes the preemption analysis for the entire country. Accordingly, repealing the SAFE I Rule does not extend differential treatment to any state or local jurisdiction.

In addition, several commenters raised a variety of issues relating to the administration of the CAFE program, which do not inform the legal bases pertinent to today's repeal of the SAFE I Rule. These range from comments advocating for a particular stringency of any fuel economy standards later promulgated by NHTSA^[48] to requesting a new interpretation of 49 U.S.C. 32902 (<https://www.govinfo.gov/link/uscode/49/32902>) in order to more expansively consider electric vehicles in the standard setting analysis.^[49] While such commenters are encouraged to raise such issues in connection with future NHTSA rulemakings setting CAFE standards, this particular rulemaking does not touch on the standard setting analysis.

Finally, NHTSA received over four hundred comments from individual commenters who expressed perspectives on the Proposal. The vast majority of these comments from individuals did not speak to the particular legal issues implicated in this rulemaking, but raised broader policy issues instead. A large number of these comments expressed opposition to the rulemaking. While submitted individually, by and large, these opposition comments appeared to be form comments or part of an unspecified letter writing campaign, as they frequently employed verbatim language. Specifically, an overwhelming number of the comments started with the exact same phrase: “California should not be deciding what kind of cars the rest of the country can buy, and here is why . . .”^[50] While the reasons provided after this opening clause varied somewhat, they all pertained to substantive policy issues surrounding motor vehicle regulations rather than the narrow legal grounds necessitating a repeal of the SAFE I Rule. Frequent examples of the substantive policy concerns raised in these comments include: Skepticism towards climate change and related environmental issues; objections to vehicle electrification; concerns about consumer choice in the availability of motor vehicles; and vehicle price concerns. Most of these comments also appeared directed more to a restoration of California's waiver for the Advanced Clean Cars program under the Clean Air Act, which, as both NHTSA and EPA have explained, is a separate proceeding from this rulemaking.^[51] Finally, quite a few comments failed to raise any substantive policy concerns at all, but simply expressed political hostility towards a variety of subjects, especially including the State of California and the EPA.^[52]

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Apart from these form comments, several individual commenters expressed support for the Proposal. Their comments also focused on substantive policy issues or matters more connected to a California waiver under the Clean Air Act. Examples of such comments include expressions of hope that the Proposal would enable states to set stronger pollution control standards or beliefs that the proposed rule offered potential health-related benefits and opportunities to mitigate climate change.

Overall, the concerns expressed by these individual commenters were not about the merits of NHTSA returning to its longstanding approach to EPCA preemption, but rather about substantive issues connected to hypothetical state programs or policy goals which the commenters felt could possibly arise at some point in the future. For instance, a number of commenters suggested that a repeal of the SAFE I Rule would result in the proliferation of electric vehicles, and therefore expressed various concerns with vehicle electrification, such as an inability to satisfy unique or specific vehicle needs (*e.g.*, work functions), poor performance, an insufficient electric grid, increased costs of electric vehicles, or misgivings about battery sourcing. Other commenters expressed broader policy concerns, such as advocating for carbon energy or arguing that air quality mitigation measures are matters of personal choice that should not be subject to regulation. Such substantive policy concerns, however, are beyond the scope of this rulemaking and NHTSA therefore does not address them here.^[53] This rulemaking merely entails a narrow legal focus on the proper and prudent exercise of NHTSA's authority. The Agency's final rule neither promulgates Federal standards nor revives any standards of states or local jurisdictions. In fact, this final rule does not even change the scope of EPCA preemption under Section 32919, as NHTSA has repeatedly acknowledged that the self-executing statutory language controls such a scope and remains enacted, in full and unchanged, irrespective of the SAFE I Rule or this rulemaking.

Finally, even though many of the individual commenters expressly opposed the Proposal, NHTSA notes that many of these same comments frequently invoked reasons that actually support the rationale for the rulemaking. By far the most common theme developed in the individual comments opposing the Proposal was a concern for states' rights and skepticism of any approach that imposed an overgeneralized restriction on the ability of local jurisdictions to respond to the diverse needs of their respective communities.

These commentors opposed the Proposal based on a faulty assumption that NHTSA's rulemaking proposed to delegate the authority to California to set legally binding standards on the rest of the United States.^[54] Of course, neither the Proposal nor today's repeal delegates any authority to California or elsewhere. This rulemaking does not even take a substantive position on the status of any individual program of a state or local jurisdiction. Instead, repealing the SAFE I Rule merely repeals an impermissible layer of prescriptive preemption requirements, which the Agency was not authorized to promulgate, and which improperly ignore legally relevant preemption considerations. Through such a repeal, NHTSA also removes unnecessary and inappropriate restrictions on potential policy flexibility and innovation at the state and local levels as it relates to motor vehicle emissions regulations. This additional flexibility at state and local levels may even address this theme expressed in many of these individual comments, which consistently opposed measures that applied an overbroad or one-size-fits-all approach to state and local concerns.

B. NHTSA Is Finalizing Its Repeal of the SAFE I Rule in Its Entirety

After evaluating the public's input regarding the Proposal and further assessing the Agency's concerns regarding the SAFE I Rule, NHTSA is finalizing its proposed approach of repealing the SAFE I Rule in its entirety, including both the regulatory text and the other pronouncements that the Agency made in the document about EPCA preemption. The Agency concludes that this approach is both legally required and appropriate for several distinct reasons. First, as described further in Section II.B.i., the Agency lacked the authority to promulgate regulations on preemption, as the SAFE I Rule attempted to do. Second, as described in Section II.B.ii., regardless of whether NHTSA actually had authority for the SAFE I Rule, the Rule was still promulgated without regard for legally relevant and important considerations that should have informed the preemption analysis. Instead of accounting for those issues before fundamentally altering relied-upon federalism interests, the SAFE I Rule instituted a rigid and categorical preemption framework without regard for whether a narrower approach was available. Third, irrespective of a lack of authority or the Rule's overly broad scope, the SAFE I Rule still warrants repeal in order to mitigate the unnecessary complexity and potential confusion the SAFE I Rule injected into the EPCA preemption framework. By repealing this erroneous framework and refocusing the preemption analysis on the original statutory language, this final rule also provides space for the Agency to more carefully and appropriately incorporate those considerations into any future action that may become necessary with respect to EPCA preemption.

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In all of these matters, the Agency remains mindful that EPCA does not require NHTSA to speak substantively on EPCA preemption, and certainly not through the promulgation of legislative rules. Under the unambiguous language of EPCA, the Agency could indefinitely remain silent as to Section 32919 without running afoul of any congressional directive or statutory mandate. As such, even if the SAFE I Rule's supporters have policy preferences for wanting the Rule to remain, there is indisputably no statutory requirement for the Rule. Thus, upon reconsideration, NHTSA concludes that a rule of this kind, which suffers from legal deficiencies and was imprudent for the Agency to issue, is particularly appropriate for repeal.

I. NHTSA IS FINALIZING ITS PROPOSAL TO REPEAL THE SAFE I RULE IN FULL DUE TO A LACK OF AUTHORITY FOR THE ORIGINAL RULEMAKING

A. SECTION 32919 DID NOT AUTHORIZE NHTSA TO DICTATE PREEMPTION IN THE MANNER ATTEMPTED BY THE SAFE I RULE

NHTSA concludes that a repeal of the SAFE I Rule is legally required because the Agency lacked the requisite authority to codify the standalone regulations promulgated by the SAFE I Rule. The Agency maintains the Proposal's view that in promulgating the SAFE I Rule, NHTSA attempted to exercise a legislative rulemaking function by establishing binding, express preemption requirements, which sought to control, rather than

advise, the public (including states and local jurisdictions). In order to set these regulatory mandates, Congress would have had to first provide authority to NHTSA to act in such a manner. However, the Agency has determined that Congress did not intend for Section 32919 to provide NHTSA authority to institute additional express preemption terms, or to codify the scope of EPCA preemption through legislative rulemaking.

1. THE SAFE I RULE CODIFIED LEGISLATIVE RULES, WHICH SOUGHT TO IMPOSE STANDALONE PREEMPTION REQUIREMENTS

Before describing the limitations on NHTSA's authority, the Agency first confirms the Proposal's understanding of the SAFE I Rule as codifying legislative rules, which sought to institute binding preemption requirements. NHTSA recognizes that although numerous commenters agreed with the Proposal on this issue, several commenters opposing the Proposal contested either the legislative status of the SAFE I Rule or whether the distinction even matters for this reconsideration. To be clear, NHTSA considers a repeal of the SAFE I Rule both appropriate and necessary for the reasons described throughout this final rule, irrespective of whether one considers the Rule to be legislative, interpretative, or any other form of agency statement. Nevertheless, NHTSA still views the SAFE I Rule as displaying the hallmarks of a legislative regulatory action. As such, the Agency starts the authority discussion with this issue.

In this respect, the Agency distinguishes between a legislative rule, “which is a rule that is intended to have and does have the force of law,” and an interpretative rule, which “does not have the force of law and is not binding on anyone.”^[55] For this reason, legal scholars have often noted that while interpretative rules may provide guidance to the public or “persuad[e a] court that the agency's interpretation is correct,”^[56] they ultimately lack a binding effect, serving only to “advise the public.”^[57] As such, an interpretative rule “does not contain new substance of its own” but is simply a conduit for understanding a pre-existing obligation already established by the statute under interpretation.^[58] In contrast, legislative rules have long been understood as imposing binding obligations that “affect[] individual rights and obligations.”^[59] Further, “the exercise of quasi-legislative authority by governmental departments and agencies must be rooted in a grant of such power by the Congress and subject to limitations which that body imposes.”^[60] Consequently, for NHTSA to have validly promulgated legislative rules in the SAFE I Rule, Congress must have first provided the authority to the agency to do so.

Within this backdrop, NHTSA views the SAFE I Rule as clearly intending to establish binding preemption requirements, which affirmatively prohibited programs of states and local jurisdictions. As described further below, both the regulatory text and the manner in which NHTSA contemporaneously described its rulemaking lead to the conclusion that the SAFE I Rule was not an effort to inform, but an effort to issue binding, prescriptive requirements with the force and effect of law. This conclusion is supported by multiple facets of the rulemaking, many of which were illustrated through the comments.

Several commenters to the Proposal disagreed that the SAFE I Rule was a legislative rule or that the distinction between a legislative and interpretive rule mattered. Although the Agency responds more specifically to such detailed concerns below, NHTSA nevertheless considers the legislative status of the SAFE I Rule ultimately a straightforward outgrowth of the regulatory background and applicable law. While courts and legal scholars have set forth numerous multi-part tests or thresholds for trying to find the demarcation point between interpretative and legislative rules, they all overwhelmingly seek to answer a question much different, and frequently more complicated, than that presented in this rulemaking. In the typical fact pattern, encountered by many courts, an agency seeks to characterize its own action as interpretative and valid absent the undertaking of notice-and-comment procedures, while challengers (often the regulated

entities most affected by the action) argue that the rule alters their substantive obligations and necessitates notice-and-comment procedures before promulgation.^[61] As such, these multifaceted judicial doctrines seek to aid a reviewing court in reconciling the contradictory positions between the regulators and the regulated, in order to accurately understand how extensively the agency's action actually attempted to affect the rights and obligations of the regulated parties.

None of these circumstances apply to the SAFE I Rule or this Proposal. In the Proposal, NHTSA, as the agency that promulgated the regulations in question in the SAFE I Rule (after notice-and-comment), expressed its *own* concern that it had issued legislative rules in excess of its authority, and acknowledged that the rules attempted □ to impose substantive restrictions on regulated entities—namely, states and local jurisdictions.^[62] In turn, the state and local governments that submitted comments overwhelmingly agreed with the Agency's characterization of its own rule. This sentiment was exemplified by a comment from California's South Coast Air Quality Management District, which directly expressed that “[t]he Preemption Rule has every indicium of being a legislative rule, which purported to change the legal rights and obligations of states by its action.”^[63] As described in greater detail in Section II.B.ii. of this final rule, these commenters provided tangible examples of actual hardships those states feared would ensue from the extent to which the SAFE I Rule disrupted their state regulatory agendas and curtailed their previously understood federalism rights. These concerns make clear that, by and large, states and local jurisdictions considered the SAFE I Rule as more than simply interpretative guidance on an EPCA preemption restriction that already applied to them, but as a new regulatory measure that would serve to invalidate existing state programs and ones those entities hoped to formulate in the future.^[64]

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This is an understandable expectation, as both NHTSA and EPA also contemporaneously treated the SAFE I Rule as binding and effectuating change. The SAFE I Rule even expressly described the rulemaking action as “*effectuating* Congress's goal.”^[65] Similarly, commenters emphasizing this point also referenced language from the final rule preamble of the SAFE I Rule, in which the Agencies recognized that “` certain States may need to work with EPA to revise their [State Implementation Plans] in light of this final action” to remove purportedly preempted standards.^[66] In the SAFE I joint agency action, EPA also characterized NHTSA's preemption regulations as determinative, noting that “in light of NHTSA's determinations” on EPCA preemption, EPA's grant of a waiver for “California's program was invalid, null, and void.”^[67] These characterizations help to demonstrate that the regulated community and the public could reasonably have expected that NHTSA's SAFE I Rule regulations presented mandatory and legally effective requirements.

This view was echoed by many other commenters who supported this Proposal.^[68] Even commenters who opposed the current Proposal and argued that the SAFE I Rule was merely interpretative (or contended the distinction failed to matter), still treated the SAFE I Rule as a regulatory linchpin that was critical to keeping states and local jurisdictions from pursuing regulatory programs that they would otherwise undertake. For example, one commenter likened the repeal of the SAFE I Rule to a “dereliction” of NHTSA's duty, akin to permitting states to run amok in “lawlessness” in the absence of regulations and removing the sole bulwark to “California's impending balkanization,” all the while insisting that the “[t]he One National Program rules do not satisfy the intransitivity test for legislative rules” because their restrictions were present all along in Section 32919.^[69] This concern, though, would only be valid if the SAFE I Rule were binding and not a mere interpretation. Thus, it becomes clear that, ultimately, all commenters—both supportive of and opposed to the Proposal—treat the SAFE I Rule as a sweeping measure, which was largely expected to bind regulated entities. In other words, as a legislative rule.

The SAFE I Rule, thus, was widely viewed as establishing new legal restrictions intended to broadly alter the pre-existing EPCA preemption landscape. As described in the Proposal, in the SAFE I Rule, NHTSA codified four provisions in the CFR, each of which purported to directly regulate the scope of preemption under EPCA. Specifically, NHTSA promulgated 49 CFR 531.7 (<https://www.ecfr.gov/current/title-49/section-531.7>) and 533.7 (<https://www.ecfr.gov/current/title-49/section-533.7>), both of which were nearly verbatim codifications of the statutory text, and an identical appendix B to both Parts 531 and 533, which included a description of certain state regulations also described as preempted. None of these provisions instituted any new compliance or enforcement standards relating to NHTSA's CAFE program. Instead, the provisions, by their own terms, solely sought to codify into NHTSA's regulations a binding framework to govern the scope of EPCA preemption.

As both the Proposal and many commenters pointed out, the imperative and mandatory language of the SAFE I Rule illustrates the degree to which the SAFE I Rule imposed demands upon regulated entities (and expected compliance) rather than helpfully advised them of a possible construction of pre-existing statutory language. As the Preamble to the SAFE I Final Rule described, these provisions sought to “ma[ke] explicit that state programs to limit or prohibit tailpipe GHG emissions or establish ZEV mandates are preempted.”^[70] In announcing the SAFE I Rule, NHTSA repeatedly described the final rules in terms that appeared to confer upon them legally binding connotations. For instance, the Agency noted that through the final rule, “NHTSA intends to assert preemption”^[71] and characterized the regulations as “implementing”^[72] a preemption requirement. Subpart “a” of each appendix B to parts 531 and 533 even labels the regulatory text as “Express Preemption” provisions, before proceeding to categorically assert, in mandatory terms, what types of state laws were preempted.^[73]

A few commenters sought to diminish the importance of such mandatory language, contending, for instance, that “nothing” would have practically changed had the Agency employed more permissive or advisory language in the SAFE I Rule instead of the imperative language used throughout both the codified text and preamble.^[74] This argument's supposition is undermined by the numerous comments □ from states and local jurisdictions—the entities to whom such language was primarily directed—who consistently made clear that they understood the Rule's regulations as constricting their activities rather than merely advising how Section 32919 may be applied at some indeterminate point in the future. Moreover, the Agency's own statements in the SAFE I Rule disprove this argument, as they reveal a definitive expectation that states would curb their actions in order to meet the newly demanded scope of preemption.^[75]

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More fundamentally though, discounting the importance of the Agency's own language in the precise rulemaking record in question too narrowly focuses the legislative rule inquiry. Even the cases cited by opposing commenters on this issue, such as *American Mining Congress v. Mine Safety & Health Administration*, expressly recognized that all of the avenues and tests for distinguishing between legislative and interpretative rules are ultimately just different ways of asking whether “the agency intended to exercise” a delegated legislative power to promulgate rules that impose binding obligations with “legal effect.”^[76] As noted above, this inquiry is much more straightforward in a situation, such as here, where the agency itself believes that this is the intent of the rule and undertook the notice-and-comment procedures required under the Administrative Procedure Act (APA) to issue legally binding regulations, without in any way implying that those steps were optional. For this reason, *American Mining Congress* underscored that despite any of the more complicated analyses that may apply when an agency disagrees on a rule's legislative status, the entire question is resolved if in the rulemaking the agency simply “choose[s] explicitly to invoke its general legislating authority.”^[77] In such a case, the rule should be “presumably treat[ed] . . . as an attempted exercise of legislative power.”^[78]

Here, the SAFE I Rule clearly—and explicitly—expressed an understanding that the new rules created legal obligations that would bind states and local jurisdictions, as described above. Moreover, even the mechanics of the SAFE I Rule's promulgation demonstrate NHTSA's awareness that it was codifying legislative rules that instituted legal requirements. Commenters defending the SAFE I Rule stressed that the rulemaking undertook all of the procedural steps required by the APA for a legislative (but not an interpretative) rule.^[79] This procedural regularity only underscores the SAFE I Rule's intended legislative function, as it illustrates the lengths the Agency went to ensure that the regulations codified by the SAFE I Rule were procedurally defensible and binding.^[80] Moreover, the SAFE I Rule was codified into NHTSA's own regulations in the Code of Federal Regulations (CFR)—a step that courts, including *American Mining Congress*, have often considered helpful in understanding the Agency's intent.^[81] The Agency also does not view the requirements in the Appendices as somehow procedurally cured or automatically interpretations simply because they appear in appendices rather than separately numbered regulations. It is not uncommon for agencies, including NHTSA, to include regulatory requirements in appendices.^[82] The appendices here continued that approach, with the facial language of the appendices codified in the CFR continuously invoking the same binding language described throughout this final rule.

Finally, a joint comment submitted by the Urban Air Initiative, among others, raised an issue that highlights one of the most telling aspects of the SAFE I Rule's legislative character.^[83] Specifically, after arguing the Rule did not satisfy governing tests for legislative rules, the comment reached the ultimate conclusion that the legislative versus interpretative distinction was irrelevant to the SAFE I Rule's viability. The comment contended that, either way, the SAFE I Rule was a valid outgrowth of NHTSA's interpretative authority in administering EPCA and the CAFE program. To reach this conclusion, the comment focused at length on the concept of the “force of law” and the intransitivity test for legislative rulemaking, stressing that the SAFE I Rule embodied NHTSA's interpretative authority because it simply defined a pre-existing and already enforceable obligation set by Section 32919. And, in that sense, even if the SAFE I Rule's interpretation was binding, such a result was permissible as long as the APA's notice and comment procedures were followed. At least one other comment similarly remarked that whether the SAFE I Rule is legislative or interpretative “may not make much of a difference as a practical matter.”^[84] The theme in such comments is a baseline assumption that the SAFE I Rule did not “itself impose[] federal regulatory preemption” because, they stress, Section 32919 already imposed a self-executing preemption requirement.^[85]

Ultimately, the Agency believes such comments erroneously comingled the substantive question about the scope of EPCA's preemption requirements with the unrelated question of whether the SAFE I Rule's regulations sought to codify prescriptive requirements that implemented Section 32919 in a legislative manner. The Urban Air Initiative's joint comment characterized these questions as one and the same, arguing that as long as the substance of Section 32919 supported the preemption requirements promulgated in the SAFE I Rule, the legislative versus interpretative distinction was “irrelevant” because either way NHTSA was simply elucidating requirements that already existed under EPCA.⁸⁶ □ However, blending the substance and form in this way ignores a longstanding recognition that whether legislative rules validly prescribe conduct in a binding way is a distinct issue from whether the requirements those rules impose are consistent with either the underlying statute or regulation.

Rather than comparing the substantive scope of the underlying statute and the agency's subsequent action, the legislative rule inquiry instead looks to the degree to which the standard announced by the agency went “beyond a process reasonably described as interpretation” by turning the original statutory standard into a rigid threshold that prescribed specific conduct.^[87] In this sense, an agency performs a “legislative function” by applying a “value judgement[]” to a broader statutory framework and turning that judgment into a static

requirement, which imposes a rigid threshold for compliance.^[88] In such situations, the rule announced by the agency is legislative in that it forms a standalone requirement, which is no longer tied “to the animating standard” of the statute, but “stand[s] free of the standard” as it is “self-contained” and “unbending.”^[89] Examples of these types of legislative rules span from a set of investment conditions fashioned from a general statutory standard of “reasonable costs”^[90] to an agency’s mathematical analysis that turned a statutory standard into a requirement that a fence meet specific dimensions.^[91] While the nature or type of rule resulting from the legislative undertaking may vary, the focus of the inquiry is on the transformation of a statutory standard into a set of specifically enumerated rules that prescribe conduct.

Importantly, this legislative rule inquiry is wholly distinct from the question about whether the legislative rules would be a permissible reading of the underlying statute or regulation. In fact, courts conducting these analyses often expressly make clear that the legislative rule determination does not require them to reach the question of whether those rules would have been subsumed within the respective scopes of the statutes or any other existing regulations that the agencies had already promulgated. For instance, through this legislative rule inquiry “[w]e may assume, without deciding, that the [requirements] are an extension” of the statute and “consistent” with existing regulatory provisions.^[92] Even so, “neither assumption leads to the conclusion that the [requirements] represent an interpretation.”^[93] Instead, what matters is whether the agency performs merely an act of interpretation or instead operates in an essentially legislative capacity by crystallizing a broader statutory standard into specific prescriptive requirements.

Applying this same framework, even assuming for purposes of discussion (like those courts) that the SAFE I Rule’s regulations imposed a substantive obligation that was consistent with the “related to” standard in Section 32919, the regulations still undeniably prescribed conduct in a way that was legislative rather than interpretative. Specifically, the SAFE I Rule’s regulations turned the baseline standard of Section 32919, “related to,” into an entire list of specifically enumerated conduct that created a prescriptive threshold for EPCA preemption.

Under Section 32919, “a State or a political subdivision of a State may not adopt or enforce a law or regulation related to fuel economy standards or average fuel economy standards for automobiles covered by an average fuel economy standard under [Chapter 329].”^[94] This statutory framework contains a general standard by which to evaluate the application of EPCA preemption: “related to.” In the SAFE I Rule, NHTSA applied a “value judgment”^[95] to this statutory standard by undertaking what the Rule called a “scientific” and “mathematical” evaluation of fuel economy and emissions concepts.^[96] Through this endeavor, the SAFE I Rule fashioned a set of highly prescriptive requirements that precisely and rigidly dictated when a state or local jurisdiction’s program “related to” fuel economy standards for purposes of EPCA. For the question of whether the rule was legislative or interpretive, it is wholly irrelevant to determine whether those prescriptive requirements were reasonable understandings of the “related to” statutory standard. All that matters for the legislative rule analysis is that, once codified, the regulations from the SAFE I Rule served as standalone standards for EPCA preemption. The SAFE I Rule extrapolated from the original statutory standard and articulated express prohibitions which, once codified, were intended to and capable of fully controlling the preemption analysis in lieu of the original statutory language.^[97]

For example, Appendix B to Parts 531 and 533 expressly declares the preemption of “any law or regulation of a State or a political subdivision of a State” *solely* based on the fact that the program in question “ha[s] the direct or substantial effect of regulating or prohibiting tailpipe carbon dioxide emissions from automobiles.”^[98] A similar standard^[98] is repeated multiple times in the SAFE I Rule’s regulations, with subsection (a)(E)(2) also flatly preempting “any law or regulation” that “regulates or prohibits tailpipe carbon dioxide emissions

automobiles,”^[99] and subsection (b) codifying identical categorical thresholds for “implied preemption.”^[100] These categorical thresholds represent NHTSA’s “scientific” and “mathematical” judgment in the SAFE I Rule as to how EPCA’s animating “related to” standard would look as a prescriptive requirement. But in the SAFE I Rule, NHTSA went beyond just providing guidance about how NHTSA’s views on the subject should inform a state or local jurisdiction who wished to understand how their program might fit within EPCA’s “related to” standard. Instead, NHTSA announced those positions in the form of regulations of general applicability that formed their own regulatory standards. These new regulations were “self-contained” and “unbending” in that any programs that satisfied the strict regulatory text were now labeled as conclusively preempted by NHTSA. And, this approach prevented a more careful analysis of whether it is possible that any state or local standard that met the static preemption threshold imposed by these regulations may not actually “relate to” fuel economy for any particular reason (such as perhaps the fact-specific variables foreclosed from consideration as described below in Section II.B.ii.). In this sense, once in place, the SAFE I Rule’s regulations were intended to functionally replace the EPCA preemption language in any analysis of whether a particular program was preempted, without a need to reference □ the original statutory text or underlying caselaw.^[101] The SAFE I Rule even acknowledges the standalone nature of the new regulations, explaining that the codified “regulations are *operable* without regard to any specific Federal standards and requirements . . . or other parts of the Code of Federal Regulations.”^[102]

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While Section II.B.ii. below explains how this inflexible standard inappropriately precludes individualized considerations, the self-contained nature of the standard also demonstrates how the SAFE I Rule’s regulations operate as prohibitions that turn a broader statutory standard into a set of rules that states and local jurisdictions must follow. This process of fashioning a set of specific and prescriptive requirements out of an underlying statutory standard involves a legislative function of the agency and the rules that emerged from this process are legislative in nature. And the law is clear that an agency may prescribe conduct and issue such legislative rules only if provided the authority to do so by Congress.^[103] EPCA provides NHTSA with no such authority.

2. EPCA DID NOT AUTHORIZE NHTSA TO EXPRESSLY ESTABLISH NEW EPCA PREEMPTION REQUIREMENTS

Once the SAFE I Rule’s regulations are properly understood as seeking to impose binding legal requirements, it becomes clear that the Rule is premised on the need for NHTSA to possess the requisite authority to validly set such mandates. The Proposal generated a number of comments on this authority issue. A large number of those comments agreed with the Proposal’s concerns about a lack of authority for the rulemaking, while several commenters defended the legitimacy of the Rule. But while these comments may have disagreed on the existence of authority or the extent to which NHTSA’s authorities extended, they did not generally dispute the Proposal’s recognition of the fundamental principle that an agency must possess authority to issue legislative rules.

As the Proposal explained, the regulatory authority of federal agencies extends only insofar as Congress permits.^[104] Consequently, an agency “may act only when and how Congress lets [it].”^[105] These restrictions extend to all aspects of an agency’s regulatory activity—including a rulemaking and ultimately derive from Congress.^[106] As such, the matters upon which an agency may promulgate rules imbued with the force and effect of law depend upon the extent to which the Agency has the appropriate statutory authority.^[107]

Ultimately, as the Proposal expressed, since an agency lacks plenary authority, the delegation of one power to an agency does not necessarily include other powers, even if they are related.^[108] This applies even when the authority is analogous. For instance, the D.C. Circuit has rejected an agency’s argument “that it possesses

plenary authority,” holding instead “that the fact that the Board is empowered” in a particular circumstance does not “mean[] the Board therefore enjoys such power in every instance” in which a similar question arises.^[109] Accordingly, construing an agency's authority requires a close examination of the precise power delegated by Congress and how such authority may differ, even if slightly, from other authority that Congress may reserve.

The need for sufficient authority does not fade when an agency seeks to promulgate regulations expressly dictating preemption. In fact, as the Proposal expressed, the legitimacy of an agency's exercise of preemption power through legislative rulemaking is principally a question of the extent of authority delegated to the agency. As such, “in a situation where state law is claimed to be pre-empted by Federal regulation, a narrow focus on Congress' intent to supersede state law [is] misdirected.”^[110] Instead, when considering an agency's preemptive authority, “the inquiry becomes whether the federal agency has properly exercised its own delegated authority rather than simply whether Congress has properly exercised the legislative power.”^[111] An agency must draw preemption authority from definitive sources, as the governing framework “does not create preemption authority out of thin air.”^[112] As the Supreme Court has made clear:

a federal agency may pre-empt state law only when and if it is acting within the scope of its congressionally delegated authority. This is true for at least two reasons. First, an agency literally has no power to act, let alone pre-empt the validly enacted legislation of a sovereign State, unless and until Congress confers power upon it. Second, the best way of determining whether Congress intended the regulations of an administrative agency to displace state law is to examine the nature and scope of the authority granted by Congress to the agency.^[113]

In response to the Proposal, many commenters repeatedly expressed a concern that NHTSA lacked the authority for the SAFE I Rule.^[114] In most cases, these comments echoed rationales expressed in the Proposal for why such authority was lacking.^[115] Accordingly, □ many of them also read Section 32919 as silent on any role for NHTSA in further dictating the scope of EPCA preemption,^[116] understood Section 32919's self-executing nature as actually foreclosing regulations that dictate additional express preemption requirements,^[117] and viewed general delegations of authority to the Secretary of Transportation insufficient to support such a sweeping act of preemption.^[118]

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These comments reinforce the Proposal's substantial doubts about NHTSA's authority to promulgate the SAFE I Rules, which the Agency crystalizes in this final rule into a firm conclusion that the requisite authority does not exist. The lack of legal authority is most clearly illustrated by the inadequacy of the two grounds articulated by the SAFE I Rule (and comments who supported that position here) for the proposition that NHTSA enjoys authority to promulgate the regulations: (1) The general rulemaking authority of the Secretary of Transportation; and (2) more generalized inferences from the spirit of EPCA. The Agency finalizes its view that neither of these grounds suffices.

A. NO DIRECT STATUTORY AUTHORITY ENABLES NHTSA TO PROMULGATE THE SAFE I RULE

First, NHTSA finalizes the view expressed in the Proposal that no direct statutory source exists for the Agency to derive authority to conduct the SAFE I rulemaking. In this respect, NHTSA focuses, in particular, on the two statutory provisions that commenters supporting the SAFE I Rule especially relied upon to argue that such authority existed: 49 U.S.C. 322 (<https://www.govinfo.gov/link/uscode/49/322>) and 49 U.S.C. 32919 (<https://www.govinfo.gov/link/uscode/49/32919>). Neither of these provisions enables a legislative rulemaking action to establish new binding preemption requirements.

This analysis starts with Section 322 because that is the only source of statutory authority invoked in the SAFE I Rule. Notably, even though EPCA speaks directly to the fuel economy preemption issue in Section 32919, in the SAFE I rulemaking, NHTSA did not invoke Section 32919 to claim the authority to issue preemption regulations.^[119] Instead, NHTSA claimed authority based on the Secretary of Transportation's "general powers" under Section 322 to "carry out" all responsibilities across the entire Department of Transportation. NHTSA argued at the time that this authority was sufficient because the Agency could not carry out its CAFE standard-setting responsibilities in the face of state regulation that undermined its authority.^[120] In the SAFE I Final Rule's most direct discussion of the issue of authority to promulgate regulations concerning preemption, NHTSA linked the perceived conflict between EPCA's purposes and state regulation to the general delegation of authority to the Secretary to carry out his duties. Specifically, after describing Section 322 as an express authorization for the Secretary of Transportation "to prescribe regulations to carry out her duties and powers," and noting that Chapter 329 of Title 49 delegated the Secretary's authority to NHTSA for EPCA purposes, the Agency concluded in the SAFE I Rule that it "ha[d] clear authority to issue this regulation under 49 U.S.C. 32901 (<https://www.govinfo.gov/link/uscode/49/32901>) through 32903 (<https://www.govinfo.gov/link/uscode/49/32903>) to effectuate a national automobile fuel economy program unimpeded by prohibited State and local requirements."^[121] This is because in the SAFE I Rule the Agency characterized that rulemaking as simply "carry[ing] out" the preemption scope of Section 32919.^[122]

NHTSA concludes that the general authority for the Secretary to "carry out" his responsibilities across the entire Department of Transportation cannot supplant the otherwise strong indication that legally binding regulations on EPCA preemption exceed the scope of the Agency's authority. Nothing in the comments undermines the Proposal's straightforward recognition that Section 322 contains statutory language of broad applicability that extends well beyond the CAFE program and, indeed, well beyond NHTSA. It continues to seem especially peculiar to derive preemption authority from Section 322 when EPCA already contains an express preemption provision, which does not provide NHTSA with a role in further defining that preemption with the force and effect of law. Since Congress already crafted a specific provision to describe EPCA preemption in Section 32919, the more general terms of Section 322 would seem of much clearer applicability if Section 32919 had otherwise delegated NHTSA certain authorities or responsibilities to carry out. But as discussed below, Congress did not, in EPCA, appear to charge NHTSA with any authority or responsibility with respect to preemption regulations. Construing Section 322's general terms to independently provide NHTSA with the authority to issue legislative rules on EPCA preemption that override Section 32919's notable silence as to any role for NHTSA would require an extraordinarily expansive reading of Section 322, which neither Section 322 nor EPCA could support.

Moreover, inserting Section 322 into EPCA in such a manner would require a strained reading of EPCA, which contradicts the specific approach Congress consistently employed throughout EPCA to provide authority to the various agencies targeted by the statute. Unlike some other enactments, which are primarily aimed at enabling a particular agency or creating a specific program, EPCA sought to establish an interagency framework for energy independence, which spanned a host of agencies and their respective jurisdictions. For instance, at various points, Congress directs portions of EPCA to a variety of agencies, including but not limited to the Department of Transportation, the Environmental Protection Agency, the Department of Justice, the Federal Trade Commission, the Federal Maritime Commission,^[123] and the Federal Power Commission.^[124] Consistent with this approach, the facial language of EPCA tends to clearly state when and where Congress intended to galvanize an agency into acting on a particular provision. For instance, even just taking a few non-exhaustive examples from the original language of the specific section of EPCA dedicated to automotive fuel economy:

- Section 501(1) specifies that “[t]he Secretary may prescribe such rules as may be necessary to implement this paragraph,” which concerns the definitions of an automobile.^[125]

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- Section 501(2) links the term passenger automobile to that “which the Secretary determines by rule.”^[126]
- Section 502 describes the circumstances, in detail, by which “the Secretary shall prescribe, by rule, average fuel economy standards.”^[127]
- Section 505(a)(3) requires that “the Secretary shall prescribe rules setting forth the form and content of the reports required under” the Section.^[128]
- Section 505(b)(1) describes the specific actions that the Secretary of Transportation and the EPA Administrator may take, such as conducting hearings, “for the purpose of carrying out the provision of this part.”^[129]
- Section 506(a)(3) requires that “the form and content” of labeling requirements “shall be prescribed by the EPA Administrator by rule.”^[130]
- Section 508(a)(3)(D) permits that “the Secretary may prescribe rules for purposes of carrying the provisions of this paragraph,” which pertains to civil penalties.^[131]

The remainder of EPCA is replete with similar examples of Congress specifically— *and expressly* —speaking to the ability or need for the agencies to implement its provisions through a variety of regulatory actions. In contrast, as noted by both the Proposal and certain commenters, Section 32919 (originally Section 509 of EPCA) is notably silent as to any role of the agency in administering—much less defining—a preemption scheme. This is despite other preemption provisions in EPCA continuing Congress' general trend throughout the statute of more specifically enumerating the role of the agency when contemplating further agency implementation. For instance, as the Proposal noted, the structures of other parts of EPCA expressly charge an agency to administer preemption through regulations, and no such charge exists for NHTSA. For example, a precursor to the Department of Energy, the Federal Energy Administration, was expressly directed elsewhere in EPCA to “prescribe . . . rule[s]” that preempt state and local appliance energy conservation standards.^[132]

This is also consistent with the manner in which Congress has provided preemption authority to the Department of Transportation in other contexts. The Proposal identified several of such examples, recognizing that, other DOT statutes expressly provide a regulatory, or even adjudicatory, role for the Department in the preemption analysis. For instance, in the transportation of hazardous materials context, 49 U.S.C. 5125 (<https://www.govinfo.gov/link/uscode/49/5125>) directs the Secretary to adjudicate applications on whether a particular state standard is “substantially the same” as Federal law and, as such, exempted from statutory preemption.^[133] Similarly, 49 U.S.C. 31141 (<https://www.govinfo.gov/link/uscode/49/31141>) establishes a very detailed role for DOT in reviewing and preempting state law pertaining to commercial motor vehicle safety.^[134] Many of the seminal cases in the Supreme Court's preemption jurisprudence also concerned statutory schemes that expressly delegated preemption authorities to the agencies in question.^[135]

A few comments disputed the salience of these other preemption examples, with a joint comment submitted by CEI especially delving into the particulars of these preemption schemes. After analyzing each of these preemption statutes in turn, CEI concluded that those statutory preemption provisions in which Congress explicitly prescribed an agency's role all "have one thing in common." A limited preemption scope that necessitates an agency's subsequent involvement, oftentimes through adjudication, to "fine tune the scope of preemption."^[136] CEI's joint comment stressed that, in contrast, Section 32919's silence as to any role for NHTSA was simply "a reflection of the preemption's absoluteness."^[137] In doing so though, CEI's comment demonstrates a critical difference in Section 32919 and these other statutory preemption provisions. In those other statutory preemption provisions analyzed by CEI's comment, Congress indisputably enumerated a preemption framework in which the agency in question played an active role in legally determining how statutory preemption applied to particular states and programs. In contrast, Section 32919 enumerates no such role for DOT or NHTSA, nor does it even leave room for subsequent implementation by the Agency. Instead, the self-executing terms of Section 32919 demonstrate that Congress intended the provision to operate without any ensuing requirements or legal determinations imposed by the Agency. Through its codification of new prescriptive requirements on EPCA preemption, the SAFE I Rule involved NHTSA taking the type of subsequent agency action not intended by Congress. Reading Section 32919 to permit NHTSA to promulgate binding regulations on EPCA requires an acceptance that NHTSA may authoritatively determine the reach of the self-executing (and legally self-sufficient) obligations stemming from the statute. But as CEI's comment highlights, Section 32919 seems to clearly *not* want the Agency to "fine tune" the legal mechanics of EPCA's preemptive scope.^[138] But that is exactly what the power to issue legislative rules under Section 32919 would allow.

CEI's comment also argues that the examples from those other statutory provisions cannot inform this rulemaking because in those enactments Congress contemplated an adjudicatory role for the agencies rather than the rulemaking action undertaken in the SAFE I Rule. NHTSA does not believe this distinction negates the comparative value of those provisions. Of course, the SAFE I Rule was a generally applicable rule, not an adjudication or even simply an administrative enforcement action against any particular party. Even so, the preemption statutes described both in the NPRM and herein remain relevant comparisons even when they provide adjudicatory rather than rulemaking roles for an agency. In either case, the Agency is still exercising a core administrative decision-making function to implement the preemption statute in a legally binding way—adjudication just does that on a case-by-case basis whereas a rulemaking does □ that all at once.^[139] In both cases, the question remains whether Congress intended the agency to further implement the statutory preemption scheme through legally enforceable agency action. The other statutory examples demonstrate that when Congress so intends agency implementation, the statutes in question facially articulate that role clearly and discernably in the text.

To the extent the differences in rulemaking and adjudication are pertinent to today's rulemaking, such differences only further support NHTSA's conclusions. For instance, CEI's comment stresses that these other statutory examples only articulate a role for agencies because "subsequent regulatory adjudication" is needed to implement their preemption frameworks (in contrast to Section 32919, which CEI characterizes as "clear").^[140] However, even assuming CEI's premise is true, this only further supports the Proposal's conclusion by suggesting that adjudication— *not rulemaking* —was Congress' preferred method to statutorily engraft an agency into the legal process of formulating the scope of an express preemption provision. If so, the SAFE I Rule's attempt to use rulemaking to legally affect EPCA's preemptive scope appears even further from the scheme intended by Congress. Ultimately, no matter how these provisions are read, it is undeniable that Section 32919 stands apart from other statutory preemption schemes in which the agency is charged with a more active role in setting the scope of preemption in a legally binding way.

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Commenters' other efforts to explain away Section 32919's silence are similarly unavailing. In particular, CEI's joint comment proffers two "alternative explanations" for the statute's silence. In the first, the comment argues that in enacting EPCA, Congress was simply naïve, unable "in 1975 to anticipate the brazenness of 21st century `climate ambition,'" so presumably unaware of what CEI deems an eventual need for NHTSA to legally intercede on EPCA preemption.^[141] However, this fails to account for the fact that the preemption provision of EPCA has been the subject of litigation for decades and, thus, questions about its scope are not new, even if the specific aspects of this issue change over time. Despite this, Congress has not materially changed the statutory language governing EPCA preemption, with the current language in Section 32919 remaining substantially the same as the language originally enacted in Section 509 of EPCA. Further, even if the recent actions by California and other states are somehow different than earlier preemption questions, it would not change what authority EPCA, as it is currently enacted, provides NHTSA.

Moreover, CEI's comment suggests that Congress perhaps intentionally eschewed a more precise description of delegated authority, preferring instead to tacitly provide authority through silence to avoid "foster[ing] confusion and uncertainty." This position is both counterintuitive and disproved by EPCA's express text. First, it strains credulity to read EPCA's silence as Congress' concerted effort to still provide authority to the agency, but just in a more clear and unambiguous way than if it had done so expressly. As the rest of EPCA demonstrates, Congress understood how to carve out a legal role for an agency in a multitude of matters, including preemption, even when that role involved a complicated adjudicatory scheme. Moreover, since an agency's rulemaking actions must always fall within the scope of statutory authority, if Congress had any concerns about how that authority could be misapplied, it could have easily enacted language that set the parameters for any implementing agency regulations (as it did in Section 327 of EPCA).^[142] As such, there is no reason to believe that Congress would have suddenly become wary of precisely describing such authority when it reached Section 32919. And a construction that requires such a leap does not offer the most reasonable reading of the statute.

Finally, at least one other commenter sought to diminish this contrast in statutory approaches by focusing not on the actual statutory language in question, but instead, on the legal doctrines underpinning administrative law. Specifically, a joint comment by the Urban Air Initiative argued at length that the Proposal's doubts about the delegation of statutory authority for the SAFE I Rule contradicted the Supreme Court's application of administrative law principles in *City of Arlington v. FCC*.^[143] The comment presented *City of Arlington* for the proposition that since NHTSA administers the broader CAFE program and Section 32919 does not expressly prohibit the Agency from promulgating implementing regulations on EPCA preemption, the silence of Section 32919 should not serve as a barrier to NHTSA's SAFE I rulemaking authority.^[144] As such, the comment concluded that the Proposal's approach would too finely parse an agency's authority on a provision-by-provision basis and undertake an unmanageably granular review of authority for federal administrative agencies.

NHTSA views this concern as unfounded and depending upon a protracted reading of *City of Arlington*. In *City of Arlington*, the Supreme Court reviewed a declaratory ruling by the Federal Communications Commission, which contained the agency's interpretation and subsequent implementation of its own regulatory jurisdiction under the Telecommunications Act of 1996.^[145] The question presented in the case was "[w]hether . . . a court should apply *Chevron* to . . . an agency's determination of its own jurisdiction."^[146] The Court ultimately held that *Chevron* deference should apply because, at their core, all agency constructions of a statute present jurisdictional issues.^[147] This is because, the majority reasoned, agencies are always bound by statute, which renders any departure from a statute's intended scope or meaning also a transcendence of the agency's jurisdiction.^[148]

The Urban Air Initiative's joint comment contends that, in light of *City of Arlington*, the Proposal's focus on whether Section 32919 confers rulemaking authority is an “empty distraction” and demonstrative of an overly burdensome undertaking that too narrowly searches for questions of authority or agency jurisdiction.^[149] Read properly though, *City of Arlington* actually underscored the appropriateness of the Agency's concern about its own authority. The Urban Air Initiative's comment advances *City of Arlington* to argue that NHTSA need not worry about its statutory authority because no special class of jurisdictional questions exists. But the *City of Arlington* majority made clear that this is only because *all* questions about an agency's actions are jurisdictional. At base, *City of Arlington*'s holding illustrates the exact point repeated □ throughout this rulemaking: because agencies have no plenary jurisdiction, agencies' “power to act and how they are to act is authoritatively prescribed by Congress, so that when they act improperly, no less than when they act beyond their jurisdiction, what they do is ultra vires.”^[150] As a result, any time the agency implements a statute the question “is always whether the agency has gone beyond what Congress has permitted it to do, there is no principled basis for carving out some arbitrary subset of such claims as ‘jurisdictional.’”^[151] This is even apparent when the Court's phrase of “empty distraction” is read in its full context: “The [jurisdictional] label is an *empty distraction* because every new application of a broad statutory term can be reframed as a questionable extension of the agency's jurisdiction.”^[152] Consequently, far from ignoring this precedent as the comment claims, NHTSA views this rulemaking as conducting the precise analysis contemplated by the Court—ensuring that its regulatory activities conform to their governing statutory authorities.^[153]

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Moreover, even the broader holding of *City of Arlington* supports NHTSA's conclusions in this rulemaking. The Court's ultimate holding in the case is that, because all questions are essentially jurisdictional, an agency should be entitled to *Chevron* deference when construing the scope of its statutory authority, even when those questions concern the subjects on which an agency may regulate.^[154] The *Chevron* doctrine is, of course, a multi-dimensional analysis, and thus deference to a reasonable interpretation only arises in the first place if the statutory language is ambiguous.^[155] Here, NHTSA views the lack of rulemaking authority as a clear and unambiguous reading of Section 32919, for all of the reasons described herein. However, even if Section 32919 were considered to be ambiguous on the existence of authority, as several commenters contended, the *City of Arlington* framework stressed by those commenters still supports extending deference to NHTSA for its determination in this repeal that the Agency lacked authority to promulgate the SAFE I Rule. In fact, if such an ambiguity were deemed to exist, that is the precise type of determination for which *City of Arlington* made clear deference should apply: “[t]he question here is whether a court must defer under *Chevron* to an agency's interpretation of a statutory ambiguity that concerns the scope of the agency's statutory authority (that is, its jurisdiction).”^[156]

Similarly, *Chevron* also does not support a claim that the SAFE I Rule was tacitly authorized in order “to fill any gap left” by Congress in Section 32919's statutory scheme.^[157] *Chevron* and its progeny recognize that, in some instances, statutory ambiguities or “gaps” in statutory frameworks indicate that Congress contemplated an agency acting in order to resolve such ambiguities.^[158] In these situations, an incomplete statutory scheme raises the possibility that Congress “implicitly or explicitly” intended the agency to step in and undertake rulemaking to provide the missing pieces and enable the statute's administration.^[159] However, as described throughout this reconsideration, EPCA and Section 32919 clearly demonstrate that Congress did not intend for NHTSA to further implement or administer Section 32919.

This is evident because, as the Proposal recognized, both the Agency and courts have repeatedly understood Section 32919 as self-executing and capable of direct application to state regulatory activity.^[160] Specifically, such a direct application involves the consideration of whether the state regulation in question “relate[s] to”

fuel economy standards established elsewhere in Chapter 329.^[161] The statute does not require any supplemental agency regulations to implement this standard, nor does the text and structure of the statute appear to provide NHTSA any special legislative role in dictating the scope of Section 32919's preemption. This view is consistent with NHTSA's longstanding reading of Section 32919. For instance, even the Preamble to the SAFE I Final Rule acknowledged that the EPCA preemption provision of Section 32919 was "self-executing," asserting that "state or local requirements related to fuel economy standards are void ab initio"—by operation of statute not regulation.^[162] Likewise, in the NEPA section of the SAFE I Rule, NHTSA expressly disclaimed any discretion to alter the preemption paradigm established by Section 32919 due to the self-sufficiency of the statute, stressing that "[a]ny preemptive effect resulting from this final action is not the result of the exercise of Agency discretion, but rather reflects the operation and application of the Federal statute."^[163] As such, the Agency again characterized any "preempted standards [as] void ab initio" due to the non-discretionary and independent application of Section 32919.^[164]

The self-executing nature of Section 32919 formed one of the most widely agreed-upon propositions in the Proposal. Commenters on all sides of the issue expressly confirmed their own understanding of Section 32919 as self-executing and capable of direct enforcement and application against preempted programs. For instance, commenters in support of the Proposal expressly agreed that "[i]n the absence of the Preemption Rule, any state law or regulation 'relating to fuel economy standards' can be challenged in a proper case, allowing for full evaluation of both the state law and the express statutory preemption in Section 32919,"^[165] that "implementing EPCA Section 32919" does not require any NHTSA regulations,^[166] and that "[c]ourts have likewise treated the EPCA preemption language as self-executing as they have applied this language to particular circumstances to determine whether a □ state or local government action is or is not preempted."^[167] Similarly, commenters that otherwise more neutrally commented on other aspects of the Proposal still explicitly endorsed Section 32919's self-executing status.^[168] And commenters opposing the Proposal nonetheless still stressed that they "agree that the statute is self-executing and that any state regulation that is 'related to fuel economy' is preempted and void ab initio."^[169] For this reason, even opposition commenters stated that "[c]onsequently, the SAFE I Rule's regulatory language is not essential to effectuate" EPCA preemption.^[170]

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Although commenters widely agreed on Section 32919's self-executing status, a small number of comments opposing the Proposal tried to argue that this status did not preclude the SAFE I Rule. For instance, a joint comment submitted by CEI argued that Section 32919 still "has no practical effect unless someone interprets and implements it."^[171] This misses the central point of the issue though. Since Section 32919 is self-executing, a regulation is not needed to implement the preemption provision, and, moreover, nothing in Section 32919 provides any authority to issue a binding rule on the scope of preemption. In that respect, Section 32919 fundamentally differs from other EPCA statutory provisions, such as Section 32902, which sets a general CAFE framework that must be implemented by NHTSA periodically "prescrib[ing] by regulation" the actual CAFE standards that govern particular model years.^[172] EPCA is replete with other examples of those types of statutes requiring regulatory implementation.^[173] In contrast, Section 32919 contains all of the elements necessary for implementation within the four corners of its statutory language.^[174] This is not just theoretical, but evident from the numerous times Section 32919 has directly supported a private right of action seeking to enforce its preemption provisions in Federal court.^[175]

To the extent that CEI means that Section 32919 has no practical effect unless it is *enforced*, as explained further in the next section, by promulgating regulations of general applicability, the SAFE I Rule was an act of rulemaking not enforcement. As such, whether Section 32919 needs to be enforced in a particular case has no bearing on whether NHTSA enjoys rulemaking authority to codify a regulation of general applicability.

Ultimately, the self-executing nature of Section 32919 demonstrates that Congress did not establish a rulemaking role for NHTSA in EPCA preemption. Instead, Congress enacted a statutory provision that operates fully on its own, without any discernable responsibility for the Agency in further implementing the scope of Section 32919 through regulations.

B. THE REQUISITE RULEMAKING AUTHORITY CANNOT BE GENERALLY INFERRED FROM EPCA

Both the SAFE I Rule and commenters to the Proposal defending that Rule also argued that the spirit of EPCA hints at the need for such rulemaking authority. NHTSA continues to find this argument unavailing and, as such, is finalizing the Proposal's view that generalized inferences drawn from EPCA cannot sustain the provisions codified in the SAFE I Rule. Moreover, NHTSA views many of the themes and inferences that commenters invoked for this proposition inapposite, as they mischaracterize the nature of the SAFE I Rule. As such, nothing from these purported inferences changes NHTSA's conclusion that the SAFE I Rule was an *ultra vires* rule that must be repealed.

The SAFE I Rule sought to justify the rulemaking on predominantly policy grounds, characterizing the express preemption measure as necessary to fulfill other CAFE responsibilities delegated to the Agency. In particular, the SAFE I Rule argued that the regulation was needed to resolve a perceived irreconcilable conflict between state GHG emissions regulations and ZEV mandates and EPCA's delegation of authority to NHTSA to set national fuel economy standards.^[176] The SAFE I Rule thus rationalized the regulations by emphasizing that “Congress's intent to provide for uniform national fuel economy standards is frustrated when State and local actors regulate in this area.”^[177]

In particular, the SAFE I Rule suggested that the rulemaking was essential to guard against states or local jurisdictions undermining the CAFE program. For instance, the Agency repeatedly expressed that the regulations targeted “State requirements that *impermissibly interfere* with [the Agency's] statutory role to set nationally applicable standards,”^[178] that implementing the provisions was necessary to foreclose state and local requirements that “*conflict* with NHTSA's ability to set nationally applicable standards,”^[179] and that the action was necessary because “Congress's intent to provide for uniform national fuel economy standards is *frustrated* when State and local actors regulate in this area.”^[180]

A large number of the comments supporting the SAFE I Rule expressed this same idea. This theme is illustrated, for example, by a joint comment from CEI, which stresses that without the SAFE I Rule, California (through CARB) would be positioned to “balkanize auto markets unless it gets its way” in dictating motor vehicle emissions and fuel economy standards.^[181] Like the SAFE I Rule, such commenters focused on the need for the provision “to avoid potential conflicts with EPCA's national fuel economy standards,”^[182] and provided extensive analysis purporting to show how particular programs are poised to “undermine CAFE's flexible fleet-average standards” unless the SAFE I Rule's prohibitions remain in place.^[183] Some commenters opposing a repeal even carried this theme to the point of describing the SAFE I Rule as □ akin to an enforcement action, necessary for NHTSA to police EPCA's congressional purpose in the face of “lawless” states and local jurisdictions.^[184 185]

The idea that the SAFE I Rule is necessary to prevent states and local jurisdictions from frustrating EPCA or NHTSA's national CAFE program is inconsistent with a properly applied preemption framework. In the absence of the SAFE I Rule, two fundamental preemption mechanisms still exist to guard against state or local programs that sufficiently conflict with CAFE to render EPCA's purposes a nullity.^[186] First, as described throughout this final rule, a repeal of the SAFE I Rule does not affect the statutory express preemption provision in Section 32919. This self-executing statutory provision is fully capable of

enforcement against offending state and local programs in the absence of any regulations purporting to further implement its scope. In fact, before the SAFE I Rule, this provision had provided this function for years without implementing regulations. Here, Section 32919's plain language illustrates how Congress' preemptive scheme is immediately executable upon NHTSA promulgating the *substantive law* (national fuel economy standards) rather than any express preemption provisions. At most, the statute merely refers to the substantive tasks of the agency to establish “fuel economy standard[s]” and “requirements” as set forth elsewhere in Chapter 329.^[187] Such references only connote the core duties borne by the agency to administer the substance of the fuel economy program, such as by setting “maximum feasible average fuel economy” standards under Section 32902 or establishing fuel economy labeling requirements under Section 32908. These responsibilities are within the Agency's traditional substantive regulatory functions, which draw from NHTSA's technical automobile expertise rather than any special agency authority over federalism.

As such, it is not necessary for NHTSA to codify new express preemption provisions in order to “carry out” EPCA. All NHTSA needs to do is fulfill the substantive task enumerated in Section 32919: Ensuring “an average fuel economy standard prescribed under this chapter is in effect.”^[188] Once such a standard is in place, Section 32919's self-executing standard is fully capable of safeguarding Congress' purpose in EPCA. Moreover, as explained in Section II.B.iii. of this final rule, the familiar “related to” standard in Section 32919 may even be clearer to apply and understand without the convoluted layer of the SAFE I Rule. Accordingly, even assuming the concerns raised by such commenters are accurate, they are fully redressable by the statutory express preemption language in Section 32919, which remains untouched by this rulemaking.

More fundamentally though, even after today's repeal of the SAFE I Rule, judicial concepts of implied preemption will remain available to perform their traditional function of guarding against state law that sufficiently interferes with the supremacy of federal law. In fact, the concepts used by the SAFE I Rule (and commenters defending it) to justify rulemaking authority were actually more appropriately applied to an implied preemption analysis instead.^[189] The terminology repeatedly employed throughout the SAFE I Rule —“frustrates,”^[190] “conflicts,”^[191] and “interferes”^[192] —mirrors the standards often arising in implied preemption. Implied preemption is a judicial doctrine principally applied by courts when adjudicating challenges to particular state programs.^[193] The judicial standards for implied preemption remain available to presiding courts irrespective of the presence of the SAFE I Rule. Therefore, if state and local jurisdictions endanger EPCA to the degree claimed by those commenters, there is no reason to believe that Article III courts could not evaluate those claims through the lens of implied preemption, as has been the case throughout the long history of both EPCA and all other federal law.^[194]

Moreover, as a judicial doctrine intended for application in a particular case, principles of implied preemption do not support NHTSA claiming authority to conduct a rulemaking of general applicability.^[195] Instead, this rulemaking act of promulgating new prescriptive preemption requirements, which are expressly codified in law, involves a separate act of rulemaking authority to impose express preemption through regulations. NHTSA's rulemaking authority to do so is governed by the principles already discussed above in Section II.B.i.—not the judicial concepts that govern whether a Federal court should deem a state program impliedly preempted by the supremacy of existing federal law. Therefore, the concepts of implied preemption invoked by NHTSA to justify the SAFE I Rule were misapplied. They exist to enable a court to determine whether a state program conflicts with *existing federal law*, not □ to empower NHTSA to *make more federal law*, as the Agency claimed in the SAFE I Rule. Accordingly, since NHTSA has already applied the proper rulemaking authority framework in Section II.B.i. above and determined that such authority was

lacking for the SAFE I Rule, judicial concepts of implied preemption cannot cure this deficit of authority. Moreover, they do not need to, because an implied preemption review remains available irrespective of the fate of the SAFE I Rule.

II. NHTSA CONTINUES TO CONSIDER A REPEAL OF THE SAFE I RULE APPROPRIATE EVEN IF THE AGENCY HAD DISCRETION TO CONDUCT THE ORIGINAL RULEMAKING

In addition, even if the Agency either had sufficient authority to issue the SAFE I Rule as a legislative rule or, alternatively, if the prior Rule was simply an interpretation, the Agency nevertheless continues to consider a repeal justified by other considerations as well. Specifically, the SAFE I Rule purported to preempt an entire segment of emissions regulations from state and local jurisdictions without fully considering a number of variables pertinent to the preemption determination. By ignoring these factors, the Rule was still legally flawed because it ignored legally relevant considerations that should have informed both the nature and scope of the Agency's preemption determination. Likewise, in overlooking such important considerations, the SAFE I Rule also improvidently imposed preemption in absolute terms when a more narrowly tailored approach was available instead.

A. THE CATEGORICAL SCOPE OF PREEMPTION IN THE SAFE I RULE INAPPROPRIATELY IGNORED IMPORTANT INTERESTS OF STATES AND LOCAL JURISDICTIONS

In the Proposal, the Agency expressed a concern that the categorical preemption views announced in the SAFE I Rule were insufficiently tailored to account for state federalism interests because they labeled an entire segment of state and local regulation as preempted, irrespective of the precise contours of any particular programs, regulations, or technological developments that may arise. This alarm especially arose from the SAFE I Rule's declaration of preemption through terms that were incontrovertible or absolute in a way that would not account for the nuanced and careful consideration of program-specific facts called for in preemption analyses. The comments to this Proposal substantiated these concerns. In particular, the majority of states and local jurisdictions who commented on the Proposal provided tangible examples of the types of nuances and federalism hardships that the SAFE I Rule failed to consider.

NHTSA continues to consider the federalism concerns in this arena as constituting substantial interests of states and local jurisdictions, who oftentimes seek to address pivotal matters of public health and welfare through the programs impinged by the SAFE I Rule. In this respect, the Agency remains mindful that an “administrative interpretation [which] alters the federal-state framework by permitting federal encroachment upon a traditional state power” merits particularly careful consideration to fully account for the significant federalism interests of states.^[196] Likewise, Executive Order 13132 (/executive-order/13132) underscores the importance of considering federalism interests, stressing that “[t]he national government should be deferential to the States when taking action that affects the policymaking discretion of the States and should act only with the greatest caution where State or local governments have identified uncertainties regarding the constitutional or statutory authority of the national government.”^[197] Nevertheless, by imposing a categorical and rigid approach to preemption, the SAFE I Rule prematurely discarded such federalism considerations despite the potential for more narrowly tailored approaches instead. As such, the SAFE I Rule both impermissibly ignored legally relevant variables of state programs and imprudently adopted a broader approach than necessary in instituting immutable preemption requirements.

For instance, in the Proposal, the Agency expressed a concern that in a number of cases, the policies preempted by the SAFE I Rule also served as components of the states' compliance with air pollution mitigation requirements delegated to states under the Federal Clean Air Act.^[198] This issue formed one of the more common refrains in comments from states and local jurisdictions subject to the SAFE I Rule's

preemption determination, who stressed that the prior rulemaking failed to consider—or even acknowledge—their reliance interests in motor vehicle emissions regulations as a critical component in achieving National Ambient Air Quality Standards (NAAQS). NAAQS levels are set by the EPA for six separate ubiquitous air pollutants, and states are required to achieve and maintain them under federal law. A survey of the comments indicates that feedback on the ways in which the SAFE I Rule could undermine compliance with the NAAQS was overwhelming. For example, a comment by the National Association of Clean Air Agencies, a group of 115 local air agencies spanning 41 states, the District of Columbia, and four territories, stressed that programs prohibited by the SAFE I Rule “enable long-term planning and yield critical emission reductions that will contribute significantly to states' abilities to meet their statutory obligations to attain and maintain the health-based [NAAQS] for criteria pollutants.”^[199] Separate comments submitted by the Ozone Transport Commission Mobile Sources Committee, a body comprised of 12 states and the District of Columbia, as well as the Nevada Division of Environmental Protection, and the District of Columbia Department of Energy and Environment, reiterated this point as well.^[200] Maine's Department of Environmental Protection likewise commented to reiterate that these particular reliance interests are not new but rather have existed since the inception of such state programs, noting that “the [California low emission vehicle] program was initially created to help attain and maintain the health-based [NAAQS] for criteria pollutants.”^[201]

Commenters made clear that these reliance interests were tied to programs in place at the time of the SAFE I Rule's promulgation. For instance, California's South Coast Air Quality Management District described how the SAFE I Rule invalidated “state pollution control standards which have been previously approved into State Implementation Plans (SIPs).”^[202] The State of California's comment described this reliance in depth, noting that California's preempted regulatory programs arose from what the State described as its longstanding □ understanding of EPCA prior to the SAFE I Rule, which resulted in “weighty state interests, developed over the course of decades of implementing these state laws.”^[203] This prolonged reliance on the regulatory framework in place well before the SAFE I Rule led California to invest substantial resources in the development of affected state programs, as well as “base long-term state planning” on the continuation of these programs into the future.^[204]

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In addition, states and local jurisdictions similarly feared that by losing the state regulatory programs on which they had relied, the jurisdictions faced substantial detrimental consequences if they failed to meet required NAAQS levels. For example, a comment from a collective of municipal entities stressed that “vehicle emissions impact air quality and a community's ability to meet required ozone levels. Falling outside of required ozone levels can have negative impacts on cities, potentially disqualifying them from federal funding opportunities for highway and transit infrastructure.”^[205] The Connecticut Department of Transportation commented similarly, noting that undermining state programs in this area was particularly harmful to state interests, as satisfying NAAQS requirements was already a difficult endeavor, which only became harder after the SAFE I Rule.^[206] The Agency also received comments about this issue from the electricity industry, which expressed unease that by undermining established frameworks for NAAQS compliance, the SAFE I Rule could disrupt regulatory schemes in other industries as well.^[207]

In the SAFE I Rule, NHTSA expressly “reject[ed] the notion that California has valid reliance interests” in preexisting state regulations and programs, largely because the Rule labeled those programs broadly preempted under the framework announced in the rulemaking.^[208] Upon reconsideration, the Agency views its original logic in this respect as circular, amounting to a conclusion that NHTSA need not consider whether the breadth of its new regulations adequately considered particular issues, such as federalism or reliance interests, because those interests were already preempted according to the scope articulated by the

SAFE I Rule. However, as the comments to the current proposal demonstrate, numerous states and local jurisdictions continue to harbor deep concerns about the SAFE I Rule's sweeping prohibition of programs on which they relied to accomplish important state regulatory priorities — required by federal law that was not altered in the SAFE I Rule—and promote the health and welfare of their citizens. Accordingly, NHTSA concludes that the SAFE I Rule inappropriately instituted an absolute preemption scheme that foreclosed any consideration for whether a more narrowly tailored approach was available instead.

A few commenters that objected to the Proposal touched upon federalism issues, which the Agency do not believe persuasively argue for continuing the approach in the SAFE I Rule. First, the American Fuel & Petrochemical Manufacturers (AFPM) stated that “it [was] impractical to provide informed comment” on the extent of federalism at stake in the Proposal because the Proposal spoke about preemption broadly rather than by reference to the status of specific state or local programs.^[209] At base, this comment implies that NHTSA may not conduct an informed reconsideration of the SAFE I Rule without simultaneously announcing new substantive positions on how EPCA preemption applies to particular programs. However, the Agency already outlined the reasons such a view was unavailing in Section II.A. of this notice. Moreover, this comment illustrates the advantages of a more nuanced approach to the preemption issue than what had been taken in the SAFE I rulemaking, as the issue may vary based on the particular program at issue. In that respect, this comment underscores the exact point that NHTSA has raised throughout this rulemaking: The idea that a categorical and preemptive prohibition of state programs is not an opportune way to deal with EPCA preemption because the precise variables that inform the analysis likely differ for each case and potentially factor into the accuracy of the individual preemption analyses. AFPM's comment assumes such unknown variables and “vagaries” support retaining the SAFE I Rule, because absent specific context about a particular program it is impossible to conduct the full preemption analysis. But it was the SAFE I Rule that originally imposed preemption at a categorical level, without regard for the context-specific inquiries needed to conduct the full preemption analysis. As such, AFPM's emphasis on the need to understand the specifics of the programs affected by a preemption discussion only illustrates one of the critical deficiencies of the SAFE I Rule's preemption analysis, which this repeal rectifies.

AFPM's comment also concludes that states have a diminished federalism interests in this area because “Congress has clear authority to regulate mobile sources that move in interstate commerce” and “EPCA expressly and clearly establishes that federal law preempts state laws ‘related to’ fuel economy.”^[210] However, this argument simply begs the substantive question of which programs Congress intended to preempt under EPCA. As explained throughout this final rule, the Agency believes that the categorical approach taken in the SAFE I Rule is flawed on this question, as it ignores the potentially varying characteristics of existing or even still-undefined future programs and the degree to which those diverse attributes may bear upon the EPCA preemption inquiry.

Similarly, comments such as AFPM's seek to minimize the SAFE I Rule's effect on federalism interests by stressing that the “SAFE I Rule has no impact on states' abilities to adopt emissions regulations that are not related to fuel economy, or to establish vehicle registration fees, taxes and other” such policies.^[211] Even if true, this argument still presumes that the SAFE I Rule established a clear delineation between programs prohibited under its regulations and those that survived. However, as described further in Section II.B.iii. of this final rule, the SAFE I Rule did not so clearly define the contours of preemption. Instead, it only introduced new undefined standards into the preemption discourse. Beyond this, it is insufficient to say that a rulemaking that categorically forecloses some important federalism interests is acceptable because at least it did not eliminate all federalism interests. As evidenced by □ the comments (many of which are set forth above), commenting states and local jurisdictions almost uniformly emphasized the importance of the

regulatory agendas they believe were foreclosed by the SAFE I Rule's preemptive scope, including regulatory programs that helped jurisdictions attain the federal Clean Air Act's NAAQS. These are substantial and legitimate interests that should not be overbroadly discarded, particularly through categorical prohibitions that unnecessarily foreclose opportunities to more carefully account for those federalism interests in particularized contexts.

These federalism interests are especially illustrated by the degree to which many of the state and local programs in question seek to address critical matters of health and welfare within local communities. The Proposal outlined a concern that a categorical preemption scope inappropriately foreclosed potential opportunities to address localized health and safety hazards facing states and communities by preventing local governments from identifying solutions needed for their individual citizens. This concern arose from the Proposal's recognition that states have indicated that the standards at issue were developed to protect the states' residents from dangerous air pollution and the states' natural resources from the threats posed by climate change. The comments to this Proposal continued to reiterate a prevailing concern that the SAFE I Rule inappropriately and unnecessarily deprived states and local jurisdictions of an important regulatory tool to address hazards facing their local communities.

Commenters opposing a repeal contested this point, arguing instead that “the self-described purposes” of any individual state program are irrelevant to the EPCA preemption analysis, which is solely concerned with the relationship between the state regulation in question and fuel consumption.^[212] However, the position of these commenters does not properly account for the full scope of the SAFE I Rule. These commenters direct their views to the individualized application of EPCA preemption to particular state or local programs, arguing that no single purpose of an individual program can override whether EPCA preempts that program. But the SAFE I Rule was a rule of general applicability, not an adjudication of an individual program. As such, the SAFE I Rule did not limit its analysis to the preemption of a particular state program or narrow band of state regulation. Instead, the SAFE I Rule grouped an entire segment of possible state regulation, motor vehicle greenhouse gas emissions, and codified a regulation of general applicability that preempted all possible initiatives currently regulating in this segment or which may be devised in the future. This is a much broader act and one not required by Section 32919, which does not command NHTSA to issue any regulations, much less anticipatory regulations that prospectively foreclose entire regulatory topics. When evaluating whether such an unnecessarily broad scope was an appropriate approach, it is both relevant and prudent to consider in the aggregate what possible other purposes those preempted measures may have pursued. And when this inquiry indicates, as it has here, that preemptively prohibited programs are likely aimed at protecting the health and welfare of state populations, the Agency is right to ask whether a more narrowly tailored approach could have left more room for those objectives or at least deferred the total foreclosure of them until those programs were ripe for consideration.

In contrast, the SAFE I Rule prohibited all state policies in a vacuum, without any knowledge of even the most fundamental questions about those policies, such as whose regulations are at issue, what motor vehicle technologies are being regulated, which compliance paths may be available, or what technological or policy breakthroughs may occur in the future to alter the preemption analysis. Comments to the Proposal indicate that, when a more thorough and nuanced consideration of preemption is permitted, programs enveloped by the sweeping scope of the SAFE I Rule potentially relate to important goals of protecting health and welfare of local populations.

For instance, the State of California commented, noting that affected state programs were originally devised as a means of mitigating unique environmental challenges facing the state: “California’s greenhouse gas standards were first adopted 16 years ago in response to the prospect of disruptions in the states’ water supply, increases in ‘catastrophic wildfires,’ damage to the State’s extensive coastline and ocean ecosystems, aggravation of existing and severe air quality problems and related adverse health impacts, and more.”^[213] Even commenters opposing the Proposal acknowledged that the state programs at issue initially arose from an effort to enable states to address unique environmental challenges facing their communities.^[214] Other commenters likewise raised concerns about localized health hazards from motor vehicle emissions, with a comment on behalf of a collective of medical associations stressing that local conditions from such emissions can “form unhealthy ozone and particle pollution, which can lead to premature death, hospitalizations, missed days of work and school, asthma attacks and a host of other health problems.”^[215] Commenters also raised environmental justice concerns, describing these pollution hazards as not borne uniformly across the country, but instead particularly manifested in minority and low-income communities. For instance, the Bay Area Air Quality Management District commented to stress that the policy flexibility foreclosed by the SAFE I Rule was “critical to protecting communities that suffer more from localized air pollution than others” and especially essential “to address disparate air pollution impacts that can harm local communities, particularly low income and communities of color in the San Francisco Bay Area.”^[216] Likewise, in summarizing health risks from enhanced motor vehicle emissions, the medical associations’ comment identified these problems as “disproportionately impact[ing] communities located near highways, ports, warehouses and other places where traffic is concentrated—which are □ more likely to be low-income or communities of color.”^[217]

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Despite such a diverse array of challenges, commenting states and local jurisdictions consistently agreed that the inflexibility of the SAFE I Rule’s broad preemption determination foreclosed opportunities for them to develop innovative policy solutions to the unique issues they faced that were still consistent with Federal law. This need to allow for more innovative policy flexibility than permitted by the expansive terms in the SAFE I Rule but still potentially allowed under the more general terms of EPCA was echoed expressly by multiple commenters, such as the Connecticut Department of Transportation,^[218] a collection of municipal entities,^[219] and the National Coalition for Advanced Transportation, who feared that the SAFE I Rule “inappropriately and unnecessarily dampen[ed] policy innovation at the state and local levels and investments across the country.”^[220] Several industry groups likewise commented to caution against unnecessarily restricting policy innovation at the present stage, in particular, as both the automotive and energy industries are in the midst of widespread transformations with the advent of new electrification technologies and approaches.^[221] Precluding states from pursuing innovative opportunities to address such important matters of health and welfare demonstrates the degree to which the SAFE I Rule broadly undermined the federalism interests of such jurisdictions without regard for whether a more narrowly tailored consideration of EPCA preemption was available instead.

Finally, commenters that opposed the Proposal (and thus were supportive of the SAFE I Rule) argued that this latest rulemaking was a change in position by the Agency, in an effort to single it out as a departure from precedent. These commenters that opposed the Proposal, such as NADA and CEI, sought to minimize any significance of the SAFE I Rule’s unprecedented exertion of preemption authority, with CEI’s joint comment noting in particular that “unprecedented violations call for unprecedented corrections.”^[222] These comments suggest that actions like the SAFE I Rule had never been necessary in the past because, they argue, no state or local jurisdiction had ever sought to contravene EPCA to the extent of California’s Advanced Clean Car program.^[223] But although the preambles to the SAFE I rulemaking discussed California’s Advanced Clear Car Program at length, NHTSA’s portion of the notice, (unlike EPA’s portion) still was not an individualized adjudication of California’s Advanced Clean Car Program. Instead, it was a rulemaking action to establish

regulations that set a generally applicable definition of “related to” as it appears in Section 32919. The SAFE I Rule characterized this definition as binding not just on California's existing programs, but on any state and local efforts that fell within the text included in the appendices now or in the future. Moreover, unlike any other “non-regulatory preamble language”^[224] NHTSA may have issued in the past, the SAFE I Rule codified the new preemption standards into regulatory text. In this respect, the SAFE I Rule far surpassed any of NHTSA's prior positions on EPCA preemption and introduced new codified requirements implementing statutory language that had been enacted nearly 50 years earlier.^[225] The express preemption statute that the SAFE I Rule sought to define for the first time has existed for the entirety of the CAFE program, as EPCA's original enactment included text substantially similar to the current language in Section 32919. And California's Advanced Clean Car program was not the first time, over the course of EPCA's long history, that a state or local jurisdiction instituted a program that some challenged as preempted under EPCA. In fact, at least one of those other programs had even resulted in a Federal court order deeming it preempted by Section 32919.^[226] Moreover, even California's initiatives were not new at the time of the SAFE I Rule. As California's comment to this Proposal explained, “California's zero-emission-vehicle standards [were] first adopted more than three decades ago” and its “greenhouse gas standards were first adopted 16 years ago.”^[227]

Thus, until 2019, the self-executing express preemption provisions in the governing fuel economy statute, Section 32919, had always provided the sole codified language on CAFE preemption. Since this statutory language is self-executing, Federal courts, as well as Federal agencies, states, and local governments, had come to understand the fundamental operation of CAFE preemption and applied it on a case-by-case basis, resulting in the development of a significant body of case law, without the need for any corresponding regulations from NHTSA. As such, the SAFE I Rule was neither the natural evolution of NHTSA's prior positions nor an expected outgrowth of the regulatory landscape. Thus, to the extent this rulemaking is a change in position, it is simply a course correction that returns the Agency's regulations to □ the same state in which they existed for approximately 44 of the 46 years of EPCA's lifespan prior to the SAFE I Rule.

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Commenters that opposed the Proposal argued that this history of regulatory silence is irrelevant, pointing, for instance, to Supreme Court cases upholding agencies who promulgated regulations long after the enactment of the antecedent statutory language.^[228] This argument, though, oversimplifies NHTSA's position and the applicable legal standards. The Agency agrees that a statute's long pendency does not foreclose the opportunity to promulgate otherwise appropriate regulations that seek to apply the statute for the first time. But that does not mean the SAFE I Rule's unprecedented departure from longstanding practice is, as commenters contend, “of little consequence.”^[229] Such comments erroneously reduce the standard into an all-or-nothing proposition: Suggesting the lack of prior regulations must either independently sink the rulemaking or have no bearing on the analysis at all. However, the very same Supreme Court jurisprudence cited by these comments makes clear that the proper inquiry is more nuanced. In particular, the cases emphasize that although “the mere fact that an agency interpretation contradicts a prior agency position is not fatal,” such unprecedented diversions must still “take account of legitimate reliance” interests connected to the prior positions.^[230] Within this more comprehensive framework, the problem with the SAFE I Rule was not simply that it sought to promulgate regulations on Section 32919 for the first time—but that it did so without regard for many of the legally relevant considerations, such as reliance interests, that should have informed whether the Agency should have taken such a broadly applicable view of preemption.

In the Proposal, the Agency expressed concern that the SAFE I Rule improperly neglected to consider the nuances of the federalism interests affected by the rule.^[231] The commenting state and local governments subject to such preemption overwhelmingly agreed, commenting that this concern was particularly

illustrated by the failure of the SAFE I Rule to account for the state and local jurisdictions' reliance interests in the purportedly preempted programs. Their comments substantiated this claim, pointing to numerous important policy goals or Federal statutory obligations that relied upon those programs. These reliance interests are largely unsurprising, as NHTSA had never previously issued regulations on EPCA preemption for the entirety of the CAFE program up to the point of the SAFE I Rule or had otherwise itself attempted to preempt those programs. Nevertheless, the SAFE I Rule still failed to meaningfully discuss these reliance interests. Instead, the Rule instituted a sweeping prohibition that foreclosed opportunities to more narrowly consider programs in a particularized setting. Consequently, a full repeal of the SAFE I Rule addresses this legal deficit and thereby restores the proper foundation upon which the Agency may more appropriately consider this issue in any future settings.

Finally, NHTSA believes it is worth making clear that repealing the SAFE I Rule does not itself undermine any reliance interests. In this respect, the Agency is mindful that neither states, nor local jurisdictions, the entities potentially subject to any preemption, nor motor vehicle manufacturers, the entities producing the vehicles potentially subject to any state or local regulation, articulated a reliance interest in the SAFE I Rule in their comments to this Proposal.^[232] To the contrary, numerous states and local jurisdictions supported the Proposal and expressly clarified that they have not relied on the framework of the SAFE I Rule due to its brief tenure and uncertainty surrounding its legal validity. For example, a comment submitted by the State of California along with a collection of other states and local jurisdictions emphasized that “no cognizable reliance interests in the Preemption Rule counsel against repeal. Besides being unclear, the Preemption Rule has faced litigation for all but a few hours of its 21-month existence, preventing any reasonable reliance interests from accruing during that time.”^[233] Therefore, other than the reliance interests *restored* by repealing the SAFE I Rule,^[234] NHTSA has not identified any reasonable reliance interests that may caution against this rulemaking.

B. THE RIGID FRAMEWORK OF THE SAFE I RULE ALSO LEFT NO ROOM TO ACCOUNT FOR OTHER IMPORTANT PREEMPTION VARIABLES

The substantial federalism and reliance interests discussed above support a narrowly tailored preemption analysis that considers preemption on a particularized basis rather than through sweeping proclamations that categorically eliminate the interests. Addressing EPCA preemption in a more particularized setting also promotes a more thorough and informed preemption assessment of any specific state or local programs at issue. This is because the nature of the EPCA preemption analysis frequently requires an understanding of fact-specific variables or diverse characteristics of the programs in question, such as the relevant technologies, compliance paths, and particular activities pertinent to those programs. Forming abstract or generally applicable EPCA preemption conclusions precludes an understanding of those program-specific attributes and, like the SAFE I Rule, results in a sweeping proclamation that cannot possibly account for the diverse array of programs (some of which likely have not even been formulated yet) potentially affected by the analysis. For instance, in order to announce a generally applicable scope for EPCA preemption, the SAFE I Rule drew assumptions about compliance technologies and program characteristics that would regulate GHG emissions from motor vehicles or involve ZEV mandates in the near-term. In turn, the Rule extrapolated those assumptions to the entire realm of regulatory possibilities, both now and in the future. The SAFE I Rule's rigid and generally applicable scope foreclosed any opportunity to evaluate specific □ programs based on a comprehensive understanding of their actual characteristics rather than on generalized assumptions about how they operate. This left no space to defer a preemption assessment until the specific programs could be fully understood or consider whether actual differences in programs (both in the near-term or through technological developments that may occur in the future) could affect the application of EPCA's “related to” preemption standard.

Numerous commenters also identified multiple other considerations relating to potential state motor vehicle emissions regulations that would be foreclosed for consideration by the sweeping rigidity of the SAFE I Rule. By rigidly restricting policy developments and precluding avenues for innovation, the SAFE I Rule ultimately implemented a rigid and permanent prohibition based on, at most, a limited understanding of a particular snapshot of the regulatory landscape. Comments further underscored a concern that the regulatory landscape upon which the SAFE I Rule imposed is dynamic and evolving. This view was particularly developed in a comment from the South Coast Air Quality Management District, which criticized the SAFE I Rule for neglecting to “consider how pollution control technology changes over time,” “fail[ing] to acknowledge that some technologies may not have any measurable relationship with fuel economy standards at all,” and ignoring that “state-set standards may be met by means other than increasing fuel economy.”^[235] Ultimately, such concerns echo the Proposal's misgivings that the SAFE I Rule rigidly applied preemption irrespective of the precise contours and legally relevant characteristics of any particular programs, regulations, or technological developments that may arise. In doing so, the SAFE I Rule instituted an inflexible preemption framework, which necessarily could not accommodate the litany of fact-specific variables and nuances that typically bear upon a preemption analysis, which, the Agency stresses, could still determine that any particular program is preempted. However, preempting all programs that fit within the broad categories established in the SAFE I Rule fails to acknowledge that the specific contours of any particular program remain crucial to the analysis.

A few comments that opposed the Proposal disagreed with this concern, such as a comment from NADA that argued the “physics and chemistry involved with fuel economy and GHG emissions standards” are intrinsically intertwined such that a regulation of one regulates the other.^[236] In this respect, NADA's comment largely mirrors the reasoning of the SAFE I Rule in preempting all motor vehicle GHG standards. However, as discussed throughout this rulemaking, the Agency here is not taking a generally applicable position on this issue, as NHTSA continues to believe that such statements simply ignore the details of particular programs. Ultimately, such statements make factual determinations about detailed scientific and technical issues in the abstract—without any regard for the actual technical details of the particular programs or technologies that bear upon those specific conclusions. In doing so, such statements of general applicability cannot possibly account for whether variables, which are presently unknown (and some of which may depend upon programs or technologies not even in existence yet), may affect the relevant technical analysis or substantive accuracy of the preemption determination.

Ultimately, if NADA or any other parties oppose the state and local programs that the SAFE I Rule sought to preempt, they remain free to challenge those programs in Federal court, as they have been able to do since the inception of those programs. The repeal of the SAFE I Rule does not change that ability or the underlying “related to” standard in Section 32919. To the extent NADA considers this point a process flaw, NHTSA responds that NADA's focus is too narrow, as the Agency has explained above that there exists no need to replace its positions on preemption in the SAFE I Rule with new generally applicable positions. The SAFE I Rule sought to preempt, in a generally applicable manner, all state and local GHG emissions regulations for motor vehicles. Continuing this approach from the SAFE I Rule would improperly only focus upon a snapshot of the regulatory landscape: The *current* manner in which *currently* available technology reduces emissions based. This unduly limited perspective is evident even from the face of such comments, such as a joint comment from CEI asserting that “[t]he two types of standards will remain mathematically convertible *as long as affordable and practical onboard carbon capture technologies do not exist*.”^[237] Therefore, even assuming the framework espoused by the SAFE I Rule and commenters defending the Rule, the relationship between the regulations that would have been preempted under SAFE I Rule and fuel economy still only

exists as a potentially impermanent state of affairs, subject to change as technology or legal standards evolve. As such, it was not appropriate for the SAFE I Rule to try and confine these dynamic regulatory subjects to a static and one-size-fits-all prohibition.

In light of the foregoing, upon reconsideration, NHTSA finalizes its view that the SAFE I Rule's categorical scope was an inappropriate approach. The preemption framework established by the Rule necessarily could not account for legally relevant considerations and, in any event, imprudently and unnecessarily imposed preemption in absolute terms, foreclosing any outlet for a more narrowly tailored approach instead and precluding opportunities to account for program-specific variables that could affect the accuracy or nature of a preemption analysis.

III. RESTORING THE FOCUS TO THE GOVERNING STATUTORY LANGUAGE PROMOTES A PROPERLY APPLIED EPCA PREEMPTION FRAMEWORK

In light of the foregoing, NHTSA maintains the Proposal's concern that the Agency's preceding discourse on EPCA preemption paints a circuitous regulatory landscape, which convolutes the proper application of legal principles on important questions of preemption. Such confusion culminated in the SAFE I Rule, which as described throughout herein, misapplied the governing legal principles, articulated an impermissible legal role for the Agency, and failed to identify the legally relevant factors that bore on an EPCA preemption determination. In doing so, the SAFE I Rule also purported to synthesize a variety of Agency statements and positions that predated that rulemaking. And, even though the SAFE I Rule represented a marked departure from the Agency's longstanding historical practice of not codifying express EPCA preemption requirements, the SAFE I Rule (including its preambles that accompanied the rulemaking) still attempted to envelop the Agency's historical discussions of EPCA preemption within its legally problematic preemption framework. Accordingly, NHTSA continues to believe that a repeal of the SAFE I Rule is justified in order to clarify the applicable preemption framework and restore the traditional focus on EPCA's longstanding statutory standards in Section 32919, which ultimately govern the preemption analysis. Moreover, because of the extent to which the SAFE I Rule inextricably comingled its analysis with a variety of prior Agency statements on the subject of EPCA preemption, in repealing the SAFE I Rule, the Agency also stresses that none of those preceding statements should be read as persisting Agency positions on the nature or scope of EPCA preemption. In doing so, NHTSA strives to disentangle any regulatory confusion wrought by the SAFE I Rule from the original statutory standards in Section 32919.

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Accordingly, NHTSA is finalizing its proposed approach of refining the discourse on EPCA preemption by repealing the SAFE I Rule. The Agency considers this basis for a repeal applicable regardless of whether NHTSA possessed authority for the SAFE I rulemaking because, either way, the SAFE I Rule introduced confusion that undermined a properly scoped preemption analysis. In this respect, as described before, the Agency remains cognizant that Congress has not required NHTSA to speak substantively on EPCA preemption. Thus, anything NHTSA says on this subject is, at most, elective and unnecessary for Section 32919 to function as Congress intended. Consequently, if NHTSA's regulations on EPCA preemption raise the possibility of confusion or otherwise convolute the discourse on the subject, it would be better to reset those statements entirely than allow them to linger.

A. REPEALING THE SAFE I RULE FACILITATES THE DIRECT APPLICATION OF LONGSTANDING STATUTORY STANDARDS

NHTSA finalizes the Proposal's view that a repeal of the SAFE I Rule helpfully elucidates the proper standards to apply when conducting an EPCA preemption analysis. This is not simply because the SAFE I Rule promulgated requirements for which no authority existed, as described above. Even apart from their

unsustainable legal status, the SAFE I Rule also introduced entirely new and largely undefined concepts into the preemption analysis. In doing so, the SAFE I Rule diverted attention from the statutory standards of Section 32919, which were traditional standards long applied by regulated entities and courts. By layering additional uncharted and undefined regulatory standards on top of this longstanding statutory language, the SAFE I Rule introduced new uncertainty into the EPCA preemption regulatory landscape. As such, today's repeal of the Rule removes this superfluous layer thereby restoring the focus on the original statutory standards, which are capable of direct application.

On balance, the comments to the Proposal illustrated the degree to which a repeal of the SAFE I Rule promoted a clearer and more direct application of the governing statutory preemption standards. Several commenters opposing a repeal expressed concern that this step would undo what they viewed as the SAFE I Rule's clarification of EPCA preemption. To reach this conclusion, such comments generally argued that by categorically preempting states and local jurisdictions, the SAFE I Rule established a clear brightline for preemption, whereas a repeal would fail to provide any guidance on the subject or potentially result in overlapping requirements.^[238]

However, commenters by no means agreed on the proposition that the SAFE I Rule clarified the regulatory landscape. In fact, a large number of commenters supporting a repeal specifically expressed the opposite concern: That the SAFE I Rule introduced more uncertainty. Many of these commenters were states and local entities who especially need to understand the contours of EPCA preemption in order to formulate their own policies and assess their viability. Such commenters pointed to tangible examples of how aspects of the SAFE I Rule convoluted the EPCA preemption analysis by introducing new regulatory requirements and standards that produced more uncertainty than the underlying statutory standards in Section 32919.

Ultimately, NHTSA finalizes the Proposal's view that refocusing the governing preemption spotlight back on Section 32919's statutory terms is ideal because the SAFE I Rule did not elucidate the regulatory landscape, and in some cases, may have even added confusion by introducing unfamiliar and uncharted terms into the preemption analysis. Permitting the regulations of the SAFE I Rule to linger enhances the potential that these regulations may only add regulatory confusion to the statutory standards long in place under EPCA. As described throughout this final rule, EPCA preemption is governed by the express preemption provision in Section 32919, which has employed substantially the same language throughout the history of the CAFE program. Multiple commenters noted that the "related to" language enacted in Section 32919 has also been used by Congress in other enactments beyond EPCA and has the benefit of extensive jurisprudence analyzing the meaning of the term.^[239] Moreover, Section 32919 itself has even been applied by several Federal courts, who have applied the provision to both preempt and not preempt state and local programs.^[240] Therefore, the governing statutory standards in Section 32919 are familiar concepts that the public, including regulated entities, and adjudicators have frequently analyzed or considered over the span of EPCA's many years of existence.

In contrast, the unprecedented approach of the SAFE I Rule confused this framework and, as described above, purported to introduce new prescriptive standards into the preemption analysis by way of the codified regulations. The SAFE I Rule substituted this long-applied statutory standard for new regulatory phrases that lacked any jurisprudential history or further definition. The resulting ambiguity introduced many unknowns into the EPCA preemption landscape, such as what those new standards mean or how NHTSA may seek to construe its new standards in the future. In addition, because Section 32919 can also support a private right of action, in the past, private parties have undertaken litigation seeking to enforce the terms of EPCA preemption. As such, any new □ and potentially malleable standards promulgated by the SAFE I Rule

also offer new opportunities for private litigants to advocate for novel applications of the SAFE I Rule's prescriptive preemption requirements in contexts even beyond the scope originally contemplated by the Agency. These factors introduce substantial uncertainties into a regulatory landscape that, before the SAFE I Rule, had been exclusively governed by the longstanding statutory language in Section 32919.

Many of the comments raised concerns associated with such uncertainties. For instance, a joint comment submitted by California along with numerous other states and local jurisdictions expressed concern that the new regulations from the SAFE I Rule introduced new—and undefined—legal standards into the preemption framework, pointing to new concepts or phrases such as “direct or substantial effect” or “in-use” regulations.^[241] Commenting states and local jurisdictions also feared that all of these unknowns actually complicated their long-term planning by making the EPCA preemption standard unpredictable.^[242] For example, a group of municipal entities expressed uncertainty over whether these untested standards could even be stretched to apply to routine traffic measures in the future.^[243] And another local jurisdiction noted that the ensuing litigation over the SAFE I Rule's validity introduced further disruptions into anticipated regulatory initiatives that were already in the process of development upon the promulgation of the Rule.^[244] Ultimately, all of these comments underscore the Proposal's concern that the SAFE I Rule did not even achieve the clarity that it cited so frequently as the reason for the rulemaking. In fact, strong indications exist that the Rule actually amplified any ambiguities surrounding EPCA preemption by suddenly linking the preemption analysis to uncharted standards and unfamiliar concepts. As such, even setting aside the litany of other legal problems with the Rule discussed throughout this rulemaking, NHTSA views this repeal as a necessary and prudent step to unclutter the EPCA regulatory landscape.

Other aspects of the SAFE I Rule's regulatory text exacerbated the uncertainty surrounding the SAFE I Rule's unprecedented preemption framework. For instance, the Proposal highlighted that the codified text of the SAFE I Rule was potentially perplexing because Sections 531.7 and 533.7 merely parroted the statutory text in Section 32919. As such, the Proposal expressed a concern that the verbatim recitation of the statutory language in the CFR could even be confusing to some, who assume some subtle difference must exist in the statutory and regulatory provisions. One commenter defending the SAFE I Rule rejected this reasoning, arguing that “such concerns would be immediately dispelled upon comparing the statutory and regulatory text and realizing the provisions were identical.”^[245] The comment assumed this alignment would be naturally understood because the commenter asserted that “agencies routinely” parrot their statutes in such a manner.^[246] But this assumption is not shared by all, with at least one prominent administrative law treatise expressly recognizing that “agencies rarely issue legislative rules that simply repeat the precise language of a statute.”^[247] Agencies may often integrate portions of statutory language into their regulations, but to fully copy an entire statutory provision into their own regulations is a step further (and a step that the Supreme Court discourages, at least with regard to deference).^[248] In this respect, the oddity of codifying into regulation multiple provisions that already exist verbatim and in full in a statute creates a peculiar regulatory maze for statutory standards otherwise capable of direct implementation. As one joint comment noted, the uncertain purpose of taking this superfluous step was exacerbated by the SAFE I “Rule's preamble [which] magnified the risk of confusion by stating that verbatim recitation of Section 32919 in the Code of Federal Regulations ‘articulates NHTSA's views on the meaning’ of that section.”^[249] This approach sends readers on a search for meaning, straining to find differences between the statute and their mirroring regulatory provisions or perhaps attempting to apply some sort of extra-textual analysis to construe one iteration of the text differently than the other. And even if, as AFPM's comment hypothesizes, a thoughtful reader may eventually reach the conclusion that no such differences actually exist because the provisions are identical, the entire circuitous endeavor serves no purpose because the statutory text already controlled the analysis and its regulatory copies do nothing to further illuminate that analysis.

In any event, whether or not such a parroting regulation is actually confusing need not be dispositive because, at the very least, such a parroting regulation is superfluous and unnecessary. As such, it is not unreasonable for NHTSA to conclude that the superfluous and potentially confusing provisions in Sections 531.7 and 533.7 should no longer remain codified and if they were to remain so, would only overcomplicate the EPCA preemption analysis. Accordingly, NHTSA finalizes its view that a repeal of the SAFE I Rule is independently warranted in order to restore the focus to EPCA's governing statutory standards and remove an unnecessary and potentially confusing layer of regulatory haze that risks obscuring the proper preemption analysis.

B. NHTSA REITERATES THAT PRIOR REGULATORY STATEMENTS ON THE SCOPE AND NATURE OF EPCA PREEMPTION NO LONGER REMAIN CURRENT VIEWS OF THE AGENCY

Finally, NHTSA reiterates the Proposal's view that, to the extent prior rulemaking statements from the Agency discuss matters of EPCA preemption, they should not be read inconsistently with the reconsidered views that NHTSA now expresses in this final rule. Throughout the SAFE I rulemaking, NHTSA sought to portray the regulations as the culmination of the Agency's historical discourse on the subject of EPCA preemption. To be sure, as has been reiterated throughout this final rule, NHTSA does not view the SAFE I Rule as a natural or consistent outgrowth of its historical position of not promulgating preemption regulations under Section 32919. Nevertheless, the degree to which the SAFE I Rule sought to emmesh the Agency's prior discussions of EPCA preemption, which appeared occasionally in preambles to substantive CAFE standard-setting rulemakings, within the flawed rationale of the SAFE I Rule warrants a clarification of the relationship of those prior statements to today's repeal.

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In this respect, NHTSA fully agrees with several commenters who expressed that this clarification is not formally necessary because this final rule clearly contains the current views of the Agency and upon the repeal of the SAFE I Rule, “any preambular statements justifying or explaining the Preemption Rule's regulatory provisions or appendices will be a ‘legal nullity.’”^[250] NHTSA likewise agrees that this portion of the rulemaking is not a separate final agency action. Any such statements or discussions in the SAFE I rulemaking preambles simply accompanied the SAFE I regulations so upon the repeal of those regulations there is nothing further to formally undo. Likewise, NHTSA is not formally repealing any statements that preceded the SAFE I Rule in the sense that NHTSA is suggesting that the statements will be somehow stricken from past **Federal Register** publications (nor is the Agency even aware of a legal mechanism to do so).^[251] But it is precisely because those statements will remain published that NHTSA considers it prudent to, out of an abundance of caution, make crystal clear that they should not be read in isolation or taken out of context as views NHTSA continues to endorse.

Therefore, to the extent the Proposal referred to this clarification as a “repeal” or “clean slate,” the Agency simply means that any statements NHTSA has made in past rulemaking discussions (in the SAFE I Rule or otherwise) that seek to impose a scope for EPCA preemption or suggest NHTSA has the authority to do so should no longer be read as current NHTSA positions.^[252] In other words, no one should attempt to overly parse NHTSA's prior statements in order to argue, for example, that NHTSA somehow left a portion of the SAFE I Rule analysis untouched and continues to hold those views. NHTSA continues to consider this precautionary step worthwhile. In doing so, NHTSA makes clear that no prior statements should continue to clutter the EPCA preemption analysis. This promotes a clearer and more precise discourse on EPCA preemption, which is easier to follow because of the manner in which the SAFE I Rule's preambulatory discussion of EPCA preemption comingled core legal concepts and purported to draw from prior Agency positions. As explained in the preceding section, the SAFE I Rule was repeatedly imprecise in the way it described several fundamental legal principles, such as rulemaking authority, the nature of preemption, and

the effect of regulations. This results in a legally confusing discussion about how EPCA preemption operates, how the legal framework should apply, and how NHTSA's views on preemption should factor into any such analysis. Irrespective of the substantive conclusions reached through such a rulemaking, this confusing landscape created by the SAFE I rulemaking record unnecessarily convolutes the EPCA preemption discourse and provides a difficult legal footprint for any members of the public or adjudicatory body to follow. Accordingly, renewing the focus on Section 32919's original language through this final rule restores a more direct and straightforward application of EPCA's familiar and longstanding statutory preemption terms.

III. Rulemaking Analyses and Notices

1. Executive Order 12866, Executive Order 13563 (/executive-order/13563), and DOT Regulatory Policies and Procedures

NHTSA has considered the impact of this rulemaking action under Executive Order 12866, Executive Order 13563 (/executive-order/13563), and the Department of Transportation's regulatory policies and procedures. Only one commenter raised any of these issues during the comment process. This commenter argued that the Proposal conflicted with Executive Order 12866 because the NPRM “failed to evaluate whether the action is a significant regulatory action.”^[253] However, this comment is not correct, as this rulemaking document has been considered a “significant regulatory action” under Executive Order 12866, but has not been designated as “economically significant,” as it would not directly reinstate any state programs or otherwise affect the self-executing statutory preemption framework in 49 U.S.C. 32919 (<https://www.govinfo.gov/link/uscode/49/32919>).

The same commenter also argued that NHTSA failed to comply with Executive Order 12866 because the Proposal did not “assess all costs and benefits of its proposed action and available regulatory alternatives.”^[254] The Agency addressed this comment in Section II.A. of this notice.

2. Executive Order 13990 (/executive-order/13990)

Executive Order 13990 (/executive-order/13990), “Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis” (86 FR 7037 (/citation/86-FR-7037), Jan. 25, 2021), directed the immediate review of “The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program,” 84 FR 51310 (/citation/84-FR-51310) (September 27, 2019), by April 2021.” The Proposal followed the review directed in this Executive Order and this Final Rule concludes the review. As noted in the Proposal and reiterated again today, the Agency continues to deliberate further about the complex substantive issues surrounding EPCA preemption and may elect to undertake further action in the future, if warranted, to exercise NHTSA's interpretative and policymaking discretion with respect to such issues. Nevertheless, as the Agency's review under Executive Order 13990 (/executive-order/13990) identified other independent and dispositive problems with the SAFE I Rule, these grounds suffice for NHTSA to conclude its reconsideration of the Rule by repealing the SAFE I Rule in full.

3. Executive Order 14008 (/executive-order/14008)

Executive Order 14008 (/executive-order/14008), “Tackling the Climate Crisis at Home and Abroad” (86 FR 7619 (/citation/86-FR-7619)) expressly recognizes that “[t]he United States and the world face a profound climate crisis.” Accordingly, the Order describes a multitude of □ domestic and foreign policy measures designed to promote “climate considerations” as “an essential element of United States foreign policy and national security.”^[255]

One commenter opposing the Proposal and defending the SAFE I Rule argued that by repealing the SAFE I Rule without a technical analysis of any impacts of state electric vehicle mandates on “low-income car buyers,” NHTSA failed to comply with the environmental justice provisions of Executive Order 14008 (/executive-order/14008).^[256] In response, first and foremost, the Agency stresses that the substantive climate considerations described in the Order do not change the principally legal justifications for the repeal of the SAFE I Rule. As described throughout this Final Rule, a repeal of the SAFE I Rule is necessitated by the multiple legal deficits with the Rule, including a lack of NHTSA rulemaking authority and the Agency's failure to adequately consider legally relevant considerations prior to promulgating the preemption regulations. These legal problems leave the Agency with no discretion but to repeal the Rule.

Moreover, NHTSA notes that both the nature and application of this rulemaking are consistent with the climate and environmental justice goals expressed in Executive Order 14008 (/executive-order/14008). While NHTSA's repeal does not depend upon substantive issues, as described throughout, the Agency notes that commenters delving into the substantive issues surrounding the SAFE I Rule widely viewed the original rule as undermining efforts to “address[] climate change and improv[e] equity.”^[257] Moreover, as explained in Section II.B.ii. above, repealing the SAFE I Rule enables any future preemption analyses to occur at a more nuanced level compared to the categorical and rigid prohibition instituted by the repealed regulations. In this sense, repealing the SAFE I Rule facilitates future opportunities to better incorporate climate and environmental justice considerations into future substantive applications or interpretations of EPCA preemption.

Finally, Executive Order 14008 (/executive-order/14008) makes clear that pursuing environmental justice often entails understanding policies from the perspective of local communities, “to address the disproportionately high and adverse human health, environmental, climate-related and other cumulative impacts on disadvantaged communities” from those policies.^[258] This rulemaking has repeatedly described the extent to which repealing the SAFE I Rule will remove improper restrictions on states and local jurisdictions, thereby facilitating their development of innovative policies tailored to address the challenges facing their local communities.^[259] In doing so, repealing the SAFE I Rule increases the potential that environmental justice may be served as those jurisdictions are often in the best situation to both quickly identify the unique challenges facing disadvantaged local communities and understand the steps necessary to mitigate them.

4. Regulatory Flexibility Act

Pursuant to the Regulatory Flexibility Act (5 U.S.C. 601 (<https://www.govinfo.gov/link/uscode/5/601>) *et seq.*, as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996), whenever an agency is required to publish a notice of proposed rulemaking or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities (*i.e.*, small businesses, small organizations, and small governmental jurisdictions). No regulatory flexibility analysis is required, however, if the head of an agency certifies the proposal will not have a significant economic impact on a substantial number of small entities.

NHTSA has considered the impacts of this document under the Regulatory Flexibility Act and certifies that this rulemaking will not have a significant economic impact on a substantial number of small entities. The following provides the factual basis for this certification under 5 U.S.C. 605(b) (<https://www.govinfo.gov/link/uscode/5/605>). This final rule only concerns the question of preemption; the action does not set CAFE or emissions standards themselves. The preemption regulations repealed in this action have no direct effect on any private entities, regardless of size, because the rules do not regulate

private entities. Further, unlike the SAFE I Rule, this rulemaking takes no position on whether any particular State or local law is preempted and has no impact, let alone a significant impact, on any small government jurisdiction. Thus, NHTSA confirms in this final rule that this rule would have no significant impact on any small entities.

5. Executive Order 13132 (/executive-order/13132) (Federalism)

Executive Order 13132 (/executive-order/13132) requires NHTSA to develop an accountable process to ensure “meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.”^[260] “Policies that have federalism implications” is defined in the Executive Order to include regulations that have “substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.”^[261] Executive Order 13132 (/executive-order/13132) imposes additional consultation requirements on two types of regulations that have federalism implications: (1) A regulation that imposes substantial direct compliance costs, and that is not required by statute; and (2) a regulation that preempts State law.^[262]

While this final rule concerns matters of preemption, it does not entail either type of regulation covered by Executive Order 13132 (/executive-order/13132)'s consultation requirements. Rather, the action in this final rule merely repeals regulations and positions that sought to preempt State law. Thus, this final rule does not implicate the consultation procedures that Executive Order 13132 (/executive-order/13132) imposes on agency regulations that would either preempt state law or impose substantial direct compliance costs on states.

6. Unfunded Mandates Reform Act of 1995

The Unfunded Mandates Reform Act of 1995, Public Law 104-4 (<https://www.govinfo.gov/link/plaw/104/public/4>), requires agencies to prepare a written assessment of the cost, benefits and other effects of proposed or final rules that include a Federal mandate likely to result in the expenditure by State, local, or tribal governments, in the aggregate, or by the private sector, of more than \$100 million annually. Because this rulemaking does not include a Federal mandate, no unfunded mandate assessment was prepared.

7. National Environmental Policy Act

The National Environmental Policy Act of 1969)^[263] directs that Federal agencies proposing “major Federal actions significantly affecting the quality of the human environment” must, “to the fullest extent possible,” prepare “a detailed statement” on the environmental impacts of the proposed □ action (including alternatives to the proposed action).^[264] However, there are some instances where NEPA does not apply to a particular proposed action.

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In the Proposal, NHTSA emphasized that one consideration is whether the action is a non-discretionary action to which NEPA may not apply.^[265] In this Final Rule, NHTSA has concluded that the SAFE I Rule was legally flawed for several reasons. Principally, Congress did not provide legislative rulemaking authority to the Agency with regard to 49 U.S.C. 32919 (<https://www.govinfo.gov/link/uscode/49/32919>). To the extent that the SAFE I Rule purported to dictate or proclaim EPCA preemption with the force of law, the Agency determined through this rulemaking that such actions exceed the Congressional grant of authority to NHTSA under EPCA. Accordingly, the Agency believes that the only legally appropriate course of action is to realign its regulatory activities to their properly authorized scope by removing the regulatory language and appendices from the Code of Federal Regulations and repealing the corresponding analysis of particular state

programs in the SAFE I Rule. In addition, this Final Rule concluded that the SAFE I Rule failed to adequately consider a litany of context-dependent variables that bear upon the preemption analysis—including legally relevant considerations such as the longstanding reliance interests undermined by the preemption imposed by the SAFE I Rule. Overlooking these considerations also renders the SAFE I Rule legally invalid and in need of repeal. Courts have long held that NEPA does not apply to nondiscretionary actions by Federal agencies.^[266] Based on the conclusion in this final rule that the legal deficits in the SAFE I Rule compel the Agency to repeal it, NHTSA maintains the position that NEPA does not apply to this action.

This is consistent with the position described in the Proposal, which also considered NEPA inapplicable due to the legally required nature of the repeal. Only two comments even raised NEPA issues, with one supporting the Agency's position and the other challenging it. Notably, the supporting comment was submitted on behalf of twelve public interest organizations, many of which consisted of environmental interest organizations. This joint comment expressly agreed with NHTSA that "if NHTSA definitively concludes that the Preemption Rule exceeds its statutory authority, it need not analyze the environmental impacts of a repeal under the National Environmental Policy Act."^[267] This comment further recognized that since the Agency's repeal is compelled by law, any attendant NEPA evaluation is unnecessary because "the agency 'lacks the power to act on whatever information' it might gather in a NEPA analysis."^[268] This matches the framework described in this Final Rule.

The sole comment opposing the Proposal's approach to NEPA was a joint comment submitted by the Urban Air Initiative. This comment argued that a repeal of the SAFE I Rule was a major action that required an environmental impact statement.^[269] In support of this argument, the comment tried to link the rulemaking to a variety of environmental impacts, such as changes to motor vehicle fuel economy from increased battery pack weight, as well as toxicity from electric automobile batteries.^[270] However, even this comment predicates NHTSA's NEPA obligation on the rulemaking qualifying "as a discretionary action."^[271] As described throughout this final rule, NHTSA's repeal of the SAFE I Rule is nondiscretionary due to the need to remedy the legal deficits with the Rule. Nothing in this comment changes this traditional understanding of NEPA's operation. Moreover, in labeling this repeal an action subject to NEPA, these commenters fail to explain why this conclusion, if true, would not also apply to the SAFE I Rule, which is what originally set in motion such a sweeping preemption scope. In doing so, the comment strenuously defends the viability of the SAFE I Rule without recognizing that this very same argument would render the SAFE I Rule violative of NEPA and only provide another reason that the Rule is legally invalid and in need of repeal.^[272]

Moreover, as in the Proposal, the Agency also reiterates that the Supreme Court has characterized an express preemption statute's scope as a legal matter of statutory construction, in which "the purpose of Congress is the ultimate touchstone of pre-emption analysis."^[273] In turn, "Congress' intent, of course, primarily is discerned from the language of the pre-emption statute and the 'statutory framework' surrounding it."^[274] This particularly applies "[i]f the statute contains an express pre-emption clause[. Then] the task of statutory construction must in the first instance focus on the plain wording of the clause, which necessarily contains the best evidence of Congress' pre-emptive intent."^[275]

In light of this background, as both this rulemaking and the SAFE I Rule itself consistently made clear, the statutory text of Section 32919 ultimately governs express preemption through self-executing terms. The SAFE I Rule even relied on this to conclude that NEPA was not required for that rulemaking because NHTSA could not change the scope of EPCA preemption. As described in this rulemaking, the SAFE I Rule was confused and contradictory in this respect because, *if valid*, the regulations codified by the SAFE I Rule would have actually imposed prescriptive preemption requirements. Nevertheless, the SAFE I Rule still

accurately assessed that under a properly scoped application of Section 32919, preemption “is not the result of the exercise of Agency discretion, but rather reflects the operation and application of the Federal statute.” [276]

The express preemption provision of Section 32919 remains enacted, in full and unchanged, irrespective of the SAFE I Rule or this final rule. As almost all commenters agreed, this provision is self-executing and governing of the EPCA preemption issue irrespective of any Agency regulations that purport to do so as well. Therefore, in repealing the SAFE I Rule, NHTSA is not actually changing the scope of EPCA preemption. To be sure, a repeal will remove the SAFE I Rule, which facially imposed binding requirements. But those requirements themselves were invalid because NHTSA's regulations were never capable of modifying the scope of EPCA's self-executing terms, even if they purported to do so. Accordingly, under Section 32919's constant language, the actual scope of EPCA preemption is the same today as it was yesterday when the regulations remained codified, as well as the same as it was in 2018 before those rules were ever promulgated. Therefore, this final rule likewise does not change the statutorily set scope of express preemption and, as such, the Agency does not consider this rule to result in any environmental impact that may arise from such preemption. [277]

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8. Executive Order 12988 (/executive-order/12988) (Civil Justice Reform)

Pursuant to Executive Order 12988 (/executive-order/12988), “Civil Justice Reform,” [278] NHTSA has determined that this final rule does not have any retroactive effect.

9. Paperwork Reduction Act

In accordance with the Paperwork Reduction Act of 1980, NHTSA states that there are no requirements for information collection associated with this rulemaking action.

10. Privacy Act

In accordance with 5 U.S.C. 553(c) (<https://www.govinfo.gov/link/uscode/5/553>), NHTSA solicited comments from the public to better inform the rulemaking process. These comments are posted, without edit, to *www.regulations.gov* (<http://www.regulations.gov>),, as described in DOT's system of records notice, DOT/ALL-14 FDMS, accessible through *www.transportation.gov/privacy* (<http://www.transportation.gov/privacy>) .

11. Congressional Review Act

Pursuant to Subtitle E of the Small Business Regulatory Enforcement Fairness Act of 1996, also known as the Congressional Review Act (5 U.S.C. 801 (<https://www.govinfo.gov/link/uscode/5/801>) *et seq.*), the Office of Information and Regulatory Affairs designated this action as not a “major rule,” as defined by 5 U.S.C. 804(2) (<https://www.govinfo.gov/link/uscode/5/804>). NHTSA will submit a rule report to each House of the Congress and to the Comptroller General of the United States.

List of Subjects in 49 CFR Parts 531 (<https://www.ecfr.gov/current/title-49/part-531>) and 533 (<https://www.ecfr.gov/current/title-49/part-533>)

- Fuel economy

Regulatory Text

For the reasons stated in the preamble, the National Highway Traffic Safety Administration amends 49 CFR parts 531 (<https://www.ecfr.gov/current/title-49/part-531>) and 533 (<https://www.ecfr.gov/current/title-49/part-533>) as set forth below.

PART 531—PASSENGER AUTOMOBILE AVERAGE FUEL ECONOMY STANDARDS

1. The authority citation for part 531 continues to read as follows:

Authority: 49 U.S.C. 32902 (<https://www.govinfo.gov/link/uscode/49/32902>); delegation of authority at 49 CFR 1.95 (<https://www.ecfr.gov/current/title-49/section-1.95>).

§ 531.7 [Removed]

2. Remove § 531.7.

Appendix B [Removed]

3. Remove appendix B to part 531.

PART 533—LIGHT TRUCK FUEL ECONOMY STANDARDS

4. The authority citation for part 533 continues to read as follows:

Authority: 49 U.S.C. 32902 (<https://www.govinfo.gov/link/uscode/49/32902>); delegation of authority at 49 CFR 1.95 (<https://www.ecfr.gov/current/title-49/section-1.95>).

§ 533.7 [Removed]

5. Remove § 533.7.

Appendix B [Removed]

6. Remove appendix B to part 533.

Issued on December 21, 2021, in Washington, DC, under authority delegated in 49 CFR 1.81 (<https://www.ecfr.gov/current/title-49/section-1.81>), 1.95 (<https://www.ecfr.gov/current/title-49/section-1.95>), and 501.5 (<https://www.ecfr.gov/current/title-49/section-501.5>).

Steven S. Cliff,

Deputy Administrator.

Footnotes

1. See DOT, NHTSA, *Notice of Proposed Rulemaking, Corporate Average Fuel Economy (CAFE) Preemption*, 86 FR 25980 (/citation/86-FR-25980) (May 12, 2021) (referred to in subsequent citations as “CAFE Preemption NPRM”).

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2. See generally *NHTSA, EPA, Withdrawal of Waiver; Final Rule, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program, Final Rule, 84 FR 51310* (/citation/84-FR-51310) (Sept. 27, 2019).

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3. Unless otherwise stated herein, all references to the *SAFE I Rule* and any associated discussions in this final rule refer only to NHTSA's portions of the *SAFE I* action and do not include any EPA actions on the California waiver.

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4. See generally *EPA, Notice of Opportunity for Public Hearing and Comment, 86 FR 22421* (/citation/86-FR-22421) (Apr. 28, 2021).

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5. See *id.* at 22422 n.3 (“This action is being issued only by EPA and, therefore, does not bear upon any future or potential action NHTSA may take regarding its decision or pronouncements in *SAFE I*.”); *CAFE Preemption NPRM, 86 FR 25981* (/citation/86-FR-25981) n.3 (“This proposed rule is being issued only by NHTSA. As such, to the extent EPA subsequently undertakes an action to reconsider the revocation of California’s Section 209 waiver, such action would occur through a separate, independent proceeding.”).

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6. Following the close of the comment period, the State of California requested a meeting to describe aspects of a public comment submitted by California, along with other states and cities. See *State of California et al., Docket No. NHTSA-2021-0030-0403, Comments of States and Cities Supporting Repeal of NHTSA’s “SAFE” Part One Preemption Rule (June 11, 2021)*. In this meeting, which occurred on August 26, 2021, California walked through the various sections of their comment. A docket memo posted by NHTSA to the rulemaking docket provides more information regarding this meeting. See *NHTSA, Docket No. NHTSA-2021-0030-0450, Docket Memo, Meeting with the State of California, (Sept. 7, 2021)*.

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7. The vast majority of these individual commenters who opposed the rulemaking appeared to participate in an organized letter writing campaign, judging from the fully or partially verbatim overlap in language or terminology in many of those comments, and raised the same general objections to the proposed rule.

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8. See, e.g., *CAFE Preemption NPRM, 86 FR at 25982 n.8* (“The Agency anticipates that many stakeholders may comment, urging the Agency to go further—not mere not merely to repeal the preemption determination, but to affirmatively announce a view that State GHG and ZEV programs are not preempted under EPCA. Nevertheless, the Agency deems any such conclusions as outside the scope of this Proposal.”).

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9. *NHTSA, Corporate Average Fuel Economy Standards for Model Years 2024-2026 Passenger Cars and Light Trucks, 86 FR 49602* (/citation/86-FR-49602) (Sept. 3, 2021).

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10. See, e.g., *National Association of Clean Air Agencies, Docket No. NHTSA-2021-0030-0140 (June 10, 2021)* (“For California and states that implement California’s motor vehicle emissions program under Section 177 of the federal Clean Air Act, their GHG and ZEV programs are vitally important. Such programs enable long-term planning and yield critical emission reductions that will contribute significantly to states’ abilities to meet their climate goals and their statutory obligations to attain and maintain the health-based National Ambient Air Quality Standards (NAAQS) for criteria pollutants.”).

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11. The specific statements identified by the Agency are described further in Section II.B.iii.b. See also *infra* n.252 (listing statements appearing in rulemakings other than the *SAFE I Rule*).

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12. See *State of California et al.*, Docket No. NHTSA-2021-0030-0403 (June 11, 2021); *Center for Biological Diversity et al.*, Docket No. NHTSA-2021-0030-0369 (June 11, 2021).

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13. See *National Automobile Dealers Association*, Docket No. NHTSA-2021-0030 (June 10, 2021).

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14. *Nat'l Cable & Telecomms. Ass'n v. Brand X internet Servs.*, 545 U.S. 967, 981-82 (2005) (emphasis added).

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15. *N. Am.'s Bldg. Trades Unions v. Occupational Safety & Health Admin.*, 878 F.3d 271, 303 (D.C. Cir. 2017).

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16. *Chevron, U.S.A., Inc. v. Nat. Res. Def. Council, Inc.*, 467 U.S. 837, 838 (1984).

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17. See, e.g. *Edison Electric Institute*, Docket No. NHTSA-2021-0030-0396 (June 11, 2021) (“Since the finalization of SAFE I, Nevada, New Mexico, Minnesota and Virginia have announced their intent to adopt California’s criteria-pollutant, GHG, and ZEV regulations. Washington, which has already adopted California’s criteria-pollutant and GHG standards, has announced its intent to adopt California’s ZEV standards.”).

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18. See generally *Allergy & Asthma Network et al.*, Docket No. NHTSA-2021-0030-0299 (June 4, 2021).

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19. *South Coast Air Quality Management District*, Docket No. NHTSA-2021-0030-0446 (June 11, 2021).

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20. *CAFE Preemption NPRM*, 86 FR at 25982 n.8.

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21. *Competitive Enterprise Institute et al.*, Docket No. NHTSA-2021-0030-0411 (June 11, 2021).

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22. *Id.*

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23. See, e.g., *Tesla, Inc.* Docket No. NHTSA-2021-0030-0398 (June 11, 2021). This is not to say that all commenters advocated for the rulemaking to expand into substantive EPCA areas. In fact, a large number of commenters appeared to understand the narrow legal focus of this rulemaking, with many expressly supporting the Agency’s bifurcated approach of first sorting out issues of Agency authority before grappling with substantive EPCA preemption questions. See, e.g., *Center for Biological Diversity et al.*, Docket No. NHTSA-2021-0030-0369 (June 11, 2021) (“While the substantive errors in the Rule’s preemption analysis could have formed an independent ground for repeal, Commenters understand that NHTSA considers those issues to be “outside the scope of this Proposal” because NHTSA will not be “[r]eassessing the scope of preemption under EPCA” or “announcing new interpretive views” in this proceeding.”); *Rivian*, Docket No. NHTSA-2021-0030-0413 (June 11, 2021) (“Rivian agrees in the appropriateness to leave an affirmative announcement of the view that State GHG and ZEV programs are not preempted under EPCA for another rulemaking.”); *National Coalition for Advanced Transportation*, Docket No. NHTSA-2021-0030-0310 (June 11, 2021) (“NCAT recognizes that NHTSA is not seeking comment on substantive interpretation of EPCA preemption”).

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24. See *American Fuel & Petrochemical Manufacturers*, Docket No. NHTSA-2021-0030-0425 (June 11, 2021) (arguing that NHTSA's "recission of the SAFE I Rule would be unlawful" because the rulemaking "fails to explain how ZEV mandates and GHG tailpipe standards are not 'related to' the federal CAFE standards, a foundational requirement for a regulatory reversal such as the one NHTSA is proposing here.").

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25. *Ry. Labor Executives' Ass'n v. Nat'l Mediation Bd.*, 29 F.3d 655, 670 (D.C. Cir. 1994) (*en banc*) (stressing that "[a]gencies owe their capacity to act to the delegation of authority, either express or implied, from the legislature").

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26. *CAFE Preemption NPRM*, 86 FR at 25982 n.8.

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27. See *District of Columbia Department of Energy and Environment*, Docket No. NHTSA-2021-0030-0412 (June 11, 2021) ("The District of Columbia calls on the NHTSA to finalize this rule proposal as expeditiously as practicable. The District and other 177 states need regulatory certainty to implement clean cars programs for the benefit of the health and welfare of our residents."); *National Coalition for Advanced Transportation*, Docket No. NHTSA-2021-0030-0310 (June 11, 2021) (urging the Agency to finalize the repeal "as promptly as possible").

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28. *State of California et al.*, Docket No. NHTSA-2021-0030-0403 (June 11, 2021).

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29. *National Automobile Dealers Association*, Docket No. NHTSA-2021-0030-0435 (June 10, 2021).

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30. *Id.*

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31. 49 U.S.C. 32902(a) (<https://www.govinfo.gov/link/uscode/49/32902>) (*emphasis added*). See also *infra*. nn.125-131.

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32. *Emmett Institute on Climate Change and the Environment*, Docket No. NHTSA-2021-0030-0218 (June 10, 2021) ("[w]e do not believe that such guidance—or a more formal preemption determination along those lines—is necessary in light of the self-executing nature of EPCA's preemption language, the statutory and legislative history of EPCA and its amendments, and legal precedent regarding EPCA's relationship to state and federal fuel economy standards."); *Alliance for Automotive Innovation*, Docket No. NHTSA-2021-0030-0400 (June 11, 2021) (acknowledging that any offending state programs are "automatically preempted under the terms of the statute. Federal courts can apply EPCA's preemption provision to any such law or regulation"); *National Automobile Dealers Association*, Docket No. NHTSA-2021-0030-0435 (June 10, 2021) ("NADA concurs with NHTSA's repeated suggestions that EPCA's express and implied preemption is self-executing. Consequently, the SAFE I Rule's regulatory language is not essential to effectuate EPCA's express and implied preemption of state laws governing or related to the fuel economy of new light-duty motor vehicles.") (*emphasis in original*).

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33. See, e.g., *Emmett Institute on Climate Change and the Environment*, Docket No. NHTSA-2021-0030-0218 (June 10, 2021) ("To the extent NHTSA believes a statement confirming EPCA's lack of preemptive effect on state vehicle GHG emission and ZEV standards would be useful and appropriate, it could issue interpretive guidance to that effect. However, we do not believe that such guidance—or a more formal preemption determination along those lines—is necessary").

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34. *Id.*

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35. *See, e.g., Tesla, Inc. Docket No. NHTSA-2021-0030-0398 (June 11, 2021) (“NHTSA's proposal to clarify that EPCA should not be read to preempt state emission standards that are contemplated and authorized by the CAA is welcomed.”); Maine Department of Environmental Protection, Docket No. NHTSA-2021-0030-0249 (June 10, 2021) (“As NHTSA's Proposed Rule now acknowledges, this interpretation was flawed, for California's GHG emissions standards are not `related to' and do not otherwise conflict with federal fuel economy standards simply because CO2 emissions correlate with fuel consumption The Department applauds this correction.”).*

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36. *See, e.g., National Automobile Dealers Association, Docket No. NHTSA-2021-0030-0435 (June 10, 2021) (stressing that the “the SAFE I Rule contains a well-reasoned analysis” before outlining the substantive points in the Rule to which NADA agreed).*

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37. *See American Fuel & Petrochemical Manufacturers, Docket No. NHTSA-2021-0030-0425 (June 11, 2021) (undertaking a statutory construction analysis of “related to” under Section 32919). See also Urban Air Initiative et al., Docket No. NHTSA-2021-0030-0423 (June 11, 2021) (discussing federal jurisprudence defining the scope of the term “related to”).*

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38. *American Fuel & Petrochemical Manufacturers, Docket No. NHTSA-2021-0030-0425 (June 11, 2021).*

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39. *Id.*

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40. *Competitive Enterprise Institute et al., Docket No. NHTSA-2021-0030-0411 (June 11, 2021).*

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41. *See Urban Air Initiative et al., Docket No. NHTSA-2021-0030-0423 (including Attachments 2-9).*

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42. *Likewise, many of the reasons outlined here also apply to those rulemaking analyses sections.*

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43. *NHTSA expands on this same issue in the NEPA section of this final rule, which explains that a statutory construction analysis controls the question of whether Section 32919 delegated authority to NHTSA to promulgate express preemption regulations. This analysis, in turn, looks to the language of the statute to discern Congress' intent.*

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44. *CAFE Preemption NPRM, 86 FR at 51352.*

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45. *State of Ohio et al., Docket No. NHTSA-2021-0030-0355 (June 11, 2021).*

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46. *Id.*

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47. *Supra n.5.*

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48. *Consumer Reports*, Docket No. NHTSA-2021-0030-0224 (June 11, 2021); *Allergy & Asthma Network et al.*, Docket No. NHTSA-2021-0030-0299 (June 4, 2021).

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49. *Rivian*, Docket No. NHTSA-2021-0030-0413 (June 11, 2021).

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50. *See, e.g., Comment from Thomas Houghton*, NHTSA-2021-0030-0028 (June 3, 2021).

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51. *Supra n.5.*

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52. *To the extent these commenters associated this rulemaking with the EPA's reconsideration of California's waiver under the Clean Air Act or otherwise raised vague allegations that EPA was actually controlling this rulemaking, NHTSA reiterates again that both the NPRM and final rule were issued solely by NHTSA. Unlike the SAFE I and SAFE II Rules, this is not a joint rulemaking with EPA (or any other agency). See also supra n.5 (explaining that the EPA is conducting a separate, independent proceeding to reconsider its portions of the SAFE I Rule).*

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53. *This also applies to comments filed by institutions or entities which based opposition or support for the Proposal on substantive policy grounds. See, e.g., Sierra Club Massachusetts*, Docket No. NHTSA-2021-0030-0326 (June 11, 2021) (raising generalized climate concerns); *Allergy & Asthma Network et al.*, Docket No. NHTSA-2021-0030-0299 (June 4, 2021) (raising generalized health concerns arising from the climate crisis); *The particular substance of any state or local policy does not control this repeal. Likewise, a repeal of the SAFE I Rule takes no position on how particular technologies may bear upon an EPCA preemption analysis. As such, this rulemaking is technologically neutral and does not seek to promote or discourage any specific vehicle technologies or emissions reductions strategies. Comments that endorse or criticize particular technologies, which were especially concerned with vehicle electrification, do not factor into the Agency's narrow legal determination in this repeal. See, e.g., American Fuel & Petrochemical Manufacturers*, Docket No. NHTSA-2021-0030-0425 (June 11, 2021) (“oppos[ing] technology-specific mandates, including zero emission vehicle (ZEV) mandates” by arguing that they “interfere with consumers' choices and are contrary to law”); *See also Zero Emission Transportation Association*, Docket No. NHTSA-2021-0030-0397 (June 11, 2021) (supporting policies that “increase the pace of zero emission vehicle deployment that are critical to decarbonizing the transportation sector”).

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54. *See, e.g., Mark Franck*, Docket No. NHTSA-2021-0030-0043 (June 3, 2021) (“California should not be deciding what kind of cars the rest of the country can buy. This damaging new rule, would allow California to make special regulations that the rest of us would be required to follow.”).

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55. *Nat'l Latino Media Coal. v. F.C.C.*, 816 F.2d 785, 787-88 (D.C. Cir. 1987) (explaining further that “A valid legislative rule is binding upon all persons, and on the courts, to the same extent as a congressional statute. When Congress delegates rulemaking authority to an agency, and the agency adopts legislative rules, the agency stands in the place of Congress and makes law.”).

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56. *See Richard J. Pierce, Jr. & Kristin E. Hickman*, *Administrative Law Treatise* § 4.5 (6th Edition, 2020-1 Cum. Supp.) (“The agency's interpretative rule serves only the function of potentially persuading the court that the agency's interpretation is correct . . . Correspondingly, members of the public may choose for practical reasons to comply with an interpretative rule.”).

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57. *See Attorney General's Manual on the Administrative Procedure Act (1947) at 30 n.3.*

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58. *Nat'l Latino Media Coal.*, 816 F.2d at 788.

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59. *See Morton v. Ruiz*, 415 U.S. 199, 232 (1974).

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60. *See Chrysler Corp. v. Brown*, 441 U.S. 281, 302 (1979).

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61. *See, e.g., Hocr v. U.S. Dep't of Agric.*, 82 F.3d 165 (7th Cir. 1996).

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62. *CAFE Preemption NPRM*, 86 FR at 25985 (“The Agency has tentatively determined that these regulations are legislative rules, which seek to preempt state regulations in more specific terms than the express preemption provision already present in EPCA.”).

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63. *South Coast Air Quality Management District*, Docket No. NHTSA-2021-0030-0446 (June 11, 2021).

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64. *State of California et al.*, Docket No. NHTSA-2021-0030-0403 (describing the SAFE I Rule's disruption of state programs and reliance interests in established regulatory approaches).

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65. *NHTSA, EPA, Withdrawal of Waiver; Final Rule, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program, Final Rule*, 84 FR 51310 (/citation/84-FR-51310), 51316 (/citation/84-FR-51316) (Sept. 27, 2019) (emphasis added).

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66. *South Coast Air Quality Management District*, Docket No. NHTSA-2021-0030-0446 (June 11, 2021) (quoting *NHTSA, EPA, Withdrawal of Waiver; Final Rule, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program, Final Rule*, 84 FR 51310 (/citation/84-FR-51310), 51324 (/citation/84-FR-51324) (Sept. 27, 2019)).

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67. *NHTSA, EPA, Withdrawal of Waiver; Final Rule, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program, Final Rule*, 84 FR 51310 (/citation/84-FR-51310), 51356 (/citation/84-FR-51356) (Sept. 27, 2019).

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68. *See, e.g., Center for Biological Diversity et al.*, Docket No. NHTSA-2021-0030-0369 (June 11, 2021).

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69. *Urban Air Initiative et al.*, Docket No. NHTSA-2021-0030-0423 (June 11, 2021).

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70. *NHTSA, EPA, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program, Final Rule*, 84 FR 51310 (/citation/84-FR-51310) (Sept. 27, 2019).

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71. *Id.* at 51317.

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72. *Id.* at 51318.

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73. See, e.g., 49 CFR part 533 (<https://www.ecfr.gov/current/title-49/part-533>), app. B(a)(2) (“As a law or regulation of a State or a political subdivision of a State related to fuel economy standards, any state law or regulation regulating or prohibiting tailpipe carbon dioxide emissions from automobiles is expressly preempted under 49 U.S.C. 32919 (<https://www.govinfo.gov/link/uscode/49/32919>).”).

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74. *Urban Air Initiative et al.*, Docket No. NHTSA-2021-0030-0423 (June 11, 2021) (rhetorically asking “If the Agency had done this, what would change in the real world compared to what the Agency actually did? In a word, nothing.”).

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75. See *supra* nn.66-67.

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76. 995 F.2d 1106, 1109 (D.C. Cir. 1993) (“Our own decisions have often used similar language, inquiring whether the disputed rule has ‘the force of law’. We have said that a rule has such force only if Congress has delegated legislative power to the agency and if the agency intended to exercise that power in promulgating the rule.”) (internal citations omitted).

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77. *Id.* at 1111.

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78. *Id.*

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79. See, e.g., *National Automobile Dealers Association*, Docket No. NHTSA-2021-0030-0435 (June 10, 2021) (“the regulatory language set out in the SAFE I Rule was adopted in full compliance with all applicable procedural requirements.”).

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80. See *Long Island Care at Home, Ltd. v. Coke*, 551 U.S. 158, 173 (2007) (describing how an agency's use of “full notice-and-comment rulemaking procedures” suggested the agency intended to promulgate a legislative rule). To be clear, the mere fact that an Agency requests comment on an action before finalizing it is not itself dispositive evidence that an action is a legislative rule, as there are many strong policy reasons for agencies to seek public input on documents beyond when they are expressly required to do so by statute. However, in those instances, the agency will generally make clear that the document at issue is an interpretation, policy statement, or other sort of guidance document, which stands in significant contrast to the approach taken in the SAFE I rulemaking.

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81. *Am. Min. Cong.*, 995 F.2d at 1109 (“an agency seems likely to have intended a rule to be legislative if it has the rule published in the Code of Federal Regulations”). NHTSA recognizes that, as at least one commenter pointed out, some subsequent cases have deemed a rule interpretative even if published in the CFR. See, e.g., *Health Ins. Ass'n of Am., Inc. v. Shalala*, 23 F.3d 412, 423 (D.C. Cir. 1994). While such cases may indicate that a CFR publication is not dispositive of the issue, they do not eliminate the relevance of this step as a helpful piece of the larger puzzle of identifying the agency's intent to codify binding regulations.

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82. See, e.g., 49 CFR part 564 (<https://www.ecfr.gov/current/title-49/part-564>), Appendices A-B (listing information required to be submitted to the Agency regarding certain replaceable light sources in motor vehicles).

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83. *Urban Air Initiative et al.*, Docket No. NHTSA-2021-0030-0423 (June 11, 2021).

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84. *National Automobile Dealers Association, Docket No. NHTSA-2021-0030-0435 (June 10, 2021).*

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85. *See id.*

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86. *See Urban Air Initiative et al., Docket No. NHTSA-2021-0030-0423 (June 11, 2021).*

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87. *See Hoctor v. U.S. Dep't of Agric., 82 F.3d 165, 170 (7th Cir. 1996).*

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88. *Id.*

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89. *Id. at 171.*

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90. *See Cath. Health Initiatives v. Sebelius, 617 F.3d 490, 496 (D.C. Cir. 2010).*

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91. *See generally Hoctor, 82 F.3d 165.*

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92. *Id.*

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93. *Id.*

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94. *49 U.S.C. 32919(a) (<https://www.govinfo.gov/link/uscode/49/32919>).*

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95. *Hoctor, 82 F.3d at 170.*

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96. *NHTSA, EPA, Withdrawal of Waiver; Final Rule, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program, Final Rule, 84 FR 51310 (/citation/84-FR-51310), 51319-20 (/citation/84-FR-51319) (Sept. 27, 2019) (“The foundational factual analysis involves the scientific relationship between automobile fuel economy and automobile tailpipe emissions of carbon dioxide. NHTSA discussed this scientific relationship in detail.”).*

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97. *See 49 CFR part 531, Appendix B ([\(a\)\(E\)\(3\)](https://www.ecfr.gov/current/title-49/part-531/appendix-Appendix%20B%20to%20Part%20531)).*

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98. *Id.*

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99. *49 CFR 531.7(a)(E)(2) ([https://www.ecfr.gov/current/title-49/section-531.7#p-531.7\(a\)\(E\)\(2\)](https://www.ecfr.gov/current/title-49/section-531.7#p-531.7(a)(E)(2))).*

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100. *49 CFR 531.7(b) ([https://www.ecfr.gov/current/title-49/section-531.7#p-531.7\(b\)](https://www.ecfr.gov/current/title-49/section-531.7#p-531.7(b))).*

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101. NHTSA stresses that it is not necessary to substantively determine whether “related to” could be properly interpreted to include these concepts in order to reach this point, nor does the Agency make such a determination here. What matters is that, once codified, the regulation now forms the operative standard, which purports to be legally binding and capable of standalone application. In that sense, the regulation functions as a legislative rule, which requires legislative rulemaking authority to promulgate, no matter how proper or improper the substantive content of the rule may be.

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102. NHTSA, EPA, *Withdrawal of Waiver; Final Rule, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program, Final Rule*, 84 FR 51310 ([/citation/84-FR-51310](#)), 51315 ([/citation/84-FR-51315](#)) (Sept. 27, 2019) (explaining how the SAFE I Rule was a standalone rulemaking action that did not need to accompany a CAFE standards rulemaking) (emphasis added).

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103. See, e.g., *Louisiana Pub. Serv. Comm'n v. F.C.C.*, 476 U.S. 355, 374 (1986).

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104. *Ry. Labor Executives' Ass'n v. Nat'l Mediation Bd.*, 29 F.3d 655, 670 (D.C. Cir. 1994) (en banc) (stressing that “[a]gencies owe their capacity to act to the delegation of authority, either express or implied, from the legislature”).

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105. *Cent. United Life Ins. Co. v. Burwell*, 827 F.3d 70, 73 (D.C. Cir. 2016).

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106. *Id.*

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107. See, e.g., *Adams Fruit Co. v. Barrett*, 494 U.S. 638, 650 (1990) (determining that a Department of Labor regulation exceeded the scope of authority delegated by a statute the agency administered).

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108. *Ry. Labor Executives' Ass'n.*, 29 F.3d at 670 (en banc).

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109. *Id.*

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110. *City of New York v. F.C.C.*, 486 U.S. 57, 64 (1988).

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111. *Id.*

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112. See, e.g., *Mozilla Corp. v. FCC*, 940 F.3d 1, 78 (D.C. Cir. 2019) (determining that neither express nor ancillary authority nor other doctrines, such as the impossibility exception, could justify the FCC's assertion of preemption authority for a particular action).

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113. *Louisiana Pub. Serv. Comm'n*, 476 U.S. at 374.

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114. *Center for Biological Diversity et al.*, Docket No. NHTSA-2021-0030-0369 (June 11, 2021); *State of California et al.*, Docket No. NHTSA-2021-0030-0403 (June 11, 2021); *South Coast Air Quality Management District*, Docket No. NHTSA-2021-0030-0446; *National Association of Clean Air Agencies (NACAA)*, Docket No. NHTSA-2021-0030-0140 (June 10, 2021); *Maine Department of Environmental*

Protection, Docket No. NHTSA-2021-0030-0249 (June 10, 2021); Tesla, Inc. Docket No. NHTSA-2021-0030-0398 (June 11, 2021); Nevada Division of Environmental Protection, Docket No. NHTSA-2021-0030-0362 (June 11, 2021).

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115. *A few comments go further and suggest that NHTSA not only lacks legislative authority with respect to EPCA preemption, but interpretative authority as well. See, e.g., Northeast States for Coordinated Air Use Management, Docket No. NHTSA-2021-0030-0300 (June 11, 2021) (noting that “the agency lacks statutory authority to define the scope of EPCA preemption through legislative or interpretative rules”) (emphasis added). In response, NHTSA stresses that it continues to believe that the Agency may offer interpretations or guidance as to its views. To be sure, NHTSA does not agree with other commenters who argue that this interpretative authority equates to the ability to issue binding interpretations. See Urban Air Initiative et al., Docket No. NHTSA-2021-0030-0423 (June 11, 2021). But the Agency nevertheless maintains the view expressed in the Proposal that NHTSA may properly announce interpretative views about matters of EPCA preemption if so desired. See CAFE Preemption NPRM, 86 FR at 25988 (“While NHTSA still retains interpretative authority to set forth its advisory views on whether a state regulation impermissibly conflicts with Federal law, such authority does not support the power to codify binding legislative rules on the matter.”).*

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116. *See, e.g., Center for Biological Diversity et al., Docket No. NHTSA-2021-0030-0369 (June 11, 2021) (stressing that Section 32919 “does not mention the Secretary or contemplate Federal regulations ‘to carry out’ congressional intent to preempt State and local laws.”).*

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117. *See, e.g., National Coalition for Advanced Transportation, Docket No. NHTSA-2021-0030-0310 (June 11, 2021).*

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118. *See, e.g., Emmett Institute on Climate Change and the Environment, Docket No. NHTSA-2021-0030-0218 (June 10, 2021) (“NHTSA also lacked the ancillary authority to adopt the 2019 Rule.”).*

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119. *See generally NHTSA, EPA, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program, Final Rule, 84 FR 51310 (/citation/84-FR-51310), 51320 (/citation/84-FR-51320) (Sept. 27, 2019).*

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120. *See, e.g., id. at 51317.*

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121. *Id. at 51320.*

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122. *Id.*

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123. *See generally The Energy Policy and Conservation Act of 1975, Public Law 94-163, 89 Stat. 871.*

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124. *Id.*

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125. *Id. § 501(1) (“The term ‘automobile’ means . . .”).*

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126. *Id. § 501(2) (“The term ‘passenger automobile’ means . . .”).*

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127. *Id.* § 502 (“Average Fuel Economy Standards Applicable to Each Manufacturer”).

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128. *Id.* § 505(a)(3).

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129. *Id.* § 505(b)(1).

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130. *Id.* § 506(a)(3).

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131. *Id.* § 508(a)(3)(D).

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132. See 42 U.S.C. 6297 (<https://www.govinfo.gov/link/uscode/42/6297>).

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133. See 49 U.S.C. 5125(d) (<https://www.govinfo.gov/link/uscode/49/5125>) (The Secretary has delegated this responsibility to another DOT operating administration, the Pipeline and Hazardous Materials Safety Administration (PHMSA)).

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134. See 49 U.S.C. 31141 (<https://www.govinfo.gov/link/uscode/49/31141>) (expressly stating that “[a] State may not enforce a State law or regulation on commercial motor vehicle safety that the Secretary of Transportation decides under this section may not be enforced” before enumerating multiple subsections that define an adjudicatory role for the DOT, complete with preemption standards and procedures). The Secretary has delegated this responsibility to another DOT operating administration, the Federal Motor Carrier Safety Administration (FMCSA).

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135. For example, in a set of cases evaluating the preemption of certain state tort law relating to medical device product liability, the Supreme Court analyzed *U.S. Food and Drug Administration (FDA) regulations that specifically defined when preemption occurred under the applicable statute, the Medical Device Amendments (MDA)*. See generally *Medtronic, Inc. v. Lohr*, 518 U.S. 470 (1996) (plurality opinion); *Riegel v. Medtronic, Inc.*, 552 U.S. 312 (2008). See also 21 U.S.C. 360k (<https://www.govinfo.gov/link/uscode/21/360k>); 21 CFR 808.1 (<https://www.ecfr.gov/current/title-21/section-808.1>).

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136. *Competitive Enterprise Institute et al.*, Docket No. NHTSA-2021-0030-0411 (June 11, 2021).

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137. *Id.*

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138. *Id.*

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139. See, e.g. *SEC v. Chenery Corp.*, 332 U.S. 194 (1947) (discussing overlap between the adjudicatory and rulemaking functions of an agency).

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140. See *Competitive Enterprise Institute et al.*, Docket No. NHTSA-2021-0030-0411 (June 11, 2021).

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141. *Competitive Enterprise Institute et al., Docket No. NHTSA-2021-0030-0411 (June 11, 2021).*

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142. *See The Energy Policy and Conservation Act of 1975, Public Law 94-163, 89 Stat. 871, section 327(b), recodified as amended at 42 U.S.C. 6297(d) (<https://www.govinfo.gov/link/uscode/42/6297>).*

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143. *Urban Air Initiative et al., Docket No. NHTSA-2021-0030-0423 (June 11, 2021) (discussing 569 U.S. 290 (2013)).*

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144. *Id.*

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145. *See generally City of Arlington, Tex. v. F.C.C., 569 U.S. 290 (2013).*

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146. *Id. at 295 (ellipses in original).*

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147. *Id.*

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148. *Id. at 299-300.*

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149. *Urban Air Initiative et al., Docket No. NHTSA-2021-0030-0423 (June 11, 2021).*

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150. *City of Arlington, Tex., 569 U.S. at 297-98.*

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151. *Id.*

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152. *Id. at 300 (emphasis added).*

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153. *Similarly, the joint comment submitted by the Urban Air Initiative argues that because these issues are irrelevant, NHTSA is simply manufacturing issues to conceal the “political pretext” for a repeal of the SAFE I Rule. See Urban Air Initiative et al., Docket No. NHTSA-2021-0030-0423 (June 11, 2021). But this contradicts the authorities cited here, which encourage an agency to closely assess its statutory authority, as NHTSA is doing in this rulemaking. These commenters may disagree with NHTSA’s ultimate conclusions in this rulemaking, but dismissing the concerns surrounding the SAFE I Rule as merely “pretextual” ignores the litany of legitimate issues articulated in this rulemaking, as well as the substantial number of thoughtful comments expressing additional concerns about the SAFE I Rule.*

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154. *City of Arlington, Tex., 569 U.S. at 297-98.*

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155. *See generally Chevron, U.S.A., Inc., 467 U.S. 837.*

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156. *City of Arlington, Tex., 569 U.S. at 296-97.*

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157. See *NHTSA, EPA, Withdrawal of Waiver; Final Rule, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program, Final Rule, 84 FR 51310 (/citation/84-FR-51310), 51351 (/citation/84-FR-51351) (Sept. 27, 2019) (quoting Chevron, 467 U.S. at 843).*

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158. See, e.g., *Chevron, 467 U.S. at 843.*

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159. *Id.*

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160. See, e.g., *Green Mountain Chrysler Plymouth Dodge Jeep v. Crombie, 508 F. Supp. 2d 295 (D. Vt. 2007) (undertaking a detailed analysis of Section 32919 to determine whether state law was preempted under the express language of the statute).*

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161. See *Cent. Valley Chrysler-Jeep, Inc. v. Goldstene, 529 F. Supp. 2d 1151, 1175 (E.D. Cal. 2007), as corrected (Mar. 26, 2008) (conducting such an analysis before concluding that preemption did not exist “[g]iven the narrow scope the court must accord EPCA’s ‘related to’ language”).*

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162. *NHTSA, EPA, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program, Final Rule, 84 FR 51310 (/citation/84-FR-51310), 51325 (/citation/84-FR-51325) (Sept. 27, 2019).*

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163. *Id. at 51353-54.*

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164. *Id.*

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165. *South Coast Air Quality Management District, Docket No. NHTSA-2021-0030-0446 (June 11, 2021).*

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166. *Tesla, Inc. Docket No. NHTSA-2021-0030-0398 (June 11, 2021).*

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167. *National Coalition for Advanced Transportation, Docket No. NHTSA-2021-0030-0310 (June 11, 2021).*

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168. *Alliance for Automotive Innovation, Docket No. NHTSA-2021-0030-0400 (June 11, 2021) (Expressing that any offending local laws are “automatically preempted under the terms of the statute. Federal courts can apply EPCA’s preemption provision to any such law or regulation.”).*

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169. *American Fuel & Petrochemical Manufacturers, Docket No. NHTSA-2021-0030-0425 (June 11, 2021).*

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170. *National Automobile Dealers Association, Docket No. NHTSA-2021-0030-0435 (June 10, 2021). See also Urban Air Initiative et al., Docket No. NHTSA-2021-0030-0423 (June 11, 2021).*

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171. *Competitive Enterprise Institute et al., Docket No. NHTSA-2021-0030-0411 (June 11, 2021).*

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172. See 49 U.S.C. 32902(a) (<https://www.govinfo.gov/link/uscode/49/32902>).

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173. See *supra* nn.125-131.

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174. A joint comment submitted by the Urban Air Initiative cites this point as evidence that the SAFE I Rule was a permissible interpretation because Section 32919 does not leave room for a regulation to create newly enforceable requirements. See *supra* nn.84-85. This aspect of the comment is fully addressed in an earlier portion of the final rule that explains how this argument ignores the plain language of the regulations codified in the SAFE I Rule.

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175. See *Cent. Valley Chrysler-Jeep, Inc.*, 529 F. Supp. 2d at 1175; *Green Mountain Chrysler Plymouth Dodge Jeep*, 508 F. Supp. at 295; *Ophir v. City of Boston*, 647 F. Supp. 2d 86, 91-92 (D. Mass. 2009).

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176. NHTSA, EPA, *The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program, Final Rule*, 84 FR 51310 (/citation/84-FR-51310), 51319 (/citation/84-FR-51319) (Sept. 27, 2019).

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177. *Id.* at 51313.

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178. *Id.* at 51317 (emphasis added).

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179. *Id.* at 51319 (emphasis added).

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180. *Id.* at 51313 (emphasis added).

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181. *Competitive Enterprise Institute et al.*, Docket No. NHTSA-2021-0030-0411 (June 11, 2021).

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182. *National Automobile Dealers Association*, Docket No. NHTSA-2021-0030-0435 (June 10, 2021).

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183. *Urban Air Initiative et al.*, Docket No. NHTSA-2021-0030-0423 (June 11, 2021) (labeling an entire section of the comment “State electric automobile quotas restrict manufacturer compliance choices and undermine CAFE’s flexible fleet-average standards.”).

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184. See *Urban Air Initiative et al.*, Docket No. NHTSA-2021-0030-0423 (June 11, 2021). See also *American Fuel & Petrochemical Manufacturers*, Docket No. NHTSA-2021-0030-0425 (June 11, 2021); *Competitive Enterprise Institute et al.*, Docket No. NHTSA-2021-0030-0411 (June 11, 2021).

185. The SAFE I Rule was not an enforcement action, and NHTSA’s portion of the Rule was not (unlike EPA’s portion) even an adjudication. Instead, as described throughout this final rule, the SAFE I Rule codified rules of general applicability, which instituted preemption requirements for all states so long as the rule remained in effect. As such, even if those commenters’ arguments explain the background for why NHTSA tried to undertake the SAFE I Rule, they cannot justify how NHTSA acted through a legislative rulemaking of general applicability. For that, it is necessary to instead focus on the issues of rulemaking authority that form so much of this final rule.

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186. Through this, NHTSA stresses that it takes no position in this rulemaking on whether EPCA preemption either expressly or impliedly preempts the particular state and local programs identified by such commenters. The point here is that these mechanisms persist to weigh such commenters’ concerns, not that their substantive concerns are substantiated.

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187. See 49 U.S.C. 32919(a)-(b) (<https://www.govinfo.gov/link/uscode/49/32919>).

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188. See 49 U.S.C. 32919(a) (<https://www.govinfo.gov/link/uscode/49/32919>).

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189. For instance, the Supreme Court has expressly clarified that when its precedent preempts state laws “when they conflict with or interfere with federal authority over the same activity,” such an opinion “is best read as a conflict pre-emption case.” See *Oneok, Inc. v. Learjet, Inc.*, 575 U.S. 373, 389 (2015) (discussing *Mississippi Power & Light Co. v. Mississippi ex rel. Moore*, 487 U.S. 354, 373 (1988)).

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190. *City of New York*, 486 U.S. at 64 (“The statutorily authorized regulations of an agency will pre-empt any state or local law that conflicts with such regulations or frustrates the purposes thereof”) (emphasis added).

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191. See, e.g., *Wyeth v. Levine*, 555 U.S. 555, 576 (2009) (“This Court has recognized that an agency regulation with the force of law can pre-empt conflicting state requirements”) (emphasis added).

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192. See, e.g., *Patriotic Veterans, Inc. v. Indiana*, 736 F.3d 1041, 1051 (7th Cir. 2013) (describing how under the doctrine of conflict preemption, state law may be preempted “if it interferes” with federal law) (emphasis added).

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193. See, e.g., *Freightliner Corp. v. Myrick*, 514 U.S. 280, 287 (1995) (explaining that implied conflict preemption may exist in particular situations “where it is impossible for a private party to comply with both state and federal requirements or where state law stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress.”) (internal quotations omitted). See also, e.g., *CSX Transp., Inc. v. Easterwood*, 507 U.S. 658, 663 (1993) (“Where a state statute conflicts with, or frustrates, federal law, the former must give way.”).

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194. Commenters opposing a repeal even appeared to recognize as much, as several argued that state and local programs prohibited by the SAFE I Rule were also impliedly preempted. See, e.g., *American Fuel & Petrochemical Manufacturers*, Docket No. NHTSA-2021-0030-0425 (June 11, 2021) (arguing that such programs “are impliedly preempted because they `stand[] as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress” in EPCA) (internal citations omitted).

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195. Judicial applications of implied and express preemption illustrate how they are separate concepts, which are applied regimentally by courts rather than as a monolithic preemption analysis. See, e.g., *Geier v. Am. Honda Motor Co.*, 529 U.S. 861, 869 (2000).

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196. See *Solid Waste Agency of N. Cook Cty. v. U.S. Army Corps of Engineers*, 531 U.S. 159, 173 (2001).

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197. Executive Order 13132 (/executive-order/13132), *Federalism, Sec. 1(a)* (Aug. 4, 1999).

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198. CAFE Preemption NPRM, 86 FR at 25989.

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199. *National Association of Clean Air Agencies (NACAA), Docket No. NHTSA-2021-0030-0140 (June 10, 2021).*

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200. *Ozone Transport Commission, Docket No. NHTSA-2021-0030-0139 (June 10, 2021); Nevada Division of Environmental Protection, Docket No. NHTSA-2021-0030-0362 (June 11, 2021); District of Columbia Department of Energy and Environment, Docket No. NHTSA-2021-0030-0412 (June 11, 2021).*

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201. *Maine Department of Environmental Protection, Docket No. NHTSA-2021-0030-0249 (June 10, 2021).*

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202. *South Coast Air Quality Management District, Docket No. NHTSA-2021-0030-0446 (June 11, 2021).*

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203. *State of California et al., Docket No. NHTSA-2021-0030-0403, (June 11, 2021) (this comment also expressed that the SAFE I Rule “declared preempted long-standing laws that protect public health and welfare and exercise core state police powers carefully preserved by Congress in the Clean Air Act.”) (citing Cal. Code Regs. tit. 13, § 1960.1(g)(2) (1991)).*

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204. *State of California et al., Docket No. NHTSA-2021-0030-0403 (June 11, 2021).*

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205. *National League of Cities et al., Docket No. NHTSA-2021-0030-0421 (June 11, 2021).*

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206. *See Connecticut Department of Transportation, Docket No. NHTSA-2021-0030-0330 (June 11, 2021).*

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207. *See Edison Electric Institute, Docket No. NHTSA-2021-0030-0396 (June 11, 2021) (expressing a concern that “NHTSA’s broad preemption codification in SAFE I would compel states to shift the emissions reductions they need for NAAQS attainment from automobiles to stationary sources, including electric power generators.”).*

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208. *CAFE Preemption NPRM, 86 FR at 51327.*

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209. *American Fuel & Petrochemical Manufacturers, Docket No. NHTSA-2021-0030-0425 (June 11, 2021).*

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210. *Id.*

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211. *Id.*

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212. *National Automobile Dealers Association, Docket No. NHTSA-2021-0030-0435 (June 10, 2021).*

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213. *State of California et al., Docket No. NHTSA-2021-0030-0403 (June 11, 2021) (citing 2002 Cal. Stat. c. 200 (A.B. 1493) (Digest)).*

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214. See *Urban Air Initiative et al.*, Docket No. NHTSA-2021-0030-0423 (June 11, 2021) (describing the Section 209 waiver process under the Clean Air Act by explaining that “Congress justified this waiver exception based on California’s ‘unique’ smog (ground-level ozone) problems, caused by California-specific conditions such as the ‘numerous thermal inversions that occur within that state because of its geography and prevailing wind patterns.’”) (quoting California State Motor Vehicle Pollution Control Standards: Waiver of Federal Preemption Notice of Decision, 49 FR 18887 (/citation/49-FR-18887), 18890 (/citation/49-FR-18890) (May 3, 1984) (which itself cited 113 Cong. Reg. 30,948, (Nov. 2, 1967))).

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215. *Allergy & Asthma Network et al.*, Docket No. NHTSA-2021-0030-0299 (June 4, 2021). See also *Sierra Club Connecticut Chapter*, Docket No. NHTSA-2021-0030-0378 (June 11, 2021) (expressing concern about localized ozone pollution in Connecticut and associated asthma risks), *Sierra Club Toiyabe Chapter*, Docket No. NHTSA-2021-0030-0161 (June 10, 2021).

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216. *Bay Area Air Quality Management District*, Docket No. NHTSA-2021-0030-0371 (June 11, 2021).

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217. *Allergy & Asthma Network et al.*, Docket No. NHTSA-2021-0030-0299 (June 4, 2021).

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218. *Connecticut Department of Transportation*, Docket No. NHTSA-2021-0030-0330 (June 11, 2021) (pointing to several past policy initiatives to demonstrate that “[o]ur agencies are working together to find innovative state air quality and transportation solutions to improve air quality and take action on climate change”).

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219. *National League of Cities et al.*, Docket No. NHTSA-2021-0030-0421 (June 11, 2021) (“The Notice of Proposed Rulemaking (NPRM) expresses concern that in labeling ‘an entire segment of state and local regulation as preempted,’ the SAFE I Rule ‘unnecessarily and inappropriately restricts potential policy innovation at the State and local level.’ We agree.”).

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220. *Zero Emission Transportation Association*, Docket No. NHTSA-2021-0030-0397 (June 11, 2021) (“Repealing these regulations is a critical step toward ensuring federal and state GHG vehicle emissions standards can support the rapid transition to electric vehicle production that will spur American manufacturing, innovation, and competitiveness in the global market . . .”); *National Coalition for Advanced Transportation*, Docket No. NHTSA-2021-0030-0310 (June 11, 2021) (“comes at a critical time when States and local governments are working to reduce harmful GHG and other emissions and many different stakeholders, including NCAT members, are investing in the development and deployment of electric vehicles and related infrastructure across the country”); *Edison Electric Institute*, Docket No. NHTSA-2021-0030-0396 (June 11, 2021) (“EEI’s member companies are in the middle of a profound, long-term transformation in how electricity is generated, transmitted, and used”).

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221. *Zero Emission Transportation Association*, Docket No. NHTSA-2021-0030-0397 (June 11, 2021); *National Coalition for Advanced Transportation*, Docket No. NHTSA-2021-0030-0310 (June 11, 2021).

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222. *Competitive Enterprise Institute et al.*, Docket No. NHTSA-2021-0030-0411 (June 11, 2021).

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223. See, e.g., *National Automobile Dealers Association*, Docket No. NHTSA-2021-0030-0435 (June 10, 2021); *Competitive Enterprise Institute et al.*, Docket No. NHTSA-2021-0030-0411 (June 11, 2021), *Urban Air Initiative et al.*, Docket No. NHTSA-2021-0030-0423 (June 11, 2021).

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224. *National Automobile Dealers Association, Docket No. NHTSA-2021-0030-0435 (June 10, 2021).*

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225. *The wording of this provision was slightly modified in a recodification of EPCA in 1994. Overall though, both contemporaneous legislative sources and courts considering fuel economy matters have stressed that “the 1994 recodification was intended to “revise[], codif[y], and enact[]” the law “without substantive change.” Green Mountain Chrysler Plymouth Dodge Jeep, 508 F. Supp. 2d at 346 (quoting Pub. L. 103-272, 108 Stat. 745, 745 (1994); H.R. Rep. No. 103-180, at 1 (1994), reprinted in 1994 U.S.C.A.N. 818, 818; S. Rep. No. 103-265, at 1 (1994)).*

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226. *Compare Ophir, 647 F. Supp. 2d at 91-92 (“The Court declares instead that the hybrid requirement of Rule 403 is expressly preempted by the EPCA, and the city and [Police Commissioner] are permanently enjoined from enforcing it.”), with Cent. Valley Chrysler-Jeep, Inc., 529 F. Supp. 2d at 1175 (holding that California’s regulation of motor vehicle greenhouse gas emissions were not preempted under Section 32919).*

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227. *State of California et al., Docket No. NHTSA-2021-0030-0403 (citing Cal. Code Regs. title 13, § 1960.1(g)(2) (1991)).*

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228. *See Urban Air Initiative et al., Docket No. NHTSA-2021-0030-0423 (June 11, 2021) (citing Smiley v. Citibank (S. Dakota), N.A., 517 U.S. 735 (1996) (upholding a regulation first promulgated by the Comptroller of the Currency “more than 100 years after the enactment” of the statutory language to which it was directed).*

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229. *National Automobile Dealers Association, Docket No. NHTSA-2021-0030-0435 (June 10, 2021).*

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230. *Smiley, 517 U.S. at 742.*

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231. *See CAFE Preemption NPRM, 86 FR at 25989.*

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232. *As for automobile manufacturers, three motor vehicle manufacturers, Ford, Tesla, and Rivian, directly commented on the Proposal. Each of these comments expressly supported the Proposal. Ford Motor Company, Docket No. NHTSA-2021-0030-0002 (Apr. 28, 2011) (“Ford supports NHTSA’s proposal to restore a “clean slate” by repealing the SAFE I rule and preamble statements regarding preemption.”), Tesla, Inc. Docket No. NHTSA-2021-0030-0398 (June 11, 2021) (“Tesla supports NHTSA’s proposal and the full repeal of the SAFE Rule Part 1”), Rivian, Docket No. NHTSA-2021-0030-0413 (June 11, 2021) (“Rivian supports NHTSA’s conclusion that their portion of the SAFE I rule must be repealed”). Other motor vehicle manufacturers submitted comments through their industry organizations. None of these comments opposed the Proposal either. See Zero Emission Transportation Association, Docket No. NHTSA-2021-0030-0397 (June 11, 2021), National Coalition for Advanced Transportation, Docket No. NHTSA-2021-0030-0310 (June 11, 2021), Alliance for Automotive Innovation, Docket No. NHTSA-2021-0030-0400 (June 11, 2021).*

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233. *State of California et al., Docket No. NHTSA-2021-0030-0403 (June 11, 2021).*

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234. See *National League of Cities et al.*, Docket No. NHTSA-2021-0030-0421 (June 11, 2021) (noting that a repeal of the SAFE I Rule “would in turn restore the conditions on which those local governments relied in setting their climate goals.”).

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235. *South Coast Air Quality Management District*, Docket No. NHTSA-2021-0030-0446 (June 11, 2021) (supporting such positions through a citation to “*Green Mountain Chrysler Plymouth Dodge Jeep*, 508 F.Supp. 2d at 381 (discussing meeting GHG standards through preventing leakage of air conditioner refrigerants)”).

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236. *National Automobile Dealers Association*, Docket No. NHTSA-2021-0030-0435 (June 10, 2021). See also *Urban Air Initiative et al.*, Docket No. NHTSA-2021-0030-0423 (June 11, 2021).

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237. *Competitive Enterprise Institute et al.*, Docket No. NHTSA-2021-0030-0411 (June 11, 2021) (emphasis added).

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238. See, e.g., *National Automobile Dealers Association*, Docket No. NHTSA-2021-0030-0435 (June 10, 2021), *Competitive Enterprise Institute et al.*, Docket No. NHTSA-2021-0030-0411 (June 11, 2021), *American Fuel & Petrochemical Manufacturers*, Docket No. NHTSA-2021-0030-0425 (June 11, 2021), *Urban Air Initiative et al.*, Docket No. NHTSA-2021-0030-0423 (June 11, 2021).

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239. In fact, this point was emphasized even by commenters critical of the Proposal, as they sought to raise substantive arguments about how various state programs were preempted by EPCA under the “related to” standard. See, e.g., *Urban Air Initiative et al.*, Docket No. NHTSA-2021-0030-0423 (June 11, 2021) (seeking to apply Section 32919’s “related to” terminology by reference to other jurisprudence interpreting similar language).

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240. Compare *Ophir*, 647 F. Supp. 2d at 91-92 (“The Court declares instead that the hybrid requirement of Rule 403 is expressly preempted by the EPCA, and the city and [Police Commissioner] are permanently enjoined from enforcing it.”), with *Cent. Valley Chrysler-Jeep, Inc.*, 529 F. Supp. 2d at 1175 (holding that California’s regulation of motor vehicle greenhouse gas emissions were not preempted under Section 32919).

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241. *State of California et al.*, Docket No. NHTSA-2021-0030-0403 (June 11, 2021).

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242. *South Coast Air Quality Management District*, Docket No. NHTSA-2021-0030-0446 (June 11, 2021) (“the Preemption Rule suffered from a notable lack of clarity and an incomplete analysis of standards. As the Proposed Repeal notes, the Preemption Rule inconsistently used language between the preamble and codified text, creating the risk of confusion as to the full scope of preemption being promulgated.”). See also *Connecticut Department of Transportation*, Docket No. NHTSA-2021-0030-0330 (June 11, 2021) (stressing that a “repeal is necessary to provide certainty for transportation and air quality planning agencies, the public, and the original equipment manufacturers.”).

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243. *National League of Cities et al.*, Docket No. NHTSA-2021-0030-0421 (June 11, 2021).

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244. *District of Columbia Department of Energy and Environment, Docket No. NHTSA-2021-0030-0412 (June 11, 2021) (noting that “the promulgation of SAFE I threw [the District’s] process into turmoil.”). See also CAFE Preemption NPRM, 86 FR at 25984 (noting that “The litigation has substantially divided the regulated industry and interested stakeholders, as the D.C. Circuit litigation encompasses ten consolidated petitions brought by a number of states, cities, and environmental organizations challenging the rule. On the other side of the litigation, several automakers, other states, and fuel and petrochemical manufacturers have intervened in support of the rule.”).*

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245. *American Fuel & Petrochemical Manufacturers, Docket No. NHTSA-2021-0030-0425 (June 11, 2021).*

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246. *Id.*

[Back to Citation](#)

247. *Richard J. Pierce, Jr. & Kristin E. Hickman, Administrative Law Treatise § 3.8 (6th Edition, 2020-1 Cum. Supp.).*

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248. *See Gonzales v. Oregon, 546 U.S. 243, 257 (2006) (refusing to extend deference to an agency regulation that merely parroted a statute).*

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249. *Center for Biological Diversity et al., Docket No. NHTSA-2021-0030-0369 (June 11, 2021) (quoting 84 FR at 51319).*

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250. *State of California et al., Docket No. NHTSA-2021-0030-0403 (June 11, 2021) (quoting NRDC v. EPA, 559 F.3d 561, 565 (D.C. Cir. 2009)); Center for Biological Diversity et al., Docket No. NHTSA-2021-0030-0369 (June 11, 2021).*

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251. *In this respect, NHTSA particularly disagrees with commenters opposing the Proposal who mischaracterize the nature of the Agency’s action in order to label the rulemaking “retroactive censorship” or “regulatory cancel culture.” See Competitive Enterprise Institute et al., Docket No. NHTSA-2021-0030-0411 (June 11, 2021).*

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252. *In addition to the SAFE I Rule, the Proposal specifically identified several other Preamble statements as containing such statements: DOT, NHTSA, Light Truck Average Fuel Economy Standards Model Years 2005-07, Final Rule, 68 FR 16868 (/citation/68-FR-16868), 16895 (/citation/68-FR-16895) (Apr. 7, 2003) (describing NHTSA’s views on EPCA preemption in the preamble to a final rule setting CAFE standards); DOT, NHTSA, Average Fuel Economy Standards for Light Trucks Model Years 2008-2011; Final Rule, 71 FR 17566 (/citation/71-FR-17566), 17654 (/citation/71-FR-17654) (Apr. 6, 2006) (describing NHTSA’s views of EPCA preemption in the preamble to a final rule setting CAFE standards).*

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253. *American Fuel & Petrochemical Manufacturers, Docket No. NHTSA-2021-0030-0425 (June 11, 2021).*

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254. *Id.*

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255. *Id.*

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256. See *American Fuel & Petrochemical Manufacturers*, Docket No. NHTSA-2021-0030-0425 (June 11, 2021).

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257. See, e.g., *Consumer Reports*, Docket No. NHTSA-2021-0030-0224 (June 11, 2021).

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258. *Executive Order 14008* (/executive-order/14008), *Tackling the Climate Crisis at Home and Abroad*, 86 FR 7619 (/citation/86-FR-7619) (Feb. 1, 2021).

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259. See *supra* nn.216-217 (describing commenters who specifically raised environmental justice concerns connected to this very issue).

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260. *Executive Order 13132* (/executive-order/13132), *Federalism, Sec. 1(a)* (Aug. 4, 1999).

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261. *Id.* at Sec. 1(a).

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262. *Id.* at Sec. 6(b), (c).

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263. 42 U.S.C. 4321-4347 (<https://www.govinfo.gov/link/uscode/42/4321>).

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264. 42 U.S.C. 4332 (<https://www.govinfo.gov/link/uscode/42/4332>).

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265. See *Dept. of Transp. v. Public Citizen*, 541 U.S. 752, 768-69 (2014) (holding that the agency need not prepare an environmental impact statement (EIS) in addition to an environmental assessment (EA) and stating, “Since FMCSA has no ability categorically to prevent the cross-border operations of Mexican motor carriers, the environmental impact of the cross-border operations would have no effect on FMCSA’s decisionmaking—FMCSA simply lacks the power to act on whatever information might be contained in the EIS.”).

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266. See, e.g., *Public Citizen*, 541 U.S. 752; *Milo Cmty. Hosp. v. Weinberger*, 525 F.2d 144 (1st Cir. 1975); *State of South Dakota v. Andrus*, 614 F.2d 1190 (8th Cir. 1980); *Citizens Against Rails-to-Trails v. Surface Transp. Bd.*, 267 F.3d 1144 (D.C. Cir. 2001); *Sierra Club v. Babbitt*, 65 F.3d 1502 (9th Cir. 1995).

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267. *Center for Biological Diversity et al.*, Docket No. NHTSA-2021-0030-0369 (June 11, 2021).

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268. *Id.* (quoting *Public Citizen*, 541 U.S. at 768-69).

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269. *Urban Air Initiative et al.*, Docket No. NHTSA-2021-0030-0423 (June 11, 2021).

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270. *Id.*

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271. *Id.*

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272. *The Proposal recognized the potential for this contradiction as well, noting that if NHTSA did, in fact, have authority to establish the scope of preemption with the force and effect of law, and if the Agency inappropriately failed to incorporate environmental considerations into its decision in the SAFE I Rule, then a repeal which restores the scope to the status quo ante would rectify this overstep.*

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273. *Cipollone v. Liggett Grp., Inc., 505 U.S. 504, 516 (1992).*

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274. *Lohr, 518 U.S. at 485-86 (plurality opinion).*

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275. *CSX Transp., Inc., 507 U.S. at 664.*

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276. *NHTSA, EPA, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program, Final Rule, 84 FR 51310 (/citation/84-FR-51310), 51353-54 (/citation/84-FR-51353) (Sept. 27, 2019).*

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277. *This view was also expressly supported by commenting public interest organizations. See Center for Biological Diversity et al., Docket No. NHTSA-2021-0030-0369 (June 11, 2021).*

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278. *61 FR 4729 (/citation/61-FR-4729) (Feb. 7, 1996).*

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[FR Doc. 2021-28115 (/d/2021-28115) Filed 12-22-21; 4:15 pm]

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LEGAL STATUS

National Environmental Policy Act Implementing Regulations Revisions

A Proposed Rule by the [Council on Environmental Quality](#) on 10/07/2021

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Supporting/Related Materials:
National Environmental Policy Act Implementing Regulations (<https://www.regulations.gov/document?D=CEQ-2021-0002-0002>)
Guidance: Emergencies and the National Environmental Policy... (<https://www.regulations.gov/document?D=CEQ-2021-0002-0001>)

ENHANCED CONTENT

PUBLISHED DOCUMENT

AGENCY:

Council on Environmental Quality.

ACTION:

Notice of proposed rulemaking.

SUMMARY:

The Council on Environmental Quality (CEQ) is proposing to modify certain aspects of its regulations for implementing the procedural provisions of the National Environmental Policy Act (NEPA) to generally restore regulatory provisions that were in effect for decades before being modified in 2020. CEQ proposes these changes in order to better align the provisions with CEQ's extensive experience implementing NEPA, in particular its perspective on how NEPA can best inform agency decision making, as well as longstanding Federal agency experience and practice, NEPA's statutory text and purpose, including making decisions informed by science, and case law interpreting NEPA's requirements. The proposed rule would restore provisions addressing the purpose and need of a proposed action, agency NEPA procedures for implementing CEQ's NEPA regulations, and the definition of "effects." CEQ invites comments on the proposed revisions.

DATES:

Comments: CEQ must receive comments by November 22, 2021.

Public meeting: CEQ will conduct two online public meetings for the proposed rule on Tuesday, October 19, 2021, from 1 to 4 p.m. EDT, and Thursday, October 21, 2021 from 5 to 8 p.m. EDT. To register for the meetings, please visit CEQ's website at www.nepa.gov (<http://www.nepa.gov>).

ADDRESSES:

You may submit comments, identified by docket number CEQ-2021-0002, by any of the following methods:

Federal eRulemaking Portal: <https://www.regulations.gov> (<https://www.regulations.gov>). Follow the instructions for submitting comments.

Fax: 202-456-6546.

Mail: Council on Environmental Quality, 730 Jackson Place NW, Washington, DC 20503.

Instructions: All submissions received must include the agency name, "Council on Environmental Quality," and docket number, CEQ-2021-0002, for this rulemaking. All comments received will be posted without change to <https://www.regulations.gov> (<https://www.regulations.gov>), including any personal information provided. Do not submit electronically any information you consider to be private, Confidential Business Information (CBI), or other information, the disclosure of which is restricted by statute.

Docket: For access to the docket to read background documents or comments received, go to <https://www.regulations.gov> (<https://www.regulations.gov>).

FOR FURTHER INFORMATION CONTACT:

Amy B. Coyle, Deputy General Counsel, 202-395-5750, Amy.B.Coyle@ceq.eop.gov (<mailto:Amy.B.Coyle@ceq.eop.gov>).

SUPPLEMENTARY INFORMATION:

I. Background

On January 1, 1970, President Nixon signed into law the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. 4321 (<https://www.govinfo.gov/link/uscode/42/4321>) *et seq.* Congress enacted NEPA by a unanimous vote in the Senate and a nearly unanimous vote in the House ^[1] to declare a national policy to promote environmental protection for present and future generations. NEPA was established to "encourage productive and enjoyable harmony" between humans and the environment; to promote efforts that will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of people; and to enrich the understanding of the ecological systems and natural resources important to the Nation. 42 U.S.C. 4321 (<https://www.govinfo.gov/link/uscode/42/4321>).

To achieve these objectives, NEPA makes it the continuing policy of the Federal Government to use all practicable means and measures to create and maintain conditions under which humans and nature can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations of Americans. 42 U.S.C. 4331 (<https://www.govinfo.gov/link/uscode/42/4331>). NEPA directs

Federal agencies to prepare “detailed statements,” referred to as environmental impact statements (EISs), for “major Federal actions significantly affecting the quality of the human environment.” 42 U.S.C. 4332(2)(C) (<https://www.govinfo.gov/link/uscode/42/4332>). NEPA established the Council on Environmental Quality (CEQ) in the Executive Office of the President, which advises the President on environmental policy matters and oversees Federal agencies' implementation of NEPA. 42 U.S.C. 4342 (<https://www.govinfo.gov/link/uscode/42/4342>). In many respects, NEPA was a statute ahead of its time, and it remains relevant and vital today, from its statements that decisions be grounded in science to its recognition that sustainability and a livable environment are fundamental to social and economic well-being. *See, e.g.*, 42 U.S.C. 4331 (<https://www.govinfo.gov/link/uscode/42/4331>), 4332(A) (<https://www.govinfo.gov/link/uscode/42/4332>).

In 1970, President Nixon issued Executive Order (E.O.) 11514, *Protection and Enhancement of Environmental Quality*, which directed CEQ to issue guidelines for implementation of section 102(2)(C) of NEPA.^[2] In response, CEQ issued interim guidelines in April 1970, and revised the guidelines in 1971 and 1973.^[3] In 1977, President Carter issued E.O. 11991, *Relating to Protection and Enhancement of Environmental Quality*, amending E.O. 11514 and directing CEQ to issue regulations to govern implementation of NEPA and requiring that Federal agencies comply with those regulations.^[4] CEQ promulgated implementing procedures in 1978 at 40 CFR parts 1500 (<https://www.ecfr.gov/current/title-40/part-1500>) through 1508 (<https://www.ecfr.gov/current/title-40/part-1508>).^[5] The regulations, issued 8 years after NEPA's enactment, reflect CEQ's interpretation of and expertise in NEPA, initial interpretations of the courts, and Federal agency experience implementing NEPA. Consistent with the requirement in 40 CFR 1507.3 (<https://www.ecfr.gov/current/title-40/section-1507.3>), Federal agencies, in turn, issue and update their own implementing procedures to supplement CEQ's procedures and integrate the NEPA process into the agencies' specific programs and processes. Agencies consult with CEQ in the development of these procedures to ensure that their agency-specific procedures are consistent with CEQ's regulations. CEQ made technical amendments to the 1978 implementing regulations in 1979^[6] and amended one provision in 1986,^[7] but it left the regulations largely unchanged for over 40 years (1978 NEPA Regulations). As a result, CEQ and Federal agencies have extensive experience in implementing NEPA and the 1978 regulations, and a large body of agency practice and case law has developed based on the CEQ NEPA regulations that remained in substantially the same form from 1978 to 2020. The fundamental principles of informed and science-based decision making, transparency, and public engagement are reflected in both the NEPA statute and CEQ's 1978 NEPA Regulations, and it is those core principles that CEQ seeks to advance in this proposed rule.

On August 15, 2017, President Trump issued E.O. 13807 (</executive-order/13807>), *Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects*,^[8] which, in part, directed CEQ to establish and lead an interagency working group to identify and propose changes to the NEPA regulations.^[9] In response, on January 10, 2020, CEQ published a notice of proposed rulemaking (NPRM) proposing broad revisions to the 1978 NEPA Regulations.^[10] A wide range of stakeholders submitted more than 1.1 million comments on the proposed rule,^[11] including state and local governments, Tribes, environmental advocacy organizations, professional and industry associations, and other advocacy or non-profit organizations. Many commenters provided detailed feedback on the legality, policy wisdom, and potential consequences of the proposed amendments. In keeping with the proposed rule, the final rule promulgated on July 16, 2020, made wholesale revisions to the regulations and took effect on September 14, 2020 (2020 NEPA Regulations or 2020 Rule).^[12]

In the months that followed the issuance of the 2020 NEPA Regulations, five lawsuits were filed challenging the 2020 Rule.^[13] These cases challenge the 2020 NEPA Regulations on a variety of grounds, including under the Administrative Procedure Act (APA), NEPA, and the Endangered Species Act, contending that the rule exceeded CEQ's authority and that the related rulemaking process was procedurally and substantively defective. In response to CEQ and joint motions, the district courts have issued temporary stays in each of these cases, except for *Wild Virginia v. Council on Environmental Quality*, which the district court dismissed without prejudice on June 21, 2021,^[14] and is currently on appeal to the U.S. Court of Appeals for the Fourth Circuit.

On January 20, 2021, President Biden issued E.O. 13990 (/executive-order/13990), *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*.^[15] Section 1 of E.O. 13990 (/executive-order/13990) establishes an Administration policy to listen to the science; improve public health and protect our environment; ensure access to clean air and water; limit exposure to dangerous chemicals and pesticides; hold polluters accountable, including those who disproportionately harm communities of color and low-income communities; reduce greenhouse gas emissions; bolster resilience to the impacts of climate change; restore and expand our national treasures and monuments; and prioritize both environmental justice and the creation of well-paying union jobs necessary to deliver these goals.^[16]

Section 2 of the E.O. calls for Federal agencies to review existing regulations issued between January 20, 2017, and January 20, 2021, for consistency with the policy articulated in the E.O. and to take appropriate action. Section 7(b) revokes a number of E.O.s, including E.O. 13807 (/executive-order/13807), and section 7(f) directs agencies to promptly take steps to rescind any rules or regulations implementing or enforcing any of the revoked E.O.s. An accompanying White House fact sheet, published on January

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20, 2021, specifically directs CEQ to review the 2020 NEPA Regulations for consistency with E.O. 13990 (/executive-order/13990)'s objectives.^[17]

On January 27, 2021, the President signed E.O. 14008 (/executive-order/14008), *Tackling the Climate Crisis at Home and Abroad*, which establishes a government-wide approach to the climate crisis by reducing greenhouse gas emissions and an Administration policy to increase climate resilience, transition to a clean-energy economy, address environmental justice and invest in disadvantaged communities, and spur well-paying union jobs and economic growth.^[18] E.O. 14008 (/executive-order/14008) also requires the Chair of CEQ and the Director of the Office of Management and Budget (OMB) to ensure that Federal infrastructure investments reduce climate pollution and that Federal permitting decisions consider the effects of greenhouse gas emissions and climate change.^[19]

II. CEQ's Approach to Revising the 2020 NEPA Regulations

Consistent with E.O. 13990 (/executive-order/13990) and E.O. 14008 (/executive-order/14008), CEQ is engaged in a comprehensive review of the 2020 NEPA Regulations to ensure that they provide for sound and efficient environmental review of Federal actions, including those actions integral to tackling the climate crisis, in a manner that enables meaningful public participation, respects Tribal sovereignty, protects our Nation's resources, and promotes better environmental and community outcomes. CEQ proposes regulatory changes in this NPRM to enhance clarity on NEPA implementation, to better effectuate NEPA's statutory requirements and purposes, to ensure that Federal decisions are guided by science, to better protect and enhance the quality of the human environment, and to provide full and fair processes that inform the public about the environmental effects of government actions and enable public participation.

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CEQ's review of the 2020 NEPA Regulations and the proposed regulatory amendments are guided by CEQ's and Federal agencies' extensive experience implementing NEPA for the last 50 years. As part of its oversight role, CEQ reviews every agency's proposed new or updated NEPA implementing procedures. As part of this iterative process, CEQ engages with agencies to understand their specific authorities and programs to ensure consideration of environmental impacts is integrated into their decision-making processes. Additionally, where necessary or appropriate, CEQ engages with agencies on NEPA reviews for specific projects or project types. For example, CEQ has convened interagency working groups to ensure efficient and effective environmental reviews for transportation and broadband projects. CEQ also has extensive experience providing written guidance to Federal agencies on a wide range of NEPA-related issues, including environmental justice, emergency response activities, climate change, and more.^[20] And, CEQ meets regularly with external stakeholders to understand their perspectives on the NEPA process. Finally, CEQ coordinates with other Federal agencies and components of the White House on a wide array of environmental issues that also arise in the NEPA context, such as endangered species consultation or impacts to Federal lands and waters from federally permitted activities.

It is CEQ's view that the 2020 NEPA Regulations may have the effect of limiting the scope of NEPA analysis, with negative repercussions for environmental protection and environmental quality, including in critical areas such as climate change and environmental justice. Portions of the 2020 NEPA Regulations also may not reflect NEPA's statutory purposes to “encourage productive and enjoyable harmony” between humans and the environment, promote efforts that will prevent or eliminate damage to the environment and biosphere, and enhance public health and welfare. *See* 42 U.S.C. 4321 (<https://www.govinfo.gov/link/uscode/42/4321>). Some changes introduced by the 2020 NEPA Regulations also may not support science-based decision making or be compatible with the Administration's policies to improve public health, protect the environment, prioritize environmental justice, provide access to clean air and water, and reduce greenhouse gas emissions that contribute to climate change.^[21]

To address these concerns, CEQ is engaging in a series of rulemakings to propose revisions to the 2020 NEPA Regulations. As a preliminary step, CEQ issued an interim final rule on June 29, 2021, amending the requirement in 40 CFR 1507.3(b) ([https://www.ecfr.gov/current/title-40/section-1507.3#p-1507.3\(b\)](https://www.ecfr.gov/current/title-40/section-1507.3#p-1507.3(b))) for agencies to propose changes to their existing NEPA supplemental procedures by September 14, 2021, in order to make their procedures consistent with the 2020 NEPA Regulations.^[22] CEQ extended the date by two years to avoid having agencies propose changes to their implementing procedures on a tight deadline to conform to a rule that is undergoing extensive review and will likely change in the near future.

CEQ intends to reconsider and revise the 2020 NEPA Regulations using a phased approach. This NPRM initiates a “Phase 1” rulemaking to focus on a discrete set of provisions. In identifying what provisions to address in Phase 1, CEQ focused on the provisions that (1) pose significant near-term interpretation or implementation challenges for Federal agencies and would have the most impact to agencies' NEPA processes during the interim period before a “Phase 2” rulemaking is complete; (2) make sense to revert to the 1978 regulatory approach for the reasons discussed in Part III of this preamble; and (3) CEQ is generally unlikely to propose to further revise in a Phase 2 rulemaking. Further, because CEQ recently received comments on these exact provisions through the rulemaking process for the 2020 NEPA Regulations, CEQ has the benefit of voluminous public comments on these issues, which CEQ considered in the development of this proposed rule. In Phase 2, CEQ intends to issue a second NPRM to more broadly revisit the 2020 NEPA Regulations and propose further revisions to ensure that the NEPA process provides for efficient and

effective environmental reviews that are consistent with the statute's text and purpose; provides regulatory certainty to Federal agencies; promotes better decision making consistent with NEPA's statutory requirements; and meets environmental, climate change, and environmental justice objectives.

III. Summary of Proposed Rule

As discussed in this section, CEQ proposes three revisions to the 2020 NEPA Regulations in this Phase 1 rulemaking: (1) To eliminate language in the description of purpose and need for a proposed action when it is an agency's statutory duty to review applications for authorization (40 CFR 1502.13 (<https://www.ecfr.gov/current/title-40/section-1502.13>)) and make a conforming edit to the definition of "reasonable alternatives" (40 CFR 1508.1(z) ([https://www.ecfr.gov/current/title-40/section-1508.1#p-1508.1\(z\)](https://www.ecfr.gov/current/title-40/section-1508.1#p-1508.1(z)))); (2) to remove limitations on agency NEPA procedures for implementing CEQ's NEPA Regulations (40 CFR 1507.3 (<https://www.ecfr.gov/current/title-40/section-1507.3>)); and (3) to return to the definitions of "effects" in the prior, longstanding 1978 NEPA Regulations (40 CFR 1508.1(g) ([https://www.ecfr.gov/current/title-40/section-1508.1#p-1508.1\(g\)](https://www.ecfr.gov/current/title-40/section-1508.1#p-1508.1(g)))).

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CEQ proposes to amend these provisions by generally reverting to the language from the 1978 NEPA Regulations that was in effect for more than 40 years, subject to minor revisions for clarity. In proposing to revert to language in the 1978 Regulations, this NPRM addresses issues similar or identical to those the public and Federal agencies recently had the opportunity to consider and comment on during the rulemaking for the 2020 NEPA Regulations, which will facilitate an expeditious Phase 1 rulemaking. For each provision described in this section, CEQ provides a high-level summary of some of the significant issues raised in these public comments, which CEQ considered in the development of this proposed rule.

A. Purpose and Need (§ 1502.13)

The purpose and need section of an EIS sets forth the rationale for the agency's proposed action. Development of the purpose and need is a vital early step in the NEPA process that is foundational to other elements of a NEPA review. For example, the purpose and need statement sets the parameters for the range of reasonable alternatives an agency considers and informs the scope of effects that an agency must analyze in an EIS. The 1978 NEPA Regulations required that each EIS briefly state the underlying purpose and need to which the agency is responding in proposing the alternatives, including the proposed action. The 2020 NEPA Regulations modified this provision by adding language that requires agencies to base the purpose and need on the goals of an applicant and the agency's authority when the agency's statutory duty is to review an application for authorization. The 2020 NEPA Regulations also made a conforming addition to the definition of "reasonable alternatives" to carry over the new language on purpose and need. Here, CEQ proposes in § 1502.13 to revert to the language of the 1978 NEPA Regulations for purpose and need and conform the definition of "reasonable alternatives" in § 1508.1(z) to this change.

CEQ proposes this change because the language added by the 2020 NEPA Regulations requires an agency to always base the purpose and need on the goals of an applicant and the agency's statutory authority when an agency is reviewing an application for authorization. This language could be construed to require agencies to prioritize the applicant's goals over other relevant factors, including the public interest. CEQ does not consider this approach to reflect the best reading of the NEPA statute or lay the appropriate groundwork for environmentally sound decision making. Agencies should have discretion to base the purpose and need for their actions on a variety of factors, which include the goals of the applicant, but not to the exclusion of other factors. For example, agencies may consider regulatory requirements, desired conditions on the landscape or other environmental outcomes, and local economic needs, as well as an applicant's goals. Always tailoring the purpose and need to an applicant's goals when considering a request for an authorization could prevent

an agency from considering alternatives that better meet the policies and responsibilities set forth in NEPA merely because they do not meet an applicant's stated goals. Additionally, an applicant's goals themselves could be potentially confusing or unduly narrow or restrictive. Restoring the 1978 language would eliminate this confusing language and reaffirm agency discretion to develop and rely on statements of purpose and need that are consistent with the agency's decision-making responsibilities while considering multiple relevant factors, including the public interest and the goals of an applicant. This restoration would confirm that agencies should consider a range of alternatives that are technically and economically feasible and meet the purpose and need for the proposed action but that are not unreasonably constrained by an applicant's stated goals.

In adding this language, the preamble to the 2020 Rule explained that CEQ intended to clarify that when an agency is responsible for reviewing applications for authorizations, the agency *must* base the purpose and need on the applicant's goals and the agency's statutory authority, citing *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991). However, this case did not require the agency to base the purpose and need on the applicant's goals; rather, the court held that the agency's consideration of the applicant's goals to develop the purpose and need statement was not arbitrary and capricious. However, the court did not require that the applicant's goals be the sole (or even primary) factor in the formulation of the purpose and need for the action. *See id.* at 196-99.

CEQ proposes to remove the reference to the agency's statutory authority because it is unnecessary and confusing. It is unnecessary because agencies already had a long history of developing purpose and need statements under the 1978 NEPA Regulations guided by their statutory authority and the scope of the agency decision under consideration. The reference is confusing because it implies that an agency's authority is only relevant when an agency proposes to grant an authorization, and agencies must also appropriately consider the scope of their authority when evaluating other agency actions, including those that do not involve specific authorizations. Therefore, CEQ proposes to eliminate the reference to an agency's authority because purpose and need statements have always been informed by the scope of the agency's statutory decision-making authority irrespective of whether the action is an application for authorization. A reference to an agency's statutory authority in this one context therefore seems unnecessary.

To promote informed decision making, transparency, and public engagement, a properly drawn purpose and need statement should lead to consideration of the reasonable alternatives to the proposed action, consistent with NEPA's requirements. *See* 42 U.S.C. 4332(2)(C) (<https://www.govinfo.gov/link/uscode/42/4332>). While a purpose and need statement that is too narrow is inconsistent with NEPA's requirement to consider alternatives to the proposed action, so too is a boundless analysis of alternatives. Rather, agencies are guided by a rule of reason in identifying the reasonable alternatives that are technically and economically feasible and meet the purpose and need of a proposed action. *See, e.g., HonoluluTraffic.com v. Fed. Transit Admin.*, 742 F.3d 1222, 1230 (9th Cir. 2014).

For example, a private applicant seeking a right-of-way on Federal land may want to site the right-of-way at a specific location and may, correspondingly, frame the applicant's goals as a right-of-way with a particular location or route. However, the agency with jurisdiction over the proposed action may want to consider a range of reasonable locations for the right-of-way that would, for example, avoid environmental impacts or reduce conflicts with other programs or plans.

Inherent in the NEPA process is the consideration of the public interest when developing a purpose and need statement, including analyzing proposed actions and alternatives. As the U.S. Court of Appeals for the Seventh Circuit explained in *Simmons v. U.S. Army Corps of Engineers*, it is contrary to NEPA for agencies to “contrive a purpose so slender as to define competing ‘reasonable alternatives’ out of consideration (and even out of existence).” 120 F.3d 664, ¶ 666 (7th Cir. 1997) (citing 42 U.S.C. 4332(2)(E) (<https://www.govinfo.gov/link/uscode/42/4332>)). The court explained that constricting the definition of the project's purpose could exclude truly reasonable alternatives, making an EIS incompatible with NEPA's requirements. *Id.*; see also, e.g., *Nat'l Parks & Conservation Ass'n v. Bureau of Land Mgmt.*, 606 F.3d 1058, 1070 (9th Cir. 2010) (“Agencies enjoy ‘considerable discretion’ to define the purpose and need of a project. However, ‘an agency cannot define its objectives in unreasonably narrow terms.’” (internal citations omitted)).

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During the rulemaking process for the 2020 NEPA Regulations, numerous public comments addressed the purpose and need provision. Some commenters supported limiting the purpose and need to the goals of the applicant in order to narrow the number of alternatives agencies must consider and shorten the timeframe for the environmental review. Other commenters expressed the view that this provision would result in purpose and need statements and environmental reviews that give undue deference to applicants. Some commenters also stated that the proposed change would unduly elevate the goals of applicants over the needs of the public and Federal agencies' purview to consider the public interest. In reconsidering the approach taken in the 2020 Rule, CEQ reviewed these comments. As discussed in this section, CEQ considers the proposed reversion to the 1978 language on purpose and need to better reflect NEPA's objectives. Upon further consideration, CEQ does not consider that the language added by the 2020 Rule would necessarily lead to more efficient reviews and finds a lack of evidence to support that claim. CEQ requests comment on this proposed change and the potential effects of this change on the environmental review process, including timeframes for environmental review.

CEQ also proposes to make a conforming edit to the definition of “reasonable alternatives. The 2020 Rule defines “reasonable alternatives” to mean “a reasonable range of alternatives that are technically and economically feasible, meet the purpose and need for the proposed action, *and, where applicable, meet the goals of the applicant.*” 40 CFR 1508.1(z) ([https://www.ecfr.gov/current/title-40/section-1508.1#p-1508.1\(z\)](https://www.ecfr.gov/current/title-40/section-1508.1#p-1508.1(z))) (emphasis added). CEQ's proposed change would be consistent with the proposed change to purpose and need, by deleting the reference in “reasonable alternatives” to the goals of the applicant for the same reasons discussed above regarding the proposed change to the purpose and need section, § 1502.13.

B. Agency NEPA Procedures (§ 1507.3)

CEQ proposes to revise § 1507.3(a) and (b) to clarify that while agency NEPA procedures need to be consistent with the CEQ regulations, agencies have the discretion and flexibility to develop procedures beyond the CEQ regulatory requirements, enabling agencies to address their specific programs and the contexts in which they operate. Specifically, the proposed rule would remove language from § 1507.3(a) stating that where existing agency NEPA procedures are “inconsistent” with the CEQ regulations, the CEQ regulations apply “unless there is a clear and fundamental conflict with the requirements of another statute.” The proposed rule also would remove from § 1507.3(b) the language requiring agencies “to eliminate any inconsistencies” with the CEQ regulations and the prohibition on agencies imposing additional procedures or requirements beyond the CEQ regulations unless those additional procedures promote agency efficiency or are required by law. Collectively, these “ceiling provisions” make the CEQ regulations a ceiling for agency NEPA procedures, which departed from CEQ's and Federal agencies' prior understanding and practice that CEQ's NEPA regulations provide a floor for environmental review procedures.

As noted in section II of this preamble, CEQ amended paragraph (b) in June 2021 to provide agencies until September 14, 2023, to propose updates to their agency procedures. This NPRM does not propose to change that date. In proposing these revisions, CEQ is affirming that agencies have the authority and discretion to develop and implement NEPA procedures beyond those specified in the CEQ regulations to address the unique contexts in which they operate, and that CEQ will continue to ensure that such additional procedures are consistent with CEQ's regulations through its consistency review process set forth in 40 CFR 1507.3(b)(2) ([https://www.ecfr.gov/current/title-40/section-1507.3#p-1507.3\(b\)\(2\)](https://www.ecfr.gov/current/title-40/section-1507.3#p-1507.3(b)(2))).

Prior to the 2020 NEPA Regulations, Federal agencies could develop NEPA procedures of their own to augment the CEQ regulations, so long as those procedures met or exceeded the degree of environmental review required by the CEQ regulations. CEQ's proposal better meets NEPA's statutory requirements and purpose to provide flexibility to agencies in carrying out their NEPA requirements, including by allowing agencies to adopt agency-specific NEPA procedures that align with their unique missions or circumstances. Agencies should be able to tailor their procedures to meet their unique statutory mandates and include additional procedures or requirements beyond those outlined in CEQ's NEPA regulations, especially if doing so will promote better decisions, improve environmental or community outcomes, or spur innovation that advances NEPA's policies.

For example, agency procedures could include more specific requirements for the development of environmental assessments to facilitate the decision-making process, such as requiring multiple alternatives or documentation of alternatives considered but dismissed. Procedures also could require public hearings or provide for more specific consideration or evaluation of certain issues such as air and water quality impacts, environmental justice considerations, or habitat effects. For example, the National Oceanic and Atmospheric Administration (NOAA), which among other things, is responsible for the stewardship of the Nation's ocean resources and their habitat, might adopt agency-specific procedures on the analysis of impacts to species or habitats protected by the Endangered Species Act, the Marine Mammal Protection Act, or the Magnuson-Stevens Fishery Conservation and Management Act, as well as other vulnerable marine and coastal ecosystems. CEQ has heard from Federal agencies that the ceiling provisions have created confusion as to whether agencies can continue to carry out their agency-specific procedures or adopt new procedures to implement NEPA for their programs and authorities.

CEQ reviews any proposed changes to agency NEPA procedures before their adoption to ensure the procedures are consistent with NEPA and the CEQ regulations. *See* 40 CFR 1507.3 (<https://www.ecfr.gov/current/title-40/section-1507.3>). That review process provides the opportunity to discuss the reasons behind any new or additional procedures or requirements proposed by agencies. This also allows CEQ to promote consistency across the Federal Government without limiting agencies' flexibility to do more than the CEQ regulations describe or otherwise inhibiting innovation.

Removing these ceiling provisions also improves alignment of the NEPA Regulations with NEPA's statutory text, which directs agencies to pursue the statute's goals "to the fullest extent possible." 42 U.S.C. 4332 (<https://www.govinfo.gov/link/uscode/42/4332>). The legislative history of NEPA indicates that the intent behind this statement was to ensure that all Federal agencies comply with NEPA as well as their statutory authorities and that "no agency shall utilize an excessively narrow construction of its existing statutory authorizations to avoid compliance." [23]

Additionally, removing these sentences would allow agencies to fully pursue NEPA's aims by allowing them to establish procedures specific to their missions and authorities that may provide for additional environmental review and public participation. *See* 42 U.S.C. 4332 (<https://www.govinfo.gov/link/uscode/42/4332>). CEQ would continue to perform its longstanding role of reviewing any proposed agency-specific NEPA procedures to ensure that they are consistent with, but not necessarily identical to, CEQ's regulations. The proposed change would also help Federal agencies ensure that their NEPA procedures, and the NEPA documents and processes that follow those procedures, meet the goal of NEPA to provide for the protection and enhancement of the environment and human health.

Since all agencies are charged with administering NEPA—not only CEQ—agencies should be allowed to pursue the environmental aims of the statute, including by adopting and carrying out procedures that require additional or more specific environmental analysis than called for by the CEQ regulations. NEPA also expressly instructs agencies to develop methods and procedures for the development of EISs, indicating that agencies are intended to take responsibility for their own procedures, even while consulting with CEQ. *See* 42 U.S.C. 4332(2)(B) (<https://www.govinfo.gov/link/uscode/42/4332>). Eliminating the 2020 NEPA Regulations' ceiling provisions would allow agencies to carry out their NEPA obligations to the “fullest extent possible.” *See* 42 U.S.C. 4332 (<https://www.govinfo.gov/link/uscode/42/4332>).

The public extensively commented on the ceiling provisions during the rulemaking for the 2020 NEPA Regulations. Many commenters opposed the addition of these provisions, expressing the view that it is important for agencies to have flexibility to meet NEPA's statutory requirements and establish the procedures and requirements necessary to implement NEPA. Commenters stated that precluding an agency from applying its expertise would arbitrarily limit the role of agencies responsible for implementing NEPA. Some commenters found that the 2020 NEPA Regulations did not adequately justify the addition of these provisions or clearly articulate what problem the change was trying to solve. A few commenters also noted that the proposed changes could interfere with state and Federal collaboration or coordination to the extent they would prevent Federal agencies from adopting NEPA procedures that integrate with state review processes that have more stringent requirements and procedures than those set out in the proposed rule. The commenters noted that impairing Federal agencies' coordination with states would create greater complexity and uncertainty for applicants and potentially additional delays and paperwork. The few comments in support of the change expressed general support or stated that including ceiling provisions would reduce costs and delays—a rationale that appears in the NPRM for the 2020 Rule—but did not provide an explanation or basis for that statement.

In developing this proposal, CEQ considered these comments as well as the rationale provided for the 2020 Rule and, in alignment with the discussion provided earlier in this section, disagrees with the rationale provided for the 2020 Rule and agrees with the comments that opposed the addition of the ceiling provisions. Even if the ceiling provisions would reduce costs and delays in some circumstances, which commenters did not provide evidence to support, CEQ considers the benefits of agency flexibility to outweigh the potential costs and delays. NEPA is more than a check-the-box paperwork exercise. Providing agencies flexibility to integrate their NEPA reviews into their unique programs can both make the decision-making process more efficient—because the process can be tailored to the particularities of agency programs—and more effective because a more tailored environmental review process may result in environmental reviews that better inform the decision maker and the public. Moreover, CEQ retains authority to review proposed agency procedures for consistency with CEQ's regulations and can evaluate specific proposals made by agencies at that time and work with the agencies to ensure implementing procedures do not result in undue cost or delay. CEQ invites public comment on this proposed provision.

C. Definition of “Effects” or “Impacts” (§ 1508.1(g))

NEPA requires Federal agencies to examine the environmental effects of their proposed actions and alternatives and any adverse environmental effects that cannot be avoided if the proposed action is implemented. 42 U.S.C. 4332(2)(C) (<https://www.govinfo.gov/link/uscode/42/4332>). CEQ proposes to revise the definition of “effects” or “impacts” in § 1508.1(g) to restore the substance of the definitions of “effects” and “cumulative impacts” contained in the 1978 NEPA Regulations with some minor, non-substantive changes for consistency with the current format of the Code of Federal Regulations. Specifically, CEQ proposes to restore the definitions of “direct” and “indirect” effects, and “cumulative impacts” from the 1978 NEPA Regulations, 40 CFR 1508.7 (<https://www.ecfr.gov/current/title-40/section-1508.7>) and 1508.8 (<https://www.ecfr.gov/current/title-40/section-1508.8>) (2019), by incorporating them into the definition of “effects” or “impacts,” such that each reference to these terms throughout 40 CFR parts 1500 (<https://www.ecfr.gov/current/title-40/part-1500>) through 1508 (<https://www.ecfr.gov/current/title-40/part-1508>) would include direct, indirect, and cumulative effects.

Direct effects are effects caused by the action and occur at the same time and place. 40 CFR 1508.8(a) ([https://www.ecfr.gov/current/title-40/section-1508.8#p-1508.8\(a\)](https://www.ecfr.gov/current/title-40/section-1508.8#p-1508.8(a))) (2019). Indirect effects are effects caused by the action that are later in time or farther removed in distance but are still reasonably foreseeable. *Id.* at § 1508.8(b). Cumulative effects are effects resulting from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of who undertakes the other actions. *Id.* at § 1508.7.

CEQ's proposal would remove the language from paragraph (g) defining “effects” as those “that are reasonably foreseeable and have a reasonably close causal relationship.” The proposal also would remove and replace paragraph (g)(2), which states that a “but for” causal relationship is insufficient to make an agency responsible for a particular effect under NEPA; generally excludes effects that are remote in time, geographically remote, or the product of a lengthy causal chain; and fully excludes effects that the agency has no ability to prevent due to its limited statutory authority or would occur regardless of the proposed action. The proposed rule also would remove and replace paragraph (g)(3), which states that an agency's analysis of effects must be consistent with the definition of “effects” and explicitly repeals the definition of cumulative impact in 40 CFR 1508.7 (<https://www.ecfr.gov/current/title-40/section-1508.7>) (2019). CEQ proposes to remove this language because it creates confusion and could be read to improperly narrow the scope of environmental effects relevant to NEPA analysis, contrary to NEPA's purpose.

CEQ's proposal would retain the introductory phrase added in the 2020 Rule that defines “effects” as “changes to the human environment from the proposed action or alternatives.” This revision eliminated the circular definition (“effects” include effects) of the 1978 NEPA Regulations. Finally, CEQ does not propose to include the statement from the 1978 NEPA Regulations that “effects” and “impacts” as used in the regulations are □ synonymous, as this statement would be redundant as the definition defines both “effects” and “impacts” together.

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1. REINSTATING “DIRECT” AND “INDIRECT” EFFECTS

CEQ proposes to restore the terms “direct” and “indirect” to the definition of “effects” to realign the regulations with longstanding agency practice^[24] and judicial decisions interpreting NEPA. Based on CEQ's extensive experience implementing NEPA, this change would better reflect NEPA's statutory purpose and intent and be more consistent with case law, as courts have interpreted the NEPA statute to require agencies to analyze the reasonably foreseeable direct and indirect effects of a proposed action and alternatives. *See, e.g., Minn. Pub. Int. Rsch. Grp. v. Butz*, 498 F.2d 1314, 1322 (8th Cir. 1974) (stating that NEPA “is concerned

with indirect effects as well as direct effects,” and emphasizing long-term effects as a reason that a logging project would significantly affect the environment and require an EIS); *see also, e.g., Sierra Club v. Fed. Energy Reg. Comm'n*, 867 F.3d 1357, 1371-72 (D.C. Cir. 2017); *San Juan Citizens All. v. U.S. Bureau of Land Mgmt.*, 326 F. Supp. 3d 1227, 1244 (D.N.M. 2018) (holding that greenhouse gas emissions are foreseeable indirect effects of leases for fossil fuel production and approvals of pipelines that transport fossil fuels). As reflected in many of the public comments to the 2020 Rule as well as in CEQ's discussions with agency NEPA practitioners who have asked CEQ for clarification since the 2020 Rule went into effect, this change would eliminate confusion caused by the modified definition and ensure that the NEPA process fully and fairly considers the appropriate universe of effects, such as air and water pollution, greenhouse gas emissions that contribute to climate change, and effects on communities with environmental justice concerns.

While the 2020 NEPA Regulations retained the definition of “direct” effects without using the term, the revised definition creates ambiguity regarding whether and to what extent indirect effects are included in the definition of “effects.” In particular, the definition states in paragraph (g) that effects “may include effects that are later in time or farther removed in distance” but then states in paragraph (g)(2) that effects should generally not be considered if they are remote in time or geographically remote. CEQ's proposed changes would provide clarity to agencies, practitioners, and the public by restoring the terms and definitions of “direct” and “indirect,” as these terms can help agencies and the public evaluate and understand the full scope of reasonably foreseeable effects in NEPA reviews.

This reinstatement also would ensure that agencies consider the full range of reasonably foreseeable effects in the NEPA process, consistent with NEPA's goal of facilitating reason-based decision making that protects public health and the environment, as well as this Administration's policies to be guided by science and to address environmental protection, climate change, and environmental justice. For example, air pollution, including greenhouse gas emissions, released by fossil fuel combustion is often a reasonably foreseeable indirect effect of proposed fossil fuel extraction that agencies should evaluate in the NEPA process, even if the pollution is remote in time or geographically remote from a proposed action. And even where an agency does not exercise regulatory authority over all aspects of a project, it may be appropriate to consider and compare the air pollution and greenhouse gas emission effects that the proposal and the reasonable alternatives would have on the environment, even if the agency does not have control over all of the emissions that the alternatives would produce. The consideration of such effects can provide important information on the selection of a preferred alternative; for example, an agency decision maker might select the no action alternative, as opposed to a fossil fuel leasing alternative, on the basis that it best aligns with the agency's statutory authorities and policies with respect to greenhouse gas emission mitigation.^[25]

Use of the terms “direct” and “indirect” also can help explain both adverse and beneficial effects over various timeframes. For instance, a utility-scale solar facility could have short-term direct adverse effects, such as land impacts associated with construction. The facility also could have long-term indirect beneficial effects, such as reductions in air pollution, including greenhouse gas emissions, from the renewable energy generated by the solar facility that displaces more greenhouse gas-intensive energy sources (such as coal or natural gas) as an electricity source for years or decades into the future. Consistent with CEQ's proposed restored definition, such indirect effects could be caused by the action to authorize a new solar facility, and would be later in time or farther removed in distance yet still reasonably foreseeable. Fully evaluating the effects of the facility would require identifying and evaluating both the direct and indirect effects of the proposed action.

The 2020 NEPA Regulations also removed the explanatory examples of indirect effects, including growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems. Restoring these examples is appropriate to highlight indirect effects that may be associated with myriad proposed Federal actions, such as expanding or repairing Federal highways or authorizing new renewable energy projects.

Numerous public comments discussed the elimination of references to “direct” and “indirect” in the definition of “effects” during the rulemaking for the 2020 NEPA Regulations. Commenters who supported the elimination of “direct” and “indirect” expressed views that the existing language creates confusion, that removal of the terms could help reduce the length of NEPA documents, and that retaining the terms would lead to an increase in litigation. Commenters also raised concerns that the terms have expanded the scope of NEPA analysis without serving NEPA's purpose of informed decision making but did not provide bases, analyses, or evidence to support these conclusions. The 2020 Rule adopted the position of these comments. CEQ considers the disclosure of both direct and indirect effects to be critical to the informed decision-making process such that the benefits of any such disclosure outweigh any potential for shorter NEPA documents or timeframes. Moreover, a well-drafted NEPA document can both be concise and supported by thorough analysis, and agencies have decades of experience considering the direct and indirect effects of their proposed actions. CEQ considers the potential for reduced litigation from the 2020 changes to be speculative, especially given the confusion that has resulted from deleting these familiar terms. Finally, CEQ expects that restoring these definitions that have been in place and in use for decades will better clarify the effects agencies need to consider in their NEPA analyses and may even help avoid delays in NEPA reviews.

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The vast majority of comments on the 2020 NEPA Regulations opposed the removal of the terms, and CEQ views those comments as supporting its proposal to restore the terms “direct” and “indirect” to the definition of “effects.” Commenters expressed views that retaining the terms would reduce confusion and litigation. They also expressed views that direct and indirect effects are critical elements of the evaluation of potential environmental effects of a proposed action, and they raised concerns that by deleting the term “indirect,” agencies may not adequately consider long-term or geographically remote impacts, including greenhouse gas emissions or water pollution that travels downstream. Commenters supported their views by pointing to CEQ's longstanding guidance and decades of agency guidance and court decisions using the terms to address effects pursuant to NEPA. Many commenters argued that removal of these terms would be contrary to the intent of the statute, and that consideration of both direct and indirect effects is essential to determining significance. CEQ invites comment on these proposed changes.

2. ADDING “CUMULATIVE EFFECTS” TO THE DEFINITION OF “EFFECTS”

CEQ proposes to revise § 1508.1(g)(3) by restoring, with minor modifications, the definition of “cumulative impacts” from the 1978 NEPA Regulations and striking the current provision that repealed that definition. Analysis of reasonably foreseeable cumulative effects is integral to sound and complete environmental review. Cumulative effects analysis is an essential component of NEPA analysis, as it allows agencies and the public to understand how the incremental impacts of a proposed action contribute to cumulative environmental problems such as air pollution, water pollution, climate change, and biodiversity loss, among others. Today, science and data confirm that cumulative environmental harms, including repeated or frequent exposure to toxic air or water pollution, threaten human and environmental health and poses undue burdens on historically marginalized communities.^[26] CEQ seeks to ensure that agencies fully analyze reasonably foreseeable cumulative effects before Federal decisions are made by restoring the term and its definition.

The 2020 Rule's deletion of the definition of “cumulative impacts” did not exclude reasonably foreseeable effects from consideration merely because they could be categorized as cumulative effects. In responding to comments about potential effects on threatened and endangered species, the preamble to the 2020 Rule explains that “the final rule does not ignore cumulative effects on listed species.”^[27] CEQ similarly explained in the Final Rule Response to Comments that the 2020 Rule did not automatically exclude from analysis effects falling within the deleted definition of “cumulative impacts.”^[28] However, CEQ considers the deletion of the longstanding term to have the potential to create confusion about when and if agencies should analyze cumulative effects, and creates uncertainty regarding this type of effects analysis contrary to longstanding agency practice and NEPA's purpose. For example, CEQ has heard from Federal agency NEPA practitioners both individually and in agency meetings that they would like clarification about how to address cumulative effects, including whether it remains permissible to use the term, in light of the changes made in 2020. In addition, outside stakeholders have raised concerns in meetings and listening sessions regarding the deletion of the term in light of the potential impact this could have in truncating the environmental review and disclosure of important categories of effects. Additionally, public comments received on the proposed 2020 Rule raised such concerns. By restoring the definition of cumulative effects, the proposed rule would clarify that agencies must analyze and disclose reasonably foreseeable cumulative effects.

Since its initial NEPA guidelines in 1970, CEQ has interpreted the statute as requiring consideration of cumulative effects. In its 1970 interim guidelines, CEQ provided that agencies should construe the statutory clause “major Federal actions significantly affecting the quality of the human environment” “with a view to the overall, *cumulative* impact of the action proposed (and of further actions contemplated).”^[29] CEQ explained that agencies should consider “that the effect of many Federal decisions about a project or complex of projects can be individually limited but cumulatively considerable” because, for instance, agencies may provide funds over a period of years or multiple agencies may individually make decisions about partial aspects of a project.^[30] The guidelines further stated that an agency should prepare an EIS “if it is reasonable to anticipate a cumulatively significant impact on the environment from the Federal action.”^[31]

These initial guidelines also interpreted the requirement in section 102(2)(C)(iv) to mean that “[t]he relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity . . . requires the agency to assess the action for *cumulative and long-term effects* from the perspective that each generation is trustee of the environment for succeeding generations.”^[32] This interpretation is reflected in the 1971 final guidelines^[33] and the 1978 NEPA Regulations.^[34] Decades of agency practice and CEQ guidance affirm the interpretation that NEPA requires analysis of cumulative effects.^[35] For example, in 1997 CEQ noted that cumulative effects analysis is “critical” for the purposes of evaluating project □ alternatives and developing appropriate mitigation strategies.^[36]

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CEQ's proposal to reinstate the definition of “cumulative impacts” aligns with longstanding legal precedent interpreting NEPA to require agencies to consider cumulative effects. Even before CEQ issued regulations on cumulative effects, the U.S. Supreme Court had interpreted NEPA to include them. In 1976, the Court held that NEPA requires consideration of cumulative effects “when several proposals . . . that will have *cumulative* or synergistic environmental impact upon a region are pending concurrently before an agency, their environmental consequences must be considered together.” *Kleppe v. Sierra Club*, 427 U.S. 390, 410 (1976) (emphasis added).

Numerous commenters on the proposed 2020 Rule raised concerns that the 2020 Rule could be interpreted to eliminate consideration of cumulative effects and eliminating consideration of cumulative effects would undermine NEPA's purpose and environmental protection goals, and could interfere with the necessary

analysis of a proposed action's impacts. Other commenters expressed views that indirect and cumulative effects often disproportionately affect Tribes, minority, and low-income populations, and excluding the details of such effects from NEPA analyses could lead agency decision makers to unknowingly make decisions that negatively impact Tribes or communities with environmental justice concerns. Some commenters who favored striking the requirement to analyze cumulative effects expressed views that the consideration of cumulative impacts could be redundant and that removal of cumulative effects would reduce the time it takes to complete the NEPA process. Other commenters were neutral on the change but expressed views that the proposed change would be controversial and could lead to potential litigation or delays. The 2020 Rule eliminated the “cumulative effects” language, adopting the view that the analysis of cumulative effects was too broad, categorizing and determining the scope of cumulative effects is difficult and can divert agency resources from the most significant effects, and the analysis of cumulative effects could require agency attention to information that is irrelevant or inconsequential, and did not lead to informed decision making.

CEQ considered these comments and the rationale described in the 2020 Rule when developing this proposal. CEQ has changed its view and does not consider the term cumulative effects to be too broadly defined in the 1978 NEPA Regulations or too difficult for agencies to meaningfully implement. As explained earlier in this section, CEQ's own prior guidelines and guidance, along with decades of agency practice and longstanding legal precedent have interpreted NEPA to require agencies to consider cumulative effects. While the 2020 Rule found that cumulative effects was previously too broadly defined, the removal of “cumulative effects” created an even less clear definition of effects, resulting in more confusion and uncertainty about what type of effects analysis is necessary. Rather than diverting agency resources or focusing on effects that are irrelevant or inconsequential, as the 2020 Rule stated with respect to cumulative effects analysis, CEQ considers analysis of reasonably foreseeable cumulative effects to be an important part of NEPA analysis, helping the public and decision makers understand the full scope of potential impacts from a proposed action. Reasonably foreseeable cumulative effects are not irrelevant or inconsequential; for example, aggregate air and water pollution and habitat impacts affect long-term environmental conditions, wildlife, and communities—including in regions already overburdened by pollution. Analyzing reasonably foreseeable cumulative effects is consistent with NEPA's text and purpose and better informs decision makers about important aspects of proposed actions and their alternatives. Further, CEQ is not aware of any evidence supporting the claim that evaluation of cumulative effects necessarily leads to longer timelines, especially given the long history of agency and practitioner experience with this type of analysis as well as modern techniques that leverage science and technology to make reviews comprehensive yet efficient. And clarity on analyzing reasonably foreseeable cumulative effects, as proposed, would outweigh the speculative potential for shorter NEPA documents or timeframes.

CEQ shares the view that environmental reviews should be efficient and effective and will continue to evaluate the NEPA process for opportunities to improve timeliness consistent with NEPA's purposes. However, CEQ disagrees that requiring analysis of reasonably foreseeable cumulative effects causes unacceptably long NEPA processes. Further, by deleting the definition of cumulative effects, the 2020 Rule did not prohibit agencies from evaluating reasonably foreseeable cumulative effects and therefore, it was not certain to result in faster and less burdensome NEPA analyses. Rather, in affirmatively repealing the defined term from the regulations, the 2020 Rule has caused confusion and cast doubt as to whether agencies can and should continue to do this analysis. Finally, consideration of cumulative effects is important in order to fully inform agency decision makers before actions are taken, and effects analysis remains bound by the notion of reasonable foreseeability. CEQ invites comment on this proposed change.

3. REMOVING LIMITATIONS ON EFFECTS ANALYSIS

In proposing to restore the definition of “effects” from the 1978 NEPA Regulations, CEQ would remove changes made in the 2020 Rule stating that effects are those “that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives.” 40 CFR 1508.1(g) ([https://www.ecfr.gov/current/title-40/section-1508.1#p-1508.1\(g\)](https://www.ecfr.gov/current/title-40/section-1508.1#p-1508.1(g))). CEQ also proposes to remove and replace § 1508.1(g)(2), which states that “a ‘but for’ causal relationship is insufficient to make an agency responsible for a particular effect under NEPA;” agencies generally should not consider effects that are remote in time, geographically remote, or the product of a lengthy causal chain; and agencies should not consider effects that the agency has no ability to prevent due to its limited statutory authority. Finally, the proposed rule would remove as superfluous and replace § 1508.1(g)(3), which states that “[a]n agency’s analysis of effects shall be consistent with this paragraph.” This phrase seeks to enforce the limitations added to the “effects” definition in the 2020 Rule, which would be unnecessary if the limitations are removed.

The definition of “effects” in the 1978 NEPA Regulations gave agencies the discretion to identify the reasonably foreseeable effects of a proposed action and its alternatives in light of NEPA’s goals. It is CEQ’s view that this approach provides for more sound decision making, including decisions informed by science, and a more knowledgeable and engaged public than the definition of “effects” in the 2020 NEPA Regulations. Whether an effect is reasonably foreseeable is a context-specific inquiry that Federal agencies have engaged in for more than 40 years. Agencies have made these determinations guided by agency procedures and practice, evolving scientific understanding about natural systems and environmental outcomes, and court decisions.

The current definition of “effects” has internal inconsistencies, which make it confusing to apply. The introductory paragraph of 40 CFR 1508.1(g) ([https://www.ecfr.gov/current/title-40/section-1508.1#p-1508.1\(g\)](https://www.ecfr.gov/current/title-40/section-1508.1#p-1508.1(g))) states that effects “may include” those that are later in time and farther removed in distance, but paragraph (g)(2) states that effects “should generally not be considered if they are remote in time, geographically remote, or the product of a lengthy causal chain.” This creates confusion as to whether agencies can or should consider these types of effects, potentially leading to inconsistent application of NEPA, public confusion or controversy, and enhanced risk of litigation and concomitant delays in the NEPA process.

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Removing the language from § 1508.1(g)(2) limiting the consideration of temporally or geographically removed environmental effects and effects that are a product of a lengthy causal chain would better align with the statutory text, which does not include any of these qualifiers and instead directs agencies to produce a detailed statement on the “environmental impact of [a] proposed action,” “any adverse environmental effects which cannot be avoided,” and “the relationship between local short-term uses of man’s environment and the maintenance and enhancement of long-term productivity.” 42 U.S.C. 4332(2)(C) (<https://www.govinfo.gov/link/uscode/42/4332>) (emphasis added). Many consequential reasonably foreseeable environmental effects, such as toxic releases into air or water and greenhouse gas emissions that contribute to climate change, often occur remote in time or place from the original action or are a product of a causal chain. For instance, when considering a potential Federal action that would permit fossil fuel extraction, it is reasonably foreseeable that the fossil fuel will be extracted, transported, and ultimately combusted to create energy, all of which cause air pollution that can have adverse public health and environmental effects. Thus, the 2020 Rule’s limiting language could cause Federal agencies to omit critical categories of effects from analysis and disclosure, frustrating NEPA’s core purpose and Congressional intent. Similarly, the statement that “a ‘but for’ causal relationship is insufficient to make an agency responsible for a particular effect under NEPA” added a confusing new standard to apply that could cause agencies to omit

reasonably foreseeable effects in NEPA reviews, contrary to NEPA's statutory purpose to promote informed decision making. CEQ disagrees that this language would help agencies better understand what effects they need to analyze and discuss, helping to reduce delays and paperwork with unnecessary analyses. Rather, the new language poses new implementation and interpretation challenges that could, in turn, create delays and conflict. The definition of “effects” that CEQ proposes to restore does not require that agencies disclose every possible effect; rather, the standard under NEPA has long been whether effects are reasonably foreseeable.

Similarly, the direction in the 2020 Rule to exclude “effects that the agency has no ability to prevent due to its limited statutory authority or would occur regardless of the proposed action” unduly limits agency discretion. CEQ proposes to remove this limitation because agencies may conclude that analyzing and disclosing such effects will provide important information to decision makers and the public. For example, agencies may need to analyze and disclose reasonably foreseeable growth and development that will occur if they authorize infrastructure projects such as highway interchanges or causeways, even if they do not have general land use authority. *See, e.g., Sierra Club v. Marsh*, 769 F.2d 868 (1st Cir. 1985); *City of Davis v. Coleman*, 521 F.2d 661 (9th Cir. 1975). Reasonably foreseeable environmental effects do not fall neatly within discrete agency jurisdictional or regulatory confines; rather, agencies make decisions about reviews and authorizations that have real world impacts, including effects like water or air pollution that are measurable and ascertainable yet may have physical effects outside an agency's statutory purview.

CEQ's proposal to restore the definition of “effects” from the 1978 NEPA Regulations is consistent with the U.S. Supreme Court's decision in *Department of Transportation v. Public Citizen*, 541 U.S. 752 (2004), which the 2020 Rule identified as the authority for the revised definition. In this case, the Supreme Court explained that NEPA and the 1978 NEPA Regulations are governed by a “rule of reason.” *Id.* at 767. The Federal Motor Carrier Safety Administration (FMCSA) was required to issue certification and safety regulations for Mexican trucks entering the United States, *id.* at 760, and had no ability to deny certification if trucks met the requirements, *id.* at 758-59. The Court held that, based on FMCSA's limited statutory authority, it was not arbitrary and capricious for FMCSA to exclude from its NEPA analysis the effects of trucks entering the United States that would result from the President's commitment to lift a moratorium on Mexican truck entry once FMCSA issued the regulations. *See id.* at 770. By affirming FMCSA's implementation of the 1978 NEPA Regulations under a substantial deference standard of review, the Court did not hold that agencies *may not* consider a broader range of effects in other circumstances, as the 2020 Rule suggests. Instead, the Court held that FMCSA's effects analysis in the specific factual and legal context of its proposed action was reasonable and not arbitrary and capricious.

It is CEQ's view that establishing a regulatory limitation on the scope of NEPA analysis drawn from *Public Citizen* does not lead to improved agency decision making, enhanced public participation, or a better-informed public. Rather, as CEQ has heard from NEPA practitioners and outside stakeholders, these limitations undermine sound decision making by creating confusion with respect to NEPA implementation, departing from CEQ's consistent interpretation of NEPA prior to 2020, breaking from science-based decisions, and potentially limiting relevant NEPA analysis with negative repercussions in critical areas such as climate change and environmental justice. NEPA has long been understood to require only analysis of effects that are “reasonably foreseeable,” but the limitations added by the 2020 NEPA Regulations could undermine longstanding agency discretion to determine the appropriate scope of analysis or result in agencies making less informed decisions contrary to NEPA's stated goals.

Numerous commenters addressed these limitations during the rulemaking for the 2020 NEPA Regulations. Many opposed the limitations, expressing views that requiring a close causal relationship could be confusing to implement and could inappropriately constrain consideration of reasonably foreseeable impacts of a proposed action on the human environment, undermining the purpose of NEPA. Those opposed also expressed views that the new limitations could be used to justify the exclusion of effects of a proposed action including air or water pollution affecting communities or wildlife located outside the immediate vicinity of the proposed action that are nonetheless reasonably foreseeable. For example, the limitations could cause agencies to exclude consideration of the effects to a community that relies on a water source downstream from a project area that is indirectly impacted by the proposed action's water quality effects. Some commenters also stated that the term "remote" is too vague and relative. Those who supported the limitations expressed views that the changes were in keeping with the judicial precedent ³⁷ cited in the proposed rule and could help cut the length and time of NEPA analysis by reducing burdens on Federal agencies; however, commenters did not provide evidence demonstrating how inclusion of these limitations would help cut the length and time of NEPA analysis.

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Upon reconsidering the position taken in the 2020 NEPA Regulations, CEQ proposes to remove these provisions in order to improve clarity on the types of effects that agencies must consider, eliminate restrictions that may conflict with scientific understanding of environmental outcomes, and better inform decision makers and the public about the full suite of reasonably foreseeable effects of a proposed action and its alternatives. CEQ disagrees that the provisions added in 2020 will reduce burdens on Federal agencies, given that Federal agencies have long operated under the definition of "effects" as defined in the 1978 NEPA Regulations and may have existing NEPA procedures aligned with the 1978 definitions. The 2020 Rule indicated that the added provisions would help agencies better understand what effects need to be analyzed and discussed and would reduce delays and unnecessary analysis. However, agencies have indicated confusion about how to apply the "close causation" and "but for" limitations in the current definition of effects and are concerned that the 2020 Rule may preclude them from considering the same range of effects as the 1978 Regulations. With the proposed changes in this rulemaking, CEQ seeks to reduce confusion and provide clarity on the effects that agencies must consider and does not agree that removing this language will directly result in delays. Additionally, providing clarity to agencies and the public on what is required provides benefits to the environmental review process that outweigh any uncertain potential for shorter timeframes. CEQ requests comment on these changes. CEQ also invites comments on whether CEQ should provide in a Phase 2 rulemaking more specificity about the manner in which agencies should analyze certain categories of effects.

IV. Rulemaking Analyses and Notices

A. Executive Order 12866, Regulatory Planning and Review

E.O. 12866 provides that the Office of Information and Regulatory Affairs will review all significant rules.^[37] E.O. 13563 (/executive-order/13563) reaffirms the principles of E.O. 12866, calling for improvements in the Federal Government's regulatory system to promote predictability, reduce uncertainty, and use the best, most innovative, and least burdensome tools for achieving regulatory objectives.^[38] This proposed rule is a significant regulatory action that CEQ submitted to OMB for review. The proposed changes would remove uncertainty created by the 2020 Rule to benefit agencies and the public. Removing constraints on agency NEPA analyses could result in longer review timeframes, but these changes do not obligate agencies to undertake longer, more complicated analyzes. If agencies choose to consider additional alternatives and conduct more robust analyses, these analyses should improve societal outcomes by improving agency

decision making. Since individual cases will vary, the magnitude of potential costs and benefits resulting from these proposed changes are difficult to anticipate. Therefore, CEQ has not quantified them. CEQ invites public comment on those expected impacts and the role they should play in informing the final rule.

B. Regulatory Flexibility Act and Executive Order 13272 (/executive-order/13272), Proper Consideration of Small Entities in Agency Rulemaking

The Regulatory Flexibility Act (RFA), as amended, 5 U.S.C. 601 (<https://www.govinfo.gov/link/uscode/5/601>) *et seq.*, and E.O. 13272 (/executive-order/13272)^[39] require agencies to assess the impacts of proposed and final rules on small entities. Under the RFA, small entities include small businesses, small organizations, and small governmental jurisdictions. An agency must prepare an Initial Regulatory Flexibility Analysis (IRFA) unless it determines and certifies that a proposed rule, if promulgated, would not have a significant economic impact on a substantial number of small entities. 5 U.S.C. 605(b) (<https://www.govinfo.gov/link/uscode/5/605>). The proposed rule would not directly regulate small entities. Rather, the proposed rule would apply to Federal agencies and set forth the process for their compliance with NEPA. Accordingly, CEQ hereby certifies that the proposed rule, if promulgated, would not have a significant economic impact on a substantial number of small entities.

C. National Environmental Policy Act

Under the CEQ regulations, major Federal actions may include regulations. When CEQ issued regulations in 1978, it prepared a “special environmental assessment” for illustrative purposes pursuant to E.O. 11991.^[40] The NPRM for the 1978 rule stated “the impacts of procedural regulations of this kind are not susceptible to detailed analysis beyond that set out in the assessment.”^[41] Similarly, in 1986, while CEQ stated in the final rule that there were “substantial legal questions as to whether entities within the Executive Office of the President are required to prepare environmental assessments,” it also prepared a special environmental assessment.^[42] The special environmental assessment issued in 1986 made a finding of no significant impact, and there was no finding made for the assessment of the 1978 final rule.

CEQ continues to take the position that a NEPA analysis is not required for establishing or updating NEPA procedures. *See Heartwood v. U.S. Forest Serv.*, 230 F.3d 947, 954-55 (7th Cir. 2000) (finding that neither NEPA or the CEQ regulations required the Forest Service to conduct an environmental assessment or an EIS prior to the promulgation of its procedures creating a categorical exclusion). Nevertheless, based on past practice, CEQ has developed a special environmental assessment and has posted it in the docket. CEQ invites comments on the special environmental assessment.

D. Executive Order 13132 (/executive-order/13132), Federalism

E.O. 13132 (/executive-order/13132) requires agencies to develop an accountable process to ensure meaningful and timely input by state and local officials in the development of regulatory policies that have federalism implications.^[43] Policies that have federalism implications include regulations that have substantial direct effects on the states, on the relationship between the Federal Government and the states, or on the distribution of power and responsibilities among the various levels of government. CEQ does not anticipate that this proposed rule has federalism implications because it applies to Federal agencies, not states.

E. Executive Order 13175 (/executive-order/13175), Consultation and Coordination With Indian Tribal Governments

E.O. 13175 (/executive-order/13175) requires agencies to have a process to ensure meaningful and timely input by Tribal officials in the development of policies that have Tribal implications.^[44] Such policies include regulations that have substantial direct effects on one or more Indian Tribes, on the relationship between the Federal Government and Indian Tribes, or on the distribution of power and responsibilities between the Federal Government and Indian Tribes. CEQ has assessed the impact of this proposed rule on Indian Tribal governments and has determined preliminarily that the proposed rule would not significantly or uniquely affect these communities but seeks comment on this preliminary determination. However, CEQ plans to engage in government-to-government consultation with federally recognized Tribes and Alaska Native Corporations on its NEPA regulations generally.

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F. Executive Order 12898 (/executive-order/12898), Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

E.O. 12898 (/executive-order/12898) requires agencies to make achieving environmental justice part of their missions by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations.^[45] CEQ has analyzed this proposed rule and preliminarily determined that it would not cause disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. This rule would set forth implementing regulations for NEPA; it is in the agency implementation of NEPA when conducting reviews of proposed agency actions where consideration of environmental justice effects typically occurs. CEQ invites comment on this preliminary determination.

G. Executive Order 13211 (/executive-order/13211), Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

Agencies must prepare a Statement of Energy Effects for significant energy actions under E.O. 13211 (/executive-order/13211).^[46] CEQ has preliminarily determined that this rulemaking is not a “significant energy action” because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy.

H. Executive Order 12988 (/executive-order/12988), Civil Justice Reform

Under section 3(a) of E.O. 12988 (/executive-order/12988),^[47] agencies must review their proposed regulations to eliminate drafting errors and ambiguities, draft them to minimize litigation, and provide a clear legal standard for affected conduct. Section 3(b) provides a list of specific issues for review to conduct the reviews required by section 3(a). CEQ has conducted this review and determined that this proposed rule complies with the requirements of E.O. 12988 (/executive-order/12988).

I. Unfunded Mandate Reform Act

Section 201 of the Unfunded Mandates Reform Act of 1995, 2 U.S.C. 1531 (<https://www.govinfo.gov/link/uscode/2/1531>), requires Federal agencies to assess the effects of their regulatory actions on state, local, and Tribal governments, and the private sector to the extent that such regulations incorporate requirements specifically set forth in law. Before promulgating a rule that may result in the expenditure by a state, Tribal, or local government, in the aggregate, or by the private sector of \$100 million, adjusted annually for inflation, in any 1 year, an agency must prepare a written statement that assesses the effects on state, Tribal, and local governments and the private sector. 2 U.S.C. 1532 (<https://www.govinfo.gov/link/uscode/2/1532>). This proposed rule would apply to Federal agencies and would not result in expenditures of \$100 million or more for state, local, and Tribal governments, in the

aggregate, or the private sector in any 1 year. This proposed action also would not impose any enforceable duty, contain any unfunded mandate, or otherwise have any effect on small governments subject to the requirements of 2 U.S.C. 1531-1538 (<https://www.govinfo.gov/link/uscode/2/1531>).

J. Paperwork Reduction Act

This proposed rule would not impose any new information collection burden that would require additional review or approval by OMB under the Paperwork Reduction Act (PRA), 44 U.S.C. 3501 (<https://www.govinfo.gov/link/uscode/44/3501>) *et seq.*

List of Subjects in 40 CFR Parts 1502 (<https://www.ecfr.gov/current/title-40/part-1502>), 1507 (<https://www.ecfr.gov/current/title-40/part-1507>), and 1508 (<https://www.ecfr.gov/current/title-40/part-1508>)

- Administrative practice and procedure
- Environmental impact statements
- Environmental protection
- Natural resources

Brenda Mallory,

Chair.

For the reasons discussed in the preamble, the Council on Environmental Quality proposes to amend parts 1502, 1507, and 1508 in title 40 of the Code of Federal Regulations (<https://www.ecfr.gov/current/title-40>) as follows:

PART 1502—ENVIRONMENTAL IMPACT STATEMENT

1. Revise the authority citation for part 1502 to read as follows:

Authority: 42 U.S.C. 4321-4347 (<https://www.govinfo.gov/link/uscode/42/4321>); 42 U.S.C. 4371-4375 (<https://www.govinfo.gov/link/uscode/42/4371>); 42 U.S.C. 7609 (<https://www.govinfo.gov/link/uscode/42/7609>); and E.O. 11514, 35 FR 4247 (</citation/35-FR-4247>), 3 CFR (<https://www.ecfr.gov/current/title-3>), 1966-1970, Comp., p. 902, as amended by E.O. 11991, 42 FR 26967 (</citation/42-FR-26967>), 3 CFR (<https://www.ecfr.gov/current/title-3>), 1977 Comp., p. 123.

2. Revise § 1502.13 to read as follows:

§ 1502.13 Purpose and need.

The statement shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action.

PART 1507—AGENCY COMPLIANCE

3. Revise the authority citation for part 1507 to read as follows:

Authority: 42 U.S.C. 4321-4347 (<https://www.govinfo.gov/link/uscode/42/4321>); 42 U.S.C. 4371-4375 (<https://www.govinfo.gov/link/uscode/42/4371>); 42 U.S.C. 7609 (<https://www.govinfo.gov/link/uscode/42/7609>); and E.O. 11514, 35 FR 4247 (/citation/35-FR-4247), 3 CFR (<https://www.ecfr.gov/current/title-3>), 1966-1970, Comp., p. 902, as amended by E.O. 11991, 42 FR 26967 (/citation/42-FR-26967), 3 CFR (<https://www.ecfr.gov/current/title-3>), 1977 Comp., p. 123.

4. Amend § 1507.3 by revising paragraphs (a) and the introductory text of paragraph (b) to read as follows:

§ 1507.3 Agency NEPA procedures.

(a) The Council has determined that the categorical exclusions contained in agency NEPA procedures as of September 14, 2020, are consistent with this subchapter.

(b) No more than 36 months after September 14, 2020, or 9 months after the establishment of an agency, whichever comes later, each agency shall develop or revise, as necessary, proposed procedures to implement the regulations in this subchapter. When the agency is a department, it may be efficient for major subunits (with the consent of the department) to adopt their own procedures.

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PART 1508—DEFINITIONS

5. Revise the authority citation for part 1508 to read as follows:

Authority: 42 U.S.C. 4321-4347 (<https://www.govinfo.gov/link/uscode/42/4321>); 42 U.S.C. 4371-4375 (<https://www.govinfo.gov/link/uscode/42/4371>); 42 U.S.C. 7609 (<https://www.govinfo.gov/link/uscode/42/7609>); and E.O. 11514, 35 FR 4247 (/citation/35-FR-4247), 3 CFR (<https://www.ecfr.gov/current/title-3>), 1966-1970, Comp., p. 902, as amended by E.O. 11991, 42 FR 26967 (/citation/42-FR-26967), 3 CFR (<https://www.ecfr.gov/current/title-3>), 1977 Comp., p. 123.

6. Amend § 1508.1 by revising paragraphs (g) and (z) to read as follows:

§ 1508.1 Definitions.

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(g) *Effects or impacts* means changes to the human environment from the proposed action or alternatives and include the following:

(1) Direct effects, which are caused by the action and occur at the same time and place.

(2) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced □ changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

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(3) Cumulative effects, which are effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

(4) Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effects will be beneficial.

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(z) *Reasonable alternatives* means a reasonable range of alternatives that are technically and economically feasible, and meet the purpose and need for the proposed action.

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Footnotes

1. See Linda Luther, Cong. Rsch. Serv., *RL33152, The National Environmental Policy Act: Background and Implementation (2008)*, <https://crsreports.congress.gov/product/details?prodcode=RL33152> (<https://crsreports.congress.gov/product/details?prodcode=RL33152>).

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2. *35 FR 4247 (/citation/35-FR-4247) (Mar. 7, 1970), sec. 3(h)*.

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3. See *35 FR 7390 (/citation/35-FR-7390) (May 12, 1970) (interim guidelines)*; *36 FR 7724 (/citation/36-FR-7724) (Apr. 23, 1971) (final guidelines)*; *38 FR 10856 (/citation/38-FR-10856) (May 2, 1973) (proposed revisions to the guidelines)*; *38 FR 20550 (/citation/38-FR-20550) (Aug. 1, 1973) (revised guidelines)*.

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4. *42 FR 26967 (/citation/42-FR-26967) (May 25, 1977)*.

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5. *43 FR 55978 (/citation/43-FR-55978) (Nov. 23, 1978)*.

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6. *44 FR 873 (/citation/44-FR-873) (Jan. 3, 1979)*.

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7. *51 FR 15618 (/citation/51-FR-15618) (Apr. 25, 1986) (amending 40 CFR 1502.22) (<https://www.ecfr.gov/current/title-40/section-1502.22>)*.

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8. *82 FR 40463 (/citation/82-FR-40463) (Aug. 24, 2017)*.

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9. *Id.*, sec. 5(e)(iii).

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10. 85 FR 1684 (/citation/85-FR-1684) (Jan. 10, 2020).

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11. See Docket No. CEQ-2019-0003, <https://www.regulations.gov/document/CEQ-2019-0003-0001> (<https://www.regulations.gov/document/CEQ-2019-0003-0001>).

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12. 85 FR 43304 (/citation/85-FR-43304) (July 16, 2020).

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13. *Wild Va. v. Council on Env't Quality*, No. 3:20cv45 (W.D. Va. 2020); *Env'tl. Justice Health All. v. Council on Env't Quality*, No. 1:20cv06143 (S.D.N.Y. 2020); *Alaska Cmty. Action on Toxics v. Council on Env't Quality*, No. 3:20cv5199 (N.D. Cal. 2020); *California v. Council on Env't Quality*, No. 3:20cv06057 (N.D. Cal. 2020); *Iowa Citizens for Cmty. Improvement v. Council on Env't Quality*, No. 1:20cv02715 (D.D.C. 2020). Additionally, in *The Clinch Coalition v. U.S. Forest Service*, No. 2:21cv00003 (W.D. Va. 2020), plaintiffs challenge the U.S. Forest Service's NEPA implementing procedures, which established new categorical exclusions, and, relatedly, the 2020 Rule's provisions on categorical exclusions.

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14. *Wild Va. v. Council on Env't Quality*, No. 3:20cv45, 2021 WL 2521561 (W.D. Va. June 21, 2021).

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15. 86 FR 7037 (/citation/86-FR-7037) (Jan. 25, 2021).

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16. *Id.*, sec. 1.

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17. White House Fact Sheet: List of Agency Actions for Review (Jan. 20, 2021), <https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/20/fact-sheet-list-of-agency-actions-for-review/> (<https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/20/fact-sheet-list-of-agency-actions-for-review/>).

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18. 86 FR 7619 (/citation/86-FR-7619) (Feb. 1, 2021).

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19. *Id.*, sec. 213(a).

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20. See <https://www.energy.gov/nepa/ceq-guidance-documents> (<https://www.energy.gov/nepa/ceq-guidance-documents>) for a list of current CEQ guidance documents.

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21. See E.O. 13990 (/executive-order/13990), *supra* note 15, and E.O. 14008 (/executive-order/14008), *supra* note 18.

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22. 86 FR 34154 (/citation/86-FR-34154) (June 29, 2021).

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23. H. Rep. No. 91-765, at 9-10 (1969).

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24. See, e.g., Bureau of Land Management National Environmental Policy Act Handbook H-1790-1, sec. 6.8.2 (January 2008); 36 CFR 220.4(f) ([https://www.ecfr.gov/current/title-36/section-220.4#p-220.4\(f\)](https://www.ecfr.gov/current/title-36/section-220.4#p-220.4(f))), 220.7(b)(iv) ([https://www.ecfr.gov/current/title-36/section-220.7#p-220.7\(b\)\(iv\)](https://www.ecfr.gov/current/title-36/section-220.7#p-220.7(b)(iv))) (Forest Service); 32

CFR 651.29(b) ([https://www.ecfr.gov/current/title-32/section-651.29#p-651.29\(b\)](https://www.ecfr.gov/current/title-32/section-651.29#p-651.29(b))), 651.34(f) ([https://www.ecfr.gov/current/title-32/section-651.34#p-651.34\(f\)](https://www.ecfr.gov/current/title-32/section-651.34#p-651.34(f))), 651.51(a)(3) ([https://www.ecfr.gov/current/title-32/section-651.51#p-651.51\(a\)\(3\)](https://www.ecfr.gov/current/title-32/section-651.51#p-651.51(a)(3))), Appendix to E to Part 651—Content of EIS (Army Corps of Engineers).

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25. Agencies may consider all available tools and resources in assessing GHG emissions and climate change effects of their proposed actions, including, as appropriate and relevant, CEQ's 2016 "Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews," 81 FR 51866 (/citation/81-FR-51866) (Aug. 5, 2016). Additionally, under E.O. 13990 (/executive-order/13990), the Interagency Working Group (IWG) on the Social Cost of Greenhouse Gases published interim estimates and is preparing updated estimates, which agencies may find helpful in considering greenhouse gas emission effects and mitigation as part of the NEPA process. See https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf?source=email (https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf?source=email). This proposed rule does not specifically address the IWG's interim or final Social Cost of Greenhouse Gases estimates. More information on the interim estimates is available from the Office of Information and Regulatory Affairs. See <https://www.whitehouse.gov/wp-content/uploads/2021/06/Social-Cost-of-Greenhouse-Gas-Emissions.pdf> (<https://www.whitehouse.gov/wp-content/uploads/2021/06/Social-Cost-of-Greenhouse-Gas-Emissions.pdf>).

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26. See, e.g., Mercedes A. Bravo et al., *Racial Isolation and Exposure to Airborne Particulate Matter and Ozone in Understudied U.S. Populations: Environmental Justice Applications of Downscaled Numerical Model Output*, 92-93 *Env't Int'l* 247 (2016) (finding that long-term exposure to particulate matter is associated with racial segregation, with more highly segregated areas suffering higher levels of exposure).

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27. 85 FR 43355 (/citation/85-FR-43355) (July 16, 2020).

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28. Council on Environmental Quality, *Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act Final Rule Response to Comments 467* (June 30, 2020), <https://www.regulations.gov/document/CEQ-2019-0003-720629> (<https://www.regulations.gov/document/CEQ-2019-0003-720629>).

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29. 35 FR 7390 (/citation/35-FR-7390), 7391 (/citation/35-FR-7391) (May 12, 1970) (emphasis added).

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30. *Id.*

Back to Citation

31. *Id.*

Back to Citation

32. *Id.* at 7392 (emphasis added).

Back to Citation

33. 36 FR 7724 (/citation/36-FR-7724) (Apr. 23, 1971).

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34. See 43 FR 55978 (/citation/43-FR-55978) (Nov. 23, 1978).

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35. See, e.g., *CEQ, Considering Cumulative Effects Under the National Environmental Policy Act (1997)*, https://ceq.doe.gov/publications/cumulative_effects.html; (https://ceq.doe.gov/publications/cumulative_effects.html); U.S. EPA, *EPA 315-R-00-002, Consideration of Cumulative Impacts in EPA Review of NEPA Documents 1 (1999)* (“Because federal projects cause or are affected by cumulative impacts, this type of impact must be assessed in documents prepared under NEPA.”).

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36. *CEQ, supra note 35, at v.*

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37. *58 FR 51735 (/citation/58-FR-51735) (Oct. 4, 1993).*

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38. *76 FR 3821 (/citation/76-FR-3821) (Jan. 21, 2011).*

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39. *67 FR 53461 (/citation/67-FR-53461) (Aug. 16, 2002).*

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40. *43 FR 25230 (/citation/43-FR-25230) (June 9, 1978).*

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41. *Id.*

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42. *51 FR 15618 (/citation/51-FR-15618), 15619 (/citation/51-FR-15619) (Apr. 25, 1986).*

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43. *64 FR 43255 (/citation/64-FR-43255) (Aug. 10, 1999).*

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44. *65 FR 67249 (/citation/65-FR-67249) (Nov. 9, 2000).*

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45. *59 FR 7629 (/citation/59-FR-7629) (Feb. 16, 1994).*

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46. *66 FR 28355 (/citation/66-FR-28355) (May 22, 2001).*

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47. *61 FR 4729 (/citation/61-FR-4729) (Feb. 7, 1996).*

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[FR Doc. 2021-21867 (/d/2021-21867) Filed 10-6-21; 8:45 am]

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LEGAL STATUS

Northeast Canyons and Seamounts Marine National Monument

A Presidential Document by the [Executive Office of the President](#) on 10/15/2021

DOCUMENT DETAILS**Printed version:**

PDF (<https://www.govinfo.gov/content/pkg/FR-2021-10-15/pdf/2021-22674.pdf>)

Publication Date:

10/15/2021 (/documents/2021/10/15)

Agency:

Executive Office of the President (<https://www.federalregister.gov/agencies/executive-office-of-the-president>)

Document Type:

Presidential Document

Presidential Document Type:

Proclamation

Document Citation:

86 FR 57349

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Document Number:

2021-22674

DOCUMENT DETAILS

DOCUMENT STATISTICS**Page views:**

262
as of 04/14/2022 at 10:15 am EDT

PUBLISHED DOCUMENT

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Proclamation 10287 of October 8, 2021

Northeast Canyons and Seamounts Marine National Monument

A Proclamation

On September 15, 2016, President Barack Obama issued Proclamation 9496 (Northeast Canyons and Seamounts Marine National Monument), which designated approximately 4,913 square miles of waters and submerged lands where the Atlantic Ocean meets the continental shelf as the Northeast Canyons and Seamounts Marine National Monument. This designation represented the culmination of nearly a half-century of conservation efforts to preserve the vulnerable deep marine ecosystems of the Atlantic canyons and seamounts, which are widely known as natural laboratories for the long-term study of benthic ecology due to their rich biodiversity of important deep-sea corals, endangered whales, endangered and threatened sea turtles, other marine mammals, and numerous fish and invertebrate species.

The monument is composed of two units, the Canyons Unit and the Seamounts Unit, each of which showcases unique geological features that anchor vulnerable ecological communities threatened by varied uses, climate change, and related impacts. As described by Proclamation 9496, the Canyons Unit includes three underwater canyons: Oceanographer, Gilbert, and Lydonia. The canyons' hard walls, which range from 200 meters to thousands of meters deep, provide important habitats for, and support the life cycles of, a diversity of ocean life, including sponges, corals, and other invertebrates; larger species such as squid, octopuses, skates, flounders, and crabs; and highly migratory oceanic species, including tuna, billfish, sharks, toothed whales (such as the endangered sperm whale), and many species of beaked whales. The larger Seamounts Unit is home to four extinct undersea volcanoes—Bear, Physalia, Retriever, and Mytilus—that form a portion of an underwater chain of more than 30 extinct volcanoes that runs from the southern side of the Georges Bank to midway across the western Atlantic Ocean. These extinct volcanoes were formed as the Earth's crust passed over a stationary hot spot that pushed magma up through the seafloor, and many of them have flat tops that were created as ocean waves eroded the cooling magma. Geographically isolated from the continental platform and characterized by steep and complex submarine topography that interrupts existing ocean currents and provides a constant supply of plankton and nutrients, the seamounts are biological islands with various substrates that form ocean oases and act as incubators for new life. All four seamounts support highly diverse ecological communities, including many rare and endemic species that are new to science and are not known to live anywhere else on Earth. Together, the monument's submarine canyons and seamounts create the unique ecological conditions necessary to support one of the Atlantic Ocean's most biologically productive and important marine environments and one of science's greatest oceanic laboratories. Proclamation 9496 recognized the undersea canyons and seamounts, the deep-sea, pelagic, and other marine ecosystems they support, and the biodiversity they contain as objects of historic and scientific interest and dedicated the Federal lands and waters within the monuments' boundaries to their protection.

To provide for the proper care and management of the monument's objects of historic and scientific interest, Proclamation 9496 directed the Secretary of Commerce and the Secretary of the Interior (Secretaries) to prepare a joint management plan and promulgate implementing regulations, as appropriate. To the extent consistent with domestic and international law, Proclamation 9496 also directed the Secretaries to prohibit

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certain activities within the monument, including mineral exploration and development; the use of poisons, electrical charges, or explosives to collect or harvest monument resources; and drilling into, anchoring, dredging, or otherwise altering submerged lands. Proclamation 9496 also directed the Secretaries to prohibit all commercial fishing within the monument, but allowed the Secretaries to permit a 7-year phase-out for red crab and American lobster commercial fishing.

Despite the monument's ecological importance, wealth of objects of historic and scientific interest, and potential for additional scientific discovery, President Donald Trump issued Proclamation 10049 (Modifying the Northeast Canyons and Seamounts Marine National Monument) on June 5, 2020, to remove the restrictions on commercial fishing. Multiple parties challenged Proclamation 10049 in Federal court, asserting that it exceeded the President's authority under the Antiquities Act. Restoring the prohibition on commercial fishing will ensure that the unique, fragile, and largely pristine canyons and seamounts, and the dynamic ocean systems and marine life they support, identified in Proclamation 9496 as objects of historic or scientific interest requiring protection under the Antiquities Act, will be safeguarded and will continue to provide an important venue for scientific study and research.

The Canyons Unit and Seamounts Unit each contain interconnected oceanographic, geologic, and biologic features that create a unique oceanic system that supports an abundant concentration of biodiversity. These features' close proximity to each other results in an interdependent whole that exceeds the sum of its constituent parts.

In the case of the Canyons Unit, the monument boundary closely corresponds to a contiguous continental shelf break area around the heads of the three canyons, which extend seaward from features that have not yet fully taken on the distinctive canyon shape, to the walls and valleys of the canyons themselves, and out to the start of the outer shelf thousands of meters below. Within this transitional region, the walls of the three closely situated canyons combine with ocean currents, temperature gradients, eddies, and fronts to create significant and complex nutrient cycling and other processes that result in a biologically rich and distinct oceanic system. The Canyons Unit is sized to correspond to and protect these large-scale oceanic processes that provide the foundation for the distinct habitat that supports numerous objects of scientific interest. For example, the shallower depths of the canyons include ecologically significant and vulnerable habitat for tilefish, which function as ecosystem engineers by creating "pueblo" habitat at depths of 100 to 300 meters in the monument's canyons, which in turn supports a diversity of fish and invertebrate species. The Canyons Unit also supports a great abundance of marine mammals and other upper-trophic level predators attracted to the prey abundance fostered by the Canyons Unit's unique marine landscape. Due to the close proximity of the three canyons to one another, congregating marine mammals and pelagic fish species routinely transit the inter-canyon areas while foraging among the biologic abundance found there. This is an example of the important ecological linkages that connect the monument's various topographies, the surrounding shelf, and the water column above them, which necessitate protection of the entire interrelated system.

In the case of the Seamounts Unit, the boundary encompasses the four seamounts and the areas between the edges of Bear and Retriever Seamounts on the north side, Bear and Mytilus Seamounts on the south side, and out to the boundary line of the Exclusive Economic Zone on the east side. These four seamounts, rising thousands of feet from the surrounding seafloor, are the only seamounts located within U.S. Atlantic waters. As with the Canyons Unit, the proximity of these important geologic features to each other influences the currents, upwelling, stratification, and mixing that make the species and habitat within the monument so diverse, abundant, and unique. The seamounts function as oases in the open ocean environment and feature distinct ecological communities as they grade down from the relatively shallow seamount peaks to the abyss

below. They are critical to protecting the ecosystem linkages that transport nutrients to the surface through predator-prey interactions and temperature-driven upwelling, and transport organic carbon to deep-sea ecosystems (corals and benthic communities) through plankton and fecal detritus, downwelling materials, down-slope currents, and animal migration and mortality.

The boundaries of the monument reflect the need to protect the canyons, seamounts, and the attendant deep-sea, pelagic, and other marine ecosystems, which are themselves objects of historic and scientific interest, as well as the complex geologic, oceanographic, and biologic characteristics in the Canyons Unit and Seamounts Unit. The monument ensures these vulnerable marine ecosystems are safeguarded and will remain the great ocean laboratories recognized in Proclamation 9496. The boundaries are closely hewn to prominent geologic objects that form the foundation of closely linked habitats, which support the monument's great abundance and diversity of life. The boundaries are scaled to avoid cascading negative effects from failing to protect parts of these complex and interconnected marine environments and their unique oceanographic processes. In order to ensure effective management and protection of the objects of historic and scientific interest, straight-line coordinates are used where possible to provide clear and enforceable demarcation of this open-ocean monument. For these reasons, Proclamation 9496 found that the lands owned or controlled by the Federal Government within the monument's boundaries were the smallest area compatible with the proper care and management of the objects of historic and scientific interest designated for protection.

Commercial fishing activity has the potential to significantly degrade the monument's objects of historic and scientific interest. Bottom-contact fishing gear and fixed fishing gear (for example, traps, gillnets, and bottom and pelagic long-line gear) with buoys, submerged lines, and associated traps, mesh, or hooks, all pose threats to the canyons and seamounts, the ecosystem, and the deep-sea, pelagic, and other marine life they support, as well as the additional objects of historic and scientific interest contained therein. Although statutes such as the Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. 1801 (<https://www.govinfo.gov/link/uscode/16/1801>) *et seq.*, the Endangered Species Act, 16 U.S.C. 1531 (<https://www.govinfo.gov/link/uscode/16/1531>) *et seq.*, the Migratory Bird Treaty Act, 16 U.S.C. 703-712 (<https://www.govinfo.gov/link/uscode/16/703>), the National Wildlife Refuge System Administration Act, 16 U.S.C. 668dd-668ee (<https://www.govinfo.gov/link/uscode/16/668dd>), the Refuge Recreation Act, 16 U.S.C. 460k (<https://www.govinfo.gov/link/uscode/16/460k>) *et seq.*, the Marine Mammal Protection Act, 16 U.S.C. 1361 (<https://www.govinfo.gov/link/uscode/16/1361>) *et seq.*, the Clean Water Act, 33 U.S.C. 1251 (<https://www.govinfo.gov/link/uscode/33/1251>) *et seq.*, the Oil Pollution Act, 33 U.S.C. 2701 (<https://www.govinfo.gov/link/uscode/33/2701>) *et seq.*, the National Marine Sanctuaries Act, 16 U.S.C. 1431 (<https://www.govinfo.gov/link/uscode/16/1431>) *et seq.*, and Title I of the Marine Protection, Research and Sanctuaries Act (Ocean Dumping Act), 33 U.S.C. 1401 (<https://www.govinfo.gov/link/uscode/33/1401>) *et seq.*, provide important safeguards that did not exist prior to the Antiquities Act's passage, these laws do not adequately address the threats facing the canyons and seamounts and their surrounding ecosystem. The prohibition on commercial fishing confers necessary, additional, and lasting protections for the objects of historic and scientific interest in the Northeast Canyons and Seamounts Marine National Monument for current and future generations.

Protection of the Northeast Canyons and Seamounts as a marine national monument preserves significant geological features, marine biota, and deep-sea, pelagic, and other marine ecosystems that the canyons and seamounts create and support as they interact with ocean currents, ensuring that the natural and scientific values of this area are maintained for the benefit of all Americans and for the discovery of new information about living marine resources for years to come. □

WHEREAS, section 320301 of title 54, United States Code (<https://www.govinfo.gov/link/uscode/54/320301>) (the “Antiquities Act”) authorizes the President, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Federal Government to be national monuments, and to reserve as a part thereof parcels of land, the limits of which shall be confined to the smallest area compatible with the proper care and management of the objects to be protected; and

WHEREAS, Proclamation 9496 designated the Northeast Canyons and Seamounts Marine National Monument in the Atlantic Ocean and reserved approximately 4,913 square miles of water and submerged lands in and around certain deep-sea canyons and seamounts situated upon lands and interests in lands owned or controlled by the Federal Government as the smallest area compatible with the proper care and management of objects of historic and scientific interest; and

WHEREAS, Proclamation 10049 modified the conditions of the Northeast Canyons and Seamounts Marine National Monument to allow commercial fishing activities, which could impact monument objects; and

WHEREAS, I find that the resources identified above and in Proclamation 9496 are objects of historic or scientific interest in need of protection under the Antiquities Act; and

WHEREAS, I find that the unique nature of the waters and submerged lands that make up the marine environment in the Northeast Canyons and Seamounts area and the collection of objects and resources therein make the entire area within the boundaries of the monument an object of historic and scientific interest in need of protection under the Antiquities Act; and

WHEREAS, I find that there are documented threats to the objects identified above and in Proclamation 9496; and

WHEREAS, I find that the objects identified above and in Proclamation 9496 are not adequately protected by applicable law and other administrative designations; and

WHEREAS, I find that the boundaries of the monument reserved by Proclamation 9496 represent the smallest area compatible with the proper care and management of the objects of historic or scientific interest; and

WHEREAS, it is in the public interest to ensure the preservation and protection of the objects of historic and scientific interest in the Northeast Canyons and Seamounts Marine National Monument;

NOW, THEREFORE, I, JOSEPH R. BIDEN JR., President of the United States of America, by the authority vested in me by section 320301 of title 54, United States Code (<https://www.govinfo.gov/link/uscode/54/320301>), hereby proclaim that, in order to provide for the proper care and management of the objects identified above and in Proclamation 9496, management of lands and interests in lands owned or controlled by the Federal Government within the Northeast Canyons and Seamounts Marine National Monument shall be governed by the management provisions of Proclamation 9496. Such provisions include paragraph 6 in the section entitled “Prohibited Activities” and paragraph 5 in the section entitled “Regulated Activities,” which provide for the prohibition of all commercial fishing in the monument, except for red crab and American lobster commercial fishing, which may be permitted until September 15, 2023.

The Secretary of Commerce, through the National Oceanic and Atmospheric Administration, and the Secretary of the Interior, through the United States Fish and Wildlife Service, share management responsibility for the monument, as prescribed in Proclamation 9496. Within their respective authorities, the Secretaries shall prepare a joint management plan for the monument by September 15, 2023, and, as appropriate, shall promulgate implementing regulations that address any further specific actions necessary for the proper care and management of the objects and area identified above and in Proclamation 9496. □

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To the extent any provision of Proclamation 10049 is inconsistent with this proclamation or Proclamation 9496, the terms of this proclamation and Proclamation 9496 shall govern.

Warning is hereby given to all unauthorized persons not to appropriate, excavate, injure, destroy, or remove any feature of this monument and not to locate or settle upon any lands thereof.

If any provision of this proclamation, including its application to a particular parcel of land, is held to be invalid, the remainder of this proclamation and its application to other parcels of land shall not be affected thereby.

IN WITNESS WHEREOF, I have hereunto set my hand this eighth day of October, in the year of our Lord two thousand twenty-one, and of the Independence of the United States of America the two hundred and forty-sixth.



(<https://images.federalregister.gov/BIDEN.EPS/original.png?1616822162>)

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LEGAL STATUS

Regulations Governing Take of Migratory Birds; Proposed Rule

A Proposed Rule by the [Fish and Wildlife Service](#) on [05/07/2021](#)

DOCUMENT DETAILS**Printed version:**

PDF (<https://www.govinfo.gov/content/pkg/FR-2021-05-07/pdf/2021-09700.pdf>)

Publication Date:

05/07/2021 ([documents/2021/05/07](#))

Agencies:

Fish and Wildlife Service (<https://www.federalregister.gov/agencies/fish-and-wildlife-service>)

Dates:

We request public comments on this proposed rule on or before June 7, 2021.

Comments Close:

06/07/2021

Document Type:

Proposed Rule

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24573-24581 (9 pages)

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50 CFR 10

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RIN:

1018-BD76 (<https://www.federalregister.gov/regulations/1018-BD76/regulations-governing-take-of-migratory-birds-proposed-rule>)

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ENHANCED CONTENT



Docket Number:

[FWS-HQ-MB-2018-0090 \(https://www.regulations.gov/docket/FWS-HQ-MB-2018-0090\)](https://www.regulations.gov/docket/FWS-HQ-MB-2018-0090)

Docket Name:

Migratory Bird Permits; Regulations Governing Take of Migratory Birds

Docket RIN

[1018-BD76 \(https://www.federalregister.gov/regulations/1018-BD76/regulations-governing-take-of-migratory-birds-proposed-rule\)](https://www.federalregister.gov/regulations/1018-BD76/regulations-governing-take-of-migratory-birds-proposed-rule)

Supporting/Related Materials:

[Regulations Governing Take of Migratory Birds \(https://www.regulations.gov/document?D=FWS-HQ-MB-2018-0090-8631\)](https://www.regulations.gov/document?D=FWS-HQ-MB-2018-0090-8631)[Replaced with updated Draft EIS, see document... \(https://www.regulations.gov/document?D=FWS-HQ-MB-2018-0090-8412\)](https://www.regulations.gov/document?D=FWS-HQ-MB-2018-0090-8412)[Comment on this document for EIS No. 20200117, Draft, USFWS,... \(https://www.regulations.gov/document?D=FWS-HQ-MB-2018-0090-8411\)](https://www.regulations.gov/document?D=FWS-HQ-MB-2018-0090-8411)[Director's Order No.: 225, Subject: Incidental Take of... \(https://www.regulations.gov/document?D=FWS-HQ-MB-2018-0090-19194\)](https://www.regulations.gov/document?D=FWS-HQ-MB-2018-0090-19194)[ROD MBTA Revocation Rule signed 9.28.21 \(https://www.regulations.gov/document?D=FWS-HQ-MB-2018-0090-19193\)](https://www.regulations.gov/document?D=FWS-HQ-MB-2018-0090-19193)[FRFA for Final MBTA Revocation Rule 09.27.2021 \(https://www.regulations.gov/document?D=FWS-HQ-MB-2018-0090-19192\)](https://www.regulations.gov/document?D=FWS-HQ-MB-2018-0090-19192)[RIA for Final MBTA Revocation Reg_09.27.2021-clean \(https://www.regulations.gov/document?D=FWS-HQ-MB-2018-0090-19191\)](https://www.regulations.gov/document?D=FWS-HQ-MB-2018-0090-19191)[Regulations Governing Take of Migratory Birds; Revocation of... \(https://www.regulations.gov/document?D=FWS-HQ-MB-2018-0090-19190\)](https://www.regulations.gov/document?D=FWS-HQ-MB-2018-0090-19190)[Initial Regulatory Flexibility Analysis for Regulations... \(https://www.regulations.gov/document?D=FWS-HQ-MB-2018-0090-19182\)](https://www.regulations.gov/document?D=FWS-HQ-MB-2018-0090-19182)[Regulatory Impacts Analysis for the Proposed Revocation of... \(https://www.regulations.gov/document?D=FWS-HQ-MB-2018-0090-19181\)](https://www.regulations.gov/document?D=FWS-HQ-MB-2018-0090-19181)**See all 20 supporting documents (<https://www.regulations.gov/docket/FWS-HQ-MB-2018-0090/document?documentTypes=Supporting%20%26%20Related%20Material>)**

ENHANCED CONTENT

PUBLISHED DOCUMENT

AGENCY:

Fish and Wildlife Service, Interior.

ACTION:

Proposed rule.

SUMMARY:

On January 7, 2021, we, the U.S. Fish and Wildlife Service (we, the Service, or USFWS), published a final rule defining the scope of the Migratory Bird Treaty Act (MBTA) as it applies to conduct resulting in the injury or death of migratory birds protected by the MBTA. We are now proposing to revoke that rule for the reasons set forth below. The effect of this proposed rule would be to return to implementing the MBTA as prohibiting incidental take and applying enforcement discretion, consistent with judicial precedent.

DATES:

We request public comments on this proposed rule on or before June 7, 2021.

ADDRESSES:

You may submit comments by one of the following methods:

(1) *Electronically*: Go to the Federal eRulemaking Portal: <http://www.regulations.gov> (<http://www.regulations.gov>). In the Search box, enter FWS-HQ-MB-2018-0090, which is the docket number for this action. Then, click on the Search button. You may submit a comment by clicking on “Comment Now!” Please ensure you have located the correct document before submitting your comments.

(2) *By hard copy*: Submit by U.S. mail to: Public Comments Processing, Attn: FWS-HQ-MB-2018-0090, U.S. Fish and Wildlife Service, MS: JAO/3W, 5275 Leesburg Pike, Falls Church, VA 22041-3803.

We request that you send comments only by the methods described above. We will post all comments on <https://www.regulations.gov> (<https://www.regulations.gov>). This generally means that we will post any personal information you provide us (see Public Comments, below, for more information).

FOR FURTHER INFORMATION CONTACT:

Jerome Ford, Assistant Director, Migratory Birds, at 202-208-1050.

SUPPLEMENTARY INFORMATION:

On January 7, 2021, we published a final rule defining the scope of the MBTA (16 U.S.C. 703 (<https://www.govinfo.gov/link/uscode/16/703>) *et seq.*) as it applies to conduct resulting in the injury or death of migratory birds protected by the MBTA (86 FR 1134 (/citation/86-FR-1134)) (hereafter referred to as the “January 7 rule”). The January 7 rule codified an interpretation of the MBTA set forth in a 2017 legal opinion of the Solicitor of the Department of the Interior, Solicitor's Opinion M-37050, which concluded that the MBTA does not prohibit incidental take.

As initially published, the January 7 rule was to become effective 30 days later, on February 8, 2021. However, on February 4, 2021, USFWS submitted a final rule to the **Federal Register** correcting the January 7 rule's effective date to March 8, 2021, to conform with its status as a “major rule” under the Congressional Review Act, which requires a minimum effective date period of 60 days, *see* 5 U.S.C. 801(a)(3) (<https://www.govinfo.gov/link/uscode/5/801>) and 804(2) (<https://www.govinfo.gov/link/uscode/5/804>). The final rule extending the effective date of the January 7 final rule itself became effective when it was made available for public inspection in the reading room of the Office of Federal Register on February 5, 2021 and was published in the **Federal Register** on February 9, 2021 (86 FR 8715 (/citation/86-FR-8715)). In that document, we also sought public comment to inform our review of the January 7 rule and to determine whether further extension of the effective date is necessary.

After further review, we decided not to extend the effective date of the January 7 rule beyond March 8. We acknowledge that the January 7 rule will remain in effect for some period of time even if it is ultimately determined, after notice and comment, that it should be revoked. But, rather than extending the effective date again, we believe that the most transparent and efficient path forward is instead to immediately propose

to revoke the January 7 rule. This proposed rule provides the public with notice of our current intent to revoke the January 7 rule's interpretation of the MBTA that it does not prohibit incidental take, subject to our final decision after consideration of public comments.

We have undertaken further review of the January 7 rule and have determined that the rule does not reflect the best reading of the MBTA's text, purpose, and history. It is also inconsistent with the majority of relevant court decisions addressing the issue, including the decision of the District Court for the Southern District of New York that expressly rejected the rationale offered in the rule. The rule's reading of the MBTA also raises serious concerns with a United States' treaty partner, and for the migratory bird resources protected by the MBTA and underlying treaties. Accordingly, we are proposing to revoke the January 7 rule.

The MBTA statutory provisions at issue in the January 7 rule have been the subject of repeated litigation and diametrically opposed opinions of the Solicitors of the Department of the Interior. The longstanding historical agency practice confirmed in the earlier Solicitor M-Opinion, M-37041, and upheld by most reviewing courts, had been that the MBTA prohibits the incidental take of migratory birds (subject to certain legal constraints). The January 7 rule reversed these several decades of past agency practice and interpreted the scope of the MBTA to exclude incidental take of migratory birds. In so doing, the January 7 rule codified Solicitor's Opinion M-37050, which itself had been vacated by the United States District Court for the Southern District of New York. This interpretation focused on the language of section 2 of the MBTA, which, in relevant part, makes it "unlawful at any time, by any means, or in any manner, to pursue, hunt, take, capture, kill" migratory birds or attempt to do the same. 16 U.S.C. 703(a)

(<https://www.govinfo.gov/link/uscode/16/703>). Solicitor's Opinion M-37050 and the January 7 rule argued that the prohibited terms listed in section 2 all refer to conduct directed at migratory birds, and that the broad preceding language, "by any means, or in any manner," simply covers all potential methods and means of performing actions directed at migratory birds and does not extend coverage to actions that incidentally take or kill migratory birds.

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As noted above, on August 11, 2020, a court rejected the interpretation set forth in Solicitor's Opinion M-37050 as contrary to the MBTA and vacated that opinion. *Natural Res. Def. Council v. U.S. Dep't of the Interior*, 478 F. Supp. 3d 469 (S.D.N.Y. 2020) ("NRDC"). In late January 2021, two new lawsuits were filed that challenge the January 7 rule. *Nat'l Audubon Soc'y v. U.S. Fish & Wildlife Serv.*, 1:21-cv-00448 (S.D.N.Y. filed Jan. 19, 2021); *State of New York v. U.S. Dep't of the Interior*, 1:21-cv-00452 (S.D.N.Y. filed Jan. 19, 2021). At the time the January 7 rule was published, the United States had filed a notice of appeal of the NRDC decision in the U.S. Court of Appeals for the Second Circuit. Since that time, the United States filed a stipulation to dismiss that appeal on February 25, 2021, and the Deputy Solicitor permanently withdrew M-37050 on March 8, 2021.

The District Court's decision in NRDC expressly rejected the basis for the January 7 rule's conclusion that the statute does not prohibit incidental take. In particular, the court reasoned that the plain language of the MBTA's prohibition on killing protected migratory bird species "at any time, by any means, and in any manner" shows that the MBTA prohibits incidental killing. See 478 F. Supp. 3d at 481. Thus, the statute is not limited to actions directed at migratory birds. After closely examining the court's holding, we are persuaded that it advances the better reading of the statute, including that the better reading of "kill" is that it also prohibits incidental killing.

The interpretation contained in the January 7 rule relies heavily on *United States v. CITGO Petroleum Corp.*, 801 F.3d 477 (5th Cir. 2015) (*CITGO*). The Fifth Circuit is the only Circuit Court of Appeals to expressly state that the MBTA does not prohibit incidental take. In *CITGO*, the Fifth Circuit held that the term “take” in the MBTA does not include incidental taking because “take” at the time the MBTA was enacted in 1918 referred in common law to “[reducing] animals, by killing or capturing, to human control” and accordingly could not apply to accidental or incidental take. *Id.* at 489 (following *Babbitt v. Sweet Home Chapter Cmty. for a Great Or.*, 515 U.S. 687, 717 (1995) (Scalia J., dissenting) (*Sweet Home*)). While we do not agree with the *CITGO* court's interpretation of the term “take” under the MBTA, we further note that *CITGO* does not provide legal precedent for construing “kill” narrowly. The *CITGO* court's analysis is limited by its terms to addressing the meaning of the term “take” under the MBTA; thus, any analysis of the meaning of the term “kill” was not part of the court's holding. As discussed below, however, we also disagree with the *CITGO* court's analysis of the term “kill.”

Although the *CITGO* court's holding was limited to interpreting “take,” the court opined in dicta that the term “kill” is limited to intentional acts aimed at migratory birds in the same manner as “take.” *See* 801 F.3d at 489 n.10. However, the court based this conclusion on two questionable premises.

First, the court stated that “kill” has little if any independent meaning outside of the surrounding prohibitory terms “pursue,” “hunt,” “capture,” and “take,” analogizing the list of prohibited acts to those of two other environmental statutes—the Endangered Species Act (ESA) (16 U.S.C. 1531 (<https://www.govinfo.gov/link/uscode/16/1531>) *et seq.*) and the Migratory Bird Conservation Act (16 U.S.C. 715 (<https://www.govinfo.gov/link/uscode/16/715>) *et seq.*). *See id.* The obvious problem with this argument is that it effectively reads the term “kill” out of the statute; in other words, the *CITGO* court's reasoning renders “kill” superfluous to the other terms mentioned, thus violating the rule against surplusage. *See, e.g., Corley v. United States*, 556 U.S. 303, 314 (2009).

Second, employing the *noscitur a sociis* canon of statutory construction (which provides that the meaning of an ambiguous word should be determined by considering its context within the words it is associated with), the Fifth Circuit argued that because the surrounding terms apply to “deliberate acts that effect bird deaths,” then “kill” must also. *See* 801 F.3d at 489 n.10. The January 7 rule also relied heavily on this canon to argue that both “take” and “kill” must be read as deliberate acts in concert with the other referenced terms. Upon closer inspection though, the only terms that clearly and unambiguously refer to deliberate acts are “hunt” and “pursue.” Both the *CITGO* court and the January 7 final rule erroneously determined that “capture” can also only be interpreted as a deliberate act. This is not so. There are many examples of unintentional or incidental capture, such as incidental capture in traps intended for animals other than birds or in netting designed to prevent swallows nesting under bridges. Thus, the *CITGO* court's primary argument that “kill” only applies to “deliberate actions” rests on the fact that just two of the five prohibited actions unambiguously describe deliberate acts. The fact that most of the prohibited terms can be read to encompass actions that are not deliberate in nature is a strong indication that Congress did not intend those terms to narrowly apply only to direct actions.

The *NRDC* court similarly rejected the January 7 rule's interpretation of the term “kill” and its meaning within the context of the list of actions prohibited by the MBTA. The court noted the broad, expansive language of section 2 prohibiting hunting, pursuit, capture, taking, and killing of migratory birds “by any means or in any manner.” 478 F. Supp. 3d at 482. The court reasoned that the plain meaning of this language can only be construed to mean that activities that result in the death of a migratory bird are a violation “irrespective of whether those activities are specifically directed at wildlife.” *Id.* The court also noted that the

Sweet Home decision relied upon by the *CITGO* court and the January 7 rule actually counsels in favor of a broad reading of the term “kill,” even assuming Justice Scalia accurately defined the term “take” in his dissent. The *Sweet Home* case dealt specifically with the definition of “take” under the ESA, which included the terms “harm” and “kill.” The majority in *Sweet Home* was critical of the consequences of limiting liability under the ESA to “affirmative conduct intentionally directed against a particular animal or animals,” reasoning that knowledge of the consequences of an act are sufficient to infer liability, including typical incidental take scenarios. *Id.* at 481-82.

The *NRDC* court went on to criticize the use of the *noscitur a sociis* canon in Solicitor's Opinion M-37050 (a use repeated in the January 7 rule). The court reasoned that the term “kill” is broad and can apply to both intentional, unintentional, and incidental conduct. The court faulted the Solicitor's narrow view of the term and disagreed that the surrounding terms required that narrow reading. To the contrary, the court found the term “kill” to be broad and not at all ambiguous, pointedly noting that proper use of the *noscitur* canon is confined to interpreting ambiguous statutory language. Moreover, use of the *noscitur* canon deprives “kill” of any independent meaning, which runs headlong into the canon against surplusage as noted above. The court did not agree that an example provided □ by the government demonstrated that “kill” had independent meaning from “take” under the interpretation espoused by Solicitor's Opinion M-37050. By analogy, the court referenced the Supreme Court's rejection of the dissent's use of the *noscitur* canon in *Sweet Home*, which similarly gave the term “harm” the same essential function as the surrounding terms used in the definition of “take” under the ESA, denying it independent meaning. *See id.* at 484.

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In sum, after further review of the *CITGO* and *NRDC* decisions, along with the language of the statute, we now conclude that the interpretation of the MBTA set forth in the January 7 rule and Solicitor's Opinion M-37050, which provided the basis for that interpretation, is not the construction that best accords with the text, purposes, and history of the MBTA. It simply cannot be squared with the *NRDC* court's holding that the MBTA's plain language encompasses the incidental killing of migratory birds. Even if the *NRDC* court's plain-language analysis were incorrect, the operative language of the MBTA is at minimum ambiguous, thus USFWS has discretion to implement that language in a manner consistent with the conservation purposes of the statute and its underlying Conventions. To the extent that the primary policy justifications for the January 7 rule were resolving uncertainty and increasing transparency through rulemaking, we do not consider these concerns to outweigh the legal infirmities of the January 7 rule or the conservation purposes of the statute and its underlying Conventions. Interpreting the statute to exclude incidental take is not the reading that best advances these purposes, which is underscored by the following additional reasons for revoking the current regulation.

First, the January 7 rule is undermined by the 2002 legislation authorizing military-readiness activities that incidentally take or kill migratory birds. In that legislation, Congress temporarily exempted “incidental taking” caused by military-readiness activities from the prohibitions of the MBTA; required the Secretary of Defense to identify, minimize, and mitigate the adverse effect of military-readiness activities on migratory birds; and directed USFWS to issue regulations under the MBTA creating a permanent exemption for military-readiness activities. Bob Stump National Defense Authorization Act for Fiscal Year 2003, Public Law 107-314 (<https://www.govinfo.gov/link/plaw/107/public/314>), Div. A, Title III, section 315 (2002), 116 Stat. 2509 (Stump Act). This legislation was enacted in response to a court ruling that had enjoined military training that incidentally killed migratory birds. *Ctr. for Biological Diversity v. Pirie*, 191 F. Supp. 2d 161 and 201 F. Supp. 2d 113 (D.D.C. 2002), *vacated on other grounds sub nom. Ctr. for Biological Diversity v. England*, 2003 U.S. App. Lexis 1110 (D.C. Cir. Jan. 23, 2003). Notably, Congress did not amend the MBTA to define the terms “take” or “kill.” Instead, Congress itself uses the term “incidental take” and provides that the

MBTA “shall not apply” to such take by the Armed Forces during “military-readiness activities.” Moreover, Congress limited the exemption only to military-readiness activities to training and operations related to combat and the testing of equipment for combat use; it expressly excluded routine military-support functions and the “operation of industrial activities” from the exemption afforded by the 2002 legislation, leaving such non-combat-related activities fully subject to the prohibitions of the Act. Even then, the military-readiness incidental take carve-out was only temporarily effectuated through the statute itself. Congress further directed the Department of the Interior (DOI or the Department) “to prescribe regulations to exempt the Armed Forces for the incidental taking of migratory birds during military readiness activities.” This would be an odd manner in which to proceed to address the issue raised by the *Pirie* case if Congress’ governing understanding at the time was that incidental take of any kind was not covered by the Act (we acknowledge that Congress’s understanding when enacting legislation in 2002 is relevant to, but not dispositive of, Congress’s intent when it enacted the MBTA in 1918). Congress simply could have amended the MBTA to clarify that incidental take is not prohibited by the statute or, at the least, that take incidental to military-readiness activities is not prohibited. Instead, Congress limited its amendment to exempting incidental take only by military-readiness activities, expressly excluded other military activities from the exemption, and further directed DOI to issue regulations delineating the scope of the military-readiness carve-out from the prohibitions of the Act. All of these factors indicate that Congress understood that the MBTA’s take and kill prohibitions included what Congress itself termed “incidental take.”

In arguing that Congress’s authorization of incidental take during military-readiness activities did not authorize enforcement of incidental take in other contexts, the January 7 rule cites the *CITGO* court’s conclusion that a “single carve-out from the law cannot mean that the entire coverage of the MBTA was implicitly and hugely expanded.” *CITGO*, 801 F.3d at 491. It is true that the Stump Act clearly did not, by its terms, authorize enforcement of incidental take in other contexts. It clearly could not do anything of the sort, based on its narrow application to military-readiness activities. Rather, the logical explanation is that Congress considered that the MBTA already prohibited incidental take (particularly given USFWS’s enforcement of incidental take violations over the prior three decades) and there was no comprehensive regulatory mechanism available to authorize that take. Thus, it was necessary to temporarily exempt incidental take pursuant to military-readiness activities to address the *Pirie* case and direct USFWS to create a permanent exemption. This conclusion is supported by the fact that Congress specifically stated in the Stump Act that the exemption did not apply to certain military activities that do not meet the definition of military readiness, including operation of industrial activities and routine military-support functions.

On closer inspection, the *CITGO* court’s analysis of the purposes behind enactment of the military-readiness exemption is circular. Assuming the military-readiness exemption is necessary because the MBTA otherwise prohibits incidental take only represents an implicit and huge expansion of coverage under the MBTA if it is assumed that the statute did not already prohibit incidental take up to that point. But Congress would have had no need to enact the exemption if the MBTA did not—both on its terms and in Congress’s understanding—prohibit incidental take. The adoption of a provision to exempt incidental take in one specific instance is merely a narrowly tailored exception to the general rule, and provides clear evidence of what Congress understood the MBTA to prohibit.

Second, further consideration of concerns expressed by one of our treaty partners counsels in favor of revoking the January 7 rule. The MBTA implements four bilateral migratory bird Conventions with Canada, Mexico, Russia, and Japan. See 16 U.S.C. 703-705 (<https://www.govinfo.gov/link/uscode/16/703>), 712

(<https://www.govinfo.gov/link/uscode/16/712>). The Government of Canada communicated its concerns with the January 7 rule both during and after the rulemaking process, including providing comments on the environmental impact statement (EIS) associated with the rule.

After the public notice and comment period had closed, Canada's Minister of Environment and Climate Change summarized the Government of Canada's concerns in a public statement issued on December 18, 2020 (<https://www.canada.ca/en/environment-climate-change/news/2020/12/minister-wilkinson-expresses-concern-over-proposed-regulatory-changes-to-the-united-states-migratory-bird-treaty-act.html>) (<https://www.canada.ca/en/environment-climate-change/news/2020/12/minister-wilkinson-expresses-concern-over-proposed-regulatory-changes-to-the-united-states-migratory-bird-treaty-act.html>)).

Minister Wilkinson voiced the Government of Canada's concern regarding “the potential negative impacts to our shared migratory bird species” of allowing the incidental take of migratory birds under the MBTA rule and “the lack of quantitative analysis to inform the decision.” He noted that the “Government of Canada's interpretation of the proposed changes . . . is that they are not consistent with the objectives of the Convention for the Protection of Migratory Birds in the United States and Canada.” Additionally, in its public comments on the draft EIS for the MBTA rule, Canada stated that it believes the rule “is inconsistent with previous understandings between Canada and the United States (U.S.), and is inconsistent with the long-standing protections that have been afforded to non-targeted birds under the Convention for the Protection of Migratory Birds in the United States and Canada . . . as agreed upon by Canada and the U.S. through Article I. The removal of such protections will result in further unmitigated risks to vulnerable bird populations protected under the Convention.” After further consideration, we have similar concerns to those of our treaty partner, Canada.

The protections for “non-targeted birds” noted by the Canadian Minister are part and parcel of the Canada Convention, as amended by the Protocol between the United States and Canada Amending the 1916 Convention for the Protection of Migratory Birds in Canada and the United States, which protects not only game birds hunted and trapped for sport and food, but also nongame birds and insectivorous birds. For instance, the preamble to the Convention declares “saving from indiscriminate slaughter and of insuring the preservation of such migratory birds as are either useful to man or are harmless” as its very purpose and declares that “many of these species are . . . in danger of extermination through lack of adequate protection during the nesting season or while on their way to and from their breeding grounds.” Convention between the United States and Great Britain (on behalf of Canada) for the Protection of Migratory Birds, 39 Stat. 1702 (Aug. 16, 1916). Thus, whether one argues that the language of section 2 of the MBTA plainly prohibits incidental killing of migratory birds or is ambiguous in that regard, an interpretation that excludes incidental killing is difficult to square with the express conservation purposes of the Canada Convention. Moreover, until recently there had been a longstanding “mutually held interpretation” between the two treaty partners that regulating incidental take is consistent with the underlying Convention, as stated in an exchange of Diplomatic Notes in 2008. While Canada expressed its position before the final rule on January 7, upon review, we now have determined that the concerns raised by the United States' treaty partner counsel in favor of revocation of the rule.

In addition to the Canada Convention, the January 7 rule may also be inconsistent with the migratory bird conventions with Mexico, Japan, and Russia. The Japan and Russia Conventions both broadly call for the parties to prevent damage to birds from pollution. *See* Convention between the Government of the United States of America and the Government of Japan for the Protection of Migratory Birds and Birds in Danger of Extinction, and Their Environment, Mar. 4, 1972, 25 U.S.T. 3329 (Japan Convention); Convention between the United States of America and the Union of Soviet Socialist Republics Concerning the Conservation of

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Migratory Birds and Their Environment, Nov. 19, 1976, 29 U.S.T. 4647 (Russia Convention). The Protocols amending the Canada and Mexico Conventions contain similar language calling for the parties to seek means to prevent damage to birds and their environment from pollution. *See* Protocol between the Government of the United States and the Government of Canada Amending the 1916 Convention Between the United Kingdom and the United States of America for the Protection of Migratory Birds, Dec. 14, 1995, S. Treaty Doc. No. 104-28, T.I.A.S. 12721; Protocol Between the Government of the United States of America and the Government of the United Mexican States Amending the Convention for the Protection of Migratory Birds and Game Mammals, May 5, 1997, S. Treaty Doc. No. 105-26.

Some of the relevant provisions include Article IV of the Protocol with Canada, which states that each party shall use its authority to “take appropriate measures to preserve and enhance the environment of migratory birds,” and in particular shall “seek means to prevent damage to [migratory] birds and their environments, including damage resulting from pollution”; Article I of the Mexico Convention, which discusses protecting migratory birds by “means of adequate methods[. . .]”; Article VI(a) of the Japan Convention, which provides that parties shall “[s]eek means to prevent damage to such birds and their environment, including, especially, damage resulting from pollution of the seas”; and Articles IV(1) and 2(c) of the Russia Convention, which require parties to “undertake measures necessary to protect and enhance the environment of migratory birds and to prevent and abate the pollution or detrimental alteration of that environment,” and, in certain special areas, undertake, to the maximum extent possible, “measures necessary to protect the ecosystems in those special areas . . . against pollution, detrimental alteration and other environmental degradation.”

The January 7 rule eliminates a source of liability for pollution that incidentally takes and kills migratory birds, a position that is difficult to square with the mutually agreed-upon treaty provisions agreeing to prevent damage to birds from pollution. The January 7 rule does not directly affect natural resource damage assessments conducted under the Comprehensive Environmental Response Compensation and Liability Act, the Oil Pollution Act, and the Clean Water Act to determine compensation to the public for lost natural resources and their services from accidents that have environmental impacts, such as oil spills. However, for oils spills such as the BP Deepwater Horizon Gulf oil spill and the *Exxon Valdez* oil spill in Alaska, significant penalties were levied in addition to those calculated under natural resource damage assessments based on incidental-take liability under the MBTA. Those fines constituted a large proportion of the total criminal fines and civil penalties associated with historical enforcement of incidental take violations. As noted in the EIS, the January 7 rule eliminates the Federal Government's ability to levy similar fines in the future, thereby reducing the deterrent effect of the MBTA and reducing funding for the North American Wetland Conservation Fund for the protection and restoration of wetland habitat for migratory birds.

In sum, the issues raised by the Government of Canada raise significant concerns regarding whether the January 7 rule is consistent with the Canada Convention, and questions also remain regarding that rule's consistency with the other migratory bird Conventions. We note as well that the primary policy justifications for the January 7 rule were resolving uncertainty and increasing transparency through rulemaking. These concerns, however, do not outweigh the legal infirmities of the January 7 rule or the conservation objectives described above. On these bases, in addition to the legal concerns raised above, we are proposing to revoke the MBTA rule.

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Public Comments

We solicit public comments on the following topics:

1. Whether we should revoke the rule, as proposed here, and why or why not;
2. The costs or benefits of revoking the rule;
3. The costs or benefits of leaving the rule in place; and
4. Any reliance interests that might be affected by revoking the rule, or not revoking the rule.

You may submit your comments and materials concerning this proposed rule by one of the methods listed in **ADDRESSES**. If you provided comments in response to the February 9, 2021, rule (86 FR 8715 (/citation/86-FR-8715)) to extend the effective date of the January 7 rule, you do not need to resubmit those comments in response to this proposed rule. The USFWS will consider all comments pertaining to the January 7 rule that were submitted in response to the February 9, 2021, rule in determining whether to revoke the January 7 rule. Comments must be submitted to <http://www.regulations.gov> (<http://www.regulations.gov>) before 11:59 p.m. (Eastern Time) on the date specified in **DATES**. We will not consider mailed comments that are not postmarked by the date specified in **DATES**.

We will post your entire comment—including your personal identifying information—on <http://www.regulations.gov> (<http://www.regulations.gov>). If you provide personal identifying information in your comment, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so. Comments and materials we receive will be available for public inspection on <http://www.regulations.gov> (<http://www.regulations.gov>).

Required Determinations

National Environmental Policy Act

Because we are proposing to revoke the January 7 MBTA rule, we will rely on the final EIS developed to analyze that rule in determining the environmental impacts of revoking it: “Final Environmental Impact Statement; Regulations Governing Take of Migratory Birds,” available on <http://www.regulations.gov> (<http://www.regulations.gov>) in Docket No. FWS-HQ-MB-2018-0090. The alternatives analyzed in that EIS cover the effects of interpreting the MBTA to both include and exclude incidental take. If we finalize this proposed rule, we will publish an amended Record of Decision that explains our decision to instead select the environmentally preferable alternative, or Alternative B, in the final EIS. If we determine that any additional, relevant impacts on the human environment have occurred subsequent to our existing Record of Decision, we will describe those impacts in the amended Record of Decision.

Government to Government Relationship With Tribes

In accordance with Executive Order 13175 (/executive-order/13175), “Consultation and Coordination with Indian Tribal Governments,” and the Department of the Interior’s manual at 512 DM 2, we considered the possible effects of this rule on federally recognized Indian Tribes. The Department of the Interior strives to strengthen its government-to government relationship with Indian Tribes through a commitment to consultation with Indian Tribes and recognition of their right to self governance and Tribal sovereignty.

We have evaluated the January 7 rule that this proposed rule would revoke under the criteria in Executive Order 13175 (/executive-order/13175) and under the Department's Tribal consultation policy and determined that the January 7 rule may have a substantial direct effect on federally recognized Indian Tribes. We

received requests from nine federally recognized Tribes and two Tribal councils for government-to-government consultation on that rule. Accordingly, the Service initiated government to government consultation via letters signed by Regional Directors and completed the consultations before issuing the January 7 final rule.

During these consultations, there was unanimous opposition from Tribes to the re-interpretation of the MBTA to exclude coverage of incidental take under the January 7 rule. Thus, this proposal to revoke the January 7 rule is consistent with the requests of federally recognized Tribes during those consultations.

Energy Supply Distribution

E.O. 13211 (/executive-order/13211) requires agencies to prepare Statements of Energy Effects when undertaking certain actions. As noted above, this rule is a significant regulatory action under E.O. 12866, but the rule is not likely to have a significant adverse effect on the supply, distribution, or use of energy. The action has not been otherwise designated by the Administrator of the Office of Information and Regulatory Affairs (OIRA) in the Office of Management and Budget (OMB) as a significant energy action. Therefore, no Statement of Energy Effects is required.

Endangered Species Act

Section 7 of the Endangered Species Act of 1973, as amended (ESA; 16 U.S.C. 1531-44 (<https://www.govinfo.gov/link/uscode/16/1531-44>)), requires that “The Secretary [of the Interior] shall review other programs administered by him and utilize such programs in furtherance of the purposes of this Act.” 16 U.S.C. 1536(a)(1) (<https://www.govinfo.gov/link/uscode/16/1536>). It further states “[e]ach Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat.” 16 U.S.C. 1536(a)(2) (<https://www.govinfo.gov/link/uscode/16/1536>). We have determined that this rule proposing the revocation of the January 7 rule regarding the take of migratory birds will have no effect on ESA-listed species within the meaning of ESA Section 7(a)(2).

Regulatory Planning and Review (Executive Orders 12866 and 13563)

Executive Order (E.O.) 12866 provides that the Office of Information and Regulatory Affairs (OIRA) in the Office of Management and Budget (OMB) will review all significant rules. OIRA has determined that this proposed rule is economically significant.

Executive Order 13563 (/executive-order/13563) reaffirms the principles of E.O. 12866 while calling for improvements in the nation's regulatory system to promote predictability, to reduce uncertainty, and to use the best, most innovative, and least burdensome tools for achieving regulatory ends. The executive order directs agencies to consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public where these approaches are relevant, feasible, and consistent with regulatory objectives. E.O. 13563 (/executive-order/13563) emphasizes further that regulations must be based on the best available science and that the rulemaking process must allow for public participation and an open exchange of ideas. We have developed this proposed rule in a manner consistent with these requirements.

This proposed regulation would revoke the January 7 MBTA rule. The legal effect of this proposal would be to remove from the Code of Federal Regulations (CFR) the interpretation that incidental take of migratory birds is not prohibited under the MBTA, based on □ the rationale explained in the preamble. As explained in the preamble, the Solicitor's Opinion (M-37050) that formed the basis for the January 7 rule was overturned

in court and has since been withdrawn by the Solicitor's Office. By removing § 10.14 from subpart B of title 50 CFR (<https://www.ecfr.gov/current/title-50/part-B>), USFWS would revert to implementing the statute without an interpretative regulation governing incidental take, consistent with judicial precedent. This would mean that incidental take can violate the MBTA to the extent consistent with the statute and judicial precedent. Enforcement discretion would be applied, subject to certain legal constraints.

The Service conducted a regulatory impact analysis of the January 7 rule, which can be viewed online at <http://www.regulations.gov> (<http://www.regulations.gov>) in Docket No. FWS-HQ-MB-2018-0090. In that analysis, we analyzed the effects of an alternative (Alternative B) where the Service would promulgate a regulation that interprets the MBTA to prohibit incidental take consistent with the Department's longstanding prior interpretation. By reverting to this interpretation, the Service would view the incidental take of migratory birds as a potential violation of the MBTA, consistent with judicial precedent. The Regulatory Impact Analysis for this proposed rule can be viewed online at <http://www.regulations.gov> (<http://www.regulations.gov>) in Docket No. FWS-HQ-MB-2018-0090. The primary benefit of this rule results from decreased incidental take. While we are unable to quantify the benefits, we expect this rule to result in increased ecosystem services and benefits to businesses that rely on these services. Further, benefits will accrue from increased bird watching opportunities. The primary cost of this rule is the compliance cost incurred by industry, which is also not quantifiable. Firms are more likely to implement best practice measures to avoid potential fines. Additionally, potential fines generate transfers from industry to the government. Using a 10-year time horizon (2022-2031), the present value of these transfers is estimated to be \$73.6 million at a 7-percent discount rate and \$67.1 million at a 3-percent discount rate. This would equate to an annualized value of \$15.6 million at a 7-percent discount rate and \$15.3 million at a 3-percent discount rate.

Regulatory Flexibility Act and Small Business Regulatory Enforcement Fairness Act

Under the Regulatory Flexibility Act (5 U.S.C. 601 (<https://www.govinfo.gov/link/uscode/5/601>) *et seq.*, as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996 (Pub. L. 104-121 (<https://www.govinfo.gov/link/plaw/104/public/121>))), whenever an agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effects of the rule on small businesses, small organizations, and small government jurisdictions. However, in lieu of an initial or final regulatory flexibility analysis (IRFA or FRFA) the head of an agency may certify on a factual basis that the rule would not have a significant economic impact on a substantial number of small entities.

SBREFA amended the Regulatory Flexibility Act to require Federal agencies to provide a statement of the factual basis for certifying that a rule would not have a significant economic impact on a substantial number of small entities. Thus, for an initial/final regulatory flexibility analysis to be required, impacts must exceed a threshold for "significant impact" and a threshold for a "substantial number of small entities." *See* 5 U.S.C. 605(b) (<https://www.govinfo.gov/link/uscode/5/605>). We prepared an Initial Regulatory Flexibility Analysis, briefly summarized below, to accompany this rule that can be viewed online at <http://www.regulations.gov> (<http://www.regulations.gov>) in Docket No. FWS-HQ-MB-2018-0090.

The proposed rule may affect industries that typically incidentally take substantial numbers of birds and with which the Service has worked to reduce those effects (Table 1). In some cases, these industries have been subject to enforcement actions and prosecutions under the MBTA prior to the issuance of M-37050. The vast majority of entities in these sectors are small entities, based on the U.S. Small Business Administration (SBA) small business size standards. It is important to note that many small businesses would not be affected

if we ultimately promulgate this proposed rule. Only those businesses that reduced best management practices that avoid or minimize incidental take of migratory birds as a result of the issuance of M-37050 in January 2017 and the January 7, 2021, rule would incur costs. If we promulgate this proposed rule, those businesses would presumably reinstate those best management practices. We are requesting public comment on the number of businesses that reduced best management practices and the resulting cost savings as a direct result of issuance of M-37050 and the January 7 rule.

Table 1—Distribution of Businesses Within Affected Industries

NAICS industry description	NAICS code	Number of businesses	Small business size standard (number of employees)	Number of small businesses
Finfish Fishing	114111	1,210	^a 20	1,185
Crude Petroleum and Natural Gas Extraction	211111	6,878	1,250	6,868
Drilling Oil and Gas Wells	213111	2,097	1,000	2,092
Solar Electric Power Generation	221114	153	250	153
Wind Electric Power Generation	221115	264	250	263
Electric Bulk Power Transmission	221121	261	500	214
Electric Power Distribution	221122	7,557	1,000	7,520
Wireless Telecommunications Carriers (except Satellite)	517312	15,845	1,500	15,831

Source: U.S. Census Bureau, 2012 County Business Patterns.

^a **Note:** The SBA size standard for finfish fishing is \$22 million. Neither Economic Census, Agriculture Census, nor the National Marine Fisheries Service collect business data by revenue size for the finfish industry. Therefore, we employ other data to approximate the number of small businesses. Source: U.S. Census Bureau, 2017 Economic Annual Survey.

Since the Service does not currently have a permitting system dedicated to authorizing incidental take of migratory birds, the Service does not have specific information regarding how many businesses in each sector implement measures to reduce incidental take of birds. Not all businesses in each sector incidentally take birds. In addition, a variety of factors would influence whether, under the previous interpretation of the MBTA, businesses would implement such measures. It is also unknown how many businesses continued or reduced practices to reduce the incidental take of birds since publication of the Solicitor's Opinion M-37050 or issuance of the January 7 rule. We did not receive sufficient information on that issue during the public comment periods associated with the January 7 rule and associated NEPA analysis or the February 9 rule extending the effective date of the January 7 rule. We reiterate our request for public comment on these issues for this proposed rule.

If this proposed rulemaking results in revoking the January 7 rule, any subsequent incidental take of migratory birds could violate the MBTA, consistent with the statute and judicial precedent. Some small entities would incur costs if they reduced best management practices after M-Opinion 37050 was issued in January 2017 or after promulgation of the January 7, 2021, rule and would need to subsequently reinstate those practices if the January 7 rule is revoked, assuming they did not already reinstate such practices after vacatur of M-Opinion 37050.

Summary

Table 2 identifies examples of bird mitigation measures, their associated costs, and why available data are not extrapolated to the entire industry sector or small businesses. We are requesting public comment so we can extrapolate data, if appropriate, to each industry sector and any affected small businesses. Table 3 summarizes likely economic effects of the proposed rule on the business sectors identified in Table 1. In many cases, the costs of actions businesses typically implement to reduce effects on birds are small compared to the economic output of business, including small businesses, in these sectors. We are requesting public comment regarding this estimate. As shown by the limited data in Table 3, we are also requesting public comment for the finfish fishing and solar power electric generation industries to determine significance. The likely economic effects summarized in Table 3 are based on the RFA analysis for the January 7 rule. We solicited public comments on these issues during the public comment periods associated with the January 7 rule and associated NEPA analysis and the February 9 rule extending the effective date of the January 7 rule. We reiterate our request for public comment on these data for this proposed rule.

Table 2—Best Management Practices Costs by Industry¹

NAICS industry	Example of bird mitigation measure	Estimated cost	Why data are not extrapolated to entire industry or small businesses
Finfish Fishing (NAICS 11411)	Changes in design of longline fishing hooks, changes in offal management practices, use of flagging or streamers on fishing lines	<ul style="list-style-type: none"> • Costs are per vessel per year • \$1,400 for thawed blue-dyed bait. • \$150 for strategic offal discards. • \$4,600 for Tori line. • \$4,000 one-time cost for underwater setting chute. • \$4,000 initial and \$50 annual for side setting. 	<ul style="list-style-type: none"> • No data available on fleet size. • No data available on how many measures are employed on each vessel.
Crude Petroleum and Natural Gas Extraction (NAICS 211111)	<ul style="list-style-type: none"> • Netting of oil pits and ponds • Closed wastewater systems. 	<ul style="list-style-type: none"> • \$130,680 to \$174,240 per acre to net ponds. • Most netted pits are 1/4 to 1/2 acre. • Cost not available for wastewater systems. 	<ul style="list-style-type: none"> • Infeasible to net pits larger than 1 acre due to sagging. • Size distribution of oil pits is unknown. • Average number of pits per business is unknown. • Closed wastewater systems typically used for reasons other than bird mitigation.
Drilling Oil and Gas Wells (NAICS 213111)	<ul style="list-style-type: none"> • Netting of oil pits and ponds • Closed loop drilling fluid systems. 	<ul style="list-style-type: none"> • \$130,680 to \$174,240 per acre to net ponds. • Cost not available for closed loop drilling fluid systems, but may be a net cost savings in arid areas with water conservation requirements. 	<ul style="list-style-type: none"> • Infeasible to net pits larger than 1 acre due to sagging. • Size distribution of oil pits is unknown. • Average number of pits per business is unknown. • Closed loop drilling fluid systems typically used for reasons other than bird mitigation. • High variability in number of wells drilled per year (21,200 in 2019).
Solar Electric Power Generation (NAICS 221114)	Pre- and post-construction bird surveys	No public comments received on January 7 rule to estimate costs	New projects can vary from 100 to 5,000 acres in size, and mortality surveys may not scale linearly.

NAICS industry	Example of bird mitigation measure	Estimated cost	Why data are not extrapolated to entire industry or small businesses
Wind Electric Power Generation (NAICS 221115)	<ul style="list-style-type: none"> • Pre-construction adjustment of turbine locations to minimize bird mortality during operations • Pre- and post-construction bird surveys • Retrofit power poles to minimize eagle mortality. 	<ul style="list-style-type: none"> • Cost not available for adjustment of turbine construction locations • \$100,000 to \$500,000 per facility per year for pre-construction site use and post-construction bird mortality surveys • \$7,500 per power pole with high variability of cost • Annual nationwide labor cost to implement wind energy guidelines: \$17.6M • Annual nationwide non-labor cost to implement wind energy guidelines: \$36.9M. 	<ul style="list-style-type: none"> • Data not available for adjustment of turbine construction locations • High variability in survey costs and high variability in need to conduct surveys • High variability in cost and need to retrofit power poles.
Electric Bulk Power Transmission (NAICS 221121)	Retrofit power poles to minimize eagle mortality	\$7,500 per power pole with high variability of cost	High variability in cost and need to retrofit power poles.
Electric Power Distribution (NAICS 221122)	Retrofit power poles to minimize eagle mortality	\$7,500 per power pole with high variability of cost	High variability in cost and need to retrofit power poles.
Wireless Telecommunications Carriers (except Satellite) (NAICS 517312)	<ul style="list-style-type: none"> • Extinguish non-flashing lights on towers taller than 350' • Retrofit towers shorter than 350' with LED flashing lights. 	<ul style="list-style-type: none"> • Industry saves hundreds of dollars per year in electricity costs by extinguishing lights • Retrofitting with LED lights requires initial cost outlay, which is recouped over time due to lower energy costs and reduced maintenance. 	Data not available for number of operators who have implemented these practices.

¹ Sources: FWS personnel, National Oceanic and Atmospheric Administration Revised Seabird Regulations Amendment, eccnetting.com, statista.com, aerion.com, FWS Wind Energy Guidelines, FWS Public Records Act data, FWS Eagle Conservation Plan Guidance.

Table 3—Summary of Economic Effects on Small Businesses

NAICS industry description (NAICS code)	Potential bird mitigation measures under this proposed rule	Economic effects on small businesses	Rationale
Finfish Fishing (11411)	Changes in design of longline fishing hooks, changes in offal management practices, and flagging/streamers on fishing lines	Likely minimal effects	Seabirds are specifically excluded from the definition of bycatch under the Magnuson-Stevens Fishery Conservation and Management Act and, therefore, seabirds not listed under the ESA may not be covered by any mitigation measures. The impact of this on small entities is unknown.
Crude Petroleum and Natural Gas Extraction (211111)	Using closed waste-water systems or netting of oil pits and ponds	Likely minimal effects	Thirteen States have regulations governing the treatment of oil pits such as netting or screening of reserve pits, including measures beneficial to birds. In addition, much of the industry is increasingly using closed systems, which do not pose a risk to birds. For these reasons, this proposed rule is unlikely to affect a significant number of small entities.
Drilling Oil and Gas Wells (213111)	Using closed waste-water systems or netting of oil pits and ponds	Likely minimal effects	Thirteen States have regulations governing the treatment of oil pits, such as netting or screening of reserve pits, including measures beneficial to birds. In addition, much of the industry is increasingly using closed systems, which do not pose a risk to birds. For these reasons, this proposed rule is unlikely to affect a significant number of small entities.
Solar Electric Power Generation (221114)	Monitoring bird use and mortality at facilities, limited use of deterrent systems such as streamers and reflectors	Likely minimal effects	Bird monitoring in some States may continue to be required under State policies. The number of States and the policy details are unknown.
Wind Electric Power Generation (221115)	Following Wind Energy Guidelines, which involve conducting risk assessments for siting facilities	Likely minimal effects	Following the Wind Energy Guidelines has become industry best practice and would likely continue. In addition, the industry uses these guidelines to aid in reducing effects on other regulated species like eagles and threatened and endangered bats.
Electric Bulk Power Transmission (221121)	Following Avian Power Line Interaction Committee (APLIC) guidelines	Likely minimal effects	Industry would likely continue to use APLIC guidelines to reduce outages caused by birds and to reduce the take of eagles, regulated under the Bald and Golden Eagle Protection Act.
Electric Power Distribution (221122)	Following Avian Power Line Interaction Committee (APLIC) guidelines	Likely minimal effects	Industry would likely continue to use APLIC guidelines to reduce outages caused by birds and to reduce the take of eagles, regulated under the Bald and Golden Eagle Protection Act.

NAICS industry description (NAICS code)	Potential bird mitigation measures under this proposed rule	Economic effects on small businesses	Rationale
Wireless Telecommunications Carriers (except Satellite) (517312)	Installation of flashing obstruction lighting	Likely minimal effects	Industry will likely continue to install flashing obstruction lighting to save energy costs and to comply with recent Federal Aviation Administration Lighting Circular and Federal Communication Commission regulations.

While the Service concludes that certification is likely appropriate in this case, and consistent with our analysis of economic impacts under the January 7 rule, we have developed an IRFA out of an abundance of caution to ensure that economic impacts on small entities are fully accounted for in this rulemaking process.

Unfunded Mandates Reform Act

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 (<https://www.govinfo.gov/link/uscode/2/1501>) *et seq.*), we have determined the following:

- a. This proposed rule would not “significantly or uniquely” affect small government activities. A small government agency plan is not required.
- b. This proposed rule would not produce a Federal mandate on local or State government or private entities. Therefore, this proposed action is not a “significant regulatory action” under the Unfunded Mandates Reform Act.

Takings

In accordance with E.O. 12630, this proposed rule does not contain a provision for taking of private property, and would not have significant takings implications. A takings implication assessment is not required.

Federalism

This proposed rule will not create substantial direct effects or compliance costs on State and local governments or preempt State law. Some States may choose not to enact changes in their management efforts and regulatory processes and staffing to develop and or implement State laws governing birds, likely accruing benefits for States. Therefore, this proposed rule would not have sufficient federalism effects to warrant preparation of a federalism summary impact statement under E.O. 13132 (</executive-order/13132>).

Civil Justice Reform

In accordance with E.O. 12988 (</executive-order/12988>), we determine that this proposed rule will not unduly burden the judicial system and meets the requirements of sections 3(a) and 3(b)(2) of the Order.

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Paperwork Reduction Act

This proposed rule does not contain information collection requirements, and a submission to the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 (<https://www.govinfo.gov/link/uscode/44/3501>) *et seq.*) is not required. We may not conduct or sponsor, and you are not required to respond to, a collection of information unless it displays a currently valid OMB control number.

List of Subjects in 50 CFR Part 10 (<https://www.ecfr.gov/current/title-50/part-10>)

- Exports
- Fish
- Imports
- Law enforcement
- Plants
- Transportation
- Wildlife

Proposed Regulation Removal

For the reasons described in the preamble, we hereby propose to amend subchapter B of chapter I, title 50 of the Code of Federal Regulations (<https://www.ecfr.gov/current/title-50>) as set forth below:

PART 10—GENERAL PROVISIONS

1. The authority citation for part 10 continues to read as follows:

Authority: 16 U.S.C. 668a-668d (<https://www.govinfo.gov/link/uscode/16/668a>), 703-712 (<https://www.govinfo.gov/link/uscode/16/703>), 742a-742j- (<https://www.govinfo.gov/link/uscode/16/742a>), 1361-1384, 1401-1407, 1531-1543, 3371-3378; 18 U.S.C. 42 (<https://www.govinfo.gov/link/uscode/18/42>); 19 U.S.C. 1202 (<https://www.govinfo.gov/link/uscode/19/1202>).

2. Remove § 10.14.

Shannon A. Estenoz,

Principal Deputy Assistant Secretary for Fish and Wildlife and Parks, Exercising the Delegated Authority of the Assistant Secretary for Fish and Wildlife and Parks.

[FR Doc. 2021-09700 (/d/2021-09700) Filed 5-6-21; 8:45 am]

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Comment Period Ends: **26 Days**



Consideration of Greenhouse Gas Emissions in Natural Gas Infrastructure Project Reviews

Posted by the **Federal Energy Regulatory Commission** on Mar 11, 2022

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<p>Document Details (/document/FERC-2022-0283-0001)</p>	
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Content

Action

Interim policy statement.

Summary

This interim policy statement describes Commission procedures for evaluating climate impacts under NEPA and describes how the Commission will integrate climate considerations into its public interest determinations under the NGA.

Dates

Public comments are due on or before April 4, 2022. Comments on the information collection are due May 10, 2022.

Addresses

Comments, identified by docket number, may be filed electronically at <http://www.ferc.gov> in acceptable native applications and print-to-PDF, but not in Scanned or picture format. For those unable to file electronically, comments may be filed by mail or hand-delivery to: Federal Energy Regulatory Commission, Secretary of the Commission, 888 First Street NE, Washington, DC 20426. The Comment Procedures section of this document contains more detailed filing procedures.

For Further Information Contact

Karin Larson (Legal Information), Office of the General Counsel, 888 First Street NE, Washington, DC 20426, (202) 502-8236, Karin.Larson@ferc.gov

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Supplementary Information

1. The Commission is issuing this interim policy statement to explain how the Commission will assess the impacts of natural gas infrastructure projects on climate change in its reviews under the National Environmental Policy Act (NEPA) and the Natural Gas Act (NGA). We seek comment on all aspects of the interim policy statement, including, in particular, on the approach to assessing the significance of the proposed project's contribution to climate change. Although the guidance contained herein is subject to revision based on the record developed in this proceeding, we will begin applying the framework established in this policy statement in the interim. Doing so will allow the Commission to evaluate and act on pending applications under sections 3 and 7 of the NGA without undue delay and with an eye toward greater certainty and predictability for all stakeholders.

I. Introduction

2. Climate change poses a severe threat to the nation's security, economy, environment, and to the health of individual citizens. Human-made greenhouse gas (GHG) emissions, including carbon dioxide and methane, are the primary cause of climate change. ⁽¹⁾ GHG emissions are released in large quantities through the production, transportation, and consumption of natural gas. Accordingly, to fulfill its statutory responsibilities, it is critical that the Commission consider and document how its authorization of infrastructure projects under the NGA, particularly natural gas transportation facilities, will affect emissions of GHGs. ⁽²⁾

3. This policy statement describes Commission procedures for evaluating climate impacts under NEPA, both those caused by a project's contribution to climate change and the impacts of climate change on the project, and describes how the Commission will integrate climate considerations into its public interest determinations under the NGA. For purposes of assessing the appropriate level of NEPA review, Commission staff will apply the 100% utilization or "full burn" rate for the proposed project's emissions to determine whether to prepare an Environmental Impact Statement (EIS) or an environmental assessment (EA). Commission staff will proceed with the preparation of an EIS, if the proposed project may result in 100,000 metric tons per year of CO₂e or more. ⁽³⁾ As further described below, the Commission believes this estimate is appropriate because it captures Commission projects that may result in incremental GHG emissions that may have a significant effect upon the human environment. ⁽⁴⁾ This approach is consistent

with the overall goal of NEPA to require a “hard look” at adverse environmental impacts and assess whether those can be minimized or avoided. ⁽⁵⁾ To appropriately assess possible mitigation, as further explained below, the Commission will determine a project’s reasonably foreseeable GHG emissions based on a projection of the amount of capacity that will be actually used (projected utilization rate), as opposed to assuming 100% utilization, and any other factors impacting the quantification of project emissions. The Commission’s NEPA analysis will examine any proposed measures to reduce reasonably foreseeable emissions.

4. When considering under the NGA whether a project is in the public interest, the Commission considers a project’s impacts on climate change, and, accordingly, will consider proposals by the project sponsor to mitigate all or a portion of the project’s climate change impacts, and the Commission may condition its authorization on the project sponsor further mitigating those impacts.

5. This policy statement does not establish binding rules and is intended to explain how the Commission will consider these issues when they arise. ⁽⁶⁾

II. Background

A. GHG Emissions and Climate Change

6. Climate change is the variation in the Earth’s climate (including temperature, precipitation, humidity, wind, and other meteorological variables) over time. Climate change is driven by accumulation of GHGs in the atmosphere due to the increased consumption of fossil fuels (e.g., coal, petroleum, and natural gas) since the early beginnings of the industrial age and accelerating in the mid- to late-20th century. ⁽⁷⁾ The GHGs produced by fossil-fuel combustion are carbon dioxide, methane, and nitrous oxide.

7. In 2017 and 2018, the U.S. Global Change Research Program ⁽⁸⁾ issued its Climate Science Special Report: Fourth National Climate Assessment, Volumes I and II. ⁽⁹⁾ This report and the recently released report by the Intergovernmental Panel on Climate Change, *Climate Change 2021: The Physical Science Basis*, state that climate change has resulted in a wide range of impacts across every region of the country and the globe. Those impacts extend beyond atmospheric climate change and include changes to water resources, agriculture, ecosystems, human health, and ocean systems. ⁽¹⁰⁾ According to the Fourth Assessment Report, the United States and the world are warming, global sea level is rising and oceans are acidifying, and certain weather events are becoming more frequent and more severe. ⁽¹¹⁾ These impacts have accelerated throughout the end of the 20th century and into the 21st century. ⁽¹²⁾

B. Council on Environmental Quality Guidance on Climate Change

8. In 2010, the Council on Environmental Quality (CEQ) issued its first draft guidance on how federal agencies can consider the effects of GHG emissions and climate change under NEPA. ⁽¹³⁾ CEQ revised the draft guidance in 2014, ⁽¹⁴⁾ and issued final guidance in 2016. ⁽¹⁵⁾ Throughout the guidance’s evolution, CEQ advised agencies to quantify GHG emissions and to consider both the extent to which a proposed project’s GHG emissions would contribute to climate change and how a changing climate may impact the proposed project. The 2016 guidance, however, explicitly declined to establish a quantity or threshold of GHGs for determining whether a proposed project will have a significant impact on climate. ⁽¹⁶⁾

9. CEQ rescinded the 2016 guidance in April 2017, as directed by Executive Order 13783 *Promoting Energy Independence and Economic Growth*, ⁽¹⁷⁾ and issued revised draft guidance in June 2019. ⁽¹⁸⁾ In January 2021, Executive Order 13990 *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis* revoked Executive Order 13783 and directed CEQ to rescind the 2019 draft guidance and to review, revise, and update the 2016 guidance. ⁽¹⁹⁾ CEQ has not yet issued an update to the

2016 guidance, but, in the interim, has directed agencies to consider all available tools and resources, including the 2016 guidance, in assessing GHG emissions and the climate change effects of proposed actions. ⁽²⁰⁾

C. Previous Commission Policy on Consideration of Climate Change Under NEPA

10. Commission staff has addressed climate change in some fashion in its NEPA documents for at least a decade. ⁽²¹⁾ Commission staff's NEPA documents have included direct GHG emission estimates from project construction (e.g., tailpipe emissions from construction equipment) and/or operation (e.g., fuel combustion at compressor stations and gas venting and leaks). ⁽²²⁾ Starting in late 2016, the Commission began to conservatively estimate indirect downstream GHG emissions by assuming full combustion of the maximum annual volume of gas that could be transported by the project. ⁽²³⁾ For indirect upstream, production-related GHG emissions, Commission orders during that time period relied on Department of Energy studies to calculate broad estimates. ⁽²⁴⁾ For upstream impacts, the Commission generally indicated that these analyses were not required by NEPA because the Commission lacked detailed information about the precise source of the gas to be transported, but provided estimates for informational purposes. ⁽²⁵⁾

11. In 2017, the United States Court of Appeals for the District of Columbia Circuit (D.C. Circuit) in *Sierra Club v. FERC (Sabal Trail)* ⁽²⁶⁾ found that downstream GHG emissions were an indirect effect of the Sabal Trail pipeline project and required the Commission to give a quantitative estimate of the downstream GHG emissions resulting from the burning of the natural gas to be transported by the pipeline or explain why the Commission could not do so, and to discuss the significance of these emissions. ⁽²⁷⁾ On remand, the Commission compared the estimated downstream GHG emissions from the project to state and national GHG emission inventories. ⁽²⁸⁾ However, the Commission concluded that it could not determine whether those downstream GHG emissions were significant and rejected the use of the Social Cost of Carbon (SCC) tool to inform the Commission's analysis. ⁽²⁹⁾

12. In 2018, the Commission stated in *Dominion Transmission, Inc.* ⁽³⁰⁾ that end use consumption of gas and upstream production of gas were generally not reasonably foreseeable or causally related to the project (no party had identified the specific end use of the gas) and thus the Commission was not required to consider upstream or downstream emissions as indirect impacts under NEPA. ⁽³¹⁾ The Commission stated it would continue to “analyze upstream and downstream environmental effects when those effects are sufficiently causally connected to and are reasonably foreseeable effects of the proposed action.” ⁽³²⁾ The Commission reiterated that without an accepted methodology it could not find whether a particular quantity of GHG emissions was significant. ⁽³³⁾

13. However, in *Birckhead*, the D.C. Circuit rejected the Commission's position that *Sabal Trail* is limited to the narrow facts of that case. While the court in *Birckhead* acknowledged that downstream emissions may not always be a foreseeable effect of natural gas projects, it rejected the notion that downstream GHG emissions are a reasonably foreseeable indirect effect of a natural gas project only if a specific end destination is identified. ⁽³⁴⁾ The court further noted that the Commission should attempt to obtain information on downstream uses to determine whether downstream GHG emissions are a reasonably foreseeable effect of the project. ⁽³⁵⁾

14. In 2021, in *Northern Natural Gas Co.*, the Commission explained that it had reconsidered its position that it was unable to assess the significance of a project's GHG emissions or those emissions' contribution to climate change. ⁽³⁶⁾ The Commission found that that project's reasonably foreseeable GHG emissions—construction and operation emissions only, as the project proposed no new capacity—would not significantly contribute to climate change. ⁽³⁷⁾ Later in 2021, the D.C. Circuit further criticized the Commission's stance prior to *Northern Natural Gas Co.* that it was unable to assess the significance of a project's GHG emissions or those emissions' contribution to climate change, holding that the Commission

failed to appropriately analyze the significance of three natural gas projects' contribution to climate change using "theoretical approaches or research methods generally accepted in the scientific community," such as the SCC tool. ⁽³⁸⁾

D. Certificate Policy Statement Notices of Inquiry

15. On April 19, 2018, the Commission issued a Notice of Inquiry (2018 NOI) ⁽³⁹⁾ seeking information and stakeholder perspectives to help the Commission explore whether, and if so how, it should revise its approach for determining whether proposed projects are consistent with the public convenience and necessity under the currently effective policy statement on the certification of new interstate natural gas transportation facilities (Certificate Policy Statement). ⁽⁴⁰⁾ The 2018 NOI included a background section discussing how the legal standards and historical context informed the creation of the Certificate Policy Statement in 1999, how the Commission's evaluations under the Certificate Policy Statement and under NEPA have evolved, and how changed circumstances since 1999 have required the present review. ⁽⁴¹⁾ Notably, the Commission sought input on whether, and if so how, the Commission should adjust its evaluation of the environmental impacts of a proposed project.

16. In response to the 2018 NOI, the Commission received more than 3,000 comments from stakeholders including landowners; tribal, federal, state, and local government officials; non-governmental organizations; consultants, academic institutions, and think tanks; natural gas producers, Commission-regulated companies, local distribution companies, and industry trade organizations; electricity generators and utilities; and others. Many comments addressed GHG emissions.

17. On February 18, 2021, the Commission issued a new, refreshed Notice of Inquiry (2021 NOI), ⁽⁴²⁾ seeking comments to build upon the existing record established by the 2018 NOI. The Commission posed several updated questions relating to GHG emissions, including asking: How the Commission could consider upstream impacts from natural gas production and downstream end-use impacts; how the Commission should determine the significance of a project's GHG emissions' contribution to climate change; whether the NGA, NEPA, or another federal statute authorize or mandate the use of the SCC analysis by the Commission; how the Commission could determine whether a proposed project's GHG emissions could be offset by reduced GHG emissions resulting from the project's operations; and how the Commission could impose GHG emission limits or mitigation to reduce the significance of impacts from a proposed project on climate change. ⁽⁴³⁾

18. With respect to determining significance, the 2021 NOI sought comment on (1) what type of metrics and models the Commission should consider in determining significance, (2) whether any level of emissions should be considered *de minimis*, and (3) how the SCC tool or other tools could factor into determining significance. ⁽⁴⁴⁾

19. The public comment period for the 2021 NOI closed on May 26, 2021. ⁽⁴⁵⁾ The Commission received over 35,000 comments and approximately 150 unique comment letters from a wide range of stakeholders, as noted above.

20. Comments relevant to this policy statement are addressed in Section III below.

III. Statutory Authority/Obligations

A. NGA

21. Section 7 of the NGA authorizes the Commission to issue certificates of public convenience and necessity for the construction and operation of facilities transporting natural gas in interstate commerce. ⁽⁴⁶⁾ The Commission does not have authority to regulate intrastate transportation facilities or other facilities that

affect interstate transportation, such as those used for the production, gathering, or local distribution of natural gas. Congress did not displace state authority over such subjects. ⁽⁴⁷⁾

22. Section 3(a) of the NGA provides for federal jurisdiction over the siting, construction, and operation of facilities used to import or export gas. ⁽⁴⁸⁾ To date, the Commission has exercised section 3 authority to authorize: (1) LNG terminals located at the site of import or export and (2) the site and facilities at the place of import/export where a pipeline crosses an international border. ⁽⁴⁹⁾ Additionally, NGA section 3(e) states that “[t]he Commission shall have the exclusive authority to approve or deny an application for the siting, construction, expansion, or operation of an LNG terminal.” ⁽⁵⁰⁾

23. Both NGA sections 7 and 3 authorize the Commission to attach terms and conditions to its authorization. ⁽⁵¹⁾ Courts have interpreted these provisions broadly and given the Commission latitude in deciding what types of mitigation to require. ⁽⁵²⁾ In issuing authorizations, the Commission has required project sponsors to comply with conditions to prevent or mitigate project impacts on environmental resources. ⁽⁵³⁾

B. NEPA

24. NEPA and its implementing regulations require agencies, before taking or authorizing a major federal action that may significantly affect the quality of the human environment, to take a “hard look” at the environmental consequences of the proposed action and disclose their analyses to the public by preparing an EIS. ⁽⁵⁴⁾ Alternatively, agencies can first prepare an Environmental Assessment (EA) for a proposed action that is not likely to have significant effects or when the significance is unknown, to determine whether an EIS is necessary for a particular action. ⁽⁵⁵⁾ Depending on the outcome of the EA, agencies can either prepare an EIS or issue a finding of no significant impact. ⁽⁵⁶⁾

25. Previous CEQ regulations and court cases have examined a proposed project’s “context” and “intensity” or the severity of the impact as factors for determining what constitutes a significant effect. ⁽⁵⁷⁾ In assessing significance, Commission staff considers, for each resource, the duration of the impact as well as the geographic, biological, or social context in which the effects would occur, and the intensity (e.g. severity) of the impact. ⁽⁵⁸⁾ This analysis may draw on both qualitative and quantitative information. ⁽⁵⁹⁾ Using both types of data, the Commission routinely makes significance determinations for impacts to various resources from natural gas projects. ⁽⁶⁰⁾

26. In evaluating whether an impact is significant, the Commission determines whether “it would result in a substantial adverse change in the physical environment.” ⁽⁶¹⁾ In making that determination, the Commission considers available evidence, giving that evidence such weight as it deems appropriate using its experience, judgment, and expertise. ⁽⁶²⁾ Notably, NEPA does not require that the studies, metrics, and models on which an agency relies be universally accepted or otherwise uncontested. ⁽⁶³⁾ Instead, NEPA permits agencies to rely on the best available evidence, quantitative and qualitative, even where that evidence has certain limitations when assessing the significance of their actions, ⁽⁶⁴⁾ and an agency’s determination is entitled to deference. ⁽⁶⁵⁾

27. In addition to determining whether its actions may significantly affect the quality of the human environment, NEPA requires the Commission to consider whether there are steps that could be taken to mitigate any adverse environmental consequences. ⁽⁶⁶⁾ While NEPA is a procedural statute and does not require a federal agency to reject a proposed project with significant adverse effects or take action to mitigate adverse effects, ⁽⁶⁷⁾ an agency may require mitigation of impacts as a condition of its permitting or approval, ⁽⁶⁸⁾ and the Commission routinely does so. ⁽⁶⁹⁾

IV. Discussion

A. Quantifying GHG Emissions and Determining Significance

28. Consistent with CEQ regulations, ⁽⁷⁰⁾ the Commission will quantify a project's GHG emissions that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action, including those effects that occur at the same time and place as the proposed action and effects that are later in time or farther removed in distance from the proposed action. This will include GHG emissions resulting from construction and operation of the project ⁽⁷¹⁾ as well as, in most cases, GHG emissions resulting from the downstream combustion of transported gas. ⁽⁷²⁾

29. The Commission will consider all evidence in the record relating to a project's estimated GHG emissions, ⁽⁷³⁾ utilization rate, or offsets: Estimates presented by project sponsors, as well as opposing evidence from other parties. Going forward, in determining the level of GHG emissions attributed to a project, the Commission will estimate a project's GHG emissions based on a projection of what amount of project capacity will be actually used (projected utilization rate), as opposed to assuming 100% utilization. ⁽⁷⁴⁾ The Commission will also consider evidence of factors expected to reduce or offset the estimated direct or reasonably foreseeable downstream emissions of the project.

1. Categories of Emissions

30. CEQ regulations implementing NEPA require agencies to consider effects or impacts that “are reasonably foreseeable and have a reasonably close causal relationship to the proposed action . . . including those effects that occur at the same time and place as the proposed action . . . and may include effects that are later in time or farther removed in distance for the proposed action” ⁽⁷⁵⁾ A “but for” causal relationship is insufficient to make an agency responsible for a particular effect, ⁽⁷⁶⁾ and effects should not be considered if they are the “product of a lengthy causal chain.” ⁽⁷⁷⁾ Further, effects to be considered do not include those that the agency has no ability to prevent due to its limited statutory authority or would occur regardless of the proposed action. ⁽⁷⁸⁾ Regarding reasonable foreseeability, courts have found that an impact is reasonably foreseeable if it is “sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision.” ⁽⁷⁹⁾ Although courts have held that NEPA requires “reasonable forecasting,” ⁽⁸⁰⁾ an agency “is not required to engage in speculative analysis” ⁽⁸¹⁾ or “to do the impractical, if not enough information is available to permit meaningful consideration.” ⁽⁸²⁾

31. As discussed below, the Commission proposes to:

- Consider direct emissions of a project a reasonably foreseeable effect;
- Find that an NGA section 3 export facility project is not the legally relevant cause of upstream and downstream emissions; ⁽⁸³⁾
 - Consider on a case-by-case basis whether downstream emissions are a reasonably foreseeable effect of an NGA section 7 interstate project; and
 - Consider on a case-by-case basis whether upstream emissions are a reasonably foreseeable effect of an NGA 7 project.

a. Direct Emissions

32. Several commenters assert that the Commission must consider fugitive emissions from the transportation of gas. ⁽⁸⁴⁾ New Jersey Conservation Foundation, Sabin Center for Climate Change Law (Sabin Center), The Watershed Institute, Clean Air Council, PennFuture, and New Jersey League of Conservation Voters (collectively, New Jersey Conservation Foundation) argue that natural gas leakage from both pipeline operation and natural gas production is worse than combustion because methane has a higher global warming potential than carbon dioxide. ⁽⁸⁵⁾

33. As the Commission has long held, direct GHG emissions from the project's short-term construction ⁽⁸⁶⁾ and long-term operational activities ⁽⁸⁷⁾ are an effect of the proposed project. Under current Commission regulations, the project sponsor provides an estimate of construction emissions and an estimate of the project's potential operational emissions, including fugitive emissions from both pipeline and aboveground facilities, in its application for Commission authorization. ⁽⁸⁸⁾

b. Downstream Emissions

34. Some commenters argue that the Commission must consider the downstream emissions of natural gas projects, ⁽⁸⁹⁾ including fugitive emissions. ⁽⁹⁰⁾ In contrast, other commenters generally assert that the Commission should not consider downstream emissions, or at most, should only do a qualitative assessment of downstream emissions, because they are not reasonably foreseeable impacts or do not have a close causal relationship under NEPA to gas transportation. ⁽⁹¹⁾

35. As discussed above, in August 2017, the D.C. Circuit issued *Sabal Trail*, which involved a greenfield pipeline project that would deliver all gas transported by the project to specific gas-fired generating plants. The D.C. Circuit found that downstream emissions from the use of the transported natural gas were an indirect, reasonably foreseeable effect of the proposed pipeline and that in the circumstances of that case—where the vast majority of throughput on the proposed project was destined for a limited number of specifically identified electric generation facilities—the downstream GHG emissions could be reasonably quantified by the Commission. ⁽⁹²⁾

36. The D.C. Circuit reiterated this determination in two subsequent cases. First, in *Birckhead*, the court rejected the claim that downstream emissions are only a foreseeable effect in factual circumstances akin to *Sabal Trail*, *i.e.*, where all transported gas will be burned at specifically identified destinations, but also rejected the argument that downstream emissions are always a foreseeable effect of a natural gas certificate project. ⁽⁹³⁾ Then, in *Allegheny Defense Project v. FERC*, ⁽⁹⁴⁾ the court stated that the downstream emissions of a project designed to deliver gas into large interstate pipeline systems, which in turn deliver gas to 16 states, are an indirect effect of the project. ⁽⁹⁵⁾

37. INGAA and others read the Supreme Court's *Public Citizen* decision as requiring an agency to consider an environmental effect only when the agency has the authority to control the outcome and note that the Commission has no authority to regulate the end use (or production) of natural gas. ⁽⁹⁶⁾ INGAA states that attempting to regulate downstream (or upstream) activities would invade the jurisdiction of other regulators, that most projects will not result in reasonably foreseeable downstream GHG emissions like those in *Sabal Trail*, and thus, downstream emissions should only be considered on a case-by-case basis. ⁽⁹⁷⁾ INGAA suggests the Commission look for guidance to *Center for Biological Diversity v. U.S. Army Corps of Engineers*, ⁽⁹⁸⁾ which criticizes *Sabal Trail* as “breezing past . . . statutory limits and precedents . . . clarifying what effects are cognizable under NEPA.” ⁽⁹⁹⁾

38. Given that data show that the vast majority of consumed gas is ultimately combusted, ⁽¹⁰⁰⁾ there appears to be a substantial likelihood of GHG emissions from the end-use combustion of transported gas as a result of a natural gas project proposed under NGA section 7. ⁽¹⁰¹⁾ However, as contemplated by the court in *Birckhead*, there may be circumstances where downstream emissions are not a foreseeable effect of an authorized project, and the court stated that each project must be analyzed on a case-by-case basis. ⁽¹⁰²⁾ Accordingly, project sponsors may submit any evidence they believe indicates that downstream emissions are not a reasonably foreseeable effect of a proposed project.

39. We disagree with commenters' assertions that *Public Citizen* prohibits the Commission from considering downstream GHG emissions. The question is not whether the Commission has regulatory authority over downstream emissions. Rather, as the *Sabal Trail* court reasoned in applying *Public Citizen*, the Commission “has no obligation to gather or consider environmental information [only] if it has no statutory

authority *to act on that information.*” ⁽¹⁰³⁾ Because the Commission can reject a section 7 certificate based on the project’s environmental impacts, including GHG emissions, the court held that the Commission was required to consider downstream emissions resulting from the Sabal Trail project’s construction. ⁽¹⁰⁴⁾ For section 7 projects—unlike section 3 projects, described below—there is no independent decision, such as the DOE authorization critical in *Freeport*, to “break the NEPA causal” chain. ⁽¹⁰⁵⁾ Accordingly, the Commission’s authorization for section 7 projects is a “legally relevant cause” of the emissions, meeting *Public Citizen*’s direction that “NEPA requires ‘a reasonably close causal relationship’ between the environmental effect and the alleged cause,” analogous to the “familiar doctrine of proximate cause from tort law.” ⁽¹⁰⁶⁾

40. The Commission finds this and subsequent direction from the D.C. Circuit more instructive than *Center for Biological Diversity*, which determined that a specific effect was too tenuous to be considered in analysis of a U.S. Army Corps of Engineers discharge permit for mining activities under the Clean Water Act. ⁽¹⁰⁷⁾

41. However, for proposed export projects under NGA section 3, the Commission will not consider downstream GHG emissions an effect requiring analysis under NEPA regulations. The Department of Energy, not the Commission, has sole authority to license and consider the environmental impacts of the export of any natural gas. ⁽¹⁰⁸⁾ As courts have explained, the Commission need not consider the effects of downstream transportation, consumption, or combustion of exported gas because the Department of Energy’s “independent decision to allow exports . . . breaks the NEPA causal chain and absolves the Commission of responsibility to include [these considerations] in its NEPA analysis.” ⁽¹⁰⁹⁾

c. Upstream Emissions

42. Some commenters state that the Commission must consider the upstream GHG emissions of natural gas projects, including fugitive emissions from production, ⁽¹¹⁰⁾ to assess the project’s total impact on climate change. ⁽¹¹¹⁾ Other commenters argue that upstream emissions are not a reasonably foreseeable effect of a natural gas transportation project, and therefore should not be considered by the Commission. ⁽¹¹²⁾ Some commenters focus on how to obtain sufficient information to account for upstream GHG emissions. For example, EPA recommends that the Commission require project sponsors to provide available information on reasonably foreseeable induced production demand. EPA states that environmental documents under NEPA should disclose this information as well as items such as the proposal’s regionally known hydrocarbon accumulations and a decline curve analysis to allow for appropriate regional and local impact analysis. ⁽¹¹³⁾

43. In various NGA section 7 proceedings, the Commission has considered upstream emissions on a case-by-case basis—sometimes acknowledging it is difficult to quantify upstream emissions due to several unknown factors, including the location of the supply source and whether transported gas will come from new or existing production. ⁽¹¹⁴⁾ The Commission will continue to consider on a case-by-case basis whether the environmental effects resulting from natural gas production are either likely caused by a proposed NGA section 7 project or reasonably foreseeable consequences of our approval of such projects. To the extent known, project sponsors are encouraged to submit information on the reasonably foreseeable upstream impacts caused by the project or an explanation as to why there are none for Commission consideration.

2. Calculating GHG Emissions

44. To calculate operational emissions, project sponsors should continue to follow the existing guidance outlined in section 4.9.1.3 of the Commission’s Guidance Manual for Environmental Report Preparation for Applications Filed under the NGA. ⁽¹¹⁵⁾ However, under this policy statement, for purposes of assessing the impact of a project’s GHG emissions on climate change, the Commission will consider operational GHG emissions calculated based on a projected utilization rate for the project, as described below. ⁽¹¹⁶⁾

45. Additionally, the Commission recognizes that there may be other factors that might serve to reduce a proposed project's climate impacts. For example, the installation of emission-reduction technology or purchase of offsets by downstream users would reduce the impacts. Thus, to enable the Commission's use of the best estimate of a project's GHG emissions, project sponsors are encouraged to calculate project GHG emissions using a projected utilization rate and submit evidence of any other factors that might impact a project's net emissions such as the factors identified by commenters below.

46. Commenters recommend that the Commission consider factors that might impact a project's net emissions, such as (1) whether the transported gas will phase out use of a more carbon-intensive energy source, like coal or fuel oil, and will prevent the use of more carbon-intensive energy sources in the future; (2) whether the pipeline will transport gas that would otherwise be transported by vehicles, thereby reducing the emissions from transporting the gas; (3) whether the proposed project will transport gas volumes that would have otherwise been delivered to the same consumers through a different pipeline or may ultimately end up transporting fuel blends including renewable natural gas or hydrogen; (4) whether the project sponsor will purchase offsets to counter project emissions; or (5) whether the project may be backed by a local distribution company serving customer demand in states with established emissions caps. ⁽¹¹⁷⁾ INGAA states that in the absence of reliable and verifiable predictive models to the contrary, the requirement of reasonable foreseeability arguably dictates that the Commission cannot adopt any default assumption that a natural gas infrastructure project will increase (rather than decrease, or leave unchanged) net global GHG emissions, and that at minimum, the Commission would have to provide a rational justification for any such assumption. ⁽¹¹⁸⁾ By contrast, New Jersey Conservation Foundation and others contend that the Commission should consider whether the project may be displacing renewable energy sources, thereby increasing GHG emissions. ⁽¹¹⁹⁾

47. INGAA and other commenters strongly urge the Commission to calculate a project's downstream emissions, if at all, based on the likely utilization rate of the proposed project, instead of relying on a full-burn estimate. ⁽¹²⁰⁾

48. Conversely, New Jersey Conservation Foundation and others argue the Commission must calculate direct, downstream, and upstream GHG emissions by assuming the maximum authorized operating conditions, unless, some add, the project sponsor can demonstrate otherwise. ⁽¹²¹⁾ Further, other commenters propose their own methods of how to calculate the downstream emissions of a proposed project. ⁽¹²²⁾ New Jersey Conservation Foundation urges the Commission to recommend or require the use of specified emissions factors to calculate project emissions. ⁽¹²³⁾ Some commenters argue that the Commission must, beyond asking project sponsors, require certain information to be provided, conduct independent research, or otherwise compile missing information. ⁽¹²⁴⁾ Dr. Susan F. Tierney states that the Commission should articulate a default methodology, set of assumptions, and sources of data (suggesting multiple sources including data from the U.S. Department of Energy's National Energy Technology Laboratory's 2019 life-cycle estimates of GHG emissions for the natural gas supply chain) to establish a default maximum emissions rate, which could then be supplemented by an applicant's own estimate or an intervenor's alternative estimate. ⁽¹²⁵⁾

a. Projected Utilization Rate

49. In previous environmental documents and certificate orders, the Commission has disclosed a project's operational emissions ⁽¹²⁶⁾ and estimates of downstream emissions ⁽¹²⁷⁾ by assuming a 100% utilization rate estimate of the project (e.g., the maximum capacity is transported 365 days per year, 24 hours a day and fully combusted downstream). This represents the maximum potential downstream GHG emissions. However, most projects do not operate at 100% utilization at all times. In fact, many projects are designed

to address peak demand. For example, traditionally, in the Northeast, demand for gas is highest in the winter months, resulting in high utilization rates during those months due to heating needs, but lower in the summer, resulting in low annual utilization rates. ⁽¹²⁸⁾

50. Because in most instances a 100% utilization rate estimate does not accurately capture the project's climate impacts, estimated emissions that reflect a projected utilization rate will provide more useful information. The project's projected utilization rate may be calculated using, for example:

- Expected utilization data from project shippers;
- Historical usage data; ⁽¹²⁹⁾
 - Demand projections;
 - An estimate of how much capacity will be used on an interruptible basis.

51. The project sponsor is encouraged to file its projected utilization rate, as well as its justification for the rate and any supporting evidence, in its application for authorization under NGA section 3 or 7. The Commission will also consider evidence submitted by commenters and protesters in support of or opposition to the projected utilization rate.

b. Other Evidence Considered

52. Further, the Commission will consider any other evidence in the record that impacts the quantification of the project's reasonably foreseeable emissions. For example, the Commission will consider: Evidence of a net-reduction in GHG emissions where the use of transported gas displaces the use of a higher emitting alternative fuel; ⁽¹³⁰⁾ evidence of anticipated changes in downstream usage rates over time; evidence of any real, verifiable, and measurable reduction efforts taken by the pipeline or downstream users to reduce their GHG emissions or offset their impacts; ⁽¹³¹⁾ and evidence that a project would displace zero-emissions electric generation. Further, other agencies, notably the EPA, have proposed regulations that may impact the emission of methane from Commission-regulated facilities. ⁽¹³²⁾ If such regulations are adopted, the Commission will consider them when examining project GHG emissions. Similarly, the Commission will consider evidence from commenters and protestors supporting or challenging such estimates and assumptions.

B. Level of Review and Significance

53. Under NEPA, an agency must prepare an EIS for every "major [f]ederal action[] significantly affecting the quality of the human environment." ⁽¹³³⁾ To determine whether an EIS is necessary for a particular action, the agency may prepare an EA, ⁽¹³⁴⁾ described as a "concise public document" providing "sufficient evidence and analysis," to determine whether to prepare an EIS or issue a finding of no significant impact. ⁽¹³⁵⁾

54. To assess significance, the Commission determines whether the impact "would result in a substantial adverse change in the physical environment," ⁽¹³⁶⁾ which, as discussed, is based on considerations of the severity of adverse environmental impacts. In making that determination, the Commission uses its experience, judgment, and expertise to give record evidence appropriate weight. ⁽¹³⁷⁾ The Commission found that "there is nothing about GHG emissions or their resulting contribution to climate change that prevents us from making that same type of significance determination." ⁽¹³⁸⁾

55. Specifically, in *Northern Natural Gas Co.*, the Commission explained that:

The U.S. Court of Appeals for the District of Columbia Circuit has explained that a proposed interstate natural gas pipeline's reasonably foreseeable GHG emissions are relevant to whether the pipeline is required by the public convenience and necessity. A rigorous review of a project's reasonably foreseeable GHG emissions is also an essential part of the Commission's responsibility under NEPA to take a "hard

look” at a project's environmental impacts. Determining the significance of the impacts from a proposed project's GHG emissions informs the Commission's review in a number of important respects, including its decision whether to prepare an environmental impact statement. ⁽¹³⁹⁾

56. To date, no federal agency, including the Commission, has established a threshold for determining what level of project-induced GHG emissions is significant. The Commission received a number of comments, discussed below, offering perspectives on whether and at what level it should assess the significance of a proposed project's GHG emissions.

1. Comments

57. The Commission received relevant comments in response to both the 2018 and 2021 NOIs on whether the Commission should: Determine significance at all; set a specific significance threshold and at what level; and/or use various inventories, goals, and tools to set the threshold.

a. Whether the Commission Should Determine Significance

58. Numerous commenters (Delaware Riverkeeper, Food and Water Watch, North Carolina Department of Environmental Quality, Sabin Center, and others) argue that the Commission should make a significant impact determination based on a project's GHG emissions, which they argue would include the project's associated upstream and downstream emissions. Some commenters, for example the Sabin Center in 2018, direct the Commission to the NEPA regulation at 40 CFR 1508.27 (that was removed by amendments effective September 14, 2020), which provides that “significantly” as used in NEPA requires considerations of both the context of the action and the intensity of the impacts associated with any proposal. ⁽¹⁴⁰⁾

59. In contrast, some regulated entities and other commenters express concern about the Commission determining the significance of a project's impacts on the basis of GHG emissions, especially upstream and downstream emissions. For example, INGAA and others (Energy Infrastructure Council, Williams, etc.) argue that the Commission should, at most, engage in a qualitative discussion of downstream GHG emissions because net GHG emissions are not reasonably foreseeable, and that the Commission should not assess the significance of upstream or downstream emissions. ⁽¹⁴¹⁾ Commenters such as Boardwalk state that the Commission cannot reject a project because of downstream GHG emissions or consider upstream GHG emissions, may only include a general disclosure of downstream emissions in limited circumstances (such as where all end use is known), and should generally decline to assess significance and only engage in a qualitative discussion. ⁽¹⁴²⁾

60. Commenters argue that the Commission lacks the ability to make a significance determination and has no objective basis upon which to evaluate the impacts of GHG emissions associated with any specific proposed project. ⁽¹⁴³⁾ Other commenters state that setting any significance threshold would be arbitrary ⁽¹⁴⁴⁾ and potentially outside of the Commission's authority or jurisdiction. ⁽¹⁴⁵⁾

61. Finally, commenters state that the Commission should defer to other agencies, such as CEQ or EPA, in setting a significance threshold, citing: The lack of a national energy policy or federal GHG limits; the EPA's existing authority to regulate GHG emissions under the Clean Air Act; the direction of Executive Orders 13990 and 14008, which commenters say direct EPA to examine its own GHG emissions standards; and the ongoing Interagency Work Group efforts on the SCC. ⁽¹⁴⁶⁾ A few industry commenters also caution against creating uncertainty or a moving target for industry while waiting for a significance threshold to be established. ⁽¹⁴⁷⁾

b. What the Threshold Should Be

62. Some commenters argue that the Commission should consider any net increase in GHG emissions as significant. ⁽¹⁴⁸⁾ Attorneys General of Massachusetts, Connecticut, Maryland, Minnesota, New Jersey, New York, Oregon, Rhode Island, and the District of Columbia (Attorneys General of Massachusetts et al.)

argues that any investment in pipeline infrastructure is inconsistent with new national emissions reductions targets and thus, project emissions can be significant on that basis alone, even if they represent a small share of national emissions, or that emissions are significant if they impede the ability of a state to meet its clean energy goals. ⁽¹⁴⁹⁾

63. A few commenters suggest specific numerical thresholds. The Sabin Center recommends that the Commission assess the magnitude of GHG emissions impacts using EPA's quantification threshold of 25,000 tons per year of CO₂e to identify major emitters under the Clean Air Act, social cost of GHG tools to assign a dollar value to the potential impacts of the emissions, and EPA's GHG Equivalencies Calculator as a comparison tool. ⁽¹⁵⁰⁾ One commenter cites to EIS examples where the Commission stated that monetized benefits of \$8 million and \$28 million would be "significant" for local economies and suggests that gross climate damages between roughly \$8 and \$20 million should be considered significant. ⁽¹⁵¹⁾

64. Conversely, a few commenters state that emissions from all individual projects could be considered *de minimis* and individually too small to impact climate change. ⁽¹⁵²⁾ Others urge the Commission away from taking a bright line approach to determining significance, ⁽¹⁵³⁾ while Driftwood Pipeline LLC urges that significance, if appropriate, requires the Commission to disclose a clear threshold. ⁽¹⁵⁴⁾

65. CEQ points the Commission to its 2016 guidance as an existing resource to help agencies assess GHG emissions and the effects of climate change in NEPA reviews. ⁽¹⁵⁵⁾

c. Use of Inventories, Climate Goals, Programmatic Analyses, Etc. in Determining Significance

66. Some commenters recommend that the Commission use state, regional, and global GHG reduction goals to provide context and/or define significance of GHG emissions. ⁽¹⁵⁶⁾ For example, Attorneys General of Massachusetts et al. comments that the Commission already analyzes whether a proposed pipeline project is consistent with various energy and climate policies and goals and that this can be used as a metric for evaluating significance. ⁽¹⁵⁷⁾ Others argue that the Commission's analysis of a proposed project's public benefits should weigh the effect of project GHG emissions on states' and the nation's abilities to comply with climate and clean energy laws and policies, such as specific energy and climate change action plans and policies. ⁽¹⁵⁸⁾ The Ohio Environmental Council recommends that the Commission consider the total proposed upstream and downstream GHG emissions of all gas projects pending in any given year, giving weight to the total possible GHG emissions that could be locked in by those projects and comparing this total with international goals. ⁽¹⁵⁹⁾

67. Other commenters suggest alternative means or tools for assessing significance. For example, commenters suggest that the Commission should use a "Climate Test." ⁽¹⁶⁰⁾ Patricia Weber comments that the Commission should use such a test to determine if a project is viable in a scenario where the climate goals of the Paris agreement are met using climate and global energy market models. One commenter urges the Commission to examine acres of wetlands that will be lost due to climate impacts of proposed projects as a proxy for significance. ⁽¹⁶¹⁾ Some commenters suggest the Commission consider a programmatic or regional analysis of pipelines. ⁽¹⁶²⁾

68. EDF comments that a comparison of a project's emissions to international, state, or regional carbon budgets, or assessing geophysical impacts such as increases in carbon dioxide levels, global temperatures, or sea levels can be misleading and trivialize the project's impacts. ⁽¹⁶³⁾

69. Some industry commenters state that any comparison of direct or indirect emissions should be made to global GHG inventories, not national or state inventories. ⁽¹⁶⁴⁾ However, Williams states that, while the Commission should consider only direct construction and operation emissions, the Commission should compare those emissions against national GHG inventories and not against international agreements or regional targets. ⁽¹⁶⁵⁾ Others oppose use of a regional analysis of GHG emissions from pipeline projects. ⁽¹⁶⁶⁾

d. Use of the Social Cost of Greenhouse Gases

70. Several commenters generally argue for a monetization of climate damages using the Social Cost of Greenhouse Gas (SC-GHG) tools ⁽¹⁶⁷⁾ to determine significance. ⁽¹⁶⁸⁾ EDF recommends that the approach should be consistent with the Commission's practices for determining the significance of other monetized effects, such as economic impacts. ⁽¹⁶⁹⁾ Public Interest Organizations comment that an established numerical significance threshold is not necessary, but if one is established, it should be used in tandem with the SCC tool and should not be based solely on one metric, especially not on a comparison to global emissions. Rather, they urge a holistic review of how a proposed project's impacts weigh against any benefits. ⁽¹⁷⁰⁾ EDF states that if the climate damages exceeded monetized project benefits, the Commission could reject the project. ⁽¹⁷¹⁾

71. Conversely, other commenters oppose use of the SCC tool in determining significance ⁽¹⁷²⁾ or of using the SCC tool at all. ⁽¹⁷³⁾ The Attorneys General of Missouri, Alabama, Alaska, Arizona, Arkansas, Georgia, Indiana, Kansas, Kentucky, Louisiana, Mississippi, Montana, Nebraska, Ohio, Oklahoma, South Carolina, South Dakota, Tennessee, Texas, Utah, and West Virginia (Attorneys General of Missouri et al.) contends that the NGA does not allow use of the SCC tool to calculate speculative damages and that its use is contrary to the Commission's public interest responsibilities. Further, they argue that NEPA does not permit the use of the SCC because NEPA does not allow agencies to rely on conclusions that are speculative or reflect substandard or outdated science. ⁽¹⁷⁴⁾

72. Public Interest Organizations state that, while neither the NGA nor NEPA explicitly reference the SCC tool, there is nothing in these or other federal statutes that would prohibit its use. ⁽¹⁷⁵⁾ New Jersey Conservation Foundation notes that President Biden's Executive Order 13990 supports the use of the SC-GHG tools by agencies to capture the full costs of GHG emissions as accurately as possible. ⁽¹⁷⁶⁾ New Jersey Conservation Foundation states that following issuance of Executive Order 13990, the Interagency Working Group on the Social Cost of Greenhouse Gases (GHG IWG) published interim SC-GHG values, which the Commission should use. ⁽¹⁷⁷⁾

73. CEQ notes that it was working with representatives on the GHG IWG to develop additional guidance regarding the application of the SC-GHG tools in decision-making processes, including NEPA analysis. ⁽¹⁷⁸⁾ NGSA and API urge the Commission to wait for this review to be completed. ⁽¹⁷⁹⁾ NGSA further states that it would be inappropriate for the Commission to develop a likely conflicting approach for utilizing the SCC tool. ⁽¹⁸⁰⁾ API states that it would violate principles of consistency for the Commission to apply the interim SC-GHG values to current proposals (*i.e.*, for the remainder of this year), knowing that these values may change and lead to different treatment for future proposals. ⁽¹⁸¹⁾ EPA states that in cases where the Commission determines that a monetary comparison between benefits and costs is appropriate, the Commission should take into account established practices for benefit-cost analyses (*e.g.*, the Office of Management and Budget's Circular A-4 and references therein). If the Commission chooses to use the SC-GHG tools, EPA states that it should disclose all assumptions and levels of uncertainty associated with the analysis. ⁽¹⁸²⁾

74. The Public Interest Organizations state that monetizing impacts using the SCC tool provides the public and decisionmakers with accessible figures useful in determining whether a project is in the public interest and allows the Commission to easily compare project harms and economic benefits, whereas other metrics can misleadingly minimize climate impacts due to inadequate contextualization. ⁽¹⁸³⁾

75. Kinder Morgan asserts that the SCC tool relies on inputs or assumptions that introduce too much uncertainty. ⁽¹⁸⁴⁾ Similarly, Attorneys General of Missouri et al. contends that the SCC tool is too speculative and arbitrary to hold up to the hard-look requirement under NEPA. ⁽¹⁸⁵⁾ Rebutting this, EDF emphasizes that the GHG IWG's methodology is rigorous and based on the best available data and economic practices, such as utilizing a 300-year time horizon. ⁽¹⁸⁶⁾ INGAA states that the significant variation in output among

GHG IWG's interim values shows that discount rates reflect a high level of uncertainty in the models and that an agency's chosen discount rate wields an outsized influence on the end result. ⁽¹⁸⁷⁾ INGAA states that the Commission should: (1) Only use the SCC tool within the NEPA evaluation, not the NGA evaluation; (2) use the SCC tool as a relative, but not absolute, measure; (3) use the SCC tool only as a threshold indicator; and (4) place any SCC estimates in the proper context. ⁽¹⁸⁸⁾

76. New Jersey Conservation Foundation recommends that the Commission use all of the GHG IWG's interim values provided for the SC-GHG tools (GHG IWG recommends using a discount rate of 3%, but also provides values associated with discount rates of 2.5% and 5%). ⁽¹⁸⁹⁾

77. Boardwalk and Kinder Morgan argue that the Commission should only use the SCC tool as a qualitative tool. ⁽¹⁹⁰⁾ Boardwalk further asserts that there should not be any triggering levels that would result in adverse action by the Commission or a significance determination. Boardwalk contends that the use of trigger levels would create substantial regulatory uncertainty. Kinder Morgan and Williams also express concern that the SCC tool yields inherently one-sided GHG data if it is applied to a project in a manner that monetizes only the project's GHG costs and not the corresponding project benefits. ⁽¹⁹¹⁾ Energy Infrastructure Council asserts that the SCC tool is meaningless without a standard or threshold for significance and its use requires a monetized cost-benefit analysis of an entire project. ⁽¹⁹²⁾

78. Kinder Morgan states that the SCC tool was not designed for project-specific analysis but could be used as a screening tool in a qualitative analysis. If the Commission uses the SCC tool, Kinder Morgan recommends that it should explain why and how it was used. ⁽¹⁹³⁾ This explanation should include information about the SCC's function, its mechanism, its embedded limitations and assumptions, and the specific reason for its application in a given circumstance. Kinder Morgan states that this type of explanation is vital to avoid misleading the public about the purpose of the SCC calculation and the meaning of its results. ⁽¹⁹⁴⁾ Spectra Energy Partners, LP and Seneca Resources Corporation contend that the Commission has no basis to designate a particular SCC dollar amount as significant, and any such designation would be arbitrary and could not meaningfully inform the Commission's decision making or the public. ⁽¹⁹⁵⁾ Additionally, Kinder Morgan states that the Commission should not use the SCC tool to determine mitigation measures or conditions because no statute requires that the Commission implement mitigation based on calculations from such a tool. ⁽¹⁹⁶⁾

2. Appropriate Level of NEPA Review and Significance Determination

79. To determine the appropriate level of NEPA review, the Commission is establishing a significance threshold of 100,000 metric tons or more per year of CO₂ e. In calculating this emissions estimate, Commission staff will apply the 100% utilization or "full burn" rate for natural gas supplies delivered by the proposed project and will prepare an EIS if the estimated emissions from the proposed project may exceed the 100,000 metric tons per year threshold.

80. An emissions threshold of 100,000 metric tons per year of CO₂ e captures the majority of annual emissions generated by Commission authorized projects, including those that may result in incremental GHG emissions over a long duration that may have a significant effect upon the human environment. Establishing a threshold for NEPA purposes also provides Commission staff, industry, and other stakeholders clarity regarding whether a particular project will result in the preparation of either an EA or an EIS. We believe that such clarity ultimately benefits both the regulated community and public by ensuring certainty regarding the Commission's process for reviewing applications for natural gas infrastructure.

81. In its NEPA document, staff will estimate the proposed project's GHG emissions based on all relevant evidence submitted in the record—including the project's utilization rate, offsets, and mitigation. A project with estimated emissions of 100,000 metric tons per year of CO₂ e or greater will be presumed to have a significant effect, unless record evidence refutes that presumption. ⁽¹⁹⁷⁾ While the 100,000 metric ton

presumption will serve as a guidepost, facilitating transparent, predictable analysis of a proposed project's contribution to climate change, our analysis will continue to consider all evidence in the record on a case-by-case basis. As part of that analysis, the Commission will continue to consider any emerging tools as well as any forthcoming frameworks or analysis issued by CEQ or other agencies on this issue. Finally, as noted at the outset, we encourage commenters to address this approach to assessing significance—including the 100,000 metric ton CO₂e threshold.

a. Commission Authority To Establish a Threshold

82. Section 3 of the NGA requires the Commission to approve an application for the exportation or importation of natural gas unless the proposal “will not be consistent with the public interest.”⁽¹⁹⁸⁾ Similarly, under section 7, the Commission must find a proposed project is or will be required by the present or future public convenience and necessity.⁽¹⁹⁹⁾ The Commission has long regarded section 3's “public interest” standard and section 7's “public convenience and necessity” standard as substantially equivalent.⁽²⁰⁰⁾ In considering applications under section 3 or section 7, the Commission must “evaluate all factors bearing on the public interest.”⁽²⁰¹⁾ The Commission has recognized from its earliest decisions that it may consider the end use of gas as a factor in assessing the public interest⁽²⁰²⁾ and has long considered the impact of natural gas combustion on air pollution.⁽²⁰³⁾

83. As discussed above, the courts have interpreted the Commission's obligations under NEPA to require analysis of downstream GHG emissions for NGA section 7 certificate projects, but do not require an analysis of either downstream or upstream GHG emissions for section 3 export projects.⁽²⁰⁴⁾ As also discussed above, the Commission has previously acknowledged that upstream emissions for NGA section 7 certificate projects may be difficult to quantify. However, as noted, the Commission will continue to consider on a case-by-case basis whether GHG emissions from upstream production activities are a reasonably foreseeable and causally connected result of a proposed project.⁽²⁰⁵⁾

84. Contrary to the suggestion of some commenters, the Commission would not intrude into another agency's domain by establishing a significance threshold. The Commission does not propose to set an emissions standard that projects will be expected to meet; rather, the threshold would be an indication of potential significance for purposes of the Commission's review of a project's environmental impacts under NEPA and trigger the preparation of an EIS.⁽²⁰⁶⁾

85. As discussed above, NEPA requires the Commission to take a “hard look” at the environmental consequences of a proposed action and to prepare an EIS disclosing its analysis to the public where its action may significantly affect the quality of the human environment, or to prepare an EA for a proposed action that is not likely to have significant effects or when the significance is unknown to determine if an EIS is necessary. We note that neither EPA nor CEQ raise objections to the Commission determining the significance of GHG emissions; in fact, EPA points to Executive Order 14008, which directs the federal government to prioritize assessment, disclosure, and mitigation of climate pollution and climate-related risks, in response to the Commission's query on how it could determine the significance of a project's GHG emissions.⁽²⁰⁷⁾

86. As discussed above, NEPA requires the Commission to determine whether a project would have any significant effects on the environment, including the effects of GHG emissions on the climate.⁽²⁰⁸⁾ Moreover, courts have rejected the claim that under the NEPA framework, the determination of whether an impact is significant must not involve any subjective judgment calls.⁽²⁰⁹⁾

87. We are establishing a uniform GHG emissions threshold because GHG emissions affect climate to the same degree, regardless of the location or specifics of a particular project. Establishing such a threshold will provide the Commission a workable and consistent path forward to analyze proposed projects. Further, a

numerical threshold is a clear, consistent standard that can be easily understood and applied by the regulated community and interested stakeholders.

b. Rationale for an Emissions Threshold of 100,000 Metric Tons per Year

88. Human impact on the warming of the global climate system is unequivocal. ⁽²¹⁰⁾ Even if deep reductions in GHG emissions are achieved, the planet is projected to warm by at least 1.5 degrees Celsius (°C) by 2050. ⁽²¹¹⁾ This level of warming will present major global consequences. For example, extreme temperature events that may have occurred once in 10 years on average in a climate without human influence will occur 4.1 times as frequently and be 1.9 °C hotter. ⁽²¹²⁾ Agricultural and ecological drought events that may have occurred once in 10 years on average across drying regions in a climate without human influence will occur twice as frequently. ⁽²¹³⁾ Warming beyond 1.5 °C presents even more severe consequences. The Intergovernmental Panel on Climate Change states that “[w]ith every additional increment of global warming, changes in extremes continue to become larger.” ⁽²¹⁴⁾ For example, every subsequent 0.5 °C of warming “causes clearly discernible increases in the intensity and frequency of hot extremes, including heatwaves (*very likely*), and heavy precipitation (*high confidence*), as well as agricultural and ecological droughts in some regions (*high confidence*).” ⁽²¹⁵⁾ Because of the dire effects at stake, even relatively minor GHG emissions pose a significant threat, 100,000 metric tons per year of project GHG emissions will capture all natural gas projects that have what we believe to be the potential for causing significant impacts on climate, given the typical lifespans of authorized projects. For a single natural gas project with a lifespan of 30 years, this threshold represents a total of three million metric tons of GHG emissions.

89. Based on an internal review of natural gas projects from 2008 to 2021, a 100,000 metric tons per year threshold will cover the vast majority of potential GHG emissions from natural gas projects authorized by the Commission. For context, projects that likely have 100,000 metric tons per year or more of GHG emissions include projects transporting an average of 5,200 dekatherms per day and projects involving the operation of one or more compressor stations or LNG facilities.

90. Outside the NEPA context, other federal and state agencies that have established thresholds to evaluate or regulate GHG emissions from an analysis of the emissions from regulated sources. Most notably, in 2012, EPA issued the Tailoring Rule to regulate GHG emissions from stationary sources of air pollution under the Prevention of Significant Deterioration (PSD) ⁽²¹⁶⁾ and Title V ⁽²¹⁷⁾ permitting programs ⁽²¹⁸⁾ and proposed to phase in the regulation of GHG emissions in two steps. Under Step 1, sources already subject to the PSD permitting program for at least one non-GHG pollutant (“anyway” sources) were required to utilize best available control technology (BACT) for GHG emissions ⁽²¹⁹⁾ if they increased net GHG emissions by at least 75,000 tons per year of CO₂ e.

91. Under Step 2, EPA expanded the Tailoring Rule by requiring a new source or a major modification to an existing source to obtain PSD and/or Title V permits based on GHG emissions alone. Sources that had the potential to emit at least 100,000 tons per year of CO₂ e would become newly subject to the PSD and/or Title V requirements, even if they did not exceed the statutory threshold for any other pollutant. Additionally, modifications to an existing source already subject to PSD and/or Title V that increased net GHG emissions by at least 75,000 tons per year of CO₂ e would be subject to PSD requirements regardless of whether there was an increase in the emissions of any other pollutant. ⁽²²⁰⁾

92. In setting the 75,000 tons and 100,000 tons per year of GHGs thresholds, EPA considered the administrative burden of permitting the estimated number of additional facilities under each threshold and the percentage of total national stationary source GHG emissions that would be covered under the threshold. ⁽²²¹⁾ For example, under Step 1, EPA estimated a 5% increase in the total annual cost to run the permitting programs and that approximately 65% of GHG emissions would be covered. Under Step 2, EPA estimated that approximately 550 new sources would become subject to the PSD and Title V programs,

increasing total annual costs to run the programs by 42% and covering 67% of GHG emissions. EPA further found that lowering the threshold to 50,000 or 25,000 tons per year of CO₂e would drastically increase both the number of new facilities requiring permits and the cost of administering the programs but would only marginally increase the percentage of GHG emissions covered to 70% and 75%, respectively.

93. In 2014, the Supreme Court invalidated portions of the Tailoring Rule, holding that EPA may not use GHG emissions as the sole basis for determining whether a source is subject to a PSD or Title V permitting requirements.⁽²²²⁾ While the Supreme Court's ruling struck down Step 2 of the Tailoring Rule, it upheld Step 1 and allowed EPA to continue to regulate GHG emissions from "anyway" sources. Notably, the decision did not discuss EPA's methodology for establishing the thresholds; it only ruled that deviating from the 100 and 250 tons per year statutory thresholds in the Clean Air Act when requiring sources to newly obtain PSD or Title V permits based solely on GHG emissions under Step 2 was impermissible.

94. Further, at least two agencies in California that are directed to determine the significance of GHG emissions and climate impacts of proposed projects under the California Environmental Quality Act have also proposed or established thresholds of significance based on an analysis of regulated sources. First, in 2008, the California Air Resources Board (California ARB) proposed finding a less than significant impact for a proposed industrial project that, with mitigation, emits no more than 7,000 metric tons per year of CO₂e from non-transportation sources, including combustion and fugitive emissions.⁽²²³⁾ Second, the South Coast Air Quality Management District (South Coast AQMD) adopted an interim GHG significance threshold of 10,000 metric tons of CO₂e per year for stationary sources of air pollution in 2008.⁽²²⁴⁾ Both California ARB and South Coast AQMD found that their thresholds would capture approximately 90% of emissions from their respective regulated sources.⁽²²⁵⁾

95. Like EPA and the California agencies, we are basing our threshold on an analysis of regulated sources. Although we are adopting a conceptually similar methodology in establishing our threshold, we note that our approach will cover a larger number of emissions than the threshold established by EPA in the Tailoring Rule. EPA's thresholds of 75,000 and 100,000 tons per year accounted for only 65% and 67% of emissions from EPA-regulated sources, respectively, whereas our proposed threshold of 100,000 metric tons per year would deem nearly three-quarters of Commission-regulated natural gas project, which collectively account for roughly 99% of GHG emissions from Commission-regulated natural gas projects, to have a significant impact on climate change.

3. Other Metrics

96. As noted above, commenters argue for and against the use of various existing GHG inventories or goals as a comparison tool to determine significance. Comparison to an existing GHG inventory or goal presents substantially different percentages based on the chosen goal (international, state, regional, or local). Because different projects may have different potential purposes and the purpose of a project may be characterized to support or oppose a particular viewpoint, we do not believe that tying the Commission's significance determination for a proposed project's GHG emissions to a particular inventory or goal is appropriate. However, we recognize that this type of comparison can be helpful to inform the Commission's analysis and the public, especially when presented using a consistent metric across proposed projects under consideration by the Commission. We note that many commenters reference the SC-GHG as one tool. To the extent permitted by law,⁽²²⁶⁾ the Commission could consider the SC-GHG in the future.

C. Mitigation

97. Federal agencies can use mitigation to minimize the potential adverse environmental effects of their actions,⁽²²⁷⁾ and mitigation is used by the Commission in reviewing NGA sections 3 and 7 proposals.⁽²²⁸⁾

98. The NGA grants the Commission broad authority to attach reasonable terms and conditions to NGA section 7 certificates of public convenience and necessity and NGA section 3 authorizations. ⁽²²⁹⁾ The Commission has consistently exercised this authority to attach environmental conditions that mitigate the adverse environmental impacts of a proposed project, and the Commission is not precluded from utilizing this authority to require a project sponsor to mitigate all, or a portion of, the impacts related to a proposed project's GHG emissions. Therefore, consistent with the discussion provided herein, going forward project proponents are encouraged to propose mitigation that will minimize climate impacts. The Commission will consider any mitigation measures proposed by the project sponsor on a case-by-case basis when balancing the need for a project against its adverse environmental impacts and may require additional mitigation as a condition of an NGA section 3 authorization or section 7 certificate.

1. Technical Conference on GHG Mitigation

99. On November 19, 2021, the Commission held a Commission staff-led technical conference to discuss methods project sponsors may use to mitigate the effects of direct and indirect greenhouse gas emissions resulting from Natural Gas Act sections 3 and 7 authorizations. ⁽²³⁰⁾ Representatives from industry, academia, non-governmental organizations, and state regulatory commissions participated as panelists, with discussion topics including: How the Commission could determine the quantity of reasonably foreseeable GHG emissions resulting from a project proposed under section 3 or 7 of the NGA and the appropriate level of mitigation for such emissions; types of mitigation measures a project sponsor could employ to reduce the amount of GHG emissions associated with a proposed project; and methods for the continued verification and accounting of GHG mitigation during project operation, as well as cost impacts to the industry from implementing GHG mitigation measures and how project sponsors might recover those costs.

100. In addition to the panelists' written statements, the Commission received over 20 comments in response to the technical conference. The Commission considered these statements and comments in developing the mitigation policy described below.

2. Authority To Require Mitigation

101. Some commenters state that the Commission has broad authority under the NGA to place conditions in certificate authorizations requiring pipeline companies to mitigate GHG impacts, ⁽²³¹⁾ while others argue that the Commission does not have authority under the NGA or NEPA to impose mitigation measures, ⁽²³²⁾ especially measures to mitigate upstream or downstream GHG emissions. ⁽²³³⁾ Specifically, commenters argue that the Commission's authority under NGA section 7(e) to place conditions on a certificate is limited by the statutory purpose to regulate interstate transportation to ensure reliable access to plentiful natural gas at reasonable prices. ⁽²³⁴⁾ Commenters further assert that the Commission has no authority to establish environmental policy and that the Commission cannot use its conditioning authority to indirectly mitigate an effect that it has no authority to directly mitigate. ⁽²³⁵⁾

102. Commenters also claim that any attempt to mitigate indirect GHG emissions would infringe on the regulatory authority of other federal and state agencies and result in back-door regulation of energy policy. ⁽²³⁶⁾ Specifically, commenters state that any attempt by the Commission to mitigate upstream or downstream GHG emissions would interfere with state resource decisions and usurp issues of national energy and environmental policy that Congress vested in other federal authorities. ⁽²³⁷⁾ For example, commenters argue that Congress has delegated authority to the EPA and state agencies to regulate GHGs under the CAA. ⁽²³⁸⁾ Even if the Commission had the authority to impose mitigation measures for upstream or downstream GHG emissions, commenters argue that the Commission must first establish that those GHG emissions are reasonably foreseeable and have a sufficiently close causal connection (akin to

proximate causation under tort law) ⁽²³⁹⁾ to the authorization of a project under NEPA, and if not, should not be considered for mitigation purposes. ⁽²⁴⁰⁾ Lastly, commenters question reliance on *Sabal Trail* to support the Commission's authority to impose mitigation. ⁽²⁴¹⁾

103. We disagree with contentions that the Commission does not have the authority under the NGA or NEPA to require mitigation of GHG emissions by a project sponsor. The D.C. Circuit stated in *Sabal Trail*, that “the [Commission] has legal authority to mitigate” greenhouse-gas emissions that are an indirect effect of authorizing a pipeline project. ⁽²⁴²⁾ And, as early as 1961, the Supreme Court recognized that the Commission's predecessor, the Federal Power Commission, had the authority to consider downstream uses, and specifically, the impact of end-users combusting transported gas on air quality, as part of its public convenience and necessity determination under the NGA. ⁽²⁴³⁾ Both NGA sections 3 and 7 authorize the Commission to attach “such reasonable terms and conditions as the public convenience and necessity may require.” ⁽²⁴⁴⁾ Pursuant to this authority, the Commission has conditioned NGA section 7 certificates and section 3 authorizations on mitigation of impacts of the proposed project. ⁽²⁴⁵⁾ Moreover, courts have interpreted this provision broadly and given the Commission latitude in deciding what types of mitigation to require. ⁽²⁴⁶⁾

104. Regarding claims that the Commission cannot mandate mitigation of downstream emissions because those emissions are outside the Commission's jurisdiction, we recognize, as many commenters assert, that the Commission does not have the statutory authority to impose conditions on downstream users or other entities outside the Commission's jurisdiction, such as production, gathering, and local distribution entities. ⁽²⁴⁷⁾ Rather, the Commission encourages each *project sponsor* to propose measures to mitigate the impacts of reasonably foreseeable GHG emissions associated with its proposed project, and will consider such mitigation proposals in assessing the extent of a project's adverse impacts. ⁽²⁴⁸⁾

105. We note that the Supreme Court's ruling in *Public Citizen* does not preclude the Commission from requiring project sponsors to mitigate reasonably foreseeable upstream or downstream emissions. As discussed previously, ⁽²⁴⁹⁾ the Commission may consider downstream GHG emissions under *Public Citizen*, which states that “NEPA requires ‘a reasonably close causal relationship’ between [an] environmental effect and the alleged cause,” analogous to the “familiar doctrine of proximate cause from tort law” and does not require an agency to gather or consider information regarding environmental harms if it lacks authority to act on that information. ⁽²⁵⁰⁾ As directed by *Public Citizen*, decisionmakers should “look to the underlying policies or legislative intent in order to draw a manageable line between those causal changes that may make an actor responsible for an effect and those that do not.” ⁽²⁵¹⁾ Here, the NGA “broadly instruct[s]” the Commission to consider “the public convenience and necessity” when evaluating proposed interstate pipeline applications, balancing public benefits against adverse effects, including adverse environmental effects, ⁽²⁵²⁾ and we have noted that the Commission has consistently exercised its broad conditioning authority under the NGA to attach environmental conditions that mitigate the adverse environmental impacts of a proposed project. ⁽²⁵³⁾ NEPA requires an agency to consider the environmental impacts of its actions, including steps that could be taken to mitigate adverse environmental consequences, ⁽²⁵⁴⁾ although it does not require a federal agency to take action to mitigate those adverse effects. ⁽²⁵⁵⁾ As CEQ recognizes, an agency may, however, require mitigation of impacts under its authority as a condition of its permitting or approval. ⁽²⁵⁶⁾ Thus, as the D.C. Circuit held in *Sabal Trail*, the Commission can deny a pipeline certificate on the ground that the pipeline would be too harmful to the environment, because the agency is the “legally relevant cause” of the direct and reasonably foreseeable environmental effects of the pipelines it approves. ⁽²⁵⁷⁾ Accordingly, the Commission may consider the end use of gas and the impact of natural gas combustion on air pollution as a factor in assessing the public interest. ⁽²⁵⁸⁾ However, as detailed below, the Commission's priority is for project sponsors to mitigate, to the greatest extent possible,

a project's direct GHG emissions. The Commission also encourages project sponsors to propose mitigation of reasonably foreseeable indirect emissions, and will take such proposals into account in assessing the extent of a project's adverse impacts.

3. Mitigation Measures

106. The Commission encourages the project sponsor to propose measures to mitigate the direct GHG emissions of its proposed project to the extent these emissions have a significant adverse environmental impact. ⁽²⁵⁹⁾ INGAA describes three possible levels of mitigation—to zero, to a level of below significance, and to an amount to be determined by use of the SCC—but dismisses each as unworkable, improperly adopting broad policy judgements, and reliant on a one-sided and imprecise methodology, respectively. ⁽²⁶⁰⁾ The Commission plans to evaluate proposed mitigation plans on a case-by-case basis and is not mandating a standard level of mitigation. We also encourage project sponsors to proposed measures to mitigate the reasonably foreseeable upstream or downstream emissions associated with their projects.

107. The Commission will consider the project's impact on climate change, including the project sponsor's mitigation proposal, as part of its public interest determination under NGA section 3 or 7. ⁽²⁶¹⁾ When making the public interest determination, the Commission will assess the adequacy of the project sponsor's proposed mitigation on a case-by-case basis and will consider the project's impact on climate change as one of many factors. ⁽²⁶²⁾ Further, the Commission may require additional mitigation of a project's direct GHG emissions as a condition of the authorization, should the Commission deem a project sponsor's proposed mitigation inadequate to support the public interest determination.

108. Also we note that NEPA does not preclude the Commission from approving a project with significant adverse impacts. ⁽²⁶³⁾ If a project's emissions equal or exceed the 100,000 metric tons per year significance threshold and the project sponsor's proposed mitigation will reduce the project's GHG emissions below that threshold, the Commission will consider that mitigation in determining whether it can make a finding of no significant impact.

109. While the Commission has broad authority to require mitigation of GHG emissions by a project sponsor, we are not mandating here any particular form of mitigation. ⁽²⁶⁴⁾ A project sponsor is free to propose any mechanism to mitigate the project's GHG emissions. ⁽²⁶⁵⁾ However, in order to ensure that any GHG emissions reduction mechanisms achieve real, verifiable, and measurable reductions, any proposed mechanisms should:

- a. Be both real and additional—the emissions reductions would not have otherwise happened unless the proposed reduction mechanism was implemented, and the associated reductions occur beyond regulatory requirements; ⁽²⁶⁶⁾
- b. be quantifiable—any emissions reductions must be calculated using a transparent and replicable methodology;
- c. be unencumbered—seller has clear ownership of or exclusive rights to the benefits of the GHG reduction; and
- d. be trackable—the project sponsor must also propose means for the Commission to monitor and track compliance with the proposed mitigation measures for the life of the project.

110. Commenters express concerns with how the Commission will determine whether mitigation measures are verifiable or how the Commission will monitor or track compliance with mitigation measures in a way that avoids double counting emissions reductions. ⁽²⁶⁷⁾ Commenters point out that other federal agencies and states are already monitoring GHG emissions from certificated projects, such as EPA's GHG Reporting Rule, so a Commission-designed monitoring scheme would be duplicative and unnecessary. ⁽²⁶⁸⁾ EEI

recommends that the Commission explore interagency agreements or memorandums of understanding (MOU) with agencies like EPA and PHMSA to avoid redundancies and clarify mitigation responsibilities, ⁽²⁶⁹⁾ while INGAA states that such agreements or MOUs would be insufficient. ⁽²⁷⁰⁾

111. We believe it best not to mandate mitigation based on a specific volume or proportion of emissions. Encouraging project sponsors to submit proposed mitigation measures as opposed to mandating a certain level of mitigation for all projects allows the Commission to consider a project sponsor's proposed mitigation plan in comparison to the project's benefits, such as fuel switching or providing reliable gas service, when making a public interest determination and allows project sponsors the flexibility to choose what mitigation measures work best for their individual project. Moreover, we recognize that determining an appropriate amount of mitigation, particularly for downstream uses, depends on a variety of complex factors, some of which may not be known at the time of an application, such as state and local climate change policies, the interconnected nature of the natural gas pipeline system, long-term changes in natural gas supply sources, changes in demand for natural gas over time, individual companies' long-term goals to reduce GHG emissions, the availability of renewable energy credits or other carbon offsets, and the potential for future action by other federal agencies. ⁽²⁷¹⁾

112. Similarly, we believe it best to allow project sponsors to demonstrate that their proposed mitigation measures are verifiable and propose means for the Commission to monitor or track the proposed measures through the life of the project. This approach allows project sponsors to take advantage of existing monitoring programs and tailor verification and tracking to their chosen mitigation proposals and prevents the Commission from needing to establish a new monitoring program.

4. Opportunities for Mitigation

113. While project sponsors are free to propose any type of mitigation mechanism, the following are examples of mitigation mechanisms project sponsors may consider.

a. Market-Based Mitigation

114. Project sponsors may mitigate the GHG emissions of a proposed project through participation in one (or more) of the various types of carbon offset markets. Sponsors could, for example, purchase renewable energy credits, participate in a mandatory compliance market (if located in a state that requires participation in such a market), or participate in a voluntary carbon market.

i. Renewable Energy Credits

115. Renewable energy credits (REC) are tradeable, market-based commodities that provide proof that one megawatt hour of electricity was generated from a renewable source and delivered to the grid. RECs legally convey the attributes of renewable electricity generation to their owner. While state or regional RECs may be traded on financial exchanges that typically meet state or regional guidelines, they are not limited by geographic boundaries—RECs can be purchased independently from electricity and can be matched with energy consumption. ⁽²⁷²⁾

116. Commenters argue that the Commission may not require RECs because unlike offsets, RECs pertain only to the use of electric power and are therefore not appropriate for upstream or downstream mitigation, do not mitigate or compensate for GHG emissions, and are not denominated in carbon dioxide (CO₂) or CO₂e, thus, they cannot represent any specific amount of avoided or reduced emissions. ⁽²⁷³⁾ Enbridge also states that in most instances, project sponsors will not qualify to purchase RECs under existing state programs. ⁽²⁷⁴⁾ While RECs may not represent a 100% offset per unit of GHG emitted, RECs do represent a decrease in GHG emissions from overall energy use and production, and we will consider them.

ii. Mandatory Compliance Market Participation

117. The compliance market is a mandatory offset program regulated by national, regional, or provincial law and mandates CO₂ and GHG emission reduction requirements. Under this framework an allowance, which is an authorization for an entity to emit GHG emissions, is created. Allowances are generated and traded for regulatory compliance and are priced as a commodity based on supply and demand, regardless of project type.

118. A prime example of an existing, domestic compliance market is the Regional Greenhouse Gas Initiative (RGGI). RGGI is a cooperative effort by eleven Northeast and Mid-Atlantic states ⁽²⁷⁵⁾ to limit CO₂ emissions at certain electric power generators. Each region involved in RGGI has an established emissions budget (cap) and each electric power generator holds allowances covering their GHG emissions. If a generator is below its established cap, it may trade an allowance to other entities ⁽²⁷⁶⁾ that exceed their cap. RGGI has an established emissions-based auction and trading system where allowances are bought, sold, and traded. ⁽²⁷⁷⁾ In addition to allowances, offsets may be used for compliance purposes, which requires a third-party certification of that offset for use. RGGI strictly regulates the quantity and types of offsets. There are five pre-determined types of RGGI offsets:

- a. Landfill gas (methane) capture/burning;
- b. sulfur hexafluoride capture/recycling;
- c. afforestation (the establishment of a forest in an area where there was no previous tree cover);
- d. energy efficiency (end use); and
- e. agricultural manure management operations (avoided emissions).

119. In addition to RGGI, California participates in the Western Climate Initiative with Quebec and Nova Scotia, ⁽²⁷⁸⁾ covering industrial production, electricity generation, residential, commercial, and small industrial combustion, and transportation fuel combustion.

120. If an applicant proposes any method of market-based mitigation of GHG emissions, such as those described in this section, we encourage the applicant to inform the Commission of any state or regional compliance goals or initiatives that may be relevant to our consideration of such mitigation proposal.

iii. Voluntary Carbon Market Participation

121. If a project sponsor is not located in a state that participates in a mandatory compliance market, the voluntary carbon market offers an opportunity to mitigate project emissions. The voluntary carbon market transacts with offsets, which are the instrument representing the reduction, avoidance, or sequestration of one metric ton of GHG. ⁽²⁷⁹⁾ The voluntary market funds additional, external projects that avoid or reduce GHG emissions. ⁽²⁸⁰⁾ The voluntary carbon market is open to project sponsors regardless of location and is more flexible than compliance markets, although each market has its own standards, registries, and project types. Offset allowances are issued to project sponsors of qualifying CO₂ emissions offset projects.

122. Typically, an independent third party qualifies offset projects and establishes standards to verify offsets; however, not all offsets available in the voluntary market are certified by a third party. In order to ensure the additionality and permanence of offsets, the use of unverified offsets is discouraged. If a project sponsor proposes to mitigate project emissions through participation in a voluntary carbon market, the sponsor is encouraged to seek Commission approval of the third party that would verify the offsets prior to participation. Examples of existing, acceptable third-party certifiers include:

- a. Climate Action Reserve; ⁽²⁸¹⁾
- b. Verified Carbon Standard; ⁽²⁸²⁾ and
- c. American Carbon Registry. ⁽²⁸³⁾

123. Some commenters support allowing project sponsors to purchase emissions offsets while others oppose it as a mitigation method. For example, Policy Integrity recommends that the Commission require certificate holders to purchase emission offsets from a third party. ⁽²⁸⁴⁾ Policy Integrity states that carbon offsets are: (1) Consistent with compensatory mitigation requirements employed by other federal agencies, such as the Bureau of Land Management, U.S. Fish and Wildlife Service, and EPA; and (2) included and supported in CEQ's NEPA regulations and guidance. ⁽²⁸⁵⁾ Policy Integrity also recommends that the Commission develop a carbon offset program as opposed to relying on third-party programs; ⁽²⁸⁶⁾ however, the Commission lacks statutory authority to create such a program and believes that the existing programs and certifiers mentioned above are sufficient.

124. Conversely, some commenters oppose the Commission requiring project sponsors to purchase offsets from third parties because it is difficult to ensure that carbon offsets have the necessary traits of additionality (the reduction would not have happened but for the purchased offset), permanence (the reduction persists for the entire certification period of the offset), absence of leakage (the offset does not trigger some other activity elsewhere that adds GHG emissions), and rigorous third-party verification. ⁽²⁸⁷⁾ INGAA further comments that it would be difficult or impossible for the Commission to choose an appropriate level of offsetting because of the variability in emissions over the life of a project and the risk of over-counting for a given quantity of gas that might move over multiple jurisdictional transportation projects, and that not enough high-quality offsets are available. ⁽²⁸⁸⁾ Commissioner Kelliher cautions that the Commission would have to verify offsets given concerns about fraud and environmental and accounting integrity. ⁽²⁸⁹⁾ As previously stated, the Commission is not requiring project sponsors to purchase offsets or mandating a certain level of offsetting, and while the Commission acknowledges the challenges with third-party offsets, we believe the certifiers mentioned above will sufficiently account for them.

b. Physical Mitigation

125. In addition to purchasing RECs or emissions offsets, project sponsors could also propose to mitigate and/or offset GHG emissions through the use of physical, on- or off-site mitigation measures. Physical mitigation measures could include smaller-scale efforts including reducing a project's fugitive methane emissions or incorporating renewable energy or other energy efficient technologies to reduce a project's GHG emissions from compressor stations, or larger-scale undertakings such as carbon capture and storage, or direct air CO₂ capture. Project sponsors could also propose environmentally based measures, such as planting trees along the right-of-way or in other locations to offset carbon emissions or restoring wetlands to provide additional carbon storage; however, the scale needed for such measures to meaningfully mitigate GHG emissions may render them impractical. In addition, project sponsors could propose to reduce GHG emissions from their existing facilities, including those with no direct connection to the proposed project, as mitigation for project-related emissions.

126. Commenters detail a host of mitigation measures they are currently undertaking or propose to implement to reduce direct project emissions, such as: Installing vent gas recovery systems and optimizing operations to reduce venting and blowdowns, replacing cast iron/unprotected steel pipes with polyethylene or protected steel pipes to minimize leaks, employing a variety of technologies and methods to identify and reduce leaks, and replacing natural gas-fired horsepower at compressor stations. ⁽²⁹⁰⁾ Other commenters echo some of those suggestions ⁽²⁹¹⁾ and recommend operational limits on construction equipment, such as limited idle time when engines are not in use. ⁽²⁹²⁾ Other commenters criticize any mitigation measures, especially carbon capture and sequestration and offsets, and recommend that the Commission achieve "real zero" emissions that accounts for air and water pollution and focuses on environmental justice communities and workers impacted by the negative externalities associated with project operation and jobs that are being phased out. ⁽²⁹³⁾ Some commenters assert that direct emissions are already substantially mitigated pursuant to the regulatory authority exercised by other agencies. ⁽²⁹⁴⁾ With regard to methane leaks, Dr. Anna Scott explains that its independent certification and measurement program verifies that a

company's operations meet regulatory standards and incentivize companies to go beyond the standards by using an engineering-based review process that assesses development through to operations, as well as continuous monitoring of emissions along the supply chain. ⁽²⁹⁵⁾ On a policy level, Gary Choquette of Pipeline Research Council International (PRCI) argues for a centralized funding mechanism for pipeline research to establish gas quality requirements with the aim of maximizing supply and reducing emissions and notes that PRCI has developed a tool that provides a method for prioritizing alternatives to reduce emissions based on effectiveness and associated capital and operating costs. ⁽²⁹⁶⁾

127. Commenters also recommend that the Commission consider a project sponsor's participation in programs that help shippers voluntarily reduce emissions and other voluntary emissions reductions programs when evaluating mitigation measures, such as the ONE Future Coalition, Oil and Gas Climate Initiative, Climate and Clean Air Coalition Oil and Gas Methane Partnership, EPA Natural Gas STAR Program and Natural Gas STAR Methane Challenge Program, Methane Guiding Principles, the Natural Gas Sustainability Initiative, and The Environmental Partnership. ⁽²⁹⁷⁾ The Commission encourages project sponsors to detail their participation in such programs and any other voluntary measures as part of their mitigation plan for the Commission to consider as part of its public interest determination.

c. Cost Recovery

128. Commenters request that the Commission allow full cost recovery for any GHG mitigation measures through either the section 7 process or a general section 4 rate case for capitalized mitigation costs but caution the Commission to ensure that mitigation efforts are verified and the consumer's interest in low prices are balanced with a project sponsor's right to recover costs and earn a fair rate of return under the NGA. ⁽²⁹⁸⁾ Alternatively, for periodic purchases of market-based mitigation measures specifically, commenters state that pipelines could propose a tracker through a limited section 4 filing. ⁽²⁹⁹⁾ Conversely, other commenters oppose passing mitigation costs along to shippers, especially if it would increase rates for end-users, particularly low-income communities, who may not directly reap any local environmental benefits. ⁽³⁰⁰⁾ In the event mitigation costs are passed to shippers, American Forest supports establishing a baseline from which to judge emissions reductions and supports having an independent entity monitor and measure those reductions. ⁽³⁰¹⁾ The Commission has previously considered and approved a proposal by a pipeline proponent to recover the costs of purchasing carbon offsets. In 2010, Ruby Pipeline, L.L.C., proposed to voluntarily purchase GHG offsets for the direct emissions associated with its compressor units (approximately 523,000 metric tons of GHG per year). ⁽³⁰²⁾ Going forward, project sponsors wishing to purchase offsets or proposing other measures to mitigate their project's GHG emissions may propose to recover the costs of these measures through their proposed rates. Applicants are encouraged to submit detailed cost estimates of GHG mitigation in their application and to clearly state how they propose to recover those costs. Pipelines may seek to recover GHG emissions mitigation costs through their rates, similarly to how they seek to recover other costs associated with constructing and operating a project, such as the cost of other construction mitigation requirements or the cost of fuel. Additionally, the Commission's process for section 7 and section 4 rate cases is designed to protect shippers from unjust or unreasonable rates and will continue to do so with respect to the recovery of costs for mitigation measures.

D. Application of Policy Statement

129. We will apply this interim policy statement to both pending and new NGA section 3 and 7 applications. ⁽³⁰³⁾ As noted above, doing so will allow the Commission to evaluate and act on such applications without undue delay. Applicants with pending applications will be given the opportunity to supplement the record and explain how their proposals are consistent with this policy statement, and stakeholders will have an opportunity to respond to any such filings. A project sponsor for any new natural gas infrastructure project is encouraged to include the following in its NGA section 3 or 7 application:

- The project's projected utilization rate and supporting information;

- an estimate of reasonably foreseeable project GHG emissions;
- if upstream and downstream emissions are not quantified, evidence to support why those emissions are not reasonably foreseeable project emissions;
- evidence, if any, that impacts the quantification of the project's reasonably foreseeable GHG emissions;
- a description of its proposed GHG mitigation measures, including the percent of the project's direct and indirect GHG emissions that will be mitigated and, if applicable, a tracking mechanism for tracking mitigation of GHG emissions; and
- a detailed cost estimate of its proposed GHG mitigation and a proposal for recovering those costs.

130. As explained above, the Commission will then consider the project's impact on climate change, including the project sponsor's mitigation proposal to reduce direct GHG emissions and, to the extent practicable, to reduce any reasonably foreseeable project emissions, as part of its determination under NEPA and its public interest determination under NGA section 3 or 7. ⁽³⁰⁴⁾

V. Information Collection Statement

131. The collection of information discussed in the Policy Statement is being submitted to the Office of Management and Budget (OMB) for review under section 3507(d) of the Paperwork Reduction Act of 1995 ⁽³⁰⁵⁾ and OMB's implementing regulations. ⁽³⁰⁶⁾ OMB must approve information collection requirements imposed by agency rules. ⁽³⁰⁷⁾ Respondents will not be subject to any penalty for failing to comply with a collection of information if the collection does not display a valid OMB control number.

132. The Commission solicits comments from the public on the Commission's need for this information, whether the information will have practical utility, the accuracy of the burden estimates, recommendations to enhance the quality, utility, and clarity of the information to be collected, and any suggested methods for minimizing respondents' burden, including the use of automated information techniques. PUBLIC COMMENTS ARE DUE May 10, 2022. The burden estimates are focused on implementing the voluntary information collection pursuant to this Policy Statement. The Commission asks that any revised burden estimates submitted by commenters include the details and assumptions used to generate the estimates.

133. The following estimate of reporting burden is related only to this Policy Statement.

134. *Public Reporting Burden:* The collection of information related to this Policy Statement falls under FERC-577 and impacts the burden estimates associated with the "Gas Pipeline Certificates" component of FERC-577. The Policy Statement will not impact the burden estimates related to any other component of FERC-577. The estimated annual burden ⁽³⁰⁸⁾ and cost ⁽³⁰⁹⁾ follow.

FERC-577 (Natural Gas Facilities: Environmental Review and Compliance) as a Result of PL21-3-000

	Number of respondents	Annual number of responses per respondent	Total number of responses	Average burden & cost (\$)	Total annual burden hours & total annual cost(\$)	Cost per respondent (\$)
	(1)	(2)	(1) * (2) = (3)	(4)	(3) * (4) = (5)	(5) ÷ (1)

	Number of respondents	Annual number of responses per respondent	Total number of responses	Average burden & cost (\$) per response	Total annual burden hours & total annual cost(\$)	Cost per respondent (\$)
Gas Pipeline Certificates	40	1	40	1,520 hrs; \$132,240 Increase	60,800 hrs; \$5,289,600 Increase	\$132,240 Increase.

135. *Title:* FERC-577, Natural Gas Facilities: Environmental Review and Compliance

136. *Action:* Proposed revisions to an existing information collection.

137. *OMB Control No.:* 1902-0128

138. *Respondents:* Entities proposing natural gas projects.

139. *Frequency of Information Collection:* On occasion.

140. *Necessity of Voluntary Information Collection:* The Commission's existing FERC-577 information collection pertains to regulations implementing NEPA and reporting requirements for landowner notifications. The information collected pursuant to this Policy Statement should help the Commission in assessing natural gas infrastructure projects.

141. *Internal Review:* The opportunity to file the information conforms to the Commission's plan for efficient information collection, communication, and management within the natural gas pipeline industry. The Commission has assured itself, by means of its internal review, that there is specific, objective support for the burden estimates associated with the opportunity to file the information.

142. Interested persons may provide comments on this information-collection by one of the following methods:

- *Electronic Filing (preferred):* Documents must be filed in acceptable native applications and print-to-PDF, but not in scanned or picture format.
- *USPS:* Federal Energy Regulatory Commission, Office of the Secretary, 888 First Street NE, Washington, DC 20426
 - Hard copy other than USPS: Federal Energy Regulatory Commission, Office of the Secretary, 12225 Wilkins Avenue, Rockville, Maryland 20852.

VI. Comment Procedures

143. The Commission invites comments on the interim policy statement by April 4, 2022. Comments must refer to Docket No. PL21-3-000 and must include the commenter's name, the organization they represent, if applicable, and their address in their comments.

144. The Commission encourages comments to be filed electronically via the eFiling link on the Commission's website at <http://www.ferc.gov>. The Commission accepts most standard word processing formats. Documents created electronically using word processing software should be filed in native applications or print-to-PDF format and not in a scanned format. Commenters filing electronically do not need to make a paper filing.

145. Commenters that are not able to file comments electronically must send an original of their comments to: Federal Energy Regulatory Commission, Secretary of the Commission, 888 First Street NE, Washington, DC 20426.

146. All comments will be placed in the Commission's public files and may be viewed, printed, or downloaded remotely as described in the Document Availability section below. Commenters on this proposal are not required to serve copies of their comments on other commenters.

VII. Document Availability

147. In addition to publishing the full text of this document in the Federal Register, the Commission provides all interested persons an opportunity to view and/or print the contents of this document via the internet through the Commission's Home Page (<http://www.ferc.gov>). At this time, the Commission has suspended access to the Commission's Public Reference Room due to the President's March 13, 2020 proclamation declaring a National Emergency concerning the Novel Coronavirus Disease (COVID-19).

148. From the Commission's Home Page on the internet, this information is available on eLibrary. The full text of this document is available on eLibrary in PDF and Microsoft Word format for viewing, printing, and/or downloading. To access this document in eLibrary, type the docket number excluding the last three digits of this document in the docket number field.

149. User assistance is available for eLibrary and the Commission's website during normal business hours from the Commission's Online Support at 202-502-6652 (toll free at 1-866-208-3676) or email at ferconlinesupport@ferc.gov, or the Public Reference Room at (202) 502-8371, TTY (202) 502-8659. Email the Public Reference Room at public.referenceroom@ferc.gov.

By the Commission.

Commissioner Danly is dissenting with a separate statement attached.

Commissioner Christie is dissenting with a separate statement attached.

Issued: February 18, 2022.

Kimberly D. Bose,
Secretary.

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

Consideration of Greenhouse Gas Emissions in Natural Gas Infrastructure Project Reviews

Docket No. PL21-3-000

DANLY, Commissioner, *dissenting*:

1. I dissent in full from today's Interim Greenhouse Gas (GHG) Policy Statement which purports to set forth the Commission's procedures to evaluate the climate change impacts of proposed natural gas projects under the National Environmental Policy Act (NEPA) and to incorporate climate change considerations into the Commission's determinations under sections 3 and 7 of the Natural Gas Act (NGA).⁽¹⁾

2. This policy statement is irredeemably flawed. It is practically unworkable because it establishes a standardless standard. Its universal application to all projects, both new and pending (some for over two years), is an affront to basic fairness and is unjustifiable, especially in light of the many unnecessary delays already suffered by applicants. It is unlawful because it is illogical, it arrogates to the Commission power it

does not have, and it violates the NGA, NEPA and the Commission's and the Council on Environmental Quality's (CEQ) regulations. It is also deliberately drafted so as to evade judicial review. Lastly, it will sow confusion throughout an industry that already suffers profound uncertainty. This issuance does not know what it is and neither will affected entities: It is immediately applicable, but also seeks comments, and it is allegedly not a draft policy statement, but an "interim" one. How can stakeholders have any confidence in its contents at all? ⁽²⁾

3. When reading this policy statement, it is nearly impossible to credit the majority with actually believing that "minimiz[ing] our litigation risk," making Commission decisions "legally durable," and "increas[ing], not reduc[ing], customer and investor confidence," are truly the goals of this proceeding. ⁽³⁾ Rather, the purpose of this Interim Policy Statement, like several of the Commission's other recent Natural Gas Act issuances, appears to be to actively discourage the submission of section 3 or section 7 applications by intentionally making the process more expensive, more time-consuming, and riskier. ⁽⁴⁾

I. Overview of the Interim Policy Statement's Contents

4. The Interim Policy Statement begins by explaining it will apply upon issuance while at the same time being subject to comment and revision. ⁽⁵⁾ The majority explains this is necessary to "act on pending applications under sections 3 and 7 of the NGA without undue delay and with an eye toward greater certainty and predictability for all stakeholders." ⁽⁶⁾

5. Next, it provides a historical background on past court, Commission, and CEQ issuances. For the sake of brevity, I will not describe this background discussion other than to note it is frequently misleading. ⁽⁷⁾

6. Then the Interim Policy Statement announces that "the Commission will quantify a project's GHG emissions that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action." ⁽⁸⁾ This, it seems, will be fairly broad: the majority goes on to say that "[t]his *will* include GHG emissions resulting from construction and operation of the project as well as, in most cases, GHG emissions resulting from the downstream combustion of transported natural gas." ⁽⁹⁾

7. The majority also states that it will continue to consider whether upstream emissions are a reasonably foreseeable effect for NGA section 7 projects on a case-by-case basis. ⁽¹⁰⁾ Notably missing, though, is any discussion of how upstream emissions could have a reasonably close causal relationship to an NGA section 7 project. ⁽¹¹⁾

8. The Interim Policy Statement then describes how the quantity of project's emissions will be determined: By using a projected utilization rate for the project and considering "other factors that might impact a project's net emissions." ⁽¹²⁾ This raises more questions than it answers. Do these other factors include consideration of whether the natural gas being transported will actually reduce overall emissions or simply replace existing emissions; for example by powering natural gas generation that permits the retirement of higher-emitting generation or by serving an end use need that will turn to a different—and perhaps higher emitting—energy source if the pipeline is not constructed? ⁽¹³⁾ What does this mean for projects where the end use is unknown? Does the Commission have the expertise to evaluate a project sponsor's evidence and resolve any factual disputes? Will the majority send these issues to an Administrative Law Judge as it recently did to resolve a dispute over what constituted appropriate post-construction right-of-way restoration (a subject matter with which the Commission presumably has *some* expertise)? ⁽¹⁴⁾

9. I would suspect most attentive readers would have been interested to then learn how, having determined the means by which to arrive at these numbers, the Commission plans to weigh emissions among all of the other factors to be considered in its NGA determination. But the majority does not say.

10. Next, the Interim Policy Statement explains “the Commission is establishing a significance threshold of 100,000 metric tons or more per year [(tpy)] of CO₂e”⁽¹⁵⁾ and *will presume* that the impact of a proposed project exceeding that threshold is significant unless refuted by record evidence.⁽¹⁶⁾ According to Commission staff, of the 214 projects with direct⁽¹⁷⁾ and downstream emissions authorized from January 2017 through June 2021, this policy would have applied to 72% of them. This means that, as of the issuance of this Interim Policy Statement, the EIS is now our default environmental document.⁽¹⁸⁾

11. The Interim Policy Statement says the Commission has authority to impose GHG mitigation for both direct emissions and downstream emissions.⁽¹⁹⁾ This is a sweeping claim of jurisdiction and one that drastically departs from the Commission's historic employment of its conditioning authority. But right on the heels of that jurisdictional declaration, instead of ordering mitigation, the majority “encourages” project sponsors to “propose measures to mitigate the direct GHG emissions of its proposed project to the extent these emissions have a significant adverse environmental impact” and “to mitigate the reasonably foreseeable upstream or downstream emissions associated with their projects.”⁽²⁰⁾ The majority states the Commission will consider these mitigation measures in its public interest determinations.⁽²¹⁾ This whole maneuver is odd—how often does one declare hitherto unasserted jurisdiction and then not employ it? Be warned: this is not restraint, it is foreshadowing.⁽²²⁾

12. The majority tells project sponsors they are “free to propose any mechanism to mitigate the project's GHG emissions”⁽²³⁾ and offers some suggestions. Plant trees.⁽²⁴⁾ Incorporate renewable energy or other energy efficiency technologies.⁽²⁵⁾ And, with the faint echo of Johann Tetzl, the majority also suggests purchasing⁽²⁶⁾ renewable energy offsets.⁽²⁷⁾

13. The majority's guidance ends there, leaving the project sponsor to figure out how *much* they should mitigate by these measures,⁽²⁸⁾ some of which, it ought be pointed out, do not appear to have a discernable connection to the reduction of carbon emissions.⁽²⁹⁾ Nor does the majority explain how the Commission can verify and track any such mitigation throughout the life of the project.⁽³⁰⁾ The majority offers no general framework but says only that it wants project sponsors to mitigate “to the greatest extent possible.”⁽³¹⁾ One wonders why no mechanism is set forth. Could it be that we learned nothing of value from soliciting comments on GHG mitigation,⁽³²⁾ holding a technical conference on the subject,⁽³³⁾ and soliciting a second round of comments following that technical conference?⁽³⁴⁾ And think of where this leaves project sponsors. Often, they seek guidance from Commission staff. But for the 30 applications that are currently pending, such communication is potentially barred by the Commission's *ex parte* rules.⁽³⁵⁾ And even for those who are not so disadvantaged, absent direction from the Commission, staff can offer no more than this: You must roll the dice and cross your fingers that the Commission will act on, and maybe even grant, the requested authorization.⁽³⁶⁾

14. But the mitigation requirements may not end there. The majority states it “may require additional mitigation as a condition of an NGA section 3 authorization or section 7 certificate.”⁽³⁷⁾ Using what standard? Not stated. Perhaps, it will become a good-behavior approach akin to how the Commission has considered landowner impacts, stating: “We are satisfied that [project sponsor] has taken appropriate steps to minimize [GHG emissions].”⁽³⁸⁾ And this encumbrance is perpetual: Mitigation, the majority says, will span “the life of the project.”⁽³⁹⁾ That is long time. Ample opportunity for invasive oversight, enforcement actions, and novel, as yet unpredictable, employments of the Commission's authority.⁽⁴⁰⁾

15. Next, we reach the majority's guidance on cost recovery. The majority states “[p]ipelines *may* seek to recover mitigation costs through their rates,” and are “encouraged to submit detailed cost estimates of GHG mitigation in their application and to clearly state how they propose to recover those costs.”⁽⁴¹⁾ Pipelines *may* recover costs? On what possible basis could the Commission *deny* recovery? The majority declines to say. Then, presumably in response to comments about increasing rates for low-income communities and requests to balance the cost of mitigation with its environmental benefit, the majority states that “the

Commission's process for section 7 and section 4 rate cases is designed to protect shippers from unjust or unreasonable rates and will continue to do so with respect to the recovery of costs for mitigation measures.”⁽⁴²⁾ How can that be true when the Commission will issue a certificate only when it determines that proposed mitigation measures are required for a pipeline project to be deemed in the public convenience and necessity? Is the Commission really suggesting that it will deny the recovery of costs that it determines are necessary to satisfy the public interest?

16. The Interim Policy Statement concludes by informing project sponsors with pending applications that they “will be given the opportunity to supplement the record and explain how their proposals are consistent with this policy statement” and that those filings will be subject to a reply comment period.⁽⁴³⁾ Future applicants are also “encouraged” to include a list of information in their filings.⁽⁴⁴⁾ What happens if a project sponsor supplements its record and the Commission revises the Interim Policy Statement once again before acting on that project sponsor’s application? I can imagine that occurring as the comment deadline is six weeks away. And how can future applicants reasonably rely on interim guidance that may or may not change? What “certainty and predictability”⁽⁴⁵⁾ does this policy provide?

17. In sum, the Commission will weigh direct GHG emissions and, in most cases, downstream emissions in its NGA determinations. It will not tell you how these emissions will be assessed other than to say that project sponsors are encouraged to mitigate them. It will not tell you how project shippers will be protected from imprudently incurred costs. This is the tyranny of vagueness. It is also a threat. Imagine the fear that will animate the mitigation “voluntarily” proposed by those project sponsors with pending applications who are facing millions of dollars in sunk costs and with shippers that have relied on projects being placed into service and now only have higher cost and less reliable options available. This policy statement cannot rightly be described as “encouraging” anything.⁽⁴⁶⁾

II. Interim Policy Statement Proposes, and Takes, Unlawful Actions

A. The Interim Policy Statement, in Its Entirety, Is Based on the Wrong Premise

18. It is worth pausing to consider the underlying premise of the majority's policy for considering GHG emissions, establishing a GHG emission threshold for preparing EISs, and requiring GHG emission mitigation. All are based on the presumption that GHG emissions are an “effect” of the proposed action.

19. In order to constitute an “effect,” three elements must be met: (1) There is a “change[] in the human environment,” that change (2) is “reasonably foreseeable,” and (3) it “has a reasonably close causal relationship to the proposed action or alternatives.”⁽⁴⁷⁾ The majority, however, does not allege that the change in the human environment at issue is the release of GHG emissions themselves. That makes sense, given that it would be like the Commission saying, in the hydropower context, that the flow of water from the powerhouse is a change in the human environment. While this would be *an* effect, it is not the kind of effect that is at issue in an environmental review. Instead, the effect we would care about would be the change to the quality or quantity of the body of water through which the water flows and any resultant further changes caused to species, vegetation, etc.

20. No, the majority is concerned about the changes in the human environment caused, not by the existence of GHG emissions themselves, but by climate change. The Interim Policy Statement is absolutely clear that this is its animating purpose: “The Commission is issuing this interim policy statement to explain how the Commission will assess the impacts of natural gas infrastructure projects on climate change”;⁽⁴⁸⁾ “Climate change is the variation in the Earth's climate (including temperature, humidity, wind, and other meteorological variables) over time”;⁽⁴⁹⁾ “[C]limate change has resulted in a wide range of impacts across every region of the country and the globe. Those impacts extend beyond atmospheric climate change and include changes to water resources, agriculture, ecosystems, human health, and ocean systems.”⁽⁵⁰⁾

21. The question therefore is not whether GHG emissions are reasonably foreseeable but whether *climate change and its resulting effects* are reasonably foreseeable and have a reasonably close causal relationship to the proposed action. And if so, whether those effects are significant and can be mitigated by the Commission.

22. While determining the environmental impacts of a project is done on a case-by-case basis, the construction of a natural gas pipeline and transportation of natural gas in that pipeline are unlikely, on a project-by-project basis, to have a reasonably foreseeable (which is to say traceable and calculable) effect on climate change “in most cases.”⁽⁵¹⁾ Were climate change a reasonably foreseeable effect (as this term is used in environmental reviews) of a particular project, we would be able to examine the cause (here, the construction and the transportation of gas) and then determine some articulable and quantifiable effect (here, the amount of additional climate change) for which the project itself is causally responsible. We have never been able to do that. And while it is not acknowledged at all in the Interim Policy Statement’s procedural history, the Commission has repeatedly stated that “it cannot determine a project’s incremental physical impacts on the environment caused by GHG emissions,”⁽⁵²⁾ and CEQ has made similar statements.⁽⁵³⁾ Nothing in the Interim Policy Statement suggests this has changed nor has any new reasoning been offered to explain how we can better determine a quantifiable connection between the two.

23. The chain of causation is too attenuated for the cause and effect in this case to be considered to have a “reasonably close causal relationship.” The reasoning goes as follows: “Changes to water resources, agriculture, ecosystems, human health, and ocean systems” occurring throughout the world result from global atmospheric changes that themselves result from the warming that itself results from increases in the world-wide concentration of GHGs that enter the atmosphere as the emissions released by using natural gas, that in the case of end uses (that is, not pipeline operational uses), results from the transportation of natural gas. The logical sequence is clear, but the causation is quite attenuated. And this attenuation cannot be shortened through the ploy of employing GHG emissions as a proxy for climate change.

B. Consideration of Effects on Climate Change From Non-Jurisdictional Entities Violates the NGA and CEQ Regulations

24. The consideration of effects resulting from the upstream production or downstream use of natural gas violates the NGA and CEQ’s regulations.

25. The NGA authorizes the Commission to consider only those factors bearing on the “public convenience and necessity.”⁽⁵⁴⁾ The phrase “public convenience and necessity” is not “a broad license to promote the general public welfare.”⁽⁵⁵⁾ It does not permit the majority to conjure up its own meanings. As a “creature of statute,”⁽⁵⁶⁾ the Commission must “look to the purposes for which the [Natural Gas Act] was adopted” to give it content and meaning.⁽⁵⁷⁾

26. As the Court explained in *NAACP v. FPC*, “public convenience and necessity” means “a charge to *promote the orderly production of plentiful supplies* of electric energy and natural gas at just and reasonable rates.”⁽⁵⁸⁾ Simply put, the production and use of natural gas were not only presumed but were presumed to be in the public interest. Congress put its thumb on the scale in favor of gas and charged the Commission with ensuring that there would be adequate infrastructure in place to provide an abundant supply of natural gas available at reasonable prices for all Americans to use. The purpose of the NGA is narrow and clear. And it is a mousehole through which the elephant of addressing the climate change impacts of the entire natural-gas industry cannot pass.⁽⁵⁹⁾

27. And while there were “subsidiary purposes” for the passage of the Natural Gas Act,⁽⁶⁰⁾ addressing the effects of climate change caused by using natural gas could not have been one of them. And even if it were, it is obvious that something that is “subsidiary” cannot, definitionally, override that which is primary. The majority cannot flip the NGA’s presumptions and consider the use of natural gas as intrinsically harmful,

thus requiring mitigation. And it certainly cannot abandon our charge under the NGA to “*promote* the orderly production of plentiful supplies of . . . natural gas at just and reasonable rates”⁽⁶¹⁾ by then weighing their determination that natural gas is harmful against the public interest when adjudicating section 3 and section 7 applications. This is directly contrary to the purpose Congress established the Commission to serve and supplants the judgment of Congress with that of the Commission. If that were not reason enough, it also invades jurisdictional territory that the courts have repeatedly held that Congress has reserved to the States.⁽⁶²⁾

28. The majority cannot turn to the Supreme Court's holding in *Transco* as authority.⁽⁶³⁾ In that case, the Court held that the Federal Power Commission lawfully denied a certificate based on two factors: First, that using natural gas to alleviate air pollution from burning coal was an inferior use, and second, the proposal would increase future prices.⁽⁶⁴⁾ It does not stand for the proposition that the Commission can consider adverse effects of air pollution, and thus climate change impacts, of using natural gas as the majority implies.⁽⁶⁵⁾

29. Nor is the D.C. Circuit's outlier opinion, *Sabal Trail*, as instructive as the majority seems to believe. It is very much in tension with prevailing Supreme Court precedent in *Public Citizen*, which held that agencies are only obligated to consider environmental effects to which their actions are the proximate cause.⁶⁶ *Public Citizen* explained that courts must look to the “underlying policies or legislative intent” of an agency's organic statute to determine whether an agency is obligated to consider environmental effects.⁽⁶⁷⁾ The D.C. Circuit has also characterized *Public Citizen* as “explicit” that an agency is “not obligated to consider those effects . . . that could only occur after intervening action” by some other actor “and that only [that] actor[] . . . had the authority to prevent.”⁽⁶⁸⁾ In other words, when any potential effects are the result of the actions of third parties such as retail consumers, upstream production companies, and power generators, who may be several degrees of separation removed from the jurisdictional pipeline, those effects are outside the scope of what the agency must consider.

30. Thus, we should not rest too much weight upon *Sabal Trail*. Not only is the holding narrower than the majority seems to believe and was roundly criticized by the accompanying dissent,⁽⁶⁹⁾ its reasoning has since been called into question by another appellate court and I expect it will soon be challenged in the Supreme Court.⁽⁷⁰⁾

31. In sum, environmental effects resulting from the upstream production and downstream use of gas are not factors bearing on the public convenience and necessity under the Natural Gas Act. Further, the CEQ's regulations affirmatively prohibit those effects from being considered in an agency's compliance with NEPA.⁽⁷¹⁾

C. The Significance Threshold Is Illogical and Violates Regulations

32. In addition, the majority's presumption that project emissions exceeding 100,000 tpy of CO₂e will have a significant effect on the human environment is illogical and inconsistent with CEQ and Commission regulations.

33. The majority offers three irrelevant rationales for this presumption:⁷² *first*, the threshold is administratively workable;⁷³ *second*, other agencies have established thresholds under different statutory schemes that are not based on a project's effect on the climate;⁽⁷⁴⁾ and *third*, the threshold will “capture”⁽⁷⁵⁾ “99% of GHG emissions from Commission-regulated natural gas projects.”⁽⁷⁶⁾ It is worth noting that according to Commission staff, a 1 million tpy threshold would have covered 98.909% of emissions from natural gas projects authorized from 2017 through 2021, making the unsupported selection of the lower threshold both arbitrary and capricious.

34. The majority also states “even relatively minor GHG emissions pose a significant threat” “[b]ecause of the dire effects at stake.”⁽⁷⁷⁾ This rationale, however, is not supported by the evidence offered. The Commission does not explain how minor GHG emissions could lead to “dire effects.” We cannot just assume—this is administrative law—we must show evidence. More importantly, the rationale does not link a proposed project to effects on climate change. And for good reason. As CEQ declared: “it is not currently useful for the NEPA analysis to attempt to link specific climatological changes, or the environmental impacts thereof, to the particular project or emissions, as such direct linkage is difficult to isolate and to understand.”⁽⁷⁸⁾ The Commission has repeatedly agreed.⁽⁷⁹⁾

35. On top of being illogical, the Interim Policy Statement effectively amends the Commission's NEPA regulations without undergoing notice-and-comment procedures as required by the Administrative Procedure Act.⁽⁸⁰⁾ The Interim Policy Statement provides that an EIS will be prepared when the threshold is exceeded at full burn.⁽⁸¹⁾ The Commission's NEPA regulations, however, set forth specific categories of projects where an EA and EIS “will normally be prepared,”⁽⁸²⁾ with no mention of GHG emissions. And in a case where an EA is normally prepared, the Commission “may in *specific* circumstances”—meaning a case-by-case determination—decide whether to prepare an EIS “depending on the location or scope of the proposed action, or resources affected.”⁽⁸³⁾

36. Given these fatal flaws, it is no wonder the majority seeks comment “in particular, on the approach to assessing the significance of the proposed project's contribution to climate change.”⁽⁸⁴⁾

D. GHG Mitigation

1. Claims of Authority To Mitigate

37. Next, the majority states that the Commission's conditioning power gives it authority to require a pipeline to mitigate GHGs emitted by its operations and reasonably foreseeable indirect effects.⁽⁸⁵⁾ The majority is incorrect.

38. As commenters explain,⁽⁸⁶⁾ without any response from the majority, the Supreme Court has held that “Congress *delegated to EPA the decision whether and how to regulate carbon-dioxide emissions*” from stationary sources.⁽⁸⁷⁾ By claiming the authority to mitigate these same emissions as part of the Natural Gas Act certification process, the majority are attempting to usurp the statutory authority the Court found Congress has delegated to EPA and which cannot be reassigned absent Congressional action.⁽⁸⁸⁾ If the EPA were to regulate GHG emissions from pipeline facilities, which it is contemplating doing,⁽⁸⁹⁾ the Commission could possibly require project sponsors to comply with those requirements. But one would not say that the Commission could on its own require project sponsors to mitigate, for example, sulfur dioxide because the EPA had chosen not to do so, or the Commission believed its regulations to be inadequate.

39. The Commission's conditioning authority also does not allow the Commission to mitigate GHG emissions from upstream or downstream users. The commenters make the point,⁽⁹⁰⁾ also sidestepped by the majority,⁽⁹¹⁾ that the Commission's conditioning authority cannot be used to indirectly do what the Commission cannot do directly. That is, the Commission may not indirectly rely on the Natural Gas Act to impose conditions on non-jurisdictional entities.⁽⁹²⁾

40. Further, the Commission's conditioning authority cannot be used in ways that would be directly contrary to the purpose of the NGA—to promote the production of plentiful supplies of natural gas at reasonable rates. The majority may not rewrite the purpose of the NGA to instead charge the Commission with the mission of discouraging the production and use of natural gas.

2. Encouraging Project Sponsors To Mitigate GHG Emissions

41. The Interim Policy Statement's encouragement that project sponsors mitigate GHG emissions is in practical effect a requirement, ⁽⁹³⁾ and is not in accordance with the NGA. The NGA only empowers the Commission to impose terms and conditions in two contexts: (1) Pursuant to NGA section 3 when it finds such terms "necessary or appropriate" ⁽⁹⁴⁾ to ensure a proposed export or import facility is not inconsistent with the public interest, and (2) pursuant to NGA section 7, when it finds such terms are "reasonable" and "require[d]" by the "public convenience and necessity." ⁽⁹⁵⁾ Only after making these findings, can the Commission require mitigation.

42. The majority does not attempt to make either of these required findings. It simply leaps from stating that the Commission has the discretion to mitigate GHG emissions to "expecting" applicants to mitigate their emissions. This amounts to no more than "because I said so." More is required. ⁽⁹⁶⁾

III. Intent of the Interim Policy Statement

43. One cannot help but notice the lengths to which the majority goes in order to make this policy statement "non-binding," using words like "propose," "wish," "opportunity," and even insisting, in response to this dissent, that it does not "impose[] an obligation, deny[y] a right, or fix[] some legal relationship," ⁽⁹⁷⁾ for what appears to have no purpose other than to avoid notice-and-comment procedures (that is, public participation) and judicial review. For without judicial review as a check, there is no need to engage in reasoned decision-making or be limited by the purposes of the statute.

44. In this way, the majority appears to believe it can do whatever it wants. Arrogate to the Commission authority it does not have. Disregard regulations that are currently in force. Flout prevailing Supreme Court precedent. Make threats to manipulate project sponsors into "voluntarily" subjecting themselves to unnecessary processes and proposing mitigation of the "harm" resulting from the proposed use or transportation of natural gas to provide a service that Congress declared to be in the public interest.

45. If an entity requests rehearing of today's policy statement, the majority can simply reject it—either by notice or order (without any discussion of the merits)—stating that rehearing does not lie for policy statements. And if a petition for review follows, the Commission can argue that the Interim Policy Statement is not subject to review because it is not a substantive rule. And if some project sponsor suggests it is proposing mitigation under duress and it reserves the right to challenge the mitigation requirement in court, the Commission can argue the project sponsor cannot be aggrieved because it voluntarily proposed the mitigation and accepted the certificate and its terms. ⁽⁹⁸⁾

46. This is not good governance. Nor do I think it likely the majority will be successful. In my view, the Interim Policy Statement is a substantive, binding rule that is subject to judicial review. Despite the Interim Policy Statement's hortatory verbiage, "there are sinews of command beneath the velvet words." ⁽⁹⁹⁾ Perhaps the best illustration of this is the list of six items project sponsors are "encouraged" to include in their applications in light of the new policy statement. ⁽¹⁰⁰⁾ This list includes estimates of the proposal's cumulative direct and indirect emissions and what mitigation measures the project sponsors propose, as well as a "detailed cost estimate" of the proposed mitigation and a "proposal for recovering those costs." ⁽¹⁰¹⁾

47. This is not encouragement. This is command. The project sponsors will know that if they want to win approval for their projects this is what they must do ⁽¹⁰²⁾ even if they must guess at what will ultimately satisfy the Commission's new policies. Certainly, no project sponsor will believe that mitigation is optional or that submitting an application exceeding the Interim Policy Statement's 100,000 tpy threshold without a mitigation proposal would be anything other than a waste of time and money. And what other reason could the majority have for delaying action on those projects that have effectively twice completed the NEPA process? ⁽¹⁰³⁾

48. There is, however, no ambiguity in this: The Commission has changed the requirements for obtaining project approvals and applicants need to come before the Commission acknowledging that it is so. ⁽¹⁰⁴⁾ The effect of this change is immediate. Even applicants whose projects have been pending with the Commission for upwards of two years will be subjected to the Commission's new rules.

49. The interim policy statement also determines that emissions over 100,000 tpy of CO₂e are significant (and emissions which fall below, not significant), a determination from which legal consequences flow under NEPA. ⁽¹⁰⁵⁾ And it binds Commission staff. ⁽¹⁰⁶⁾ While I acknowledge the courts have given the Commission's characterization of issuances deference in the past, ⁽¹⁰⁷⁾ whether a court will do so in this instance is far from certain.

For these reasons, I respectfully dissent.

James P. Danly, *Commissioner*

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

Consideration of Greenhouse Gas Emissions in Natural Gas Infrastructure Project Reviews

Docket No. PL21-3-000

CHRISTIE, Commissioner, *dissenting* :

1. Last year I voted to re-issue this Notice of Inquiry (NOI) for another round of comment ⁽¹⁾ because I believed—and still do—that there are reasonable updates to the 1999 policy statement that would be worthwhile. ⁽²⁾ For example, I agree that precedent agreements between corporate affiliates, because of the obvious potential for self-dealing, should not, in and of themselves and without additional evidence, prove need. ⁽³⁾ I also believe that the Commission's procedures for guaranteeing due process to affected property owners, which, as Justice Frankfurter taught, consists of the two core elements of notice and opportunity to be heard, ⁽⁴⁾ could be strengthened.

2. Unfortunately, the new certificate policy the majority approves today ⁽⁵⁾ does not represent a reasonable update to the 1999 statement. On the contrary, what the majority does today is arrogate to itself the power to rewrite both the Natural Gas Act (NGA) ⁽⁶⁾ and the National Environmental Policy Act (NEPA), ⁽⁷⁾ a power that *only* the elected legislators in Congress can exercise. Today's action represents a truly radical departure from decades of Commission practice and precedent implementing the NGA.

3. The fundamental changes the majority imposes today to the Commission's procedures governing certificate applications are wrong as both law *and* policy. They clearly exceed the Commission's legal authority under the NGA and NEPA and, in so doing, violate the United States Supreme Court's major questions doctrine. ⁽⁸⁾

4. The new policy also threatens to do fundamental damage to the nation's energy security by making it even more costly and difficult to build the infrastructure that will be critically needed to maintain reliable power service to consumers as the generation mix changes to incorporate lower carbon-emitting resources such as wind and solar. And as recent events in Europe and Ukraine graphically illustrate, America's energy security is an inextricable part of our national security. ⁽⁹⁾ The majority's proposal on GHG impacts is obviously motivated by a desire to address climate change, but will actually make it *more* difficult to expand the deployment of low or no-carbon resources, because it will make it more difficult to build or maintain the gas infrastructure essential to keep the lights on as more intermittent resources are deployed. ⁽¹⁰⁾ In

addition to the essential need for natural gas to keep our power supply reliable, a dependable and adequate natural gas supply is critically needed for our manufacturing industries and the millions of jobs for American workers in those industries. ⁽¹¹⁾

5. And while I agree that reducing carbon emissions that impact the climate is a compelling policy goal, ⁽¹²⁾ this Commission—an administrative agency that only has the powers Congress has explicitly delegated to it—has no open-ended license under the U.S. Constitution or the NGA to address climate change or any other problem the majority may wish to address.

I. Legal Questions

6. The long-running controversy over the role and use of GHG analyses in natural-gas facility certificate cases raises two central questions of law and a third that flows from the first two:

7. *First*, whether the Commission can use a GHG analysis to *reject* a certificate—or attach conditions (including the use of coercive deficiency letters) amounting to a *de facto* rejection by rendering the project unfeasible—based on the NGA's “public convenience and necessity” ⁽¹³⁾ provision, even when the evidence otherwise supports a finding under the NGA that the facility is both “convenient and necessary” to provide the public with essential gas supply? Today's orders assume that the answer is yes. ⁽¹⁴⁾

8. *Second*, whether the Commission can, or is required to, *reject* a certificate—or attach conditions (including the use of coercive deficiency letters) amounting to a *de facto* rejection by rendering the project unfeasible—based on a GHG analysis conducted as part of an environmental review under NEPA, ⁽¹⁵⁾ when the certificate application would otherwise be approved as both “convenient and necessary” under the NGA? Again, today's orders assume the answer is yes. ⁽¹⁶⁾

9. *Third*, which, if any, conditions related to a GHG analysis may be attached to a certificate under NGA § 7(e), ⁽¹⁷⁾ or demanded through the use of deficiency letters? Today's orders seem to assume that there is essentially no limit to the conditions the Commission can impose. ⁽¹⁸⁾

10. As discussed below, today's orders get each of these questions wrong.

A. The “Public Interest” in the Natural Gas Act

11. The starting point for answering all of these questions must be what “public interest” analysis the NGA empowers the Commission to make. Can the Commission's statutory responsibility to determine the “public convenience and necessity” be used to *reject* a project otherwise needed by the public based *solely* on adverse impacts to “environmental interests” ⁽¹⁹⁾ (a term today's orders leave undefined but which could be reduced to an unspecified level of GHG emissions) as the Commission today asserts? ⁽²⁰⁾ Or can the Commission reject a project *solely* due to “the interests of landowners and environmental justice communities” as the majority also asserts? ⁽²¹⁾ The short answer is no. There is nothing in the text or history of the NGA to support such a claim about, or application of, the Commission's public interest responsibilities under the NGA.

12. As discussed herein, any claim that a “public interest” analysis under the NGA gives FERC the authority to reject a project based solely on GHG emissions is specious and ahistorical. The history of the NGA indicates that Congress intended the statute to *promote* the development of pipelines and other natural-gas facilities. As one federal judge has observed, “nothing in the text of [the NGA] . . . empowers the Commission to entirely deny the construction of an export terminal or the issuance of a certificate based solely on an adverse indirect environmental effect regulated by another agency.” ⁽²²⁾

13. I recognize that the Commission and the courts have construed “public convenience and necessity” to require the Commission to consider “all factors bearing on the public interest,”⁽²³⁾ but the Supreme Court has been very clear that any public interest analysis undertaken in the course of determining “public necessity and convenience” is constrained by the purposes and limitations of the statute.⁽²⁴⁾ It is not an open-ended license to use this Commission's certificating authority to promote whatever a majority of Commissioners from time to time may happen to view as the “public interest.”

14. With regard to GHG emissions that may be associated with upstream production activities or downstream distribution to, or consumption by, retail consumers, the Commission simply has *no* authority over such activities. That authority was left to the states.⁽²⁵⁾ Congress intended for the NGA to fill “a regulatory gap” over the “*interstate* shipment and sale of gas.”⁽²⁶⁾

15. Even if the Commission were to undertake some estimate of the indirect GHG impacts of third-party activities that it has no authority to regulate, it does not follow that the Commission can then reject a certificate based on those impacts.⁽²⁷⁾ To do so would be to ignore the undeniable purpose of the NGA, which was enacted to facilitate the development and bringing to market of natural gas resources. The Commission's role under the NGA is to *promote* the development of the nation's natural gas resources and to safeguard the interests of ratepayers.⁽²⁸⁾ Any consideration of environmental impacts, while important, is necessarily subsidiary to that role.⁽²⁹⁾

16. It is a truism that FERC is an economic regulator, *not* an environmental regulator. This Commission was not given certification authority in order to advance environmental goals;⁽³⁰⁾ it was given certification authority to *ensure the development* of natural gas resources and their availability—this includes pipeline infrastructure—at just and reasonable rates. To construe the Commission's analysis of the public convenience and necessity as a license to *prohibit* the development of *needed* natural gas resources using the public interest language in the NGA would be to negate the very legislative purpose of the statute.⁽³¹⁾ Put another way, the premise of the NGA is that the production and transportation of natural gas for ultimate consumption by end users is socially valuable and should be promoted, not that the use of natural gas (which inevitably results in some discharge of GHGs) is inherently destructive and must be curbed, mitigated, or discouraged.

17. To those who say “well, times have changed and Congress was not thinking about climate change when it passed the NGA,” here's an inconvenient truth: *If Congress wants to change the Commission's mission under the NGA it has that power; FERC does not.*

18. Any authority to perform a public interest analysis under the NGA must be construed with reference to the animating purposes of the Act. It is not a free pass to pursue any policy objective—however important or compelling it may be—that is related in some way to jurisdictional facilities.⁽³²⁾ As the Court of Appeals for the D.C. Circuit has explained:

Any such authority to consider all factors bearing on “the public interest” must take into account what “the public interest” means *in the context of the Natural Gas Act*. FERC's authority to consider all factors bearing on the public interest when issuing certificates means authority to look into those factors which reasonably relate to the purposes for which FERC was given certification authority. *It does not imply authority to issue orders regarding any circumstance in which FERC's regulatory tools might be useful.*⁽³³⁾

19. Whereas the Commission's role in certificating facilities under the NGA is explicit,⁽³⁴⁾ any purported authority for the Commission to regulate GHGs is conspicuously absent. The claim that the Commission can reject a needed facility due to GHG emissions using the public interest component in the NGA seems to be based on the following logic: To ascertain whether a facility serves the public convenience and necessity, the Commission must first determine whether the facility is in “the public interest,” which in turn entails considering factors such as “environmental” impacts from construction and operation of the proposed

facility, as well as estimating and quantifying greenhouse gas emissions from the proposed facility, including both upstream emissions associated with gathering the gas and downstream emissions associated with its use, which the Commission is somehow empowered to deem to be too excessive to grant the certificate.

⁽³⁵⁾ Suffice it to say, this tortured logic breaks apart in multiple places. ⁽³⁶⁾

20. Surely if Congress had any intention that GHG analyses should (or could) be the basis for rejecting certification of natural-gas facilities, it would have given the Commission clear statutory guidance as to when to reject on that basis. Instead, those who want the Commission to conjure up a standard on GHG emissions for deciding how much is *too* much are advocating for a standard resembling Justice Stewart's famous method for identifying obscenity, to wit, that he could not describe it, but "I know it when I see it." ⁽³⁷⁾ And the Supreme Court eventually had the good sense to abandon that ocular standard. ⁽³⁸⁾

21. Using GHG analysis to reject a certificate implicates an important judicial doctrine used in evaluating just how far an administrative agency can go in essentially *creating* public policy without clear textual support in statutory law. Now let's turn to that doctrine in this context.

B. The Major Questions Doctrine and the NGA

22. The Commission's actions today implicate the "major questions doctrine," which Justice Gorsuch has recently explained as follows:

The federal government's powers . . . are not general, but limited and divided. Not only must the federal government properly invoke a constitutionally enumerated source of authority to regulate in this area or any other, it must also act consistently with the Constitution's separation of powers. And when it comes to that obligation, this Court has established at least one firm rule: "We expect Congress to speak clearly" if it wishes to assign to an executive agency decisions "of vast economic and political significance." We sometimes call this the major questions doctrine. ⁽³⁹⁾

In short, the major questions doctrine presumes that Congress reserves major issues to itself, so unless a grant of authority to address a major issue is explicit in a statute administered by an agency, it cannot be inferred to have been granted.

23. Whether this Commission can reject a certificate based on a GHG analysis—a certificate that otherwise would be approved under the NGA—is undeniably a major question of public policy. It will have enormous implications for the lives of everyone in this country, given the inseparability of energy security from economic security. Yet the Supreme Court has made it clear that broad deference to administrative agencies on major questions of public policy is *not* in order when statutes are lacking in any explicit statutory grant of authority. ⁽⁴⁰⁾ "When much is sought from a statute, much must be shown. . . . [B]road assertions of administrative power demand *unmistakable legislative* support." ⁽⁴¹⁾

24. There is no "unmistakable legislative support" for the powers the Commission asserts today. A broad power to regulate upstream and downstream GHG emissions and their global impacts has simply *not* been delegated to this Commission. ⁽⁴²⁾ To the extent the federal government has such power, it has been delegated elsewhere. "Of necessity, Congress selects different regulatory regimes to address different problems." ⁽⁴³⁾ The U.S. Environmental Protection Agency (EPA) is charged with regulating greenhouse gas emissions under the Clean Air Act. ⁽⁴⁴⁾ By contrast, Congress established in the NGA a regulatory regime to address entirely different problems, namely, the need to develop the nation's natural gas resources and to protect ratepayers from unjust and unreasonable rates for gas shipped in the flow of interstate commerce. If it chose, Congress could enact legislation that would invest the Commission with authority to constrain the development and bringing to market of natural gas resources, but the fact is that Congress has chosen *not* to do so. On the contrary, every time Congress has enacted natural gas legislation, it has been to *promote* the development of natural gas resources, not throw up barriers to them. ⁽⁴⁵⁾

25. The fact that the NGA requires the Commission to make some form of public interest determination in the course of a certificate proceeding does not furnish a basis for the Commission to arrogate to itself the authority to constrain the development of natural gas resources on the grounds of their potential greenhouse gas emissions. As now-Justice Kavanaugh has explained: “If an agency wants to exercise expansive regulatory authority over some major social or economic activity . . . *regulating greenhouse gas emitters, for example*—an ambiguous grant of statutory authority is not enough. Congress must *clearly authorize* an agency to take such a major regulatory action.”⁽⁴⁶⁾ Congress has *not* “clearly authorize[d]” this Commission to regulate greenhouse gas emitters, nor to deny certificates to facilities whose construction and operation would be in the public convenience and necessity, simply because the construction and operation of such infrastructure may result in some amount of greenhouse gas emissions.⁽⁴⁷⁾ “Even if the text were ambiguous, the sheer scope of the . . . claimed authority . . . would counsel against” such an expansive interpretation.⁽⁴⁸⁾

26. The fact that the Commission has absolutely no standard against which to measure the impact of natural gas production upstream or use downstream of the facilities it certifies is also important. In order for Congress to delegate any authority to an executive agency, it must legislatively set forth an intelligible principle for the agency to follow.⁽⁴⁹⁾ There is no such “intelligible principle” for the Commission to follow when it comes to greenhouse gas emissions.

27. Although the NGA requires the Commission to determine whether a proposed facility is in the “public convenience and necessity,” the term “has always been understood to mean ‘need’ for the service. To the extent the environment is considered, such consideration is limited to the effects stemming from the construction and operation of the proposed facilities.”⁽⁵⁰⁾ The term “public convenience and necessity” has long been understood to refer most essentially to the public's need for service on terms that are just and reasonable, *i.e.*, that are low enough for the public to pay the rates and high enough for the provider to maintain a profitable business.⁽⁵¹⁾ That understanding was reflected in various statutes employing the term, including the Natural Gas Act.⁽⁵²⁾ And it was further reflected in the earliest “public convenience and necessity” analyses under the NGA.⁽⁵³⁾

28. To summarize: Whether and how to regulate GHG emissions is a major question of vast economic and political significance. Congress has not explicitly authorized the Commission to regulate in this area as required under the major questions doctrine, nor has it laid down an intelligible principle for the Commission to follow as required by the non-delegation doctrine. Moreover, EPA, in coordination with the states, already has authority to regulate in this area as specified in federal statutes, which is far removed from this Commission's core expertise and traditional responsibilities.

29. Let's now turn to the second major question.

C. GHG Analysis Under NEPA

30. Is this Commission required or allowed by NEPA⁽⁵⁴⁾ to *reject* a certificate for a natural gas facility— *one that would otherwise be approved under the NGA*—based on a GHG analysis conducted as part of the NEPA environmental review? And rejection includes attaching mitigation conditions so onerous (or coercing through deficiency letters) that they render the project unfeasible.⁽⁵⁵⁾

31. Again, the short answer is no. NEPA does not contain a shred of specific textual authority requiring or allowing the Commission to *reject* based on a NEPA review of estimated GHG impacts (indirect or direct) a certificate application for a facility that otherwise would be found necessary to serve the public under the NGA. Nor would it: As an information-forcing statute, NEPA imposes no substantive obligations.⁽⁵⁶⁾

32. Even conducting an analysis of indirect GHG effects under NEPA goes too far. The Supreme Court has explicitly rejected the idea that an “agency's action is considered a cause of an environmental effect [under NEPA] even when the agency has no statutory authority to prevent that effect.”⁽⁵⁷⁾ Rather, NEPA

“requires a reasonably close causal relationship between the environmental effect and the alleged cause,” that is analogous to “the familiar doctrine of proximate cause from tort law.”⁽⁵⁸⁾ While this might leave some difficult judgments at the margins, estimates of the potential global impacts of possible non-jurisdictional upstream or downstream activity—as today’s orders purport to require⁽⁵⁹⁾—is not a close call.

33. First off, in determining how far an agency’s NEPA responsibilities run, one “must look to the underlying policies or legislative intent in order to draw a manageable line between those causal changes that may make an actor responsible for an effect and those that do not.”⁽⁶⁰⁾ As discussed at length above, there is no way of drawing a plausible line, much less a manageable one, from the Commission’s certificating responsibilities under the NGA and the possible consequences of global climate change—consequences which, however potentially grave, are remote from this agency’s limited statutory mission under the NGA.

34. Second, speculating about the possible future impact on global climate change of a facility’s potential GHG emissions does not assist the Commission in its decision-making and therefore violates the “rule of reason”: Where an agency lacks the power to do anything about the possible environmental impacts, it is not obligated to analyze them under NEPA.⁽⁶¹⁾ Again, the Supreme Court has explained, “inherent in NEPA and its implementing regulations is a ‘rule of reason,’ which ensures that agencies determine whether and to what extent to prepare an EIS based on the usefulness of any new potential information to the decision-making process. Where the preparation of an EIS would serve ‘no purpose’ in light of NEPA’s regulatory scheme as a whole, no rule of reason worthy of the title would require an agency to prepare an EIS.”⁽⁶²⁾

35. This conclusion becomes even more obvious when considered alongside the undeniable fact that neither NEPA nor any other statute contains a scintilla of guidance as to which specific metrics are to be used to determine when the Commission can or must reject a project based on a GHG analysis. The Commission today establishes a threshold of 100,000 metric tons of CO₂e of annual project emissions for purposes of its analysis of natural gas projects under NEPA.⁽⁶³⁾ The rationale for establishing this threshold has literally *nothing* to do with the Commission’s NGA obligations, or even with its NEPA obligations. It consists of little more than piggybacking on EPA’s approach to regulating stationary sources.⁽⁶⁴⁾ Today’s order boasts that this new threshold will capture projects “transporting an average of 5,200 dekatherms per day and projects involving the operation of *one* or more compressor stations or LNG facilities”⁽⁶⁵⁾ and that this threshold “will capture over 99% of GHG emissions from Commission-regulated natural gas projects.”⁽⁶⁶⁾

36. These are just arbitrarily chosen numbers. A proliferation of quantification does not constitute reasoned decision-making. All of the important questions about the creation and application of this threshold remain unanswered: Is there anything in either the NGA or NEPA to indicate how much is too much and should be rejected? Or how little is low enough to get under the red line? No. If the Commission is attempting to quantify *indirect* global GHG impacts, as EPA now suggests we do,⁽⁶⁷⁾ how much global impact is too much and requires rejection of the certificate? How much impact is *not* too much? Should rejection only be based on impacts on the United States? North America? The Western Hemisphere? The planet? Where is the line? Again, there is absolutely no statutory provision that answers these questions as to the application of GHG metrics in a certificate proceeding brought under the NGA. The complete absence of any statutory guidance on the seminal question of “how much is too much?” would render any action by the Commission to reject a certificate based on any metric as “arbitrary and capricious” in the fullest sense.⁽⁶⁸⁾

37. I recognize that the 100,000 metric tons marker adopted in today’s orders is not a threshold for rejecting a proposed project but only for subjecting it to further scrutiny in the form of an EIS. But this is no small matter—completion of an EIS is extremely cost-intensive and time-consuming and, in addition, creates a plethora of opportunities for opponents of the project who otherwise lack meritorious objections to it, to run up the costs, to cause delays, and to create new grounds for the inevitable appeals challenging the certificate even if the applicant does manage to obtain it.⁽⁶⁹⁾

38. NEPA provides no statutory authority to reject a gas project that would otherwise be approved under the NGA. How could it? As is well-known, the duties NEPA imposes are essentially procedural and informational. ⁽⁷⁰⁾ The Commission's regulations implementing NEPA reflect its limits by noting that, “[t]he Commission will comply with the regulations of the Council on Environmental Quality *except where those regulations are inconsistent with the statutory requirements of the Commission* .” ⁽⁷¹⁾

39. It's not actually very difficult to see how the approach the majority adopts today is “inconsistent with the statutory requirements of the Commission.” ⁽⁷²⁾ I will repeat that the purpose of the NGA is to *promote* the development, transportation, and sale at reasonable rates of natural gas. I will repeat that the NGA conveys only *limited* jurisdictional authority; that NEPA conveys *no* jurisdictional authority; that a *different* agency is responsible for regulating GHGs; and that such regulation is a *major issue* that Congress would have to speak to *unambiguously*, which it clearly has *not* done. And yet under the analysis embraced by the majority today, this Commission purports to impose onerous—possibly fatal—regulatory requirements on certificate applicants in order to generate reams of highly speculative data that have no meaningful role to play in the execution of this agency's statutory duties. ⁽⁷³⁾ In fact, it contravenes the purposes of the NGA in at least two obvious ways: First, by bringing extrinsic considerations to bear on the Commission's decision-making, and second, by causing needless delay in the process. ⁽⁷⁴⁾

40. There is no meaningful way of evaluating any of the critical issues, and no statutory authority to actually do anything about upstream or downstream emissions, ⁽⁷⁵⁾ but unlimited ways to find fault with any analysis. Even though they aren't supposed to “flyspeck” an agency's NEPA analysis, judges who wish to impose their own policy preferences will be tempted to do exactly that. And once the agency undertakes to address an issue in its NEPA analysis, it is subject to the APA's “reasoned decision-making” standard of review. ⁽⁷⁶⁾ Thus the effect is to ramp up dramatically the legal uncertainties and costs facing any certificate applicant.

D. The Policy Statements Rest on Inadequate Legal Authority

41. Today's orders rely to a remarkable degree on a smattering of statements from a handful of recent orders. Simply put, these authorities are simply “too slender a reed” ⁽⁷⁷⁾ to support the great weight today's orders place on them.

42. Neither *Sabal Trail* ⁽⁷⁸⁾ nor *Birckhead*, ⁽⁷⁹⁾ nor the more recent *Vecinos* ⁽⁸⁰⁾ opinion from the D.C. Circuit changes any of the analysis above. Indeed, to the extent language from those cases is interpreted as requiring the Commission to exercise authority *not* found in statutes—and these opinions are more confusing than clear, as well as inconsistent with the D.C. Circuit's own precedent—then such an interpretation would be contrary to the Supreme Court's major question doctrine. Be that as it may, while I recognize that *Sabal Trail* and *Vecinos* are presently applicable to this Commission, neither of those cases individually nor both of them together provide a lawful basis for *rejecting* a certificate for a facility that is otherwise found to be needed under the NGA solely because of its estimated potential impacts on global climate change. ⁽⁸¹⁾

43. Virtually the entire structure of the majority's fundamental policy changes rests on a single line from *Sabal Trail*. ⁽⁸²⁾ That statement is itself predicated on an idiosyncratic reading of *Public Citizen* and the D.C. Circuit's own precedents. ⁸³ *Sabal Trail* rather facetiously distinguished existing D.C. Circuit precedent on the grounds that, in contrast to those cases, the same agency that was performing the EIS was also authorized to approve or deny the certificate. ⁽⁸⁴⁾ It reasoned that because the Commission could take “environmental” issues into account in its public interest analysis, and GHG emissions raise “environmental” issues, it must therefore follow that the Commission could deny a certificate based on projected GHG emissions estimates.

44. *Sabal Trail* acknowledged that “*Freeport* and its companion cases rested on the premise that FERC had no legal authority to prevent the adverse environmental effects of natural gas exports.” ⁽⁸⁵⁾ Specifically, “FERC was forbidden to rely on the effects of gas exports *as a justification for denying an upgrade license*.”

⁽⁸⁶⁾ In contrast with those cases—all of which addressed certification of LNG facilities under NGA § 3 as opposed to interstate transportation facilities under NGA § 7—the court in *Sabal Trail* concluded that, under NGA § 7, by contrast, “FERC is not so limited. Congress broadly instructed the agency to consider ‘the public convenience and necessity’ when evaluating applications to construct and operate interstate pipelines.” ⁽⁸⁷⁾ It thus concluded that, “[b]ecause FERC could deny a pipeline certificate on the ground that the pipeline would be too harmful for the environment, the agency is a ‘legally relevant cause’ of the direct and indirect environmental effects of pipelines that it approves. See *Freeport*, 827 F.3d at 47. *Public Citizen* thus did not excuse FERC from considering these indirect effects.” ⁽⁸⁸⁾

45. But the *Sabal Trail* court never considered with reference to the Commission's statutory authority the proper scope of that public interest analysis or the extent to which “environmental” issues could be considered in that context. It simply assumed the Commission's authority to be unlimited. But as discussed above, Congress drafted the NGA for the purpose of filling a specific gap in regulatory authority. The only way *Sabal Trail* would be correct is if Congress had “clearly authorized” the Commission to evaluate geographically and temporally remote impacts of non-jurisdictional activity in its “public convenience and necessity” determinations. As discussed above, that conclusion is clearly, irredeemably, wrong. ⁽⁸⁹⁾

46. As for *Vecinos*, there, the court compounds that error both by relying uncritically on *Sabal Trail* and by finding fault with the Commission for failing to connect its decision not to use the Social Cost of Carbon to Petitioners' argument that it was required to do so under 40 CFR. § 1502.21(c). ⁽⁹⁰⁾ That regulation sets forth an agency's obligations when “information relevant to reasonably foreseeable significant adverse impacts cannot be obtained.” ⁽⁹¹⁾ But global climate change is only a “foreseeable significant adverse impact” of the Commission's action *if* the Commission's authority extends as far as the *Sabal Trail* court said it does. For the reasons set out in this statement, I respectfully disagree. Nor am I alone in my disagreement. ⁽⁹²⁾

47. Finally, as to the contention that the Commission is bound to follow *Sabal Trail* notwithstanding its errors, I would simply point out that intervening Supreme Court precedents—such as *NFIB* ⁽⁹³⁾ and *Aia. Ass'n.* ⁽⁹⁴⁾—have not just significantly weakened, but utterly eviscerated the conceptual underpinnings of *Sabal Trail*'s limitless construction of the Commission's public interest inquiry under the NGA's “public convenience and necessity” analysis. ⁽⁹⁵⁾ It is folly for this Commission to proceed heedless of the Supreme Court's recent rulings that agencies may not use ambiguous or limited grants of statutory authority in unprecedented ways to make policy on major questions that Congress has reserved for itself. But that's exactly what the Commission does today. ⁽⁹⁶⁾

48. We are indeed bound to follow judicial precedent, but we don't get to “cherry pick” one precedent such as *Sabal Trail* because we like that particular opinion, while ignoring the many other conflicting precedents, especially those more recent rulings from the Supreme Court itself applying the major question doctrine. These more recent opinions light up *Sabal Trail* as a clear outlier.

II. The Real Debate Is About Public Policy not Law

49. Preventing the construction of each and every natural gas project is the overt public-policy goal of many well-funded interest groups working to reduce or eliminate natural gas usage. ⁽⁹⁷⁾ Today's orders, whatever the intent, will have the undeniable effect of advancing that *policy* goal, and we should not deny the obvious. Rather than bringing legal certainty to the Commission's certificate orders, ⁽⁹⁸⁾ today's orders will greatly increase the costs and uncertainty associated with this Commission's own handling of certificate applications. In fact, by purporting to apply today's new policy retroactively on applications that have already been submitted (and in many instances pending for years), today's action is deeply unfair: It judges by an entirely new set of standards applications that were prepared and submitted to meet the old standards and

essentially opens all of them to be relitigated. ⁽⁹⁹⁾ The undoubted effect of these orders will be to interpose additional months or years of delay on project applicants and to increase exponentially the vulnerability on appeal of any Commission orders that do approve a project.

50. Recently I said the Commission's new rule on unlimited late interventions in certificate cases was “not a legal standard, but a legal weapon.” ⁽¹⁰⁰⁾ The new certificate policy approved today is the mother of all legal weapons. There is no question that it will be wielded against each and every natural gas facility both at the Commission and in the inevitable appeals, making the costs of even pursuing a natural gas project insuperable.

51. Let me emphasize that every person or organization pursuing the policy goal of ending the use of natural gas by opposing every natural gas facility has an absolute right under the First Amendment to engage in such advocacy. However, whether to end the use of natural gas by banning the construction of all new natural gas projects is a public policy question of immense importance, one that affects the lives and livelihoods of tens of millions of Americans and their communities, as well as the country's national security. In a democracy, such a huge policy question should *only* be decided by legislators elected by the people, not by unelected judges or administrative agencies. ⁽¹⁰¹⁾

52. This public-policy context is absolutely relevant to these orders because it illustrates that the long-running controversy at this Commission over the use of GHG analyses in natural-gas certificate cases, whether it's a demand to quantify indirect impacts from upstream production and downstream use, ⁽¹⁰²⁾ or a demand to apply an administratively-constructed metric such as the Social Cost of Carbon ⁽¹⁰³⁾—and then use GHG analyses to *reject* (or mitigate to death, or impose costly delays on) a gas project—has far less to do with the law itself and far more to do with promoting preferred *public policy* goals.

53. EPA admits as much in a remarkably (perhaps unwittingly) revealing passage in a letter to this Commission:

EPA reaffirms the suggestion that the Commission avoid expressing project-level emissions as a percentage of national or state emissions. Conveying the information in this way *inappropriately diminishes* the significance of project-level GHG emissions. Instead, EPA continues to recommend disclosing *the increasing conflict between GHG emissions and national, state, and local GHG reduction policies and goals* . . . ⁽¹⁰⁴⁾

54. So according to EPA, this Commission—which is supposed to be *independent* of the current (or any) presidential administration, by the way—should literally manipulate how it presents GHG data in order to avoid “inappropriately” diminishing the impact. As EPA reveals, this is really not about data or any specific GHG metric at all, but is really about pursuing *public policy* goals, especially those of the current presidential administration that runs EPA. ⁽¹⁰⁵⁾

55. The EPA's purported guidance to this Commission illustrates that the real debate here is not over the minutiae of one methodology versus another, or whether one methodology is “generally accepted in the scientific community” and another is not, ⁽¹⁰⁶⁾ or whether one particular esoteric formula is purportedly required by a regulation issued by the CEQ ⁽¹⁰⁷⁾ and another does not meet the CEQ's directives.

56. The real debate over the use of GHG analyses in certificate proceedings is about public policy, not law, and ultimately comes down to these questions: *Who makes major decisions of public policy in our constitutional system?* Legislators elected by the people or unelected administrative agencies or judges? *Who decides?* ⁽¹⁰⁸⁾

III. Conclusions

57. Based on the analysis above the following legal conclusions can be drawn:

58. *First*, the Commission may not reject a certificate based solely on an estimate of the impacts of GHG emissions, indirect or direct. Nor, on the basis of such GHG estimates, may the Commission attach to a certificate (or coerce through deficiency letters) conditions that represent a *de facto* rejection by rendering the project financially or technically unfeasible.

59. *Second*, the Commission can consider the direct GHG impacts of the specific facility for which a certificate is sought, just as it analyzes other direct environmental impacts of a project, and can attach reasonable and feasible conditions to the certificate designed to reduce or minimize the direct GHG impacts caused by the facility, just as it does with other environmental impacts.

60. *Third*, the conditions the Commission can impose are, like its other powers, limited to the authorities granted to it by Congress and the purposes for which they are given. So, no, the Commission may not impose conditions on a certificate to mitigate upstream or downstream GHG emissions arising from non-jurisdictional activity.

61. These legal conclusions do not mean that responding to climate change is not a compelling policy necessity for the nation. In my view it is, as I stated above. ⁽¹⁰⁹⁾

62. However, neither my policy views—nor those of any other member of this Commission—can confer additional legal authority on FERC. ⁽¹¹⁰⁾ For in our democracy, it is the *elected* legislators who have the exclusive power to determine the major policies that respond to a global challenge such as climate change. Further, the argument that administrative agencies must enact policies to address major problems whenever Congress is too slow, too polarized, or too prone to unsatisfying compromises, must be utterly rejected. ⁽¹¹¹⁾ That is not how it is supposed to work in a democracy.

63. For if democracy means anything at all, it means that the people have an inherent right to choose the legislators to whom the people grant the power to decide the major questions of public policy that impact how the people live their daily lives. Unelected federal judges and executive-branch administrators, no matter how enlightened they and other elites may regard themselves to be, do not have the power to decide such questions; they only have the power to carry out the duly-enacted laws of the United States, including the most important law of all, the Constitution. That is the basic constitutional framework of the United States and it is the same for any liberal democracy worth the name.

For these reasons, I respectfully dissent.

Mark C. Christie,
Commissioner.

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Footnotes

⁽¹⁾ Intergovernmental Panel on Climate Change, United Nations, *Summary for Policymakers of Climate Change 2021: The Physical Science Basis SPM-5* (Valerie Masson-Delmotte et al. eds.) (2021), https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf (IPCC Report).

⁽²⁾ See *Sierra Club v. FERC*, 867 F.3d 1357, 1374 (D.C. Cir. 2017) (*Sabal Trail*) (requiring the Commission to consider the reasonably foreseeable GHG emissions resulting from natural gas projects).

⁽³⁾ Carbon dioxide equivalent is the combination of the emissions that contribute to climate change adjusted using each pollutant's global warming potential. This allows the Commission to aggregate all GHG emissions into a single value that accounts for each chemical's specific potential to trap heat in the atmosphere.

- (4) See, e.g., *Grand Canyon Trust v. FAA*, 290 F.3d 339, 340 (D.C. Cir. 2002) (“If any ‘significant’ environmental impacts might result from the proposed agency action[,] then an EIS must be prepared before agency action is taken.” (quoting *Sierra Club v. Peterson*, 717 F.2d 1409, 1415 (D.C. Cir. 1983))); *Found. for N. Am. Wild Sheep v. U.S. Dep’t of Agr.*, 681 F.2d 1172, 1178 (9th Cir. 1982) (“If substantial questions are raised whether a project may have a significant effect upon the human environment, an EIS must be prepared.”).
- (5) See 42 U.S.C. 4331(a); 4332(c).
- (6) Commissioner Danly’s dissent claims that today’s interim policy statement is “a substantive, binding rule that is subject to judicial review.” Danly Dissent at P 46. This interim document is intended to provide all interested entities with guidance as to how the Commission will approach application under NGA sections 3 and 7. It does not “impose[] an obligation, den[y] a right, or fix[] some legal relationship.” *Reliable Automatic Sprinkler Co. v. Consumer Prod. Safety Comm’n*, 324 F.3d 726, 731 (D.C. Cir. 2003). Parties that disagree with the approach outlined in the statement retain their full rights to litigate their concerns in any individual proceeding. Cf. *id.* (“Final agency action ‘marks the consummation of the agency’s decisionmaking process’ and is ‘one by which rights or obligations have been determined, or from which legal consequences will flow.’”) (quoting *Bennett v. Spear*, 520 U.S. 154, 178 (1997)). In addition, Commissioner Danly speculates that “no project sponsor will believe that mitigation is optional or that submitting an application exceeding the Interim Policy Statement’s 100,000 tpy threshold without a mitigation proposal would be anything other than a waste of time and money.” Danly Dissent PP 46-47. In response, we note only that the Commission will consider mitigation on a case-by-case basis and that we have not suggested that GHG emissions must be mitigated to insignificant levels in order for us to conclude that a proposed project is required by the public convenience and necessity or consistent with the public interest.
- (7) IPCC Report at SPM-5. Other forces contribute to climate change, such as agriculture, forest clearing, and other anthropogenically driven sources.
- (8) The U.S. Global Change Research Program is the leading U.S. scientific body on climate change. It comprises representatives from 13 federal departments and agencies and issues reports every 4 years that describe the state of the science relating to climate change and the effects of climate change on different regions of the United States and on various societal and environmental sectors, such as water resources, agriculture, energy use, and human health.
- (9) U.S. Global Change Research Program, *Climate Science Special Report, Fourth National Climate Assessment | Volume I* (Donald J. Wuebbles et al. eds) (2017), https://science2017.globalchange.gov/downloads/CSSR2017_FullReport.pdf; U.S. Global Change Research Program, *Fourth National Climate Assessment, Volume II Impacts, Risks, and Adaptation in the United States* (David Reidmiller et al. eds.) (2018), https://nca2018.globalchange.gov/downloads/NCA4_2018_FullReport.pdf (USGCRP Report Volume II).
- (10) IPCC Report at SPM-5 to SPM-10.
- (11) USGCRP Report Volume II at 73-75.
- (12) See, e.g., USGCRP Report Volume II at 99 (describing accelerating flooding rates in Atlantic and Gulf Coast cities).
- (13) CEQ, *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions* (Feb. 18, 2010), <https://ceq.doe.gov/docs/ceq-regulations-and-guidance/20100218-nepa-consideration-effects-ghg-draft-guidance.pdf>.
- (14) Revised Draft Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews, 79 FR 77802 (Dec. 24, 2014).

- (15) CEQ, *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews* (Aug. 1, 2016), https://ceq.doe.gov/docs/ceq-regulations-and-guidance/nepa_final_ghg_guidance.pdf (2016 CEQ Guidance).
- (16) 2016 CEQ Guidance at 9-10 (“This guidance does not establish any particular quantity of GHG emissions as ‘significantly’ affecting the quality of the human environment or give greater consideration to the effects of GHG emissions and climate change over other effects on the human environment.”).
- (17) Exec. Order No. 13783, 82 FR 16576 (Apr. 5, 2017).
- (18) Draft National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions, 84 FR 30097 (June 26, 2019).
- (19) Exec. Order No. 13990, 86 FR 7037 (Jan. 20, 2021).
- (20) Notice of Rescission of Draft Guidance, 86 FR 10252 (Feb. 19, 2021).
- (21) For details on GHG analysis in the Commission's NEPA documents through April 2018, see *Certification of New Interstate Natural Gas Facilities*, 83 FR 18020, 163 FERC ¶¶ 61,042, at PP 44-50 (2018) (2018 NOI).
- (22) See, e.g., Environmental Assessment for the Philadelphia Lateral Expansion Project, Docket No. CP11-508-000, at 24 (Jan. 18, 2012) (construction emissions); Environmental Assessment for the Minisink Compressor Project, Docket No. CP11-515-000, at 29 (Feb. 29, 2012) (operation emissions).
- (23) See, e.g., *Columbia Gas Transmission, LLC*, 158 FERC ¶¶ 61,046, at P 120 (2017); *Tex. E. Transmission, LP*, 157 FERC ¶¶ 61,223, at P 41 (2016), *reh'g granted*, 161 FERC ¶¶ 61,226 (2017).
- (24) See, e.g., *Columbia Gas Transmission, LLC*, 158 FERC ¶¶ 61,046 at PP 116-119.
- (25) With respect to upstream emissions, the D.C. Circuit subsequently noted that the Commission does not violate NEPA in not considering upstream GHG emissions where there is no evidence to predict the number and location of additional wells that would be drilled as a result of a project. *Birckhead v. FERC*, 925 F.3d 510, 518 (D.C. Cir. 2019) (*Birckhead*).
- (26) 867 F.3d 1357.
- (27) *Id.* at 1374.
- (28) *Fla. Se. Connection, LLC*, 164 FERC ¶¶ 61,099, at P 5 (2018).
- (29) *Id.* No party petitioned for judicial review of the Commission's determination on remand.
- (30) 163 FERC ¶¶ 61,128 (2018), *pet. dismissed*, *Otsego 2000 v. FERC*, 767 F.App'x 19 (D.C. Cir. 2019) (unpublished opinion).
- (31) *Id.* PP 41-44, 61-62.
- (32) *Id.* P 44; see also *Tenn. Gas Pipeline Co., LLC*, 163 FERC ¶¶ 61,190, at PP 61-62 (2018).
- (33) *Dominion Transmission, Inc.*, 163 FERC ¶¶ 61,128 at PP 67-70.
- (34) *Birckhead*, 925 F.3d at 518-19.
- (35) *Id.* at 520.
- (36) 174 FERC ¶¶ 61,189, at P 29 (2021).
- (37) *Id.* PP 29-36.

- (38) *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321, 1328 (D.C. Cir. 2021) (*Vecinos*) (citing 40 CFR 1502.21(c), which requires an EIS to include an evaluation of impacts based upon theoretical approaches or research methods generally accepted in the scientific community where the information relevant to the reasonably foreseeable significant adverse impacts cannot be obtained because the means to obtain it are not known). The case is pending on remand with the Commission.
- (39) 2018 NOI, 163 FERC ¶ 61,042.
- (40) *Certification of New Interstate Natural Gas Pipeline Facilities*, 88 FERC ¶ 61,227 (1999), *clarified*, 90 FERC ¶ 61,128, *further clarified*, 92 FERC ¶ 61,094 (2000). The Commission must determine whether a proposed natural gas project is or will be required by the present or future public convenience and necessity, as that standard is established in NGA section 7. 15 U.S.C. 717f.
- (41) 2018 NOI, 163 FERC ¶ 61,042 at PP 5-50.
- (42) *Certification of New Interstate Natural Gas Facilities*, 174 FERC ¶ 61,125 (2021).
- (43) *Id.* P 17.
- (44) *Id.* (citations omitted).
- (45) See Notice Extending Time for Comments, Docket No. PL18-1-000 (Mar. 31, 2021) (extending the original comment deadline from April 26, 2021, to May 26, 2021).
- (46) 15 U.S.C. 717f.
- (47) NGA section 1(b) states that Commission authority applies to interstate transportation of natural gas and sales for resale, “but shall not apply to any other transportation or sale of natural gas or to the local distribution of natural gas or to the facilities used for such distribution or to the production or gathering of natural gas.” *Id.* 717(b).
- (48) The 1977 Department of Energy Organization Act (42 U.S.C. 7151(b)) placed all section 3 jurisdiction under the Department of Energy. The Secretary of Energy subsequently delegated authority to the Commission to “[a]pprove or disapprove the construction and operation of particular facilities, the site at which such facilities shall be located, and with respect to natural gas that involves the construction of new domestic facilities, the place of entry for imports or exit for exports.” Department of Energy Delegation Order No. 00-004.00A, section 1.21A (May 16, 2006).
- (49) In addition to pipelines that cross the international border with Canada and Mexico, the Commission has also asserted authority over the portions of subsea pipelines planned to cross the “border” of the Exclusive Economic Zone between the U.S. and the Bahamas. See, e.g., *Tractebel Calypso Pipeline, LLC*, 106 FERC ¶ 61,273 (2004), *vacated*, *Calypso U.S. Pipeline, LLC*, 137 FERC ¶ 61,098 (2011).
- (50) 15 U.S.C. 717b(e)(1).
- (51) *Id.* 717f(e) (“The Commission shall have the power to attach to the issuance of the certificate and to the exercise of the rights granted thereunder such reasonable terms and conditions as the public convenience and necessity may require.”); see also *id.* 717b(a) (stating that the Commission may “grant such application, in whole or in part, with such modification and upon such terms and conditions as the Commission may find necessary or appropriate”); *id.* 717b(e)(3)(A) (providing the authority to approve an application for an LNG Terminal, “in whole or part, with such modifications and upon such terms and conditions as the Commission find[s] necessary or appropriate”).
- (52) See *Twp. of Bordentown v. FERC*, 903 F.3d 234, 261 n.15 (3d Cir. 2018) (concluding that the Commission's authority to enforce any required remediation is amply supported by provisions of the NGA); *Sabal Trail*, 867 F.3d at 1374 (holding that the Commission has legal authority to mitigate reasonably

foreseeable indirect effects).

(53) See, e.g., *Atl. Coast Pipeline, LLC*, 161 FERC ¶ 61,042, at app. A (2017), *on reh'g*, 164 FERC ¶ 61,100 (2018).

(54) 42 U.S.C. 4332(2)(C); 40 CFR 1502.3; see *Balt. Gas & Elec. Co. v. Nat. Res. Def. Council, Inc.*, 462 U.S. 87, 97 (1983) (discussing the twin aims of NEPA).

(55) 40 CFR 1501.5, 1508.1(h).

(56) 40 CFR 1508.1(1) (defining a finding of no significant impact as a document that briefly presents the reasons why an action that is not otherwise categorically excluded under § 1501.4 will not have a significant effect on the human environment and for which an EIS will therefore not be prepared).

(57) *Vieux Carre Prop. Owners, Residents & Assocs., Inc. v. Pierce*, 719 F.2d 1272, 1279 (5th Cir. 1983) (stating there is “no hard and fast definition of ‘significant’” but considering the proposed project’s context in assessing whether a finding of no significance impact was reasonable). The regulations implementing NEPA previously addressed the term “significantly,” but that provision was removed by amendments effective September 14, 2020 and replaced with 40 CFR 1501.3(b). “Whether a project has significant environmental impacts, thus triggering the need to produce an EIS, depends on its ‘context’ (region, locality) and ‘intensity’ (‘severity of impact’).” *Nat’l Parks Conservation Ass’n v. Semonite*, 916 F.3d 1075, 1082 (D.C. Cir.) (quoting 40 CFR 1508.27 (2018)), *amended in part by* 925 F.3d 500 (D.C. Cir. 2019). The new 40 CFR 1501.3(b) calls for agencies to consider the “potentially affected environment and degree of the effects of the action” and to consider the short-term, long-term, beneficial, and adverse effects, and effects on public safety and those that would violate laws.

(58) See, e.g. Final EIS for the Alaska LNG Project, Docket No. CP17-178-000, at 4-1.

(59) See *Sabal Trail*, 867 F.3d at 1371 (“The EIS also gave the public and agency decisionmakers the qualitative and quantitative tools they needed to make an informed choice for themselves. NEPA requires nothing more.”).

(60) See, e.g., *Transcon. Gas Pipe Line Co., LLC*, 158 FERC ¶ 61,125, at P 79 (describing how the final EIS for the Atlantic Sunrise Project concluded that the project would result in adverse impacts that would be mitigated to less than significant levels), *order on reh'g*, 161 FERC ¶ 61,250 (2017), *petition denied sub nom., Allegheny Def. Project v. FERC*, 964 F.3d 1 (D.C. Cir. 2020); see also *infra* note 61; see also *Magnum Gas Storage, LLC*, 134 FERC ¶ 61,197, at P 115 (2011) (explaining that “‘significantly,’ as used in NEPA, requires considerations of both context and intensity, which varies with the setting of each proposed action.”).

(61) *N. Nat. Gas Co.*, 174 FERC ¶ 61,189, at P 32 (citing *Magnum Gas Storage, LLC*, 134 FERC ¶ 61,197 at P 114 (“[A]n impact was considered to be significant if it would result in a substantial adverse change in the physical environment or natural condition and could not be mitigated to less-than-significant level.”)).

(62) See, e.g., *Tex. LNG Brownsville LLC*, 169 FERC ¶ 61,130, at P 56 (2019) (“Due to the relatively undeveloped nature of the project area, the visual sensitivity of nearby recreation areas, and the lack of feasible visual screening measures, the Final EIS concluded that the project would result in a significant impact on visual resources when viewed from the adjacent Laguna Atascosa National Wildlife Refuge.”), *order on reh'g*, 170 FERC ¶ 61,139, at P 32 (2020), *remanded on other grounds, Vecinos*, 6 F.4th 1321; Final EIS for the Alaska LNG Project, Docket No. CP17-178-000, at ES-4 (Mar. 2020) (explaining the significant, long-term to permanent project impacts from the loss of thousands of acres of permafrost from construction that would permanently alter hydrology and vegetation within and past the project footprint).

(63) *Sierra Club v. U.S. Dep't of Transp.*, 753 F.2d 120, 128 (D.C. Cir. 1985) (“It is clearly within the expertise and discretion of the agency to determine proper testing methods.”); *see also Hughes River Watershed Conservancy v. Johnson*, 165 F.3d 283, 289 (4th Cir. 1999) (“Agencies are entitled to select their own methodology as long as that methodology is reasonable. The reviewing court must give deference to an agency's decision.”).

(64) *See Spiller v. White*, 352 F.3d 235, 244 n.5 (5th Cir. 2003) (rejecting petitioner's contention that the significance determination must be objective, factual, and quantitative and should not involve any qualitative judgment calls).

(65) *See La. Crawfish Producers Ass'n-W. v. Rowan*, 463 F.3d 352, 355 (5th Cir. 2006) (NEPA-related decisions are accorded a considerable degree of deference); *Spiller v. White*, 352 F.3d at 244 n.5 (“We should note that our deference to the [lead [a]gencies] fact-finding and conclusions includes deference to their judgment as to whether any particular environmental impact of the proposed pipeline rises to the level of significance”); *Powder River Basin Res. Council v. U.S. Bureau of Land Mgmt.*, 37 F.Supp. 3d 59, 74 (D.D.C. 2014) (agencies are afforded discretion to use their expertise to determine the best method to evaluate the significance of an impact to a particular resource, so long as that method is reasonable).

(66) *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 351 (1989) (“To be sure, one important ingredient of an EIS is the discussion of steps that can be taken to mitigate adverse environmental consequences.”).

(67) *Id.* at 352 (“There is a fundamental distinction, however, between a requirement that mitigation be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated, on the one hand, and a substantive requirement that a complete mitigation plan be actually formulated and adopted, on the other.”).

(68) *Final Guidance for Federal Departments and Agencies on the Appropriate Use of Mitigation and Monitoring and Clarifying the Appropriate use of Mitigated Findings of No Significant Impact*, 76 FR 3843, 3848 (Jan. 21, 2011).

(69) *See, e.g., Columbia Gas Transmission, LLC*, 170 FERC ¶ 61,045, at P 66, app. (2020) (conditioning certificate authority on site-specific mitigation measures when crossing abandoned mine lands, including the management and disposal of contaminated groundwater, and mitigation measures for acid mine drainage); *PennEast Pipeline Co., LLC*, 170 FERC ¶ 61,198, at PP 29-30, app. A (2020) (conditioning certificate authority on mitigation of construction impacts on karst features); *Atl. Coast Pipeline, LLC*, 161 FERC ¶ 61,042 at app. A (conditioning certificate authority on the mitigation of construction impacts on karst features and on a nearby inn and mitigation of impacts from the discovery of invasive aquatic species during construction); *Port Arthur LNG, LP*, 115 FERC ¶ 61,344, at PP 68-71, app. A (conditioning sections 3 and 7 authority on the mitigation of construction impacts on aquatic resources and wetlands), *order on reh'g*, 117 FERC ¶ 61,213 (2006), *vacated*, 136 FERC ¶ 61,196 (2011).

(70) 40 CFR 1508.1(g) (defining the effects or impacts that must be considered when conducting a review under NEPA).

(71) Emissions quantification also includes loss of carbon storage/sinks through land use conversions, forest clearing, wetland conversions, etc.

(72) As discussed below, the vast majority of all natural gas consumed in the United States is combusted. *See infra* note 101.

(73) Additionally, the Commission will consider evidence regarding whether certain emissions associated with a proposed project, such as upstream and downstream emissions, are reasonably foreseeable.

- (74) See *Certification of New Interstate Natural Gas Pipeline Facilities*, 178 FERC ¶ 61,107, at P 55 (2022) (explaining that project sponsors are encouraged to provide the Commission with information on estimated utilization rates and the intended end use of gas to demonstrate project need).
- (75) 40 CFR 1508.1(g).
- (76) *Id.* § 1508.1(g)(2); see also *U.S. Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752, 767 (2004) (*Pub. Citizen*) (finding that “NEPA requires ‘a reasonably close causal relationship’ between the environmental effect and the alleged cause” in order “to make an agency responsible for a particular effect under NEPA” (quoting *Metro. Edison Co. v. People Against Nuclear Energy*, 460 U.S. 766, 774 (1983) (*Metro. Edison Co.*)))).
- (77) 40 CFR 1508.1(g)(2); see also *Metro. Edison Co.*, 460 U.S. at 774 (finding that “[s]ome effects that are ‘caused by’ a change in the physical environment in the sense of ‘but for’ causation,” will not fall within NEPA if “the causal chain is too attenuated”).
- (78) 40 CFR 1508.1(g)(2); see also *Pub. Citizen*, 541 U.S. at 770 (“[W]here an agency has no ability to prevent a certain effect due to its limited statutory authority over the relevant actions, the agency cannot be considered a legally relevant ‘cause’ of the effect.”).
- (79) *EarthReports, Inc. v. FERC*, 828 F.3d 949, 955 (DC Cir. 2016) (citations omitted); see also *Sierra Club v. Marsh*, 976 F.2d 763, 767 (1st Cir. 1992).
- (80) *N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1079 (9th Cir. 2011) (quoting *Selkirk Conservation All. v. Forsgren*, 336 F.3d 944, 962 (9th Cir. 2003)).
- (81) *Id.* at 1078.
- (82) *Id.* (quoting *Env'tl. Prot. Info. Ctr. v. U.S. Forest Serv.*, 451 F.3d 1005, 1014 (9th Cir. 2006)).
- (83) *EarthReports, Inc. v. FERC*, 828 F.3d at 955 (citing *Sierra Club v. FERC*, 827 F.3d 36, 47, 59, 68 (D.C. Cir. 2016) (*Freeport*).
- (84) See, e.g., Egan Millard 2021 Comments at 3; New Jersey Conservation Foundation 2021 Comments at 21; Shayna Gleason 2021 Comments at 2.
- (85) New Jersey Conservation Foundation 2021 Comments at 21.
- (86) Construction emissions include emissions from gasoline- and diesel-powered construction equipment.
- (87) Operational emissions include emissions from combustion units at compressor stations and fugitive leaks from compressor stations, meter/valve stations, and the pipeline.
- (88) The project sponsor provides emissions information in Resource Report No. 9. 18 CFR 380.12(k). Operational emissions are also estimated in the project's air permit application, which is typically submitted to the state agency with delegated Clean Air Act authority. Further, the Commission's guidance manual for NGA certificate applications instructs project sponsors to provide the GHGs in tons per year for the construction and operation of the proposed project. See Guidance Manual for Environmental Report Preparation for Applications Filed under the NGA, Volume I, at 4-123, 4-125 to 4-127 (Guidance Manual).
- (89) See, e.g., Food and Water Watch 2021 Comments at 1; New Jersey Conservation Foundation 2021 Comments at 19; Attorneys General of Massachusetts, Illinois, Maryland, New Jersey, Rhode Island, Washington, and the District of Columbia (Attorneys General of Massachusetts et al.) 2018 Comments at 12-17.

(90) For example, the Massachusetts PipeLine Awareness Network states that the Commission should consider fugitive emissions from the distribution and burning of transported gas. Massachusetts PipeLine Awareness Network 2021 Comments at 2; see also, e.g., Egan Millard 2021 Comments at 3; Shayna Gleason 2021 Comments at 2.

(91) See, e.g., American Petroleum Institute (API) Technical Conference Comments at 3-5 (stating the Commission and developers cannot accurately forecast downstream emissions due to lack of knowledge of the end use of the gas, variability in utilization rates and regulatory requirements, and unpredictable changes in supply and demand, among other factors); Boardwalk Pipeline Partners LP (Boardwalk) Technical Conference Comments at 21; Enbridge Gas Pipelines (Enbridge) Technical Conference Comments at 11, 25-26; Interstate Natural Gas Association of America (INGAA) 2021 Comments at 58-60; The Williams Companies, Inc. (Williams) 2021 Comments at 37-38; Natural Gas Supply Association (NGSA) 2018 Comments at 15-16.

(92) The court concluded “that the EIS for the Southeast Market Project should have either given a quantitative estimate of the downstream greenhouse emissions that will result from burning the natural gas that the pipelines will transport or explained more specifically why it could not have done so.” *Sabal Trail*, 867 F.3d at 1374.

(93) *Birckhead*, 925 F.3d at 518-20 (criticizing the Commission for not attempting to obtain data on downstream uses).

(94) 932 F.3d 940 (DC Cir. 2019).

(95) *Id.* at 945-46.

(96) See, e.g., INGAA 2021 Comments at 50-51.

(97) INGAA 2021 Comments at 49-51, 57; see also INGAA Technical Conference Comments at 14 (adding that NEPA's requirements would exclude downstream emissions occurring after a “long and attenuated chain of intermediate causal factors, as when natural gas is transported to an interconnect for further shipment on the interstate grid, eventually reaching end-use consumers only through a long intermediate path”).

(98) 941 F.3d 1288 (11th Cir. 2019) (*Center for Biological Diversity*).

(99) *Id.* at 1300 (citing *Pub. Citizen*, 541 U.S. 752 and *Metro. Edison Co.*, 460 U.S. 766).

(100) U.S. Energy Info. Admin., *December 2021 Monthly Energy Review* 24, 101 (2021) (reporting that, in 2020, 1,036 Bcf of natural gas had a non-combustion use compared to 30,476 Bcf of total consumption), <https://www.eia.gov/totalenergy/data/monthly/pdf/mer.pdf> ; see also Jayni Hein et al., Institute for Policy Integrity, *Pipeline Approvals and Greenhouse Gas Emissions* 25 (2019) (explaining that, in 2017, 97% of all natural gas consumed was combusted).

(101) See *Birckhead*, 925 F.3d at 518; *Sabal Trail*, 867 F.3d at 1371-72.

(102) *Birckhead*, 925 F.3d at 518-19 (rejecting, in *dicta*, that downstream emissions are always a foreseeable effect of a proposed certificate project).

(103) *Sabal Trail*, 867 F.3d at 1372-73 (emphasis in original) (explaining *Pub. Citizen*, 541 U.S. 752).

(104) See *id.* at 1373 (“Because FERC could deny a pipeline certificate on the ground that the pipeline would be too harmful to the environment, the agency is a ‘legally relevant cause’ of the direct and indirect environmental effects of pipelines it approves.” (quoting *Freeport*, 827 F.3d at 47)).

(105) *Freeport*, 827 F.3d at 47.

- (106) *Pub. Citizen*, 541 U.S. at 767 (quoting *Metro. Edison Co.*, 460 U.S. at 774).
- (107) See *Center for Biological Diversity*, 941 F.3d at 1292 (describing whether the U.S. Army Corps of Engineers legally declined to address, in issuing discharge permits for phosphate mining, the effects of a radioactive byproduct of fertilizer production (phosphogypsum), where the phosphogypsum is neither a byproduct of dredging and filling or phosphate mining or beneficiation). The court criticized the reasoning in *Sabal Trail* but also observed that the “causal relationship between the agency action and the putative downstream effect was much closer [in *Sabal Trail*] than it is here” and that the Commission’s scope of statutory authority is “much broader” than that of the U.S. Army Corps of Engineers. *Id.* at 1299-1300.
- (108) *Freeport*, 827 F.3d at 47 (holding that the Commission does not have to address the indirect effects of the anticipated export of natural gas because the Department of Energy, not the Commission, has sole authority to license and consider the environmental impacts of the export of any natural gas going through LNG facilities); *Freeport*, 827 F.3d at 62-63 (same); *EarthReports, Inc. v. FERC*, 828 F.3d at 956 (same); *Sabal Trail*, 867 F.3d at 1372 (explaining *Freeport*).
- (109) *Freeport*, 827 F.3d at 48.
- (110) See, e.g., Egan Millard 2021 Comments at 3; Shayna Gleason 2021 Comments at 2.
- (111) See, e.g., Institute for Policy Integrity at New York University School of Law (Policy Integrity) Technical Conference Comments at 17; Food and Water Watch 2021 Comments at 1; New Jersey Conservation Foundation 2021 Comments at 19.
- (112) See, e.g., Boardwalk Technical Conference Comments at 21; Enbridge Technical Conference Comments at 11, 25-26; TC Energy Corporation (TC Energy) Technical Conference Comments at 5; Williams Technical Conference Comments at 4; INGAA 2021 Comments at 56-57; Williams 2021 Comments at 37-38.
- (113) EPA 2021 Comments at 5.
- (114) See *Birckhead*, 925 F.3d at 516-18. See, e.g., *Double E Pipeline, LLC*, 173 FERC ¶61,074, at P 97 (2020); *Cent. N.Y. Oil & Gas Co., LLC*, 137 FERC ¶61,121, at PP 81-101 (2011), *order on reh’g*, 138 FERC ¶61,104, at PP 33-49 (2012), *petition for review dismissed sub nom., Coal. for Responsible Growth v. FERC*, 485 F.App’x 472, 474-75 (2d Cir. 2012) (unpublished opinion); see also *Adelphia Gateway, LLC*, 169 FERC ¶61,220, at P 243 (2019), *order on reh’g*, 171 FERC ¶61,049, at P 89 (2020).
- (115) We note that thresholds for Clean Air Act and state air permits are typically based on the regulated source’s potential to emit, or the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design, rather than its actual emissions, and that air permits themselves are expressed in potential to emit. See 40 CFR 70.2. This policy statement does not apply to any other air pollutants than GHGs. For all other air pollutants, we will continue to evaluate a project’s air quality impacts based on its potential to emit.
- (116) See *infra* section III.A.2.a.
- (117) See, e.g., American Gas Association (AGA) Technical Conference Comments at 28, 40; API Technical Conference Comments at 3; Boardwalk Technical Conference Comments at 23 (stating that the Commission should rely on local distribution companies’ air permits to determine GHG emissions); Enbridge Technical Conference Comments at 31-34; Hon. Joseph T. Kelliher Technical Conference Comments at 5-6 (Commissioner Kelliher, Principal at Three Acorns, was a panelist at the GHG Technical Conference on Panel 1.); INGAA Technical Conference Comments at 17-18 (suggesting the net emissions analysis must be undertaken on a global level); Kinder Morgan Entities (Kinder Morgan) Technical Conference Comments at 12-15; National Grid Gas Companies Technical Conference Comments at 3-7 (describing the Distributed

Infrastructure Solution that it has developed in coordination with the State of New York); Williams Technical Conference Comments at 7-8; Charles River Associates 2021 Comments at 4-5; Ohio Environmental Council 2021 Comments at 3. See Environmental Assessment for the Iroquois Gas Transmission System, L.P. (Iroquois) Enhancement by Compression Project, Docket No. CP20-48-000, at B-110 (Sept. 30, 2020) (citing Iroquois' end-use GHG analysis that projected greater GHG emissions if the project was not built under scenarios where the energy needs of all new buildings are met by fuel oil as opposed to gas supplied by the project). One industrial end user expresses concern about the potential of integrating renewable natural gas due to concerns about pipeline integrity or increased costs. American Forest and Paper Association and Process Gas Consumers Group (collectively, American Forest) Technical Conference Comments at 13-14.

(118) INGAA Technical Conference Comments at 19.

(119) See, e.g., New Jersey Conservation Foundation 2021 Comments at 23.

(120) See, e.g., Enbridge Technical Conference Comments at 12, 29-30; Hon. Joseph T. Kelliher Technical Conference Comments at 5-6; INGAA Technical Conference Comments at 15-16 (describing an analysis it commissioned concluding that in 2020, the maximum utilization on an average annual basis for any of the pipeline "corridors" between different regions is not higher than 65% and it is over 50% only for 7 of the 30 regional corridors); TC Energy Technical Conference Comments at 18; Charles River Associates 2021 Comments at 6; INGAA 2021 Comments at 58; see also Boardwalk Technical Conference Comments at 3, 23; Williams Technical Conference Comments at 7. API, on the other hand, asserts that use of utilization estimates or emissions data forces the Commission to pick winners among competing pipeline projects and asserts that such decisions are best made by market forces after the Commission authorizes a project. API Technical Conference Comments at 3-4.

(121) See, e.g., New Jersey Conservation Foundation 2021 Comments at 21-22; Public Interest Organizations 2018 Comments at 91; Washington State Department of Commerce and Washington State Department of Ecology 2018 Comments at 6. Public Interest Organizations' 2018 comments represent 63 entities including Natural Resources Defense Council.

(122) See, e.g., Charles River Associates 2021 Comments at 6-8 (proposing a regional analysis to estimate downstream emissions of a gas project).

(123) New Jersey Conservation Foundation 2021 Comments at 22.

(124) See, e.g., Berkshire Environmental Action Team 2021 Comments at 3; North Carolina Department of Environmental Quality 2018 Comments at 5-8.

(125) Dr. Susan F. Tierney, Senior Advisor with the Analysis Group, Inc., was a panelist at the GHG Technical Conference on Panel 1. Dr. Susan F. Tierney Technical Conference Statement at 4-10. The applicant could supplement its estimate with an alternative estimate, and intervenors could also submit estimates.

(126) See Environmental Assessment for the Lake City 1st Branch Line Abandonment and Capacity Replacement Project, Docket No. CP20-504-000, at 51-53 (Feb. 2021); see also Environmental Assessment for the Philadelphia Lateral Expansion Project, Docket No. CP11-508-000, at 24 (Jan. 18, 2012) (construction emissions); Environmental Assessment for the Minisink Compressor Project, Docket No. CP11-515-000, at 29 (Feb. 29, 2012) (operation emissions).

(127) See *Atl. Coast Pipeline, LLC*, 161 FERC ¶ 61,042 at P 305.

(128) Some commenters point out that daily pipeline load factors vary significantly based on seasonal trends. See, e.g., Charles River Associates 2021 Comments at 3; Williams 2021 Comments at 46.

(129) We note that for a greenfield pipeline project, historic data will not be available. In those cases, the project sponsor could use data from other similar projects or regional data.

(130) For instance, in a downstream end-use analysis, Iroquois projected that its Enhancement by Compression project could result in net GHG reductions when considering the alternative fuel that may be used (e.g., fuel oil for heating) by the end use customer in the event that gas is not available. Iroquois Gas Transmission, LP, Downstream GHG Report, Docket No. CP20-48-000 (filed May 19, 2020).

(131) For example, the Commission may consider evidence that a downstream user purchases credits to offset its GHG emissions from the consumption of transported gas. The Commission will consider downstream user's mitigation measures according to the criteria outlined in *infra* section III.C.3 for applicant-proposed mitigation measures. With regards to construction and operational emissions, project sponsors should continue to provide evidence of measures that minimize emissions, such as using low-sulfur diesel fuel and limiting equipment idling during construction, as outlined in the Guidance Manual. Guidance Manual at 4-124. However, as described *supra* section III.A.2.a, operational emissions should now be calculated based on the project's projected utilization rate.

(132) See, e.g., Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review, 86 FR 63,110 (Nov. 15, 2020).

(133) 42 U.S.C. 4332(C); 40 CFR 1502.3.

(134) 40 CFR 1501.5, 1508.1(h).

(135) See 40 CFR 1501.3, 1501.5, 1501.6, 1508.1(h), (l).

(136) See *Magnum Gas Storage, LLC*, 134 FERC ¶ 61,197 at P 114 (“[A]n impact was considered to be significant if it would result in a substantial adverse change in the physical environment or natural condition and could not be mitigated to less-than-significant level.”).

(137) For example, for an impact where there are no established federal standards, the Commission makes qualitative assessments to determine whether a proposed project would have a significant impact on a particular resource. See, e.g., *Tex. LNG Brownsville LLC*, 169 FERC ¶ 61,130 at P 56 (“Due to the relatively undeveloped nature of the project area, the visual sensitivity of nearby recreation areas, and the lack of feasible visual screening measures, the Final EIS concluded that the project would result in a significant impact on visual resources when viewed from the adjacent Laguna Atascosa National Wildlife Refuge.”); *Alaska Gasline Dev. Corp.*, 171 FERC ¶ 61,134, at PP 25, 89 (describing how the final EIS for the Alaska LNG Project found that construction and operation of the project would have significant impacts on resources such as permafrost, wetlands, forests, and caribou, but less than significant impacts on resources such as scrub and herbaceous plant communities), *order on reh'g*, 172 FERC ¶ 61,214 (2020); *Transcon. Gas Pipe Line Co., LLC*, 158 FERC ¶ 61,125 at P 79 (describing how the final EIS for the Atlantic Sunrise Project concluded that the project would result in adverse impacts that would be mitigated to less than significant levels).

(138) *N. Nat. Gas Co.*, 174 FERC ¶ 61,189 at P 32.

(139) 174 FERC ¶ 61,189 at P 30 (citations omitted).

(140) See, e.g., Sabin Center 2018 Comments at 8-9.

(141) See, e.g., INGAA 2021 Comments at 58-64. INGAA's 2021 comments update its 2018 position that the Commission should not presume that all GHG emissions are significant and should instead make a reasoned judgment whether: (1) A meaningful assessment can be made with reasonable effort based upon

available information and (2) if so, whether a meaningful judgment can be formed regarding if the contribution of GHGs is likely to have a significant impact on the resource as a whole. INGAA 2018 Comments at 81-84.

(142) Boardwalk 2021 Comments at 77-78, 86-90, 92-93. These comments are generally echoed by the Energy Infrastructure Council. Energy Infrastructure Council 2021 Comments at 15-16, 22-27.

(143) *See, e.g.*, Enbridge 2021 Comments at 103.

(144) *See, e.g.*, U.S. Chamber of Commerce 2021 Comments at 9.

(145) *See, e.g.*, API 2021 Comments at 29-32; NGSAs 2021 Comments at 21-22; TC Energy 2021 Comments at 52-56; U.S. Chamber of Commerce 2021 Comments at 9.

(146) *See, e.g.*, Cheniere Energy Inc. 2021 Comments at 14-16; Enbridge 2021 Comments at 104; Williams 2021 Comments at 35-38. Energy Transfer LP and the NGSAs also cite CEQ's recent NEPA regulatory update and direction to agencies to propose revisions to their NEPA procedures by September 14, 2023. Energy Transfer LP 2021 Comments at 14; NGSAs 2021 Comments at 19-20. The Commission's current regulations provide that the Commission will comply with CEQ's regulations except where those regulations are inconsistent with the statutory requirements of the Commission. 18 CFR 380.1. Therefore, any action taken by the Commission in a future rulemaking pursuant to CEQ's regulatory update does not prevent the Commission from issuing this policy statement.

(147) *See, e.g.*, BHE Pipeline Group 2021 Comments at 8-10; Cheniere Energy Inc. 2021 Comments at 17-18.

(148) Ohio Environmental Council 2021 Comments at 3.

(149) Attorneys General of Massachusetts et al. 2021 Comments at 6-11. The 2021 commenters are made up of a slightly different group of state attorneys general than those filing comments in 2018.

(150) Sabin Center 2018 Comments at 8-9.

(151) Environmental Defense Fund, Food & Water Watch, Policy Integrity, Montana Environmental Information Center, Natural Resources Defense Council, Sierra Club, Union of Concerned Scientists, and Western Environmental Law Center (EDF) 2021 Comments at 14-15.

(152) *See, e.g.*, Competitive Enterprise Institute 2021 Comments at 4, 6.

(153) *See, e.g.*, Enbridge 2021 Comments at 108; Russo on Energy 2021 Comments at 17-18.

(154) Driftwood Pipeline LLC 2021 Comments at 3.

(155) CEQ 2021 Comments at 1.

(156) *See, e.g.*, Delaware Riverkeeper Network & Berks Gas Truth 2021 Comments at 62; Ron Schaaf and Deb Evans 2021 Comments at 8; California Public Utilities Commission 2018 Comments at 11-12.

(157) Attorneys General of Massachusetts et al. 2018 Comments at 17-20.

(158) *See, e.g.*, Attorneys General of Massachusetts et al. 2018 Comments at 17-20; Franklin Governments 2018 Comments at 2.

(159) Ohio Environment Council 2018 Comments at 12-13.

(160) Natural Resources Defense Council (NRDC) also suggests the Commission use its forthcoming "Climate Test," which is a tool being developed by NRDC to quantify the consistency of individual infrastructure projects with climate goals. NRDC 2021 Comments at 6. However, NRDC has not filed

additional information on its “Climate Test.”

(161) Healthy Gulf 2021 Comments at 14.

(162) *E.g.*, Attorneys General of Massachusetts et al. 2021 Comments at 8-11; EPA 2021 Comments at 1; Attorneys General of Massachusetts et al. 2018 Comments at 12-17.

(163) EDF 2021 Comments at 9-12, 16.

(164) *See, e.g.*, Boardwalk 2021 Comments at 82-83; NGSa 2021 Comments at 15. Enbridge states that comparison to these inventories would be arbitrary, but that such an approach could help contextualize the GHG emissions for the Commission and the public. Enbridge 2021 Comments at 105, 108-109.

(165) Williams 2021 Comments at 38.

(166) *See, e.g.*, Competitive Enterprise Institute 2021 Comments at 3-4.

(167) The SC-GHG collectively includes the values for the SCC, the social cost of methane (SCM), and social cost of nitrous oxide (SCN).

(168) *See, e.g.*, Policy Integrity Technical Conference Comments at 22-26; EPA 2021 Comments at 6; Ohio Environmental Council 2021 Comments at 2; Public Interest Organizations 2021 Comments at 43-45; Attorneys General of Massachusetts et al. 2018 Comments at 17-22; EDF 2018 Comments at 8-11. The 2018 EDF comments were filed by a slightly different set of entities than in 2021. Public Interest Organizations' 2021 comments represent 53 entities including Natural Resources Defense Council.

(169) EDF 2021 Comments at 14-16.

(170) Public Interest Organizations 2021 Comments at 43-45, 50-53, 60.

(171) EDF 2021 Comments at 9.

(172) *See, e.g.*, Kinder Morgan 2021 Comments at 32-40 (stating the Commission should use the SCC tool only as a qualitative comparison tool).

(173) *See, e.g.*, American Forest Technical Conference Comments at 9; Competitive Enterprise Institute Technical Conference Comments at 1-2, 7-35; Enbridge 2021 Comments at 111; Energy Infrastructure Council 2021 Comments at 24-25; Williams 2021 Comments 41-43.

(174) Attorneys General of Missouri et al. 2021 Comments at 2-7. A similar group, consisting of the Attorneys General of Missouri, Alabama, Alaska, Arizona, Arkansas, Georgia, Indiana, Kansas, Kentucky, Mississippi, Montana, Nebraska, Ohio, Oklahoma, South Carolina, Texas, Utah, West Virginia, and Wyoming (Attorneys General of Missouri et al.), also submitted comments in response to the Commission's technical conference, *see infra* section III.C.1, extensively critiquing potential use of the SCC. Attorneys General of Missouri et al. Technical Conference Comments at 3-15. Mr. Kirk Frost also provided comments on use of the SCC, urging the Commission to use the tool to assess GHG emissions impacts. Kirk Frost December 23, 2021 Technical Conference Comments at 4.

(175) Public Interest Organizations 2021 Comments at 58.

(176) New Jersey Conservation Foundation 2021 Comments at 23-24 (citing Exec. Order No. 13990, 86 FR 7037, 7040 (Jan. 25, 2021)).

(177) New Jersey Conservation Foundation 2021 Comments at 24.

(178) CEQ 2021 Comments at 2. *C.f. Louisiana v. Biden*, No. 21-cv-1074-JDC-KK (W.D. La.) Order Granting Preliminary Injunction (Feb. 11, 2022).

- (179) API 2021 Comment at 24-25; NGSA 2021 Comments at 20-21.
- (180) NGSA 2021 Comments at 20-21.
- (181) API 2021 Comment at 25, 27-28.
- (182) EPA 2021 Comments at 2-3.
- (183) Public Interest Organizations 2021 Comments at 58.
- (184) Kinder Morgan 2021 Comments at 34-35.
- (185) Attorneys General of Missouri et al. 2021 Comments at 9.
- (186) EDF 2021 Comments at 21.
- (187) INGAA 2021 Comments at 67.
- (188) INGAA 2021 Comments at 70-73.
- (189) New Jersey Conservation Foundation 2021 Comments at 24; *see also* EDF 2021 Comments at 6-7.
- (190) Boardwalk 2021 Comments at 103; Kinder Morgan 2021 Comments at 32-33.
- (191) Kinder Morgan 2021 Comments at 32-33; Williams 2021 Comments at 44-45.
- (192) Energy Infrastructure Council 2021 Comments at 26-27.
- (193) Kinder Morgan 2021 Comments at 42.
- (194) *Id.*
- (195) Seneca Resources Corp. 2018 Comments at 9; Spectra Energy Partners, LP 2018 Comments at 87.
- (196) Kinder Morgan 2021 Comments at 42.
- (197) When examining a project's GHG emissions, the Commission will consider record evidence of the construction, operational, and, where determined to be reasonably foreseeable, downstream and upstream GHG emissions that reoccur annually over the life of the project.
- (198) 15 U.S.C. 717b(a).
- (199) *Id.* 717f(c), (e).
- (200) *Distrigas Corp. v. FPC*, 495 F.2d 1057, 1065 (D.C. Cir.).
- (201) *Atl. Ref. Co. v. Pub. Serv. Comm'n of State of N.Y.*, 360 U.S. 378, 391 (1959).
- (202) *See, e.g., Hope Nat. Gas Co.*, 4 FPC 59, 59, 66-67 (1944) (stating that “considerations of conservation are material to the issuance of certificates of public convenience and necessity under section 7” and authorizing a project in large part because of the particular end use of the gas); *see N. Nat. Gas Co.*, 15 FPC 1634, 1641 (1956) (Connole, Comm'r, dissenting) (contending that the Commission has “long held that considerations of conservation, inferior and superior uses, and related matters are relevant to determining whether the public convenience and necessity require the issuance of a certificate”).
- (203) *Transwestern Pipeline Co.*, 36 FPC 176, 185-186, 189-191 (1966) (citing *FPC v. Transcon. Gas Pipe Line Corp.*, 365 U.S. 1 (1961) (*Transco*), for the proposition that the “end use of gas was properly of concern to [the Commission], and made it clear that air pollution was a relevant consideration”). *Cf. Am. La. Pipe Line Co.*, 16 FPC 897, 899-900 (1956) (“[T]here is a public need for and will be a public benefit from [the proposed] natural-gas service This need and benefit arise from the facts, among others, . . . that natural gas is a clean, convenient and efficient fuel.”).

(204) *See supra* PP 34-37.

(205) *See supra* P 42.

(206) The Commission notes that CEQ and EPA are undertaking initiatives that may culminate in the establishment of a significance threshold for GHG emissions or that may further impact the Commission's determination of GHG significance in its NEPA analysis. If CEQ or EPA issues any future guidance regarding the evaluation of GHG emissions, the Commission may adjust its methods for determining the significance of GHG emissions consistent with that guidance.

(207) EPA 2021 Comments at 6.

(208) *See supra* PP 23-25.

(209) *Spiller v. White*, 352 F.3d at 244 n.5.

(210) IPCC Report at SPM-5.

(211) *See* IPCC Report at SPM-17.

(212) IPCC Report at SPM-23.

(213) IPCC Report at SPM-23.

(214) IPCC Report at SPM-19.

(215) IPCC Report at SPM-19 (emphasis in original).

(216) The PSD permitting program is part of the New Source Review program, which requires new stationary sources and major modifications to existing major sources to obtain preconstruction permits. PSD is designed to prevent air quality deterioration in regions that are attaining the National Ambient Air Quality Standards by requiring major sources or major modifications to install the Best Available Control Technology (BACT). Major sources under the PSD program are defined as facilities that emit or have the potential to emit 250 tons per year of any criteria air pollutant or 100 tons per year of any criteria air pollutant for specific types of facilities listed in the statute. 42 U.S.C. 7479(1). The six criteria pollutants are carbon monoxide, ground-level ozone, lead, nitrogen dioxide, particulate matter, and sulfur dioxide. 40 CFR pt. 50.

(217) The Title V program requires major stationary sources to obtain a single operating permit that consolidates all of the permitting requirements in the Clean Air Act into a single permit, including PSD, New Source Performance Standards, and National Emission Standards for Hazardous Air Pollutants. Major sources under the Title V program are defined as any stationary facility that emits or has the potential to emit 100 tons per year of any hazardous air pollutant, except GHGs. 42 U.S.C. 7602(j). The Clean Air Act Amendments of 1990 originally designated over 180 chemicals as hazardous air pollutants, and EPA has the authority to modify the list through rulemaking. 42 U.S.C. 7412(b)-(c).

(218) Prevention of Significant Deterioration and the Title V Greenhouse Gas Tailoring Rule, 75 FR 31514 (June 3, 2010) (Tailoring Rule).

(219) BACT is used to minimize emissions based on the maximum degree of control that the facility can achieve as determined by the permitting authority on a case-by-case basis. BACT may be a design, equipment, work practice, or operational standard, such as add-on control equipment, fuel cleaning or treatment, or innovative fuel combustion techniques. Note that BACT for minimizing GHG emissions at natural gas facilities is limited.

(220) EPA also planned a Step 3 to further reduce the threshold, although not below 50,000 tons per year of CO₂ e. The Supreme Court struck down relevant portions of the Tailoring Rule before EPA finalized Step 3.

- (221) Tailoring Rule, 75 FR at 31533-80.
- (222) *Util. Air Regul. Grp. v. EPA*, 573 U.S. 302, 320 (2014).
- (223) California ARB, Preliminary Draft Staff Proposal, Recommended Approaches for Setting Interim Thresholds for Greenhouse Gases under the California Environmental Quality Act (Oct. 24, 2008) (CEQA Proposed Interim Thresholds). In addition, California ARB proposed to require these projects to meet performance standards for construction-related emissions and transportation to support a finding of less than significant impacts. CEQA Proposed Interim Thresholds at attach. A.
- (224) South Coast AQMD, Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans (Dec. 5, 2008), [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2).
- (225) *Id.* at 4; CEQA Proposed Interim Thresholds at attach. A.
- (226) Currently, two pending court cases challenge use of the IWG's interim values by federal agencies. *Mo. v. Biden*, — F. Supp. 3d —, 2021 WL 3885590 (E.D. Mo. Aug. 31, 2021), appeal filed, No. 21-3013 (8th Cir.); *La. v. Biden*, No. 21-cv-1074-JDC-KK (W.D. La).
- (227) Mitigation is measures that avoid, minimize, or counterbalance effects caused by a proposed action by: (1) Avoiding the impact altogether by not taking a certain action or parts of an action; (2) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (3) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (4) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and/or (5) compensating for the impact by replacing or providing substitute resources or environments. 40 CFR 1508.1.
- (228) As discussed *supra* P 26, NEPA contains no substantive requirement that environmental impacts be mitigated or avoided, however, the environmental document must include a mitigation discussion that provides “sufficient detail” to indicate that environmental impacts have been fairly evaluated. *S. Fork Band Couns. of W. Shoshone of Nev. v. U.S. Dep’t of Interior*, 588 F.3d 718, 727 (9th Cir. 2009); *see also Nat’l Parks & Conservation Ass’n v. U.S. Dep’t of Transp.*, 222 F.3d 677, 681 n.5 (9th Cir. 2000) (stating that mitigation measures proposed in an EIS “need not be legally enforceable, funded, or even in final form to comply with NEPA’s procedural requirements”).
- (229) *See supra* P 22; *see also* 15 U.S.C. 717b(e)(3)(A) (providing the authority to approve an application for an LNG Terminal, “in whole or part, with such modifications and upon such terms and conditions as the Commission find[s] necessary or appropriate”).
- (230) *See* Transcript of Greenhouse Gas Mitigation: Natural Gas Act Sections 3 and 7 Authorizations, Docket No. PL21-3-000 (issued Dec. 22, 2021) (Technical Conference Transcript).
- (231) *See, e.g.*, Policy Integrity Technical Conference Comments at 2; Policy Integrity 2021 Comments at 14-15, 21; Public Interest Organizations 2021 Comments at 71-72; *see also* American Forest Technical Conference Comments at 4-5, 7-10 (stating that to the extent the courts have clarified the Commission's duty to consider GHG emissions and require mitigation for such impacts, that it supports the Commission considering mitigation on a case-by-case basis to avoid the uncertainty posed by the threat of litigation and the possibility of a court vacating the project's certificate).
- (232) *See, e.g.*, Boardwalk Technical Conference Comments at 7; Dr. Jason Scott Johnston Technical Conference Comments at 1; TC Energy Technical Conference Comments at 4; API 2021 Comments at 29-30; *see also* Williams Technical Conference Comments at 17 (claiming that there is no reasonable basis for the Commission to require project sponsors to submit mitigation proposals with their applications because

the technical conference demonstrated a lack of evidentiary support for any specific mitigation methods, offered no specific proposals regarding the levels of fees, offsets, or caps, and proposed no concrete and cost-effective means to mitigate emissions).

(233) API Technical Conference Comments at 5; Boardwalk Technical Conference Comments at 10; Consolidated Edison Company of New York, Inc. and Orange and Rockland Utilities, Inc. (collectively, Con Edison) Technical Conference Comments at 5; Hon. Joseph T. Kelliher Technical Conference Comments at 1; INGAA Technical Conference Comments at 6-7; TC Energy Technical Conference Comments at 8; API 2021 Comments at 31; INGAA 2021 Comments at 74-83; TC Energy 2021 Comments at 56-58.

(234) See, e.g., Hon. Joseph T. Kelliher Technical Conference Comments at 1 (citing *NAACP v. FPC*, 425 U.S. 662, 669-70 (1976)); *id.* at 8-9 (asserting that the proper place to consider GHG emissions (direct only) is under the Commission's balancing test, where a project sponsor may choose to voluntarily offset emissions); TC Energy Technical Conference Comments at 8; INGAA 2021 Comments at 74-76.

(235) See, e.g., Boardwalk Technical Conference Comments at 11-13 (arguing that *Transco* does not authorize the Commission to indirectly regulate upstream and downstream emissions); Enbridge Technical Conference Comments at 5, 16, 21; Hon. Joseph T. Kelliher Technical Conference Comments at 4; INGAA 2021 Comments at 76-77.

(236) See, e.g., API Technical Conference Comments at 2, 4; Edison Electric Institute (EEI) Technical Conference Comments at 9-10; Enbridge Technical Conference Comments at 18-19, 23-24; Hon. Joseph T. Kelliher Technical Conference Comments at 5; Attorneys General of Missouri et al. Technical Conference Comments at 3 (citing *S. Coast Air Quality Mgmt. Dist. v. FERC*, 621 F.3d 1085, 1092 (9th Cir, 2010)); TC Energy Technical Conference Comments at 6-7; Boardwalk 2021 Comments at 10. Commenters further argue that the NGA was not enacted to comprehensively regulate the natural gas industry, but instead to fill a regulatory gap over interstate gas transportation and sales; therefore, Congress left the regulation of upstream production and downstream consumption to the states. Enbridge Technical Conference Comments at 16-17; Hon. Joseph T. Kelliher Technical Conference Comments at 2 (citing *NAACP v. FPC*, 425 U.S. at 669-70; *State of Cal. v. Southland Royalty Co.*, 436 U.S. 519, 523 (1989); *ONEOK, Inc. v. Learjet, Inc.*, 575 U.S. 373, 378, 384-85 (2015); *ANR Pipeline Co. v. FERC*, 876 F.2d 124, 132-33 (D.C. Cir. 1989)).

(237) INGAA Technical Conference Comments at 8; Boardwalk 2021 Comments at 107; Con Edison Technical Conference Comments at 6-7 (stating that the state regulators are the best positioned to determine and impose mitigation measures for upstream and downstream GHG emissions); INGAA 2021 Comments at 77-79.

(238) American Public Gas Association (APGA) Technical Conference Comments at 5-6; EEI Technical Conference Comments at 9-10; Enbridge Technical Conference Comments at 23-24; TC Energy Technical Conference Comments at 9-10.

(239) Specifically, commenters argue that the Commission should rely on *Center for Biological Diversity*, which states that “the legal analysis in *Sabal Trail* is questionable at best” and that “[i]t fails to take seriously the rule of reason announced in *Public Citizen* or to account for the untenable consequences of its decision.” *Center for Biological Diversity*, 941 F.3d at 1300; see also AGA Technical Conference Comments at 13-14; Boardwalk Technical Conference Comments at 16-17; Hon. Joseph T. Kelliher Technical Conference Comments at 3; INGAA Technical Conference Comments at 12-13; TC Energy Technical Conference Comments at 13-14.

(240) API Technical Conference Comments at 4; EEI Technical Conference Comments at 6; INGAA Technical Conference Comments at 14; Williams Technical Conference Comments at 5.

(241) See AGA Technical Conference Comments at 12-13 (arguing that the Commission should not rely on this statement of dicta because the issue of mandatory mitigation was not at issue in this case; rather, the court only addressed whether the Commission is, in some circumstances, required by NEPA to include a discussion of downstream GHG emissions when conducting its environmental review); Boardwalk Technical Conference Comments at 16 (same); Enbridge Technical Conference Comments at 20 (same); Hon. Joseph T. Kelliher Technical Conference Comments at 3-4 (same); TC Energy Technical Conference Comments at 12 (same).

(242) *Sabal Trail*, 867 F.3d at 1374.

(243) *Transco*, 365 U.S. at 17; see also *NAACP v. FPC*, 425 U.S. at n.6 (stating that the Commission has the authority to consider conservation and environmental issues under the NGA's public interest determination). See *Certification of New Interstate Natural Gas Pipeline Facilities*, 178 FERC ¶ 61,107 at PP 71-72.

(244) 15 U.S.C. 717f(e); see also *id.* 717b(e)(3)(A) (providing the authority to approve an application for an LNG Terminal, "in whole or part, with such modifications and upon such terms and conditions as the Commission find[s] necessary or appropriate.").

(245) For examples where the Commission has conditioned approval of natural gas projects on mitigation of adverse impacts, see *supra* note 69.

(246) See *Twp. of Bordentown v. FERC*, 903 F.3d at 261 n.15 (concluding that the Commission's authority to enforce any required remediation is amply supported by provisions of the NGA); *Sabal Trail*, 867 F.3d at 1374 (holding that the Commission has legal authority to mitigate reasonably foreseeable indirect effects).

(247) See generally *Tex. Pipeline Ass'n v. FERC*, 661 F.3d 258, 260 (5th Cir. 2011) (holding that the Commission lacked authority to require "major non-interstate pipelines" to post certain flow information).

(248) As described *supra* in section III.A.2.b, the Commission will consider GHG emission mitigation and reduction efforts taken by non-jurisdictional entities, including downstream users, when quantifying the reasonably foreseeable project GHG emissions. However, the project sponsor's GHG mitigation plan should only include its own proposed mitigation efforts.

(249) See *supra* section III.A.1.b.

(250) *Pub. Citizen*, 541 U.S. at 767, 770 (quoting *Metro. Edison Co.*, 460 U.S. at 774); see *Sabal Trail*, 867 F.3d at 1372.

(251) *Pub. Citizen*, 541 U.S. at 767 (quoting *Metro. Edison Co.*, 460 U.S. at 774 n.7).

(252) *Sabal Trail*, 867 F.3d at 1373 (citing *Minisink Residents for Env'tl. Pres. & Safety v. FERC*, 762 F.3d 97, 101-02 (D.C. Cir. 2014); *Myersville Citizens for a Rural Cmty. v. FERC*, 783 F.3d 1301, 1309 (D.C. Cir. 2015)).

(253) See *supra* P 97.

(254) *Robertson v. Methow Valley Citizens Council*, 490 U.S. at 351 ("To be sure, one important ingredient of an EIS is the discussion of steps that can be taken to mitigate adverse environmental consequences.").

(255) *Id.* at 352 ("There is a fundamental distinction, however, between a requirement that mitigation be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated, on the one hand, and a substantive requirement that a complete mitigation plan be actually formulated and adopted, on the other."); *S. Fork Band Couns. of W. Shoshone of Nev. v. U.S. Dep't of Interior*, 588 F.3d at 727 (NEPA does not require that agencies mitigate significant environmental harms).

(256) *Final Guidance for Federal Departments and Agencies on the Appropriate Use of Mitigation and Monitoring and Clarifying the Appropriate use of Mitigated Findings of No Significant Impact*, 76 FR 3843, 3848.

(257) *Sabal Trail*, 867 F.3d at 1373 (distinguishing *Public Citizen*).

(258) *See supra* P 80.

(259) The Attorneys General of Massachusetts, Delaware, Maryland, Michigan, Minnesota, New Jersey, Rhode Island, and the District of Columbia (Attorneys General of Massachusetts et al.) recommends that the Commission include reasonable, binding mitigation measures that incorporate any applicable state or federal regulations or permit conditions. Attorneys General of Massachusetts et al. Technical Conference Comments at 6. The technical conference commenters are made up of a slightly different group of state attorneys general than those filing comments in 2018 or 2021. As explained below, the Commission is only considering mitigation measures that reduce emissions beyond those associated with regulatory requirements in this policy statement.

(260) INGAA Technical Conference Comments at 21-27; *see also* Enbridge Technical Conference Comments at 12-13, 35-38 (recommending the Commission await direction from Congress in choosing a mitigation level, especially if requiring project sponsors to mitigate to less than significant levels and noting that mitigation to zero is not practicable if downstream or upstream emissions are included).

(261) Attorneys General of Massachusetts et al. urges the Commission to consider the impacts of any mitigation measures on environmental justice communities. Attorneys General of Massachusetts et al. Technical Conference Comments at 5-6.

(262) Jennifer Danis, Senior Fellow with the Sabin Center for Climate Change Law and a panelist at the GHG Technical Conference on Panel 1, recommends that the Commission should not consider the effect of any mitigation measures in its public interest determination but should only consider mitigation measures once the Commission has determined that public convenience and necessity absolutely requires the project. Jennifer Danis Technical Conference Statement at 8-11. As explained in the Certificate Policy Statement, the Commission considers all factors, including the extent to which adverse impacts are mitigated, to determine whether a project is in the public convenience and necessity. *Certification of New Interstate Natural Gas Pipeline Facilities*, 178 FERC ¶ 61,107 at PP 70, 93-95.

(263) *See supra* section II.B.

(264) Commenters emphasize the need for flexibility in assessing mitigation measures. *See, e.g.*, Enbridge Pre-Conference Comments at 9; Enbridge Technical Conference Comments at 46-47 (suggesting that, depending on a variety of factors, the applicant may or may not be able to propose appropriate mitigation at the time of the project application); Hon. Joseph T. Kelliher Technical Conference Comments at 11 (recommending alternatives to imposing mitigation requirements such as revising the Commission's 2015 Modernization Policy Statement, issuing a new GHG policy statement that either allows limited section 4 rate filings to recover costs or clarifies the level of shipper support required to support establishment of a tracker surcharge and recommending that such a policy address lost and unaccounted-for fuel, or implementing a fast track certificate process for project sponsors that voluntarily commit to mitigate direct GHG emissions); INGAA Technical Conference Comments at 30; Magnolia LNG LLC Technical Conference Comments at 2; TC Energy Technical Conference Comments at 5, 21 (arguing against the Commission requiring market-based mitigation measures). A few commenters either oppose use of the SCC in determining a required level of mitigation for project emissions, Enbridge Technical Conference Comments at 6, 38-39, or urge the Commission to use the SCC to monetize the impacts of any GHGs that are not able to be mitigated, Attorneys General of Massachusetts et al. Technical Conference Comments at 7. As described above, the Commission does not propose to mandate any particular level or type of mitigation.

(265) For example, Mountain Valley Pipeline, LLC, proposed to offset the operational emissions of the Mountain Valley Pipeline Project by purchasing carbon offset credits equivalent to 90% of GHG emissions associated with the project's operations in its first 10 years of service from a new methane abatement project located at a mine in southwest Virginia. Mountain Valley Pipeline, LLC, Carbon Offset Commitment for Mountain Valley Pipeline Project Operations, Docket No. CP21-57-000 (filed July 12, 2021).

(266) Regulatory requirements include those imposed by the Commission and other federal and state regulatory agencies. However, project sponsors may include participation in voluntary regulatory programs that reduce GHG emissions.

(267) See, e.g., INGAA Technical Conference Comments at 38-39. Dr. Carl Pechman, Director of the National Regulatory Research Institute and a panelist at the GHG Technical Conference on Panel 3, provides extensive comments on how the Commission could establish accounting protocols and offset tracking. Dr. Carl Pechman Technical Conference Statement at 1-15.

(268) APGA Technical Conference Comments at 8-9; Enbridge Technical Conference Comments at 48-49; INGAA Technical Conference Comments at 40-41; TC Energy Technical Conference Comments at 5-6, 22-23. Similarly, commenters state that the Commission should defer to other agencies, such as the EPA and state environmental agencies, that are already taking regulatory action regarding emissions, express concern over the potential for inconsistent mitigation requirements between agencies, and/or point to EPA's methane regulation proposal to reduce GHG emissions from new, reconstructed, modified, and existing facilities in the oil and gas source category under section 111 of the Clean Air Act. APGA Technical Conference Comments at 5; EEI Technical Conference Comments at 10-11; INGAA Technical Conference Comments at 30-32; NGS Technical Conference Comments at 6-7. Conversely, one commenter encourages the Commission to use resources from the EPA's pending rulemaking. Attorneys General of Massachusetts et al. Technical Conference Comments at 6-7 (referencing Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review, 86 FR 63110 (Nov. 15, 2021)).

(269) EEI Technical Conference Comments at 12-14.

(270) INGAA Technical Conference Comments at 40-41.

(271) See, e.g., Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review, 86 FR 63110 (Nov. 15, 2020).

(272) For more information, see EPA Green Power Partnership, *Offsets and RECs: What's the Difference* (Feb. 2018), https://www.epa.gov/sites/default/files/2018-03/documents/gpp_guide_recs_offsets.pdf.

(273) Enbridge Pre-Conference Comments at 6-7; Enbridge Technical Conference Comments at 42-46; Enbridge 2021 Comments at 145-148; INGAA Technical Conference Comments at 33.

(274) Enbridge 2021 Comments at 23, 148 n. 406 (stating that the lack of a federal REC program coupled with the patchwork of state and regional, as well as voluntary and mandatory, REC programs brings into question whether project sponsors could participate in these existing programs).

(275) RGGI includes: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont, and Virginia.

(276) Any entity is eligible to participate in CO₂ allowance auctions including, but not limited to, corporations, individuals, non-profit corporations, environmental organizations, brokers, and other interested parties. The Regional Greenhouse Gas Initiative, *CO₂ Allowance Auctions, Frequently Asked Questions 1* (Apr. 6, 2021), https://www.rggi.org/sites/default/files/Uploads/Auction-Materials/54/FAQS_Apr_6_2021.pdf.

(277) 23.5 million CO₂ allowances (short tons) sold at RGGI auction in March 2021 at clearing price of \$7.60/allowance.

(278) 54.7 million CO₂ allowances (metric tons) sold at settlement price of \$17.8/allowance during a February 2021 auction.

(279) EPA Green Power Partnership, *supra* note 272.

(280) In 2019, 104 million metric tons of CO₂e offsets were sold and the price per metric ton CO₂e was \$1.40 to \$4.30, depending on type of project (renewable energy and forestry/land use, respectively). S&P Global Platts, *Voluntary Carbon Market Grows 6% on Year in 2019: Ecosystem Marketplace* (Sep. 22, 2020), <https://www.spglobal.com/platts/en/market-insights/latest-news/coal/092220-voluntary-carbon-market-grows-6-on-year-in-2019-ecosystem-marketplace>.

(281) Typical offset projects include ozone depleting substances destruction, landfill gas capture/combustion, livestock gas capture/combustion, improved forest management, avoided grassland conversion, and improved forest management, among others. For more information, see generally <https://www.climateactionreserve.org/>.

(282) Typical offset projects include renewable energy, forest and wetland conservation and restoration, transport efficiency improvement, nitrous oxide abatement, clean cookstoves, methane capture and use/combustion, and waste heat recovery. For more information, see generally <https://verra.org/>.

(283) Typical offset projects include ozone depleting substances destruction, industrial process emissions, fuel switching, livestock waste management, transport fleet efficiency, landfill gas capture and combustion, wetland restoration, forest management, and coal mine methane capture. For more information, see generally <https://americancarbonregistry.org/>.

(284) Policy Integrity 2021 Comments at 14-15, 19.

(285) Policy Integrity 2021 Comments at 23-26 (citing 40 CFR 1508.1(s)(5)).

(286) Policy Integrity 2021 Comments at 20.

(287) Enbridge Pre-Conference Comments at 7-8; INGAA 2021 Comments at 79-82.

(288) INGAA Technical Conference Comments at 34-36; INGAA 2021 Comments at 79-82; *see also* Enbridge Pre-Conference Comments at 8-9; Enbridge Technical Conference Comments at 46-47.

(289) Hon. Joseph T. Kelliher Technical Conference Comments at 7; *see also id.* (asserting that this process would be complicated because credits could originate outside the U.S. and the Commission has no verification expertise).

(290) *E.g.*, AGA Technical Conference Comments at 28-30; API Technical Conference Comments at 6-8; Boardwalk Technical Conference Comments at 5-6; Con Edison Technical Conference Comments at 7-10 (detailing other efforts reduce emissions using renewable natural gas, certified natural gas, and hydrogen); Enbridge Pre-Conference Comments at 5; Enbridge Technical Conference Comments at 13-14, 39-41; INGAA Technical Conference Comments at 28-30 (citing its 2021 Climate Report); Magnolia LNG LLC Technical Conference Comments at 2 (describing its proprietary technology to reduce emissions during the liquefaction process); Scott A. Hallam Technical Conference Statement at 2 (Scott A. Hallam, Senior Vice President of Transmission and Gulf of Mexico at Williams, was a panelist at the GHG Technical Conference on Panel 1.); Stephen Mayfield Technical Conference Statement at 1-2 (Stephen Mayfield, AGM of Gas Operations at City of Tallahassee, was a panelist at the GHG Technical Conference on Panel 3.); Texas LNG Brownsville LLC Technical Conference Comments at 6; William F. Donahue Technical Conference Statement at 3 (William F. Donahue, Manager of Natural Gas Resources at Puget Sound Energy, was a

panelist at the GHG Technical Conference on Panel 2.); INGAA 2021 Comments at 79-82. Some commenters note, however, that use of electric compressors may increase indirect emissions depending on the generation mix and existing infrastructure or cite concerns about the impact to the reliability of gas service during power outages. *E.g.*, American Forest Technical Conference Comments at 13; Enbridge Pre-Conference Comments at 5-6; Enbridge Technical Conference Comments at 41; Kinder Morgan Technical Conference Comments at 22-23.

⁽²⁹¹⁾ Delaware Riverkeeper 2021 Comments at 66; Kirk Frost 2021 Comments at 11.

⁽²⁹²⁾ Delaware Riverkeeper 2021 Comments at 66.

⁽²⁹³⁾ Rachel Dawn Davis, the Public Policy and Justice Organizer at Waterspirit, was a panelist at the GHG Technical Conference on Panel 3. Rachel Dawn Davis Technical Conference Statement at 1; Waterspirit Technical Conference Comments at 1-2; *see also* Technical Conference Transcript at 106-107 (transcribing remarks made by Dr. Nicky Sheats, Director of the Center for Urban Environment at the John S. Watson Institute for Public Policy and panelist on Panel 2).

⁽²⁹⁴⁾ *E.g.*, TC Energy Technical Conference Comments at 20.

⁽²⁹⁵⁾ Dr. Anna Scott, Co-Founder and Chief Science Officer of Project Canary, was a panelist at the GHG Technical Conference on Panel 2. Dr. Anna Scott Technical Conference Statement at 1-2, 5 (mentioning key engineering components such as operational venting or flaring, electrification of facilities and equipment, low bleed and/or zero bleed process controls, leak detection and repair programs, produced water treatment and reuse, and infrastructure and facility efficiency investments and describing how the company uses on-site sensors and algorithm technology to provide continuous monitoring). Along with pursuing carbon capture and storage solutions, Ivan Van der Walt, Chief Operating Officer at NextDecade Corporation and a panelist at the GHG Technical Conference on Panel 2, describes the joint pilot project NextDecade has formed with Project Canary for measuring and certifying the GHG intensity of LNG sold from the Rio Grande LNG Project export facility. Ivan Van der Walt Technical Conference Statement at 2-3.

⁽²⁹⁶⁾ Gary Choquette, Executive Director of Research and IT at PRCI, was a panelist at the GHG Technical Conference on Panel 2. Gary Choquette Technical Conference Statement at 3-4.

⁽²⁹⁷⁾ *See, e.g.*, AGA Technical Conference Comments at 17-20; API Technical Conference Comments at 7-8; Boardwalk Technical Conference Comments at 5-6; NGSA Technical Conference Comments at 5; Scott A. Hallam Technical Conference Statement at 2-3; Stephen Mayfield Technical Conference Statement at 1; William F. Donahue Technical Conference Statement at 3-4; BHE Pipeline Group 2021 Comments at 12-14; Cheniere Energy Inc. 2021 Comments at 17.

⁽²⁹⁸⁾ Boardwalk Technical Conference Comments at 3; Enbridge Technical Conference Comments at 15, 49; INGAA Technical Conference Comments at 42-45; TC Energy Technical Conference Comments at 6.

⁽²⁹⁹⁾ Enbridge Technical Conference Comments at 15, 49; INGAA Technical Conference Comments at 45 (noting that the Commission should be clear that “recovery of costs related to an ongoing obligation to purchase market-based mitigation is akin to a fuel tracker and would not be subject to the modernization cost recovery tracker policy or the Commission’s policy against cost recovery trackers for regulatory compliance costs,” and incremental operating costs to reduce GHG emissions should also be recoverable through a tracker); *see also* Hon. Joseph T. Kelliher Technical Conference Comments at 7 (suggesting that, while burdensome to stakeholders, the Commission could adopt a true-up mechanism requiring project sponsors to deposit offsets, which would later be compared to actual emissions).

⁽³⁰⁰⁾ American Forest Technical Conference Comments at 15-16; APGA Technical Conference Comments at 6-8 (urging the Commission to consider the effects of cost-recovery on end-users, particularly low-income communities, who may not directly reap any local environmental benefits); American Forest and Paper

Association et al. 2021 Comments at 26.

(301) American Forest Technical Conference Comments at 14 (asserting that there is little transparency for customers with respect to Lost and Unaccounted for Fuel Charges, which are recoverable by shippers).

(302) *Ruby Pipeline, LLC*, 131 FERC ¶ 61,007, at P 34 (2010).

(303) Unless required by law or regulation, the Commission will not apply a presumptive significance threshold below 100,000 metric tons of CO₂e to applications filed prior to issuance of a final policy statement. If the Commission adopts a new lower threshold in a final policy statement, that threshold will only apply to applications filed after issuance of that statement.

(304) *Certification of New Interstate Natural Gas Pipeline Facilities*, 178 FERC ¶ 61,107 at PP 70-72, 93-95.

(305) 44 U.S.C. 3507(d).

(306) 5 CFR 1320.

(307) This policy statement does not require the collection of any information, but rather discusses information that entities may elect to provide. The Commission is following Paperwork Reduction Act procedures to ensure compliance with that act.

(308) Burden is defined as the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a federal agency. See 5 CFR 1320 for additional information on the definition of information collection burden.

(309) Commission staff estimates that the industry's average hourly cost for this information collection is approximated by the Commission's average hourly cost (for wages and benefits) for 2021, or \$87.00/hour.

(1) *Consideration of Greenhouse Gas Emissions in Natural Gas Infrastructure Project Reviews*, 178 FERC ¶ 61,108 (2022) (Interim Policy Statement).

(2) *But see* Chairman Glick September 24, 2021 Response to Senator Barrasso September 15, 2021 Letter, Docket Nos. CP17-40-000, et al., at 1 (“When courts find flaws in the Commission's analysis, it can lead to lengthy delays and cost developers substantially more than they originally forecasted.”) (Accession No. 20210927-4003); *id.* at 9 (“Ultimately, I believe that performing thorough permitting reviews and providing developers with legally durable certificates on which they can rely will do more than just about anything else to satisfy the purposes of the Natural Gas Act.”); Chairman Glick May 21, 2021 Response to Senator Hoeven April 29, 2021 Letter, Docket No. PL18-1-000, at 1 (“I believe we can make changes to the Certificate Process that enhance our efficiency in processing applications and better address various directives we have received from the appellate courts.”) (Accession No. 20210524-4014).

(3) Chairman Glick February 2, 2022 Response to Senator Barrasso December 15, 2021 Letter at 4 (Accession No. 20220202-4003); *see also* Commissioner Clements February 2, 2022 Response to Senator Barrasso December 15, 2021 Letter at 2 (Accession No. 20220202-4000) (“I will do my part to assure that the updated policy will be a legally durable framework for fairly and efficiently considering certificate applications—one that serves the public interest and increases regulatory certainty for all stakeholders.”).

(4) *See, e.g., Algonquin Gas Transmission, LLC*, 174 FERC ¶ 61,126 (2021) (Danly and Christie, Comm'rs, dissenting) (Briefing Order), *terminated*, 178 FERC ¶ 61,029 (2022) (Danly and Christie, Comm'rs, concurring in part and dissenting in part); *see also* Commission Staff May 27, 2021 Notice in Tenn. Gas Pipeline Co., L.L.C., Docket No. CP20-493-000 (Accession No. 20210527-3054) (announcing schedule for Environmental Impact Statement (EIS) for project with previously prepared Environmental Assessment (EA)); Commission Staff May 27, 2021 Notice in North Baja Pipeline, LLC, Docket No. CP20-27-000 (Accession No. 20210527-3052) (same); Commission Staff May 27, 2021 Notice in Columbia Gulf

Transmission, LLC, Docket No. CP20-527-000 (Accession No. 20210527-3049) (same); Commission Staff May 27, 2021 Notice in Iroquois Gas Transmission System, L.P., Docket No. CP20-48-000 (Accession No. 20210527-3047) (same).

(5) Interim Policy Statement, 178 FERC ¶ 61,108 at P 1.

(6) *Id.*

(7) For example, the D.C. Circuit in *Vecinos para Bienestar de la Comunidad Costera v. FERC* (*Vecinos*) found that the Commission failed to “respond to significant opposing viewpoints” regarding its analysis of GHG emissions. *Vecinos*, 6 F.4th 1321, 1329 (D.C. Cir. 2021). It did not find “that the Commission failed to appropriately analyze the significance of three natural gas projects’ contribution to climate change” Interim Policy Statement, 178 FERC ¶ 61,108 at P 14.

(8) Interim Policy Statement, 178 FERC ¶ 61,108 at P 28.

(9) *Id.* (emphasis added) (footnotes omitted). I interpret “in most cases” as meaning the Commission will quantify and consider downstream emissions for NGA section 7 projects unless it is shown that the gas will not be burned. *See id.* P 28 n.72.

(10) *See id.* P 43.

(11) It should be noted that the majority cites *Sierra Club v. FERC* (*Sabal Trail*) to argue downstream emissions have a reasonably close causal relationship to NGA section 7 projects. *Id.* P 39 & n.103 (citing 867 F.3d 1357, 1372-73 (D.C. Cir. 2017) (Brown, J., concurring in part and dissenting in part)). Below I explain how *Sabal Trail* must not be given too much weight.

(12) *Id.* P 45.

(13) *See id.* P 52.

(14) *See Midship Pipeline Co., LLC* (*Midship*), 177 FERC ¶ 61,186 (2021) (Danly, Comm’r, dissenting at P 5) (“I, for one, am willing to consider the parties’ arguments and make a decision.”).

(15) Interim Policy Statement, 178 FERC ¶ 61,108 at P 79.

(16) *See id.* P 81.

(17) Despite the fact that CEQ’s regulations no longer distinguish between “direct” and “indirect” effects, in order to reduce confusion I use the term “direct” to be consistent with the Interim Policy Statement. *See Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act*, 85 FR 43304, 43343 (Jul. 16, 2020).

(18) *But see* 18 CFR. §§ 380.5-380.6 (setting forth when the Commission will prepare an EIS).

(19) *See* Interim Policy Statement, 178 FERC ¶ 61,108 at PP 104-06.

(20) *Id.* P 107; *see also id.* (“The Commission plans to evaluate proposed mitigation plans on a case-by-case basis”).

(21) *See id.* P 108.

(22) *See id.* P 106 (“However, as detailed below, the Commission’s priority is for project sponsors to mitigate, to the greatest extent possible, a project’s direct GHG emissions.”).

(23) *Id.* P 110.

(24) *See id.* P 126.

(25) *See id.*

(26) *See id.* PP 115-26; *see also id.* P 129 (“project sponsors *wishing* to purchase offsets”) (emphasis added).

(27) “As soon as the coin in the coffer rings, the soul from purgatory springs.” *See* Robert King, *Only in America: Tax Patents and the New Sale of Indulgences*, 60 Tax Law 761, 761 (2007) (citing Ronald H. Bainton, *Here I Stand: A Life of Martin Luther* 60 (1950)).

(28) *See* Interim Policy Statement, 178 FERC ¶¶ 61,108 at P 107 (“The Commission plans to evaluate proposed mitigation plans on a case-by-case basis and is not mandating a standard level of mitigation.”).

(29) For example, the Commission does not explain how the construction of a renewable energy or energy efficiency project reduces carbon emissions unless it could be shown that such construction will cause the retirement of, or prevent the construction of, a specific carbon emitting generation facility. Nor does the Commission describe how, in the absence of the identification of a specific facility to be displaced, it would be possible to determine the amount of mitigation provided by renewable energy or energy efficiency projects.

(30) *See* Interim Policy Statement, 178 FERC ¶¶ 61,108 at P 113 (“[W]e believe it best to allow project sponsors to demonstrate that their proposed mitigation measures are verifiable and propose means for the Commission to monitor or track the proposed measures through the life of the project.”).

(31) *Id.* P 106.

(32) *See Certification of New Interstate Nat. Gas Facilities*, 174 FERC ¶¶ 61,125, at P 17 (2021) (“C10. How could the Commission impose GHG emission limits or mitigation to reduce the significance of impacts from a proposed project on climate change? . . . If the Commission decides to impose GHG emission limits, how would the Commission determine what limit, if any, is appropriate?”).

(33) *See* Greenhouse Gas Mitigation, Technical Conference Transcript, Docket No. PL21-3-000 (Nov. 19, 2021).

(34) *See* Commission Staff November 16, 2021 Notice Inviting Technical Conference Comments, Docket No. PL21-3-000.

(35) 18 CFR. § 385.2201.

(36) I have anticipated a couple possible questions and will hazard answers that may be of interest: *Will an EIS assess the adequacy of GHG mitigation or recommend GHG mitigation measures?* My understanding is no. The Commission will determine the adequacy of mitigation on a case-by-case basis in its orders. *Will mitigation that was not considered in an environmental document require the Commission to supplement its environmental review?* A clear answer was not provided. It is worth noting that section 1502.9(d)(1)(i) of CEQ's regulations state “Agencies . . . [s]hall prepare supplements to either draft or final environmental impact statements if a major Federal action remains to occur, and . . . [t]he agency makes substantial changes to the proposed action that are relevant to environmental concerns” 40 CFR. § 1502.9(d)(1)(i).

(37) Interim Policy Statement, 178 FERC ¶¶ 61,108 at P 99.

(38) *Double E Pipeline, LLC*, 173 FERC ¶¶ 61,074, at P 32 (2020).

(39) Interim Policy Statement, 178 FERC ¶¶ 61,108 at P 110.

- (40) See, e.g., *Algonquin Gas Transmission, LLC*, 174 FERC ¶ 61,126 (2021) (Danly and Christie, Comm'rs, dissenting) (order establishing briefing to reopen final, non-appealable certificate order); *Algonquin Gas Transmission, LLC*, 178 FERC ¶ 61,029 (2022) (Danly and Christie, Comm'rs, concurring in part and dissenting in part) (order terminating briefing order but suggesting can reopen certificates to impose new terms).
- (41) *Id.* P 129.
- (42) *Id.*
- (43) *Id.* P 130.
- (44) *Id.*
- (45) *Id.* P 1.
- (46) *But see* Voltaire, *Candide* 125 (J.H. Brumfitt ed., Oxford Univ. Press 1968) (1759) (“ . . . pour encourager les autres.”).
- (47) 40 CFR. § 1508.1(g).
- (48) Interim Policy Statement, 178 FERC ¶ 61,108 at P 1.
- (49) *Id.* P 6.
- (50) *Id.* P 7 (citation omitted).
- (51) *Id.* P 28. It is worth recalling that the Court has likened NEPA's “reasonably close causal relationship” requirement to the “familiar doctrine of proximate cause from tort law,” *Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752, 767 (2004) (*Public Citizen*), and that a federal district court has found effects of climate change too attenuated for tort liability under state law. See *Comer v. Murphy Oil USA, Inc.*, 839 F. Supp. 2d 849, 868 (S.D. Miss. 2012) (“The assertion that the defendants' emissions combined over a period of decades or centuries with other natural and man-made gases to cause or strengthen a hurricane and damage personal property is precisely the type of remote, improbable, and extraordinary occurrence that is excluded from liability.”).
- (52) See, e.g., *Trans-Foreland Pipeline Co. LLC*, 173 FERC ¶ 61,253, at P 31 (2020).
- (53) See CEQ, *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions*, at P 3 (2010), <https://obamawhitehouse.archives.gov/sites/default/files/microsites/ceq/20100218-nepa-consideration-effects-ghg-draft-guidance.pdf> .
- (54) 15 U.S.C. 717f(e).
- (55) *NAACP v. FPC*, 425 U.S. 662, 669 (1976).
- (56) *Atl. City Elec. Co. v. FERC*, 295 F.3d 1, 8 (D.C. Cir. 2002) (quoting *Michigan v. EPA*, 268 F.3d 1075, 1081 (D.C. Cir. 2001)).
- (57) *NAACP v. FPC*, 425 U.S. at 669; see also *FPC v. Transcon. Gas Pipe Line Corp.*, 365 U.S. 1, 17 (1961) (*Transco*) (“[I]t must be realized that the Commission's powers under § 7 are, by definition, limited.”) (citing H.T. Koplín, *Conservation and Regulation: The Natural Gas Allocation Policy of the Federal Power Commission*, 64 Yale L.J. 840, 862 (1955)).
- (58) *NAACP v. FPC*, 425 U.S. at 670 (emphasis added) (footnote omitted). As noted by Former Commissioner Bernard L. McNamee, this purpose was affirmed by later acts of Congress. See *Adelphia Gateway, LLC*, 169 FERC ¶ 61,220 (2019) (McNamee, Comm'r, concurring at PP 32-40).

- (59) See *Whitman v. Am. Trucking Ass'ns, Inc.*, 531 U.S. 457, 468 (2001).
- (60) *NAACP v. FPC*, 425 U.S. at 670 (“While there are undoubtedly other subsidiary purposes contained in these Acts”) (footnote omitted); see also *id.* at 670 n.6.
- (61) *NAACP v. FPC*, 425 U.S. at 670 (emphasis added).
- (62) See *Transco*, 365 U.S. at 8 (“However, respondents correctly point out that Congress, in enacting the Natural Gas Act, did not give the Commission comprehensive powers over every incident of gas production, transportation, and sale. Rather, Congress was ‘meticulous’ only to invest the Commission with authority over certain aspects of this field leaving the residue for state regulation. Therefore, it is necessary to consider with care whether, despite the accepted meaning of the term ‘public convenience and necessity,’ the Commission has trod on forbidden ground in making its decision.”) (citation omitted); *FPC v. Panhandle E. Pipe Line Co.*, 337 U.S. 498, 503 (1949) (“Congress . . . not only prescribed the intended reach of the Commission's power, but also specified the areas into which this power was *not* to extend.”), accord *ExxonMobil Gas Mktg. Co. v. FERC*, 297 F.3d 1071, 1076 (D.C. Cir. 2002); *S. Coast Air Quality Mgmt. Dist. v. FERC*, 621 F.3d 1085, 1092 (9th Cir. 2010) (“In sum, the history and judicial construction of the Natural Gas Act suggest that all aspects related to the direct consumption of gas—such as passing tariffs that set the quality of gas to be burned by direct end-users—remain within the exclusive purview of the states.”); *Pub. Utils. Comm'n. of Cal. v. FERC*, 900 F.2d 269, 277 (D.C. Cir. 1990) (“[T]he state . . . has authority over the gas once it moves beyond the high-pressure mains into the hands of an end user.”).
- (63) See Interim Policy Statement, 178 FERC ¶ 61,108 at P 104 n.243 (discussing *Transco*, 365 U.S. at 17).
- (64) *Transco*, 365 U.S. at 4-7. In discussing whether consideration of end use was proper in the context of conservation, the Court also noted, “[t]he Commission said that it had not been given ‘comprehensive’ authority to deal with ‘the end uses for which natural gas is consumed’ and that it would not deny certification on that ground alone.” *Id.* at 15-16 (discussing *F.P.C., The First Five Years Under the Natural Gas Act*).
- (65) Interim Policy Statement, 178 FERC ¶ 61,108 at P 104. Nor does the Federal Power Commission precedent, which the majority cites, support this proposition. See *Adelphia Gateway, LLC*, 169 FERC ¶ 61,220 (McNamee, Comm'r, concurring at P 29 n.64).
- (66) 541 U.S. 752, 767-69.
- (67) *Id.* at 767.
- (68) *Sierra Club v. FERC*, 827 F.3d 36, 49 (D.C. Cir. 2016).
- (69) See 867 F.3d at 1380 (Brown, J., concurring in part and dissenting in part) (“More significantly, today's opinion completely omits any discussion of the role Florida's state agencies play in the construction and expansion of power plans within the state—a question that should be dispositive.”).
- (70) See *Ctr. for Biological Diversity v. U.S. Army Corps of Eng's*, 941 F.3d 1288, 1299-1300 (11th Cir. 2019).
- (71) 40 CFR. § 1508.1(g)(3) (“An agency's analysis of effects shall be consistent with this paragraph (g).”); *id.* § 1508.1(g)(2) (“A ‘but for’ causal relationship is insufficient to make an agency responsible for a particular effect under NEPA. Effects should generally not be considered if they are remote in time, geographically remote, or the product of a lengthy causal chain. Effects do not include those effects that the agency has no ability to prevent due to its limited statutory authority or would occur regardless of the proposed action.”).

- (72) The relevant question on whether the Commission should prepare an EIS is whether the proposed action “[i]s *likely* to have significant effects.” 40 CFR. § 1501.3(a)(3).
- (73) Interim Policy Statement, 178 FERC ¶¶ 61,108 at P 87 (“Establishing such a threshold will provide the Commission a workable and consistent path forward to analyze proposed projects. Further, a numerical threshold is a clear, consistent standard that can be easily understood and applied by the regulated community and interested stakeholders.”).
- (74) *Id.* PP 90-95.
- (75) *Id.* P 80.
- (76) *Id.* P 95.
- (77) *Id.* P 88.
- (78) CEQ, *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions*, at P 3 (2010), <https://obamawhitehouse.archives.gov/sites/default/files/microsites/ceq/20100218-nepa-consideration-effects-ghg-draft-guidance.pdf> .
- (79) *See supra* P 22 n.52.
- (80) 5 U.S.C. 553; *see also Shell Offshore Inc. v. Babbitt*, 238 F.3d 622, 629 (5th Cir. 2001) (“[T]he APA requires an agency to provide an opportunity for notice and comment before substantially altering a well established regulatory interpretation.”).
- (81) Interim Policy Statement, 178 FERC ¶¶ 61,108 at P 3.
- (82) 18 CFR 380.5-380.6; *see also* Commissioner Danly November 29, 2021 Response to Senator Barrasso September 15, 2021 Letter, Docket Nos. CP20-27-000, et al., at 12, Fig. 2 (Accession No. 20211214-4001).
- (83) 18 CFR. § 380.5(a) (emphasis added).
- (84) Interim Policy Statement, 178 FERC ¶¶ 61,108 at P 1; *see also id.* P 81.
- (85) *Id.* P 106.
- (86) *Id.* P 103 (“For example, commenters argue that Congress has delegated authority to the EPA and state agencies to regulate GHGs under the [Clean Air Act].”) (citation omitted); *see also id.* P 103 n.238 (citing American Public Gas Association Technical Conference Comments at 5-6; EEI Technical Conference Comments at 9-10; Enbridge Technical Conference Comments at 23-24; TC Energy Technical Conference Comments at 9-10).
- (87) *Am. Elec. Power Co., Inc. v. Connecticut*, 564 U.S. 410, 426 (2011) (emphasis added) (discussing in the context of power plants but would apply equally here); *see also Adelpia Gateway, LLC*, 169 FERC ¶ 61,220 (2019) (McNamee, Comm’r, concurring at PP 52-61).
- (88) Whether EPA or CEQ have raised “objections” is not relevant. *See* Interim Policy Statement, 178 FERC ¶¶ 61,108 at P 85.
- (89) Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review, 86 FR 63110 (Nov. 15, 2021). Commenters make the point, to which the majority does not respond, that the Commission should defer to EPA’s rulemaking. *See, e.g.*, EEI Technical Conference Comments at 11 n.29.
- (90) *See id.* P 102.

(91) See *id.* P 105 (“we recognize, as many commenters assert, that the Commission does not have the statutory authority to impose conditions on downstream users or other entities outside the Commission’s jurisdiction . . . rather, the Commission encourages each *project sponsor* to propose measures”) (emphasis in original).

(92) See *Altamont Gas Transmission, Co. v. FERC*, 92 F.3d 1239, 1248 (D.C. Cir. 1996) (“Although the Commission ordinarily has the authority to consider a matter beyond its jurisdiction if the matter affects jurisdictional sales—at least if there would otherwise be a regulatory gap—here there is no such gap but, on the contrary, an express congressional reservation of jurisdiction to another body.”); *Am. Gas Ass’n v. FERC*, 912 F.2d 1496, 1510 (“[T]he Commission may not use its § 7 conditioning power to do indirectly . . . things that it cannot do at all.”); see also *Calpine Corp.*, 171 FERC ¶ 61,035 (2020) (Glick, Comm’r, dissenting at P 7) (“In recent years, the Supreme Court has repeatedly admonished both the Commission and the states that the FPA prohibits actions that ‘aim at’ or ‘target’ the other sovereign’s exclusive jurisdiction.”).

(93) See Interim Policy Statement, 178 FERC ¶ 61,108 at P 107 (“[T]he Commission plans to *evaluate* proposed mitigation plans on a case-by-case basis”) (emphasis added); *id.* P 131 (“the Commission will then consider the project’s impact on climate change, including the project sponsor’s mitigation proposal to reduce direct GHG emissions and, to the extent practicable, to reduce any reasonably foreseeable project emissions”).

(94) 15 U.S.C. 717b(a).

(95) *Id.* § 717f(e).

(96) See also *Michigan v. EPA*, 576 U.S. 743, 752 (2015) (explaining that the phrase “appropriate and necessary” in the Clean Air Act “requires at least some attention to cost”); *id.* (“One would not say that it is even rational, never mind ‘appropriate,’ to impose billions of dollars in economic costs in return for a few dollars in health or environmental benefits.”); *id.* 752-53 (“Agencies have long treated cost as a centrally relevant factor when deciding to regulate.”).

(97) See Interim Policy Statement, 178 FERC ¶ 61,108 at P 5, n.6.

(98) I recognize that project sponsors have previously reserved their right to appeal when accepting a certificate, which the Commission has not opposed. However, in the context of hydropower cases, the Commission has taken a different approach. See *Rivers Elec. Co., Inc.*, 178 FERC ¶ 61,027, P 9 n.25 (2022) (Dally, Comm’r, concurring in part and dissenting in part) (“If the transferee accepts this order, it is thereby agreeing to the new condition. It may decline to do so if it does not wish to accept the condition.”).

(99) *Am. Trucking Ass’n, Inc. v. I. C. C.*, 659 F.2d 452, 463 (5th Cir. 1981), *opinion clarified on other grounds*, 666 F.2d 167 (5th Cir. 1982) (*Am. Trucking*).

(100) Interim Policy Statement, 178 FERC ¶ 61,108 at P 130.

(101) *Id.*

(102) *Cf. Am. Trucking*, 659 F.2d at 463-464 (“The manner of dealing with applicants who do not follow what is declared to be the ‘normal’ course demonstrates graphically that the carrier who does not conform will incur both delay and potentially vast litigation expense”).

(103) For example, on August 24, 2020, Commission staff issued an EA for Tennessee Gas Pipeline Company, LLC et al.’s Evangeline Pass Expansion Project which concluded, “[w]e recommend that the Commission Order contain a finding of no significant impact.” Commission Staff, Environmental Assessment for Tenn. Gas Pipeline Co., LLC et al.’s Evangeline Pass Expansion Project, Docket Nos. CP20-50-000 et al., at 168 (Aug. 24, 2020). Despite this recommendation, which would have normally been

adopted by the Commission, Commission staff, at the direction of the Chairman, issued supplemental Draft and Final Environmental Impact Statements. See Commission Staff, Final Environmental Impact Statement for Tenn. Gas Pipeline Co., LLC et al.'s Evangeline Pass Expansion Project, Docket Nos. CP20-50-000 et al. (Oct. 8, 2021); Commission Staff, Draft Environmental Impact Statement for Tenn. Gas Pipeline Co., LLC et al.'s Evangeline Pass Expansion Project, Docket Nos. CP20-50-000 et al. (July 16, 2021).

(104) See *Brown Exp., Inc. v. United States*, 607 F.2d 695, 701 (5th Cir. 1979) (“An announcement stating a change in the method by which an agency will grant substantive rights is not a ‘general statement of policy.’”).

(105) See *Nat. Res. Def. Council, Inc. v. NRC*, 539 F.2d 824 (2d Cir. 1976) (“Further, it is clear that NEPA legal consequences flow from that decision since the order below sets forth rules concerning how the agency will comply with the environmental laws.”), *cert. granted*, 430 U.S. 944 (1977), *judgment vacated and case remanded for consideration of mootness*, 434 U.S. 1030 (1978).

(106) Interim Policy Statement, 178 FERC ¶¶ 61,108 at P 3 (“For purposes of assessing the appropriate level of NEPA review, Commission staff *will apply* the 100% utilization or ‘full burn’ rate for the proposed project’s emissions to determine whether to prepare an Environmental Impact Statement (EIS) or an environmental assessment (EA). Commission staff *will proceed* with the preparation of an EIS, if the proposed project may result in 100,000 metric tons per year of CO₂e or more.”) (emphasis added); see also *Tex. v. Equal Emp’t Opportunity Comm’n*, 933 F.3d 433, 441-44 (5th Cir. 2019); *id.* at 442 (“That the agency’s action binds its staff . . . demonstrates that legal consequences flow from it . . .”).

(107) See, e.g., *Interstate Nat. Gas Ass’n of Am. v. FERC*, 285 F.3d 18, 59 (D.C. Cir. 2002).

(1) *Certification of New Interstate Natural Gas Facilities*, 174 FERC ¶¶ 61,125 (2021).

(2) I also voted for the 2021 changes to the procedures for imposing a stay on the certificate and use of eminent domain during periods when petitions for reconsideration and appeals were pending. *Limiting Authorizations to Proceed with Construction Activities Pending Rehearing*, Order No. 871-B, 175 FERC ¶¶ 61,098 (2021). These changes were largely opposed by the pipeline industry, but in my opinion represented a reasonable approach to bring more certainty and fairness to our procedures for handling petitions for reconsideration and the use of eminent domain during the pending period.

(3) See *Certification of New Interstate Natural Gas Facilities*, 178 FERC ¶¶ 61,107 (2022) (Certificate Policy Statement) at PP 53-57. The need for enhanced scrutiny of contracts among corporate affiliates is recognized in state utility regulation. See, e.g., Va. Code § 56-76 *et seq.*, known as the “Virginia Affiliates Act.”

(4) See *Joint Anti-Fascist Refugee Comm. v. McGrath*, 341 U.S. 123 (1951) (Frankfurter, J., concurring).

(5) *Certificate Policy Statement; Consideration of Greenhouse Gas Emissions in Natural Gas Infrastructure Project Reviews*, 178 FERC ¶¶ 61,108 (2022) (GHG Policy Statement). Although styled as an “interim” policy statement, it goes into effect immediately and will inflict major new costs and uncertainties on certificate applications that have been pending with the Commission for months or years. *Id.* at PP 1, 130. I consider both policy statements to be indivisible parts of a new policy governing certificates. Thus, my statement applies to both, and I am entering this dissent in both dockets.

(6) 15 U.S.C. 717 *et seq.* See, e.g., Certificate Policy Statement at P 62.

(7) 42 U.S.C. 4321 *et seq.*

(8) *Nat’l Fed’n of Indep. Bus. v. Dep’t of Labor, OSHA*, 142 S. Ct. 661 (2022) (*NFIB*); *Alabama Ass’n. of Realtors v. Dep’t of Health and Human Services*, 141 S. Ct. 2485 (2021) (*Ala. Ass’n.*); *Util. v. EPA*, 573 U.S. 302 (2014) (*UARG*); *FDA v. Brown & Williamson Tobacco Corp.*, 529 U.S. 120 (2000) (*Brown &*

Williamson). I discuss this doctrine in Section I.B., *infra*.

(9) See, e.g., Natasha Bertrand, *US putting together 'global' strategy to increase gas production if Russia invades Ukraine, officials say*, CNN (Jan. 24, 2022), available at <https://www.cnn.com/2022/01/23/politics/us-gas-production-strategy-russia-ukraine-invasion/index.html> ; <https://www.cnn.com/2022/01/23/politics/us-gas-production-strategy-russia-ukraine-invasion/index.html> ; and, Stephen Stapczynski and Sergio Chapa, *U.S. Became World's Top LNG Exporter, Spurred by Europe Crisis*, Bloomberg (Jan 4, 2022), available at <https://www.bloomberg.com/news/articles/2022-01-04/u-s-lng-exports-top-rivals-for-first-time-on-shale-revolution>.

(10) See *NERC December 2021 Long-Term Reliability Assessment*, at 5 (Dec. 2021) (“Natural gas is the reliability ‘fuel that keeps the lights on,’ and *natural gas policy must reflect this reality.*”) (emphasis added) (available at https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2021.pdf); *id.* at 6 (“Sufficient flexible [dispatchable] resources are needed to support increasing levels of variable [intermittent] generation *uncertainty*. Until storage technology is fully developed and deployed at scale, (which cannot be presumed to occur within the time horizon of this LTRA), natural gas-fired generation will remain a necessary balancing resource to provide increasing flexibility needs.”) (emphasis added); *NERC 2020 Long-Term Reliability Assessment, December 2020*, at 7 (Dec. 2020) (“As *more solar and wind* generation is added, *additional* flexible resources are needed to offset their resources' variability. This is placing *more* operating pressure on those (*typically natural gas*) resources and makes them *the key* to securing [Bulk Power System] reliability.” (emphases added) (available at https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2020.pdf).

(11) Letter from Industrial Energy Consumers of America to Sen. Joe Manchin III, Sen. John Barrasso, Sen. Frank Pallone, Jr., Sen. Cathy McMorris Rodgers, *Lack of Interstate Natural Gas Pipeline Capacity Threatens Manufacturing Operations, Investments, Jobs, and Supply Chain* (Feb. 9, 2022).

(12) Since we are regulators with an advisory role, not Article III judges, my personal view is that the most politically realistic and sustainable way to reduce carbon emissions significantly without threatening the reliability of our grid and punishing tens of millions of American workers and consumers with lost jobs and skyrocketing energy prices (see, e.g., Europe) is by massive *public* investment in the research, development and deployment of the technologies that can achieve that goal economically and effectively. See, e.g., Press Release, Bipartisan Policy Center, *New AEIC Report Recommends DOE Combine Loan and Demonstration Offices, Jumpstart American Clean Energy Deployment* (Jan. 21, 2022), available at <https://bipartisanpolicy.org/press-release/new-aeic-report-recommends-doe-combine-loan-and-demonstration-offices-jumpstart-american-clean-energy-deployment/> (citing to American Energy Innovation Council, *Scaling Innovation: A Proposed Framework for Scaling Energy Demonstrations and Early Deployment* (Jan. 2022)). Once developed to commercial scale, marketable technologies will roll out globally on their own, without the market-distorting mandates and subsidies that only enrich rent-seekers and impoverish consumers. More specifically with regard to natural gas facilities, there is also the potential with available technology to reduce direct methane emissions from the existing oil and gas system within existing legal authority. And such initiatives do not obviate the need for near-term mitigation measures, such as preparing the electric grid to maintain power during extreme weather events.

(13) 15 U.S.C. 717f.

(14) Certificate Policy Statement at P 62; GHG Policy Statement at PP 4, 99.

(15) See Certificate Policy Statement at P 6, GHG Policy Statement at P 27.

(16) Certificate Policy Statement at P 62; GHG Policy Statement at PP 27, 99.

(17) 15 U.S.C. 717f(e).

(18) See Certificate Policy Statement at P 74; GHG Policy Statement at P 99.

(19) Certificate Policy Statement at P 62.

(20) *Id.*

(21) *Id.* The notion that a certificate could be rejected based solely on the interests of “landowners” or “environmental justice communities” (a term the majority leaves largely undefined) illustrates the radical divergence from both law and long Commission practice of what the Commission purports to do today. While a regulatory commission should always be mindful of and sensitive to the impacts on affected property owners and communities in every case involving the potential use of eminent domain—particularly on the question of the project’s route or siting—and should generally seek wherever possible to reduce or minimize such impacts, specific measures to reduce or minimize such impacts are governed by the statutes applicable to each proceeding. Under both the Constitution and the NGA, if a project is needed for a public purpose, then landowners are made whole through just compensation. U.S. Const. amend. V. Questions of compensation are adjudicated in state or federal court—not by this Commission. NGA § 7(h), 15 U.S.C. 717f(h). Bringing such extra-jurisdictional considerations into the Commission’s public convenience and necessity analyses under NGA § 7 is just another expansion of Commission power far beyond anything justified in law.

(22) *Sabal Trail*, 867 F.3d 1357, 1382 (DC Cir. 2017) (*Sabal Trail*) (Brown, J., dissenting in part and concurring in part).

(23) *Atl. Refining Co. v. Pub. Serv. Comm’n of State of N.Y.*, 360 U.S. 378, 391 (1959) (“This is not to say that rates are the only factor bearing on the public convenience and necessity, for § 7(e) requires the Commission to evaluate all factors bearing on the public interest.”); *N.C. Gas Corp.*, 10 FPC 469, 476 (1950) (“Public convenience and necessity comprehends a question of the public interest. Or, stated another way: Is the proposal conducive to the public welfare? Is it reasonably required to promote the accommodation of the public? The public interest we referred to has many facets. *To the limit of our authority under the law* our responsibility encompasses them all”) (emphasis added) (quoting *Commonwealth Nat. Gas Corp.*, 9 FPC 70 (1950)).

(24) *NAACP v. FPC*, 425 U.S. 662, 669 (1976) (“This Court’s cases have consistently held that the use of the words ‘public interest’ in a regulatory statute is not a broad license to promote the general public welfare. Rather, the words take meaning from the purposes of the regulatory legislation.”). Where the Supreme Court has permitted the Commission to consider end use, those considerations have related directly to its core statutory responsibilities under the NGA, namely, ensuring adequate supply at reasonable rates. See *FPC v. Transcontinental Pipe Line Co.*, 365 U.S. 1 (1961) (permitting the Commission to consider whether the end use was “wasteful” of limited gas resources).

(25) NGA § 1(b), 15 U.S.C. 717(b).

(26) *ONEOK, Inc. v. Learjet, Inc.*, 575 U.S. 373, 378 (2015) (emphasis added); see also, *FPC v. Panhandle E. Pipe Line Co.*, 337 U.S. 498, 502-503 (1949) (“suffice it to say that the Natural Gas Act did not envisage federal regulation of the entire natural-gas field to the limit of constitutional power. Rather it contemplated the exercise of federal power as specified in the Act, particularly in that interstate segment which states were powerless to regulate because of the Commerce Clause of the Federal Constitution. The jurisdiction of the Federal Power Commission was to *complement* that of the state regulatory bodies.”) (emphasis added) (footnotes omitted); *Myersville Citizens for a Rural Cmty., Inc. v. FERC*, 783 F.3d 1301, 1315 (D.C. Cir. 2015) (“the Commission’s power to preempt state and local law is circumscribed by the Natural Gas Act’s savings clause, which saves from preemption the ‘rights of States’ under the Clean Air Act and two other statutes.”) (citations omitted).

- (27) *Ofc. of Consumers' Counsel v. FERC*, 655 F.2d 1132, 1142 (D.C. Cir. 1980) (“We bear in mind the caveat that an agency may not bootstrap itself into an area in which it has no jurisdiction by violating its statutory mandate.”) (citations, quotation marks, ellipsis omitted).
- (28) *City of Clarksville, Tenn. v. FERC*, 888 F.3d 477, 479 (D.C. Cir. 2018) (*City of Clarksville*) (“Congress enacted the Natural Gas Act with the principal aim of ‘encouraging the orderly development of plentiful supplies of natural gas at reasonable prices,’ and ‘protect[ing] consumers against exploitation at the hands of natural gas companies,”) (citations omitted); see also Alexandra B. Klass & Danielle Meinhardt, *Transporting Oil and Gas: U.S. Infrastructure Challenges*, 100 Iowa L. Rev. 947, 990-99 (Mar. 2015).
- (29) *City of Clarksville*, 888 F.3d. at 479. (“Along with those main objectives, there are also several ‘subsidiary purposes including conservation, environmental, and antitrust issues.’”) (quoting *Pub. Utils. Comm'n of Cal. v. FERC*, 900 F.2d 269, 281 (D.C. Cir. 1990)) (cleaned up). This does not mean that the Commission cannot properly impose conditions or mitigation to address environmental impacts *directly* related to the jurisdictional project; it merely recognizes that the Commission's main objective is to facilitate the expansion and preservation of natural gas service at just and reasonable rates and that doing so will inevitably entail some measure of environmental costs. These can sometimes be reduced or minimized, but never completely eliminated. Every project ever built has some degree of environmental impacts. The standard under the NGA cannot be zero impacts.
- (30) Congress could easily have conferred that authority if it had wanted to. There is no indication that Congress intended or expected FERC to perform any environmental regulation when it created the agency. See generally, Clark Bye, *The Department of Energy Organization Act: Structure and Procedure*, 30 Admin. L. Rev. 193 (1978). This Commission's predecessor, the Federal Power Commission, existed for decades before EPA was created in 1970. And Congress began enacting legislation bearing on emissions decades before then as well. See Christopher D. Ahlers, *Origins of the Clean Air Act: A New Interpretation*, 45 Env'tl. L. 75 (2015). Nor were the effects of GHG emissions unknown at that time. See Danny Lewis, *Scientists Have Been Talking About Greenhouse Gases for 191 Years*, *Smithsonian Magazine* (Aug. 3, 2015) (citing to Nobel Laureate Svante Arrhenius' 1896 paper “On the Influence of Carbonic Acid in the Air upon the Temperature of the Ground”).
- (31) See *United States v. Pub. Utils. Comm'n of Cal.*, 345 U.S. 295, 315 (1953) (explaining that recourse to legislative history is appropriate where “the literal words would bring about an end completely at variance with the purpose of the statute.”) (citations omitted). The present circumstance is very nearly the opposite: We are urged to pursue “an end completely at variance with the purpose of the statute” and for which there is *no* support in the “literal words.” *Id.*; see also *Ctr. for Biological Diversity v. U.S. Army Corps of Eng'rs*, 941 F.3d 1288, 1299 (11th Cir. 2019) (*Ctr. for Biological Diversity*) (“Regulations cannot contradict their animating statutes or manufacture additional agency power.”) (citing *Brown & Williamson*, 529 U.S. at 125-26).
- (32) *NAACP v. FPC*, 425 U.S. at 665-670 (noting that, although “the eradication of discrimination in our society is an important national goal,” the Supreme Court has “consistently held that the use of the words ‘public interest’ in a regulatory statute is not a broad license to promote the general welfare. Rather, the words take meaning from the purposes of the regulatory legislation” which, for the [Federal Power Act] and [Natural Gas Act], are “to encourage the orderly development of plentiful supplies of electricity and natural gas at reasonable prices.”); see also *Brown & Williamson*, 529 U.S. at 161 (“no matter how important, conspicuous, and controversial the issue, and regardless of how likely the public is to hold the Executive Branch politically accountable, . . . an administrative agency's power to regulate in the public interest must always be grounded in a valid grant of authority from Congress.”) (quotation marks, citation omitted).
- (33) *Office of Consumers' Counsel v. FERC*, 655 F.2d at 1147 (emphases added).

(34) See, e.g., NGA §§ 7(e), 15 U.S.C. 717f(e) (apart from statutory exceptions, “a certificate *shall* be issued to any qualified applicant . . . if it is found that the applicant is able and willing properly to do the acts and to perform the service proposed,” and, among other things, to comply with “the requirements, rules and regulations of the Commission . . .”) (emphasis added).

(35) Certificate Policy Statement at PP 4-6; GHG Policy Statement at P 39 (citing *Sabal Trail*, 867 F.3d at 1372-73).

(36) I won't belabor the point, but just to reiterate: a “public convenience and necessity” analysis is not a generalized “public interest” analysis, as courts have recognized. See, *supra*, P 13 & n.24 and *infra*, P 27. The “environmental” impacts appropriately considered in a certification proceeding must surely be limited in some way to the proposed facility itself since both upstream gathering and downstream use are beyond the Commission's statutory jurisdiction. See *City of Clarksville*, 888 F.3d at 479 (identifying “environmental” concerns as a “subsidiary” purpose of the NGA).

(37) *Jacobellis v. Ohio*, 378 U.S. 184, 197 (1964) (Stewart, J., concurring); see also Catherine Morehouse, *Glick, Danly spar over gas pipeline reviews as FERC considers project's climate impacts for first time*, Utility Dive (Mar. 19, 2021) (quoting Chairman Glick regarding use of GHG emissions analysis in *N. Natural Gas Co.*, 174 FERC ¶ 61,189 (2021): “We essentially used the eyeball test. . . .”). Shorn of its irrelevant disquisition on EPA's stationary source regulations, today's GHG policy statement enshrines an eyeball test as the trigger for subjecting virtually all certificate applicants to the time-consuming and costly EIS process. GHG Statement at PP 88-95.

(38) *Miller v. California*, 413 U.S. 15 (1973).

(39) *NFIB*, 142 S. Ct. at 667 (Gorsuch, J., concurring) (citations omitted).

(40) *UARG*, 573 U.S. 302, 324 (2014) (“When an agency claims to discover in a long-extant statute an unheralded power to regulate `a significant portion of the American economy,' *Brown & Williamson*, 529 U.S. at 159 . . . , we typically greet its announcement with a measure of skepticism. We expect Congress to speak clearly if it wishes to assign to an agency decisions of vast `economic and political significance.' *Id.* at 160.”); *Gundy v. United States*, 139 S. Ct. 2116, 2141-42 (2019) (*Gundy*) (Gorsuch, J., dissenting) (“Under our precedents, an agency can fill in statutory gaps where `statutory circumstances' indicate that Congress meant to grant it such powers. But we don't follow that rule when the `statutory gap' concerns `a question of deep economic and political significance' that is central to the statutory scheme. So we've rejected agency demands that we defer to their attempts to rewrite rules for billions of dollars in healthcare tax credits, to assume control over millions of small greenhouse gas sources, and to ban cigarettes.) (citations omitted).

(41) *In re MCP No. 165*, 20 F.4th 264, 267-268 (6th Cir. 2021) (Sutton, C.J., dissenting from denial of initial hearing en banc) (emphases added).

(42) *Panhandle E. Pipe Line Co. v. Pub. Serv. Comm'n of Ind.*, 332 U.S. 507, 516 (1947) (“three things, and three things only Congress drew within its own regulatory power, delegated by the [Natural Gas] Act to its agent, the Federal Power Commission. These were: (1) The transportation of natural gas in interstate commerce; (2) its sale in interstate commerce for resale; and (3) natural gas companies engaged in such transportation or sale.”); cf. *Ala. Assn.*, 141 S. Ct. at 2488 (invalidating the CDC's eviction moratorium because the “downstream connection between eviction and the interstate spread of disease is markedly different from the direct targeting of disease that characterizes the measures identified in the statute”).

(43) *Am. Elec. Power Co. v. Conn.*, 564 U.S. 410, 426 (2011).

(44) *Id.* (“ Congress delegated to EPA the decision whether and how to regulate carbon-dioxide emissions from powerplants ”) (emphasis added); *Am. Lung Ass'n. v. EPA*, 985 F.3d at 959-60 (D.C. Cir. 2021) (“there is no question that the regulation of greenhouse gas emissions by power plants across the Nation falls

squarely within the EPA's wheelhouse.”). Consider for a moment how strange it would be for Congress to delegate regulation of GHG emissions from electric power plants to EPA, while somehow delegating regulation of GHG emissions from natural gas fired power plants to FERC. Yet that is what today's orders presuppose.

(45) See *Mountain Valley Pipeline, LLC*, 171 FERC ¶¶ 61,232 (2020) (McNamee, Comm'r, concurring at PP 32-40) (discussing decades' worth of legislative enactments, all of which “indicates that the Commission's authority over upstream production and downstream use of natural gas has been further limited by Congress.”).

(46) *U.S. Telecom Ass'n v. FCC*, 855 F.3d 381, 422 (Kavanaugh, J. dissenting) (emphases added); see also *NFIB*, 142 S. Ct. at 665 (“the question . . . is whether the Act plainly authorizes the Secretary's mandate. It does not.”).

(47) We cannot assume a Congressional intent to regulate every incidence of greenhouse gas emissions. As Justice Ginsberg observed, “we each emit carbon dioxide merely by breathing.” *Am. Elec. Power Co. v. Conn.*, 564 U.S. at 426.

(48) *Ala. Ass'n.*, 141 S. Ct. at 2489.

(49) Congress may “delegate power under broad general directives” so long as it sets forth “an intelligible principle” to guide the delegee. *Mistretta v. United States*, 488 U.S. 361, 372 (1989). See *Gundy*, 139 S. Ct. at 2129 (“a delegation is constitutional so long as Congress has set out an ‘intelligible principle’ to guide the delegee's exercise of authority. Or in a related formulation, the Court has stated that a delegation is permissible if Congress has made clear to the delegee the general policy he must pursue and the boundaries of his authority.”) (citations, internal quotations omitted).

(50) *Mountain Valley*, 171 FERC ¶¶ 61,232 (McNamee, Comm'r, concurring at P 41); see also *id.* PP 15-47.

(51) See generally, Ford P. Hall, *Certificates of Public Convenience and Necessity*, 28 Mich. L. Rev. 276 (1930) (analyzing the meaning of “public convenience and necessity” in state laws antedating passage of the NGA, and concluding that it is the need of the consuming public, without which it will be inconvenienced, that is the critical question to be answered).

(52) The first such statute appears to have been the Interstate Commerce Act (ICA). The Supreme Court explicitly held that the use of the term “public convenience and necessity” was chosen in the knowledge that it would be understood against the background of its historical usage. *ICC v. Parker*, 326 U.S. 60, 65 (1945) (construing “public convenience and necessity” under the ICA and recognizing that Congress' decision to use a term with such a long history indicated Congress intended “a continuation of the administrative and judicial interpretation of the language.”) When it passed the NGA, Congress was similarly cognizant of having employed the same concept as in the ICA. See, Robert Christin et al., *Considering the Public Convenience and Necessity in Pipeline Certificate Cases under the Natural Gas Act*, 38 Energy L.J. 115, 120 (2017) (citing Comm. on Interstate Commerce, Interstate Transportation and Sale of Natural Gas, S. Rep. No. 75-1162, at 5 (Aug. 9, 1937) and noting that “the concept of a regulatory agency determining whether a private entity's proposal was in the public convenience and necessity was an established practice when the NGA was enacted.”).

(53) See *In re Kan. Pipe Line & Gas Co.*, 2 FPC 29, 56 (1939) (“We view the term [public convenience and necessity] as meaning a public need or benefit without which the public is inconvenienced to the extent of being handicapped in pursuit of business or comfort or both without which the public generally in the area involved is denied to its detriment that which is enjoyed by the public of other areas similarly situated.”)

(54) NEPA, 42 U.S.C. 4321 *et seq.*, requires all federal agencies to undertake an “environmental assessment” of their actions, typically including the preparation of an “environmental impact statement” of proposed “major federal actions.” As discussed below, the purpose of the EA and EIS is for the agency to be fully informed of the impact of its decisions. NEPA does not mandate any specific action by the agency in response to an EA or EIS, other than to make an informed decision. *See, e.g.,* Steven M. Siros, et al., *Pipeline Projects—The Evolving Role of Greenhouse Gas Emissions Analyses under NEPA*, 41 Energy L.J. 47 (May 2020); *see also Sabal Trail*, 867 F.3d at 1367-68 (describing NEPA as “primarily information-forcing” and noting that courts “should not “`flyspeck” an agency’s environmental analysis, looking for any deficiency no matter how minor.”) (quoting *Nevada v. Dep’t of Energy*, 457 F.3d 78, 93 (D.C. Cir. 2006)).

(55) NGA § 7(e), 15 U.S.C. 717f(e), authorizes the Commission to attach to a certificate “such reasonable terms and conditions as the public convenience and necessity may require.” There is no analytical difference between the Commission’s authority to reject a certificate application and its authority to mitigate it. *See Nat’l Fuel Gas Supply Corp. v. FERC*, 909 F.2d 1519, 1522 (D.C. Cir. 1990) (“The Commission may not, . . . when it lacks the power to promote the public interest directly, do so indirectly by attaching a condition to a certificate that is, in its unconditional form, already in the public convenience and necessity.”) (citations omitted). That the Commission may be tempted to abuse its conditioning authority has long been recognized. *See* Carl I. Wheat, *Administration by the Federal Power Commission of the Certificate Provisions of the Natural Gas Act*, 14 Geo. Wash. L. Rev. 194, 214-215 (1945) (“It is particularly important that the Commission . . . steel itself against the somewhat natural temptation to attempt to use such `conditions’ as substitutes or `shortcuts’ for other (and more appropriate) methods of regulation prescribed in the statute. . . . [W]hatever may be said with respect to conditions concerning rates and other matters over which the Commission has specific authority under other provisions of the Act, it would appear clear that the power to prescribe `reasonable conditions’ in certificates cannot be greater in scope than the statutory authority of the Commission.”)

(56) “[I] t is now well settled that NEPA itself does not mandate particular results, but simply prescribes the necessary process. If the adverse environmental effects of the proposed action are adequately identified and evaluated, the agency is not constrained by NEPA from deciding that other values outweigh the environmental costs. . . . Other statutes may impose substantive environmental obligations on federal agencies, . . . but NEPA merely prohibits uninformed—rather than unwise—agency action.” *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350-51 (1989) (citations omitted; emphases added). *See also, e.g., Minisink Residents for Env’tl. Preserv. & Safety v. FERC*, 762 F.3d 97, 112 (D.C. Cir. 2014) (same).

(57) *Dep’t. of Transp. v. Pub. Citizen*, 541 U.S. 752, 767 (2004) (*Pub. Citizen*). This principle has been incorporated into the implementing regulations of the Council of Environmental Quality (CEQ), an executive branch agency. *See* 40 CFR. § 1508.1(g)(2) (2021) (“Effects do not include those effects that the agency has no ability to prevent due to its limited statutory authority or would occur regardless of the proposed action”).

(58) *Pub. Citizen*, 541 U.S. at 767 (citations omitted).

(59) Certificate Policy Statement at PP 73-76; GHG Policy Statement at PP 28-31.

(60) *Pub. Citizen*, 541 U.S. at 767 (citations omitted).

(61) *See, e.g., Sabal Trail*, 867 F.3d at 1372 (citing *Pub. Citizen*, 541 U.S. at 770) (“when the agency has no legal power to prevent a certain environmental effect, there is no decision to inform, and the agency need not analyze the effect in its NEPA review.”) (emphasis in original); *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 195 (D.C. Cir. 1991) (“an agency need follow only a `rule of reason’ in preparing an EIS . . . and . . . this rule of reason governs both *which* alternatives the agency must discuss, and the *extent* to

which it must discuss them.”) (internal citations and quotations omitted, emphasis in original). To state the obvious: We have absolutely no way of knowing how much an individual project may or may not contribute to global climate change for any number of reasons, including because there is no way for us to meaningfully evaluate the release of GHG emissions if the facility in question were not to be certificated. Notwithstanding, today, the majority boasts of forcing virtually every certificate applicant into the EIS process. GHG Policy Statement at PP 80, 88.

(62) *Pub. Citizen*, 541 U.S. at 767 (citations omitted).

(63) GHG Policy Statement at P 80, 88. For purposes of determining what emissions count toward the 100,000 metric tons per year threshold, the majority states that this number is measured based on “the construction, operational, downstream, and, where determined to be reasonably foreseeable, upstream GHG emissions that reoccur annually over the life of the project.” *Id.* P 80 & n.197.

(64) *Id.* PP 88-93 (acknowledging that the Supreme Court has partially invalidated EPA's regulatory regime).

(65) *Id.* P 89 (emphasis added).

(66) *Id.* P 95. It appears that the majority's intent is to force all applicants into the EIS process. This will undeniably cause each application to become far more costly and time-consuming, both obvious disincentives to even trying.

(67) EPA Comments, *Iroquois Gas Transmission Sys., L.P.*, Docket No. CP20-48-000 at 1-2 (filed Dec. 20, 2021) (EPA Dec. 20, 2021 Letter).

(68) And yet, as a practical matter, applicants must spend years of work and possibly millions of dollars (or more) in preparatory tasks like lining up financing, securing local political support, obtaining permits, etc. All this extensive legwork is needed just to put an application in to the Commission. Today's orders effectively tell applicants that their application could be rejected for any reason or no reason at all. Nor does the majority even do the courtesy of providing a target for the applicant to aim at.

(69) See Bradley C. Karkkainen, *Whither NEPA?*, N.Y.U. *Env'tl. L.J.* 333, 339 & n.31 (2004) (noting that “Department of Energy EISs produced prior to 1994 had a mean cost of \$6.3 million and a median cost of \$1.2 million; following an aggressive effort to reduce costs, after 1994 the mean cost fell to \$5.1 million, but the median cost rose to \$2.7 million.”)

(70) See, *Nat. Res. Def. Council, Inc. v. EPA*, 822 F.2d 104, 129 (D.C. Cir. 1987) (“NEPA, as a procedural device, does not work a broadening of the agency's substantive powers. Whatever action the agency chooses to take must, of course, be within its province in the first instance.”) (citations omitted, emphasis added); *Balt. Gas & Elec. Co. v. Natural Res. Defense Council, Inc.*, 462 U.S. 87, 97 (1983) (acknowledging NEPA's “twin aims” as obligating an agency “to consider every significant aspect of the environmental impact of a proposed action” and ensuring “that the agency will inform the public that it has indeed considered environmental concerns in its decision-making process,” but noting that “Congress in enacting NEPA, however, did not require agencies to elevate environmental concerns over other appropriate considerations.”) (citations, alterations omitted).

(71) 18 CFR 380.1 (2021) (emphasis added); see also 40 CFR 1500.3(a) (2021) (compliance with the CEQ regulations “is applicable to and binding on all Federal agencies . . . except where compliance would be inconsistent with other statutory requirements”).

(72) 18 CFR 380.1 (2021). See The Hon. Joseph T. Kelliher Jan. 7, 2022 Comments, *Technical Conference on Greenhouse Gas Mitigation: Natural Gas Act Sections 3 and 7 Authorizations*, Docket No. PL21-3-000 at 2 (The Hon. Joseph T. Kelliher Jan. 7, 2022 Comments) (“if imposing mitigation for direct and indirect

emissions discourages or forestalls pipeline development, the mitigation policy is directly contrary to the principal purpose of the Natural Gas Act and must be set aside.”).

(73) Bradley C. Karkkainen, *Whither NEPA?*, N.Y.U. Env'tl. L.J. at 345-346 (noting that fear of NEPA challenges has led agencies to “kitchen sink” EISs to reduce the risk of reversal, but that almost nobody actually reads them “and those who attempt to do so may find it difficult to separate the good information from the junk. Contrary to conventional wisdom, more information is not always better.”); see also, *Pub. Citizen*, 541 U.S. at 768-769 (“NEPA’s purpose is not to generate paperwork—even excellent paperwork—but to foster excellent action.”) (quoting then-in effect 40 CFR 1500.1(c) (2003)).

(74) The delay is clearly part of the point. Why else funnel virtually every certificate applicant into the EIS process? See e.g., Bradley C. Karkkainen, *Whither NEPA?*, N.Y.U. Env'tl. L.J. at 339-40 (observing that NEPA has become “a highly effective tool that environmental NGOs and others can use to raise the financial and political costs of projects they oppose and stretch out decisions over an extended time frame, giving time to rally political opposition.”). See also P 47, *infra*.

(75) In fact, even if the Commission had the authority to impose upstream or downstream GHG emissions mitigation, or to deny certificates of public convenience and necessity on that basis, the majority admits that it is by no means obvious that doing so would actually prevent or even meaningfully reduce global climate change or the problems associated with it. See GHG Policy Statement at P 88 (noting that “[e]ven if deep reductions in GHG emissions are achieved, the planet is projected to warm by at least 1.5 degrees Celsius (°C) by 2050;” and that “even relatively minor GHG emissions pose a significant threat”).

(76) *Vecinos Para El Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321, 1329 (D.C. Cir. 2021) (*Vecinos*) (“Because the Commission failed to respond to significant opposing viewpoints concerning the adequacy of its analyses of the projects’ greenhouse gas emissions, we find its analyses deficient under NEPA and the APA.”).

(77) Cf. The Hon. Joseph T. Kelliher Jan. 7, 2022 Comments at 3.

(78) *Sabal Trail*, 867 F.3d 1357. In support of its assertion of broad discretion in attaching conditions to a certificate, the majority also cites to *ANR Pipeline Co. v. FERC*, 876 F.2d 124, 129 (D.C. Cir. 1989) (*ANR Pipeline*). Certificate Policy Statement at P 74 & n. 190. Since the Commission’s conditioning authority is limited in the same way as its certifying authority, there is little reason to discuss it separately. I will only note in passing that, although the court described the Commission’s conditioning authority as “extremely broad,” the only issue actually before the court in *ANR Pipeline* was the validity of certificate terms imposed in furtherance of the Commission’s core duty to ensure that rates are non-discriminatory. *Id.*

(79) *Birckhead v. FERC*, 925 F.3d 510 (D.C. Cir. 2019) (rejecting, for failure to raise the issue before the Commission, a claim that NEPA requires FERC to analyze downstream GHG emissions). Since *Birckhead* was decided on jurisdictional grounds, any substantive commentary in that order is mere dicta and I will not discuss it further.

(80) *Vecinos*, 6 F.4th 1321.

(81) Both orders suffer from a number of infirmities that don’t bear belaboring in this context. In brief, however, *Sabal Trail* reads the Commission’s duty to “balance the public benefits against the adverse effects of the project, including adverse environmental effects,” *Sabal Trail*, 867 F.3d at 1373 (quoting *Minisink Residents for Env’tl. Pres. & Safety v. FERC*, 762 F.3d 97 at 101-02 and citing *Myersville Citizens for a Rural Cmty. v. FERC*, 783 F.3d at 1309), far too expansively, and *Vecinos* compounds that error. Both orders are discussed below.

(82) Namely, “[b]ecause FERC could deny a pipeline certificate on the ground that the pipeline would be too harmful for the environment, the agency is a ‘legally relevant cause’ of the direct and indirect environmental effects of pipelines that it approves.” *Sabal Trail*, 867 F.3d at 1373. The other orders the majority relies on depend vitally on this statement. See, e.g., Certificate Policy Statement at PP 75 & n. 192 (citing *Birckhead*); 86 & n. 207 (citing *Vecinos*); GHG Policy Statement at PP 13, 36-38 (citing *Birckhead*) and P 14 & n. 38 (citing *Vecinos*).

(83) See *Ctr. for Biological Diversity*, 941 F.3d at 1300 (“the legal analysis in *Sabal Trail* is questionable at best. It fails to take seriously the rule of reason announced in *Public Citizen* or to account for the untenable consequences of its decision. The *Sabal Trail* court narrowly focused on the reasonable foreseeability of the downstream effects, as understood colloquially, while breezing past other statutory limits and precedents—such as *Metropolitan* [*Edison Co. v. People Against Nuclear Energy*, 460 U.S. 776 (1983)] and *Public Citizen* —clarifying what effects are cognizable under NEPA.”).

(84) *Sabal Trail*, 867 F.3d at 1372-1373. In each of the D.C. Circuit orders *Sabal Trail* purported to distinguish, the court had found that FERC did not have to analyze, because it could not regulate, downstream emissions.

(85) *Id.* at 1373 (citing *Sierra Club v. FERC (Freeport)*, 827 F.3d 36, 47 (D.C. Cir. 2016). The “companion cases” are *Sierra Club v. FERC (Sabine Pass)*, 827 F.3d 59 (D.C. Cir. 2016) and *EarthReports, Inc. v. FERC*, 828 F.3d 949 (D.C. Cir. 2016).

(86) *Sabal Trail*, 867 F.3d at 1373 (emphasis in original).

(87) *Id.* (citations omitted).

(88) *Id.*

(89) *Supra*, Section I.B. Cf. *ICC v. Parker*, 326 U.S. 60, 65 (1945) (construing “public convenience and necessity” under the Interstate Commerce Act and recognizing that Congress’ decision to use a term with such a long history indicated Congress intended “a continuation of the administrative and judicial interpretation of the language.”). Far from being “a continuation of the administrative and judicial interpretation of the language,” construing it to extend to an analysis of global GHG emissions is novel and unprecedented.

(90) *Vecinos*, 6 F.4th at 1328-30.

(91) 40 CFR. § 1502.21(c).

(92) See *supra*, n. 83.

(93) *NFIB*, 142 S. Ct. 661.

(94) *Ala. Ass’n.*, 141 S. Ct. 2485 at 2489.

(95) See generally, *Allegheny Def. Project v. FERC*, 964 F.3d 1, 18 (D.C. Cir. 2020) (noting that circuit court precedent may be departed from “when intervening developments in the law—such as Supreme Court decisions—have removed or weakened the conceptual underpinnings of the prior decision.”) (cleaned up, citation omitted).

(96) In his *NFIB* concurrence, Justice Gorsuch states: “Sometimes Congress passes broadly worded statutes seeking to resolve important policy questions in a field while leaving an agency to work out the details of implementation. Later, the agency may seek to exploit some gap, ambiguity, or doubtful expression in Congress’s statutes to assume responsibilities far beyond its initial assignment. The major

questions doctrine guards against this possibility by recognizing that Congress does not usually hide elephants in mouseholes.” 142 S. Ct. at 669 (Gorsuch, J., concurring) (citations, alterations omitted). It would be hard to find a better description of the path the Commission has taken to arrive at today's orders.

(97) See, e.g., Bloomberg Philanthropies, <https://www.bloomberg.org/environment/moving-beyond-carbon/> (“Launched in 2019 with a \$500 million investment from Mike Bloomberg and Bloomberg Philanthropies, Beyond Carbon . . . works . . . to . . . *stop the construction of proposed gas plants* .”) (last visited Feb. 8, 2022) (emphasis added); Sierra Club, <https://www.sierraclub.org/policy/energy/fracking> , (“There are no ‘clean’ fossil fuels. The Sierra Club is committed to *eliminating the use of fossil fuels*, including coal, *natural gas* and oil, as soon as possible”) (emphases added) (last visited Feb. 8, 2022); Natural Resources Defense Council, <https://www.nrdc.org/issues/reduce-fossil-fuels> (“Oil, *gas*, and other fossil fuels come with grave consequences for our health and our future. . . . *NRDC is pushing America to move beyond these dirty fuels. We fight dangerous energy development on all fronts*”) (emphases added) (last visited Feb. 8, 2022); Press Release, *NRDC Receives \$100 million from Bezos Earth Fund to Accelerate Climate Action* (Nov. 16, 2020), available at <https://www.nrdc.org/media/2020/201116> (“The Bezos Earth Fund grant will be used to help NRDC advance climate solutions and legislation at the state level, move the needle on policies and programs focused on *reducing oil and gas production* ”) (emphasis added) (last visited Feb. 8, 2022); Sebastian Herrera, *Jeff Bezos Pledges \$10 Billion to Tackle Climate Change*, Wall Street Journal (Feb. 17, 2020) (“Mr. Bezos . . . said the *Bezos Earth Fund* would help back scientists, *activists, [non-governmental organizations]*”) (emphasis added); see also, Ellie Potter, *Environmentalists launch campaign to ban gas from US clean energy program*, S&P Global Platts (Sep. 2, 2021) (quoting Collin Rees, U.S. Campaign Manager for Oil Change International, “Clean energy means *no gas* and no other fossil fuels, period.”) (emphases added); Sean Sullivan, *FERC sets sights on gas infrastructure policy in 2022*, S&P Capital IQ (Dec. 31, 2021) (quoting Maya van Rossum, head of Delaware Riverkeeper Network, “we are not changing course at all: We continue to take on every pipeline, LNG, and fracked gas project as urgently as we did before, knowing we will have to *invest heavily to stop it* . . .”) (emphases added).

(98) See Letter of Chairman Richard Glick to Sen. John Barasso, M.D. (Feb. 1, 2022) (“Preparing an EIS to consider the reasonably foreseeable GHG emissions that may be attributed to a project proposed under section 7 of the NGA allows the Commission to issue more legally durable orders on which all stakeholders can depend, including project developers.”); Letter of Commissioner Allison Clements to Sen. John Barasso, M.D. (Feb. 1, 2022) (“I will do my part to assure that the updated policy will be a legally durable framework for fairly and efficiently considering certificate applications—one that serves the public interest and increases regulatory certainty for all stakeholders.”); see also, Corey Paul, *FERC Dems argue legal benefits from climate reviews outweigh gas project delays*, S&P Capital IQ Pro (Feb. 3, 2022).

(99) Certificate Policy Statement at P 100 (“the Commission will apply the Updated Policy Statement to any currently pending applications for new certificates. Applicants will be given the opportunity to supplement the record and explain how their proposals are consistent with this Updated Policy Statement, and stakeholders will have an opportunity to respond to any such filings.”)

(100) *Adelphia Gateway, LLC*, 178 FERC ¶ 61,030 (2022) (Christie, Comm'r concurring at P 4) (available at: <https://www.ferc.gov/news-events/news/item-c-3-commissioner-christies-partial-concurrence-and-partial-dissent-adelphia>).

(101) See *Am. Lung Ass'n v. EPA*, 985 F.3d at 1003 (Walker, J., concurring in part and dissenting in part) (“whatever multi-billion-dollar regulatory power the federal government might enjoy, it's found on the open floor of an accountable Congress, not in the impenetrable halls of an administrative agency—even if that agency is an overflowing font of good sense.”) (citing U.S. Const. art I, § 1).

(102) GHG Policy Statement at PP 27-28, 31, & n.97. See also, EPA Dec. 20, 2021 Letter.

(103) GHG Policy Statement at P 96. *See also, e.g., Vecinos*, 6 F.4th at 1328-1329.

(104) EPA Dec. 20, 2021 Letter at 4 (emphases added).

(105) This Commission's independence reflects a conscious choice on Congress' part to insulate certain of its functions from the vicissitudes of political pressure. *See generally*, Sharon B. Jacobs, *The Statutory Separation of Powers*, 129 Yale L.J. 378 (2019) (explaining that some but not all of the Federal Power Commission's authorities were transferred to FERC, which was intended at least in part to counterbalance presidential influence). Succumbing to the pressure of EPA and others would sacrifice that crucial independence in meaningful ways.

(106) *Cf. Vecinos*, 6 F.4th at 1329.

(107) It has been observed that the values associated with the imputed social costs of GHG emissions have fluctuated dramatically from one administration to the next. *See, e.g.,* Garrett S. Kral, *What's In a Number: The Social Cost of Carbon*, Geo. Envtl. L. Rev. Online 1 (Aug. 19, 2021) (comparing the social cost of GHG emissions under the Trump administration with the interim social cost under the Biden administration and noting “the value of SC-GHGs have fluctuated. A lot.”). This degree of abrupt fluctuation— *e.g.*, the social cost of carbon increasing from \$7 per ton to \$51 per ton—can only be explained by politics, not science.

(108) *NFIB*, 142 S. Ct. at 667 (Gorsuch, J. Concurring). (“The central question we face today is: *Who decides?*”) (emphasis added).

(109) *See* P 5 and n.12, *supra*.

(110) *Office of Consumers Counsel*, 655 F.2d at 1142 (“an agency may not bootstrap itself into an area in which it has no jurisdiction by violating its statutory mandate”) (quoting *FMC v. Seatrain Lines, Inc.*, 411 U.S. 726, 745 (1973)) (ellipsis omitted); *see also In re MCP No. 165*, 20 F.4th 264, 269 (6th Cir. 2021) (Sutton, C.J., dissenting) (“As the Supreme Court recently explained in invalidating an eviction moratorium promulgated by the Center for Disease Control, ‘our system does not permit agencies to act unlawfully even in pursuit of desirable ends.’ *Ala. Ass’n of Realtors*, 141 S. Ct. at 2490. Shortcuts in furthering preferred policies, even urgent policies, rarely end well, and *they always undermine, sometimes permanently, American vertical and horizontal separation of powers, the true mettle of the U.S. Constitution, the true long-term guardian of liberty.*”) (emphasis added).

(111) This argument is often put forth by the legal, academic, and corporate elites who assume that an administrative agency will enact the public policies they prefer when Congress will not. Such an expectation is perfectly rational since these elites disproportionately have the resources that are most effective in achieving desired outcomes in the administrative process, which is largely an insiders' game. The body of work on the economic theory of regulatory capture over the past half-century is relevant to this topic. *See generally*, Susan E. Dudley, *Let's Not Forget George Stigler's Lessons about Regulatory Capture*, Regulatory Studies Center (May 20, 2021) (available at <https://regulatorystudies.columbian.gwu.edu/let%E2%80%99s-not-forget-george-stigler%E2%80%99s-lessons-about-regulatory-capture>). And it is not just for-profit corporate elites at work here, so are other special interests who seek desired policy outcomes from administrative action rather than from the often messy and hard democratic processes of seeking to persuade voters to elect members of Congress who agree with you. *See, e.g.,* n. 97, *supra*.



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NEWS RELEASES

FERC Issues Policy Statement on Carbon Pricing in Organized Wholesale Markets

April 15, 2021

Docket No. AD20-14-000

Item [E-2](#)

The Federal Energy Regulatory Commission (FERC) today issued a policy statement clarifying how it will consider market rules proposed by regional grid operators that seek to incorporate a state-determined carbon price in organized wholesale electricity markets.

Carbon pricing has emerged as an important market-based tool in state efforts to reduce greenhouse gas emissions, including in the electricity sector. Twelve states now impose some version of carbon pricing, with numerous additional states considering them. Various entities, including regional grid operators, are examining approaches to incorporating state-determined carbon prices into wholesale electricity markets.

During FERC's September 2020 technical conference on carbon pricing, participants identified a range of potential benefits from incorporating state-determined carbon pricing into the wholesale markets, including the development of technology-neutral, transparent price signals within the markets.

The policy statement explains that wholesale market rules incorporating a state-determined carbon price can fall within the Commission's jurisdiction under section 205 of the Federal Power Act (FPA). The policy statement presents a framework for the Commission to exercise its jurisdiction when it reviews any future proposals under FPA section 205 while making clear that the Commission will evaluate any proposal based on the facts and circumstances presented in each proceeding.

Finally, the policy statement does not indicate a preference for carbon pricing over any other state policy. It affirms that whether and how a state chooses to address greenhouse gas emissions is a matter exclusively within that state's jurisdiction.

The policy statement takes effect immediately.

R21-31

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Regulations for Emissions from Vehicles and Engines

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Final Rule to Revise Existing National GHG Emissions Standards for Passenger Cars and Light Trucks Through Model Year 2026

Basic Information

Code of Federal Regulations Citations

- 40 CFR Part 19
- 40 CFR Part 86
- 40 CFR 600
- 40 CFR 523
- 40 CFR 1066
- 40 CFR 1867

Docket Numbers

- EPA-HQ-OAR-2021-0208

On this page:

- [Rule Summary](#)
- [Additional Resources](#)

Rule Summary

[Related pages](#)



Regulations for Greenhouse Gas Emissions from Passenger Cars and Trucks

<<https://epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-passenger-cars-and>>

Clean Trucks Plan <<https://epa.gov/regulations-emissions-vehicles-and-engines/clean-trucks-plan>>

The Environmental Protection Agency (EPA) finalized federal greenhouse gas (GHG) emissions standards for passenger cars and light trucks for Model Years (MY) 2023 through 2026. The final standards leverage advances in clean car technology to unlock \$190 billion in net benefits to Americans, including reducing climate pollution, improving public health, and saving drivers money at the pump. These standards are the strongest vehicle emissions standards ever established for the light-duty vehicle sector, and are based on sound science and grounded in a rigorous assessment of current and future technologies. The updated standards will result in avoiding more than 3 billion tons of GHG emissions through 2050.

These standards set the light-duty vehicle greenhouse gas (GHG) program on track to provide a strong launch point for the Agency's next phase of standards for MY 2027 and beyond. EPA is planning to initiate a separate rulemaking to establish multi-pollutant emission standards under the Clean Air Act for MY 2027 and later that will speed the transition of the light-duty vehicle fleet toward a zero-emissions future consistent with President Biden's Executive Order, "Strengthening American Leadership in Clean Cars and Trucks."

Additional Resources

- Final Rulemaking: Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards (pdf) EXIT <<https://www.govinfo.gov/content/pkg/fr-2021-12-30/pdf/2021-27854.pdf>> (published December 30, 2021)
- Regulatory Impact Analysis: Revised 2023 and Later Model Year Light Duty Vehicle GHG Emissions Standards (pdf) (EPA-420-R-21-028, December 2021)
- Fact Sheet: Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards (pdf)(EPA-420-F-21-077, December 2021)
- By the Numbers: Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards (pdf) (EPA-420-F-21-078, December 2021)
- Response to Comments: Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emission Standards (pdf) (EPA-420-R-21-027, December 2021)
- EPA model runs and files supporting the final rule's benefit-cost analysis. EPA CCEM PostProcessingTool Project FRM (zip) <<https://www3.epa.gov/otaq/ld/epa-ccems-postprocessingtool-project-frm.zip>> (December 2021)

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U.S. DEPARTMENT OF THE TREASURY

Financial Stability Oversight Council Identifies Climate Change as an Emerging and Increasing Threat to Financial Stability

October 21, 2021

In First Step, FSOC Releases Report and Recommendations on Climate-related Financial Risk

WASHINGTON — The Financial Stability Oversight Council (FSOC) has released a new report in response to President Biden’s Executive Order 14030, Climate-related Financial Risk. For the first time, FSOC has identified climate change as an emerging and increasing threat to U.S. financial stability. The report and accompanying recommendations demonstrate FSOC’s commitment to building on and accelerating existing efforts on climate change through concrete recommendations for member agencies to:

- Assess climate-related financial risks to financial stability, including through scenario analysis, and evaluate the need for new or revised regulations or supervisory guidance to account for climate-related financial risks;
- Enhance climate-related disclosures to give investors and market participants the information they need to make informed decisions, which will also help regulators and financial institutions assess and manage climate-related risks;
- Enhance actionable climate-related data to allow better risk measurement by regulators and in the private sector; and
- Build capacity and expertise to ensure that climate-related financial risks are identified and managed.

“Climate change is an emerging and increasing threat to America’s financial system that requires action,” Secretary of the Treasury Janet L. Yellen said. “FSOC’s report and recommendations represent an important first step towards making our financial system more resilient to the threat of climate change. These measures will support the Administration’s urgent, whole-of-government effort on climate change and help the financial system support an orderly, economy-wide transition toward the goal of net-zero emissions.”

While the report recommends that FSOC members take new actions on climate change data,

disclosure, and scenario analysis, it also discusses how individual members are already taking important steps forward. For example:

- The Securities and Exchange Commission (SEC) has begun to evaluate its disclosure rules and requested public comment on ways to improve climate disclosure.
- The Federal Reserve Board (FRB) has established two committees to develop a better understanding of climate-related risks and incorporate them into its supervision of financial firms and into its financial stability framework.
- The Commodities Futures Trading Commission (CFTC) has engaged on climate-related financial risk issues through its Market Risk Advisory Committee (MRAC). In September 2020, the MRAC's climate subcommittee issued a report entitled *Managing Climate Risk in the U.S. Financial System*, with recommendations to address the growing impact of climate-related financial risk.
- Both the Federal Housing Financing Agency (FHFA) and the Treasury Department's Federal Insurance Office have requested information on climate-related financial risks from the public to inform their activities

Established under the Dodd-Frank Wall Street Reform and Consumer Protection Act, FSOC is charged with identifying risks to U.S. financial stability, promoting market discipline, and responding to emerging threats to the stability of the U.S. financial system. FSOC consists of 10 voting members and 5 nonvoting members and brings together the expertise of federal financial regulators, state regulators, and an independent insurance expert appointed by the President.

[The full report and recommendations can be found here.](#) [A factsheet on FSOC's actions can be found here.](#) [A copy of Secretary Yellen's remarks during the open session can be found here](#) and [a readout of FSOC's meeting can be found here.](#)

General Explanations of the Administration's Fiscal Year 2022 Revenue Proposals



Department of the Treasury
May 2021

This document is available online at:
<https://home.treasury.gov/policy-issues/tax-policy/revenue-proposals>

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The Administration’s proposals are not intended to create any inferences regarding current law.

Within the *General Explanations of the Administration’s Fiscal Year 2022 Revenue Proposals*, unless otherwise stated:

- “AGI” refers to Adjusted Gross Income
- “Budget” refers to the *Fiscal Year 2022 Budget of the U.S. Government*
- “Code” refers to the Internal Revenue Code
- “C-CPI-U” refers to the Chained Consumer Price Index for Urban Consumers
- “IRA” refers to Individual Retirement Account or Annuity
- “IRS” refers to the Internal Revenue Service
- “Section” refers to the respective section of the Internal Revenue Code
- “Secretary” refers to the Secretary of the Treasury
- “Treasury” refers to the Department of the Treasury
- “TIN” refers to Taxpayer Identification Number

REVENUE PROPOSALS

In the Fiscal Year 2022 Budget, the President proposes a number of reforms to the Internal Revenue Code (Code) that would modernize our tax system to respond to today's challenges. These changes would raise revenue, improve tax administration, and make the tax system more equitable and efficient.

The American Jobs Plan includes revenue proposals that reform corporate taxation, support housing and infrastructure, and prioritize clean energy. Reforms to the corporate income tax aim to collect sufficient revenue, build a fairer tax system, and reduce tax incentives that encourage profit shifting and offshoring. Housing and infrastructure tax credits would support low-income housing, economic development, and public school and transportation infrastructure. The American Jobs Plan would eliminate all fossil fuel subsidies that linger in the Code, while substantially expanding tax incentives that encourage clean energy sources, energy efficiency, carbon sequestration, and electric vehicle adoption.

The American Families Plan includes revenue proposals that strengthen the taxation of high-income taxpayers, expand tax credits for low- and middle-income workers and families, and invest in improved taxpayer compliance and service. Income tax rates for those with the highest incomes would increase, and loopholes, such as the carried interest preference and the like-kind real estate preference, would be eliminated for those with the highest incomes. Reformed taxation of capital income would even the tax treatment of labor and capital income and eliminate a loophole that lets substantial capital gains income escape taxation forever. The economic security of families and workers would be supported through more generous child tax credits, an expanded earned income tax credit, expanded child and dependent care tax credits, and more generous premium tax credits. Finally, transformative investments in taxpayer compliance would provide the Internal Revenue Service with the resources and information that it needs to build a fairer and more efficient tax administration system.

American Jobs Plan

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REFORM CORPORATE TAXATION

RAISE THE CORPORATE INCOME TAX RATE TO 28 PERCENT

Current Law

Income of a business entity can be subject to federal income tax in a manner that varies depending upon the classification of the entity for federal income tax purposes. Most small businesses are owned by individuals and taxed as “pass-through” entities, meaning that their income is passed through to their owners who are taxed under the individual income tax system. Most large businesses, including substantially all publicly traded businesses, are classified as “C corporations” because these corporations are subject to the rules of subchapter C of chapter 1 of the Internal Revenue Code (Code) and pay an entity-level income tax. Additionally, taxable shareholders of such corporations generally pay federal income tax on most distributions attributable to their ownership in the corporation. Some mid-sized businesses choose a pass-through form of entity classification (under subchapter K or subchapter S of chapter 1 of the Code) while others choose the C corporation form of entity classification.

C corporations determine their taxable income, credits, and tax liability according to the Code and regulations promulgated thereunder. The Tax Cuts and Jobs Act of 2017 replaced a graduated tax schedule (with most corporate income taxed at a marginal and average rate of 35 percent) with a flat tax of 21 percent applied to all C corporations.

Reasons for Change

Raising the corporate income tax rate is an administratively simple way to raise revenue in order to pay for the Administration’s infrastructure proposals and other long-run drivers of spending growth. Furthermore, a corporate tax rate increase can increase the progressivity of the tax system and help reduce income inequality. Additionally, a significant share of the effects of the corporate tax increase would be borne by foreign investors. Therefore, some of the revenue raised by this proposal would result in no additional federal income tax burden to U.S. persons. Also, the majority of U.S. equity income is untaxed by the U.S. government at the individual level, so the corporate tax is a primary mechanism for taxing such capital income.

Proposal

The proposal would increase the income tax rate for C corporations from 21 percent to 28 percent.

The proposal would be effective for taxable years beginning after December 31, 2021. For taxable years beginning after January 1, 2021 and before January 1, 2022, the tax rate would be equal to 21 percent plus 7 percent times the portion of the taxable year that occurs in 2022.

REVISE THE GLOBAL MINIMUM TAX REGIME, DISALLOW DEDUCTIONS ATTRIBUTABLE TO EXEMPT INCOME, AND LIMIT INVERSIONS

Current Law

Global minimum tax regime with respect to controlled foreign corporation earnings

Any U.S. shareholder of a controlled foreign corporation (CFC) is taxed annually in the United States under the global minimum tax in section 951A of the Internal Revenue Code with respect to all of its CFCs. A U.S. shareholder's global minimum tax inclusion is determined by combining its pro rata share of the tested income (or tested loss) of all its CFCs. A CFC's tested income is the excess of certain gross income of the CFC over the deductions of the CFC that are properly allocable to the CFC gross tested income. A CFC's tested loss is the excess of the CFC's properly allocable deductions over the CFC's gross tested income. The U.S. shareholder's actual global minimum tax inclusion reflects a reduction for a 10 percent return on certain foreign tangible property (referred to as qualified business asset income, or QBAI). QBAI is generally tangible property eligible for depreciation, such as buildings or machinery, but does not include assets that are not depreciable (such as land) nor intangible assets.

Under section 250, subject to a taxable income limitation, a corporate U.S. shareholder is generally allowed 50-percent deduction against its global minimum tax inclusion. The section 250 deduction generally results in a 10.5-percent U.S. effective tax rate on a corporate U.S. shareholder's global minimum tax inclusion under the current U.S. corporate tax rate of 21 percent. The 50-percent deduction is scheduled to be reduced to 37.5 percent starting in 2026.

Certain foreign income taxes paid by a CFC can be credited against a corporate U.S. shareholder's U.S. tax liability attributable to its global minimum tax inclusion. The allowable credit is limited to 80 percent of the amount of the foreign income taxes properly allocable to a CFC's tested income taken into account as part of the global minimum tax inclusion. Under final Treasury regulations promulgated in 2020, if the foreign effective tax rate on the gross income of a CFC that would otherwise be part of a global minimum tax inclusion exceeds 90 percent of the U.S. corporate income tax rate, the U.S. shareholder of the CFC is generally permitted to exclude that gross income (and the associated deductions and foreign income taxes) from its global minimum tax inclusion. A similar statutory rule applies for purposes of certain subpart F income. Subpart F taxes certain foreign income earned indirectly by U.S. persons at full U.S. tax rates.

A single foreign tax credit limitation generally applies to a corporate U.S. shareholder's global minimum tax inclusion. Therefore, foreign income taxes paid to a high-tax foreign jurisdiction can be used to reduce the U.S. tax liability with respect to global minimum tax income earned in lower-tax jurisdictions. Thus, generally, a U.S. shareholder's aggregate U.S. tax (after accounting for the allocation of U.S. shareholder deductions) on its global minimum tax inclusion is reduced by reference to the average foreign effective tax rate on its aggregate global minimum tax income rather than the effective tax rates in each individual foreign jurisdiction where income is actually earned.

Treatment of deductions properly allocable to exempt income

Certain dividends received by a domestic corporation from foreign corporations are effectively exempt from U.S. tax by reason of the 100-percent deduction allowed with respect to such dividends under section 245A. Specifically, section 245A provides a domestic corporation a deduction equal to the foreign-source portion of a dividend received from a specified 10-percent owned foreign corporation, but only if the domestic corporation is a U.S. shareholder of the foreign corporation.

Section 265(a)(1) generally disallows a deduction for any amount that is allocable to certain classes of income that is wholly exempt from U.S. tax. For purposes of determining a taxpayer's foreign tax credit limitation, tax exempt assets and their associated income are disregarded under section 864(e)(3). Section 904(b)(4) applies to disregard (solely for purposes of the foreign tax credit limitation) deductions allocable to income from foreign stock other than global minimum tax or subpart F income inclusions, for determining a taxpayer's foreign tax credit limitation.

Limitations on the ability of domestic corporations to expatriate

Section 7874 applies to certain transactions (known as “inversion transactions”) in which a U.S. corporation is acquired by a foreign corporation (“foreign acquiring corporation”) in a transaction where (1) substantially all of the assets held directly or indirectly by the domestic corporation are acquired directly or indirectly by the foreign acquiring corporation; (2) the former shareholders of the domestic corporation hold at least a 60-percent ownership interest in the foreign acquiring corporation by reason of the acquisition; and (3) the foreign acquiring corporation, together with its expanded affiliated group, does not conduct substantial business activities in the country in which the foreign acquiring corporation is created or organized. Similar provisions apply to acquisitions of domestic partnerships.

The tax consequences of an inversion transaction depend on the level of continuing former shareholder ownership. If the continuing former shareholder ownership of the foreign acquiring corporation is at least 80 percent (by vote or value), the foreign acquiring corporation is treated as a domestic corporation for all U.S. tax purposes (the “80-percent test”). If the continuing former shareholder ownership is at least 60 percent but less than 80 percent (by vote or value), the foreign acquiring corporation is respected as foreign but full U.S. tax must generally be paid with respect to certain income or gain recognized by the expatriated U.S. entity and its affiliates in connection with the inversion or within the ten year period ending after the completion of the inversion (the “60-percent test”). Furthermore, the Tax Cuts and Jobs Act of 2017 (TCJA) adopted several anti-abuse provisions that apply to inversion transactions that satisfy the 60-percent test.

Reasons for Change

Global minimum tax regime

The reduction to global minimum tax inclusions for a percentage of certain foreign tangible assets incentivizes U.S. multinational companies to invest in tangible assets abroad rather than

domestically. The elimination of QBAI would eliminate this perverse investment incentive while simplifying the taxation of CFCs.

The difference between the effective U.S. tax rate on global minimum tax inclusions versus the effective U.S. tax rate on income earned directly by U.S. companies that results from the section 250 deduction incentivizes U.S. companies to locate profits and operations offshore. Reducing the section 250 deduction for these foreign earnings would reduce this perverse incentive.

The determination of a U.S. company's global minimum tax inclusion and residual U.S. tax liability on such inclusions on a global blended basis incentivizes U.S. companies with operations in high-tax jurisdictions to invest in lower-tax jurisdictions, to take advantage of the automatic global averaging under the existing global minimum tax regime. In some cases, U.S. companies may have an incentive to locate operations in jurisdictions with corporate income tax rates higher than the United States, to average these high taxes against low-taxed income earned elsewhere. This automatic blending feature exacerbates the race to the bottom on corporate income tax rates and encourages U.S. companies to report profits (as well as the activities that give rise to those profits) in offshore jurisdictions rather than in the United States, creating a perverse "America last" tax policy. Similar global blending concerns arise with respect to high and low-taxed income earned through foreign branches.

In contrast, determining a taxpayer's global minimum tax inclusion and residual U.S. tax liability on such inclusions on a jurisdiction-by-jurisdiction basis would be a stronger deterrent to profit shifting and offshoring because residual U.S. tax would be due on every dollar earned in a low-tax jurisdiction at the minimum rate, with no ability to reduce that residual U.S. tax for excess foreign taxes paid to higher-tax jurisdictions.

Under the Organisation for Economic Co-operation and Development (OECD)/G20 Inclusive Framework on BEPS project's Pillar Two proposal, the United States and the international community are nearing a comprehensive agreement on jurisdiction-by-jurisdiction global minimum taxation which would help end the race to the bottom on corporate tax rates in a manner that puts the United States and other countries on a more level playing field. Under the "income inclusion rule" (IIR) proposed under Pillar Two, the IIR applies on a "top down" basis. That is, it is applied only by the ultimate parent entity of a multinational group, and generally is not applied by lower-tier holding companies. Therefore, in the case of foreign-controlled domestic corporations that own CFCs, the income inclusion rule proposed under Pillar Two is expected to be applied by the foreign parent with respect to low-taxed CFC income.

Deductions attributable to income exempt from U.S. tax and taxed at preferential rates

To the extent deductions are claimed for expenses allocable to income eligible for a deduction under section 245A or section 250, on the basis that section 265 does not apply because that income is not "wholly exempt" from U.S. tax, the United States is providing a tax subsidy for foreign investment.

Limitations on the ability of domestic corporations to expatriate

In order to reduce their U.S. tax liabilities, certain domestic entities have been combining with smaller foreign entities in transactions that avoid the 80 percent test but that may satisfy the 60 percent test under section 7874. These combination transactions are typically structured so that the domestic entity and the foreign entity become subsidiaries of a newly formed foreign parent company. The domestic entities can often substantially reduce their U.S. income tax liability following these combination transactions with only a minimal change to their operations.

Inversion transactions raise significant policy concerns because they facilitate the erosion of the U.S. tax base through deductible payments by the U.S. members of the multinational group to the non-U.S. members and through aggressive transfer pricing for transactions between such U.S. and non-U.S. members. The inverted group also may reduce its U.S. taxes by reducing or eliminating altogether its direct and indirect U.S. ownership in foreign subsidiaries or assets. The adverse tax consequences under current law of 60-percent inversion transactions have not deterred taxpayers from pursuing these transactions. There is no policy reason to respect an inverted structure when the owners of a domestic entity retain a controlling interest in the group, only minimal operational changes are expected, and there is potential for substantial erosion of the U.S. tax base. Furthermore, an inverted structure should not be respected when the structure results from the combination of a larger U.S. group with a smaller entity or group and, after the transaction, the expanded affiliated group is primarily managed and controlled in the United States and does not have substantial business activities in the relevant foreign country, even if the shareholders of the domestic entity do not maintain control of the resulting multinational group.

Proposal

Reforms to global minimum tax regime

The proposal would make several changes to the existing global minimum tax system. First, the QBAI exemption would be eliminated, so that the U.S. shareholder's entire net CFC tested income is subject to U.S. tax. Second, the section 250 deduction for a global minimum tax inclusion would be reduced to 25 percent, thereby generally increasing the U.S. effective tax rate under the global minimum tax to 21 percent under the proposed U.S. corporate income tax rate of 28 percent. Third, the "global averaging" method for calculating a U.S. shareholder's global minimum tax would be replaced with a "jurisdiction-by-jurisdiction" calculation. Under the new standard, a U.S. shareholder's global minimum tax inclusion and, by extension, residual U.S. tax on such inclusion, would be determined separately for each foreign jurisdiction in which its CFCs have operations. As a result, a separate foreign tax credit limitation would be required for each foreign jurisdiction. A similar jurisdiction-by-jurisdiction approach would also apply with respect to a U.S. taxpayer's foreign branch income. These changes mean that foreign taxes paid to higher-taxed jurisdictions will no longer reduce the residual U.S. tax paid on income earned in lower-taxed foreign jurisdictions.

The proposal would also repeal the high tax exemption to subpart F income and repeal the cross-reference to that provision in the global minimum tax rules in section 951A.

A domestic corporation that is a member of a foreign parent controlled group generally owes residual U.S. tax when it has a global minimum tax inclusion. The proposal would take into account any foreign taxes paid by the foreign parent, under an IIR that is consistent with an OECD/Inclusive Framework Pillar Two agreement on global minimum taxation (if such consensus is reached), with respect to the CFC income that would otherwise be part of the domestic corporation's global minimum tax inclusion. The proposal's jurisdiction-by-jurisdiction approach would also apply for this purpose.

The proposal would be effective for taxable years beginning after December 31, 2021.

Deductions attributable to income that is exempt from U.S. tax or taxed at preferential rates

The proposal would expand the application of section 265 to disallow deductions allocable to a class of foreign gross income that is exempt from tax or taxed at a preferential rate through a deduction (e.g., a global minimum tax inclusion with respect to which a section 250 deduction is allowed or dividends eligible for a section 245A deduction).¹ The proposal would provide rules for determining the amount of disallowed deductions when only a partial deduction is allowed under section 245A with respect to a dividend or a partial section 250 deduction with respect to a global minimum tax inclusion. The proposal would also repeal section 904(b)(4).

The proposal would be effective for taxable years beginning after December 31, 2021.

Limit the ability of domestic corporations to expatriate

The proposal would broaden the definition of an inversion transaction by replacing the 80-percent test with a greater than 50-percent test and eliminating the 60-percent test. The proposal would also provide that, regardless of the level of shareholder continuity, an inversion transaction occurs if (1) immediately prior to the acquisition, the fair market value of the domestic entity is greater than the fair market value of the foreign acquiring corporation, (2) after the acquisition the expanded affiliated group is primarily managed and controlled in the United States, and (3) the expanded affiliated group does not conduct substantial business activities in the country in which the foreign acquiring corporation is created or organized. The proposal would also expand the scope of an acquisition for purposes of section 7874 to include a direct or indirect acquisition of substantially all of the assets constituting a trade or business of a domestic corporation, substantially all of the assets of a domestic partnership, or substantially all of the U.S. trade or business assets of a foreign partnership. Furthermore, a distribution of stock of a foreign corporation by a domestic corporation or a partnership that represents either substantially all of the assets or substantially all of the assets constituting a trade or business of the distributing corporation or partnership would be treated as a direct or indirect acquisition of substantially all of the assets or trade or business assets, respectively, of the distributing corporation or partnership.

The proposal would be effective for transactions that are completed after the date of enactment.

¹As stated in the notes at the beginning of this document, this proposal is not intended to create any inferences regarding current law, including whether section 265 currently applies to this income.

REFORM TAXATION OF FOREIGN FOSSIL FUEL INCOME

Current Law

Under the Global Intangible Low-Taxed Income (GILTI) rules, foreign oil and gas extraction income (FOGEI) is excluded from a controlled foreign corporation's (CFC's) gross tested income under GILTI rules while foreign oil related income (FORI) is included in the CFC's gross tested income under GILTI rules. In addition, FOGEI and FORI earned by a CFC are not part of the CFC's subpart F income. Therefore, FOGEI earned through CFCs may be eligible for a deduction under section 245A when repatriated and thus is generally exempt from U.S. taxation, and FORI may be eligible for a 50 percent section 250 deduction and effectively taxed at a reduced U.S. income tax rate. In contrast, both FOGEI and FORI earned directly through a foreign branch (including a disregarded entity) are subject to full U.S. taxation, subject to allowable foreign tax credits. In both cases, foreign oil and gas income (combined FOGEI and FORI) is taxed preferentially relative to domestic oil and gas income.

Subject to certain limitations, a taxpayer may claim a credit against its U.S. income tax liability for income, war profits, and excess profits taxes paid or accrued during the taxable year to any foreign country or possession of the United States. Under current Treasury regulations, a foreign levy is a tax for this purpose if it requires a compulsory payment under the authority of a foreign government to levy taxes and is not compensation for a specific economic benefit provided by the foreign jurisdiction. Taxpayers that are subject to a foreign levy and that also receive a specific economic benefit, such as a concession for developing the jurisdiction's natural resources, from the levying government (dual capacity taxpayers) may not credit the portion of the foreign levy paid for the specific economic benefit. To ensure dual capacity taxpayers cannot claim foreign tax credits for levies that are not taxes, current Treasury regulations require taxpayers to prove that the levy constitutes an income tax or a tax paid in lieu of income tax and further that no portion of that levy is paid in exchange for the separate economic benefit. Current Treasury regulations provide a safe harbor for determining the creditable portion of the levy based on the generally applicable rate of tax under the jurisdiction's income tax. Taxpayers may, however, elect to use the facts and circumstances method of determining the qualifying portion of the tax rather than the safe harbor.

Reasons for Change

The purpose of the foreign tax credit is to mitigate double taxation of income by the United States and a foreign government. When a payment is made to a foreign government in exchange for a specific economic benefit, there is no double taxation. Current law recognizes the distinction between a payment of creditable taxes and a payment in exchange for a specific economic benefit but may fail to achieve the appropriate split between the two, for example, when a foreign jurisdiction charges no royalties and imposes a levy only on oil and gas income, or imposes a higher levy on oil and gas income as compared to other income. The safe harbor method reflects the view that the higher effective rate of the nominal foreign tax is appropriately characterized as compensating the foreign government in its capacity as the owner of the minerals in place, rather than in its role as tax collector. However, many dual capacity taxpayers subject to alternative tax regimes elect to use an alternative method of determining the qualifying

portion of the levy and claim foreign tax credits for a much larger amount than would be creditable under the safe harbor method. Consequently, many oil and gas producers are able to claim a credit against their U.S. income tax liability for high levies imposed by foreign governments that arguably constitute royalty equivalents (instead of income taxes), while other U.S. businesses (not in the oil/gas sector) in those same countries pay a much lower income tax rate (and therefore are only eligible for the correspondingly lower foreign tax credit in the United States).

Finally, foreign hydrocarbon income should not be eligible for preferential tax treatment relative to other industries in light of the negative externalities associated with such income and the Administration's overall goal of promoting clean energy.

Proposal

The proposal would repeal the exemption from GILTI for FOGEI. The definition of FOGEI and FORI would also be amended to include income derived from shale oil and tar sands activity.

In the case of a dual capacity taxpayer, the proposal would limit the amount of a levy that would qualify as a creditable foreign tax to the amount of tax that the dual capacity taxpayer would have paid to the foreign government if it were a non-dual capacity taxpayer, thereby codifying the safe harbor included in the current Treasury regulations for determining the portion of the levy that is paid in exchange for a specific economic benefit, and making safe harbor the sole method for determining the creditable portion of the levy. The aspect of the proposal that would determine the amount of a foreign levy paid by a dual-capacity taxpayer that qualifies as a creditable tax would yield to United States treaty obligations that explicitly allow a credit for taxes paid or accrued on certain oil or gas income.

Unless otherwise specified, the proposal provisions would be effective for taxable years beginning after December 31, 2021.

REPEAL THE DEDUCTION FOR FOREIGN-DERIVED INTANGIBLE INCOME (FDII)

Current Law

Current law provides a deduction to domestic corporations on their foreign-derived intangible income (FDII). The deduction allowed is 37.5 percent of a domestic corporation's FDII for any taxable year beginning after December 31, 2017 and 21.875 percent for any taxable year beginning after December 31, 2025. A domestic corporation's FDII is the portion of its intangible income, determined on a formulaic basis, that is derived from exports. The calculation of income eligible for the FDII deduction is generally determined by taking a domestic corporation's overall income, minus certain exceptions, and reducing it by a deemed tangible income return, which is 10 percent of a domestic corporation's qualified business asset investment, to arrive at a domestic corporation's deemed intangible income. A portion of this amount is treated as FDII based on the percentage of the taxpayer's income that is derived from serving foreign markets.

Reasons for Change

The Administration has determined that FDII is not an effective way to encourage research and development (R&D) in the United States. It provides large tax breaks to companies with excess profits—who are reaping the rewards of prior innovation—rather than incentivizing new domestic investment or R&D. Further, FDII preferences multinational companies relative to domestic producers, offering tax incentives only to those companies with high export sales, rather than those with largely domestic sales.

In addition, FDII perversely creates undesirable incentives to locate certain economic activity abroad. Because the preferential FDII rate applies to income in excess of a given rate of return on a domestic corporation's tangible assets, firms can lower the hurdle necessary to obtain preferential tax treatment by reducing tangible investments in the United States. Coupled with the current global minimum tax regime, there is a strong incentive for companies to offshore plant and equipment, since moving plant and equipment offshore can both increase the tax-free return under the current global minimum tax regime and increase the tax deduction under FDII.

Finally, eliminating FDII will raise significant revenue that can be deployed to incentivize R&D in the United States directly and more effectively.

Proposal

The proposal would repeal the deduction allowed for FDII. The resulting revenue will be used to encourage R&D.

The proposal would be effective for taxable years beginning after December 31, 2021.

REPLACE THE BASE EROSION ANTI-ABUSE TAX (BEAT) WITH THE STOPPING HARMFUL INVERSIONS AND ENDING LOW-TAX DEVELOPMENTS (SHIELD) RULE

Current Law

Section 59A of the Internal Revenue Code (Code) imposes a tax on certain corporate taxpayers in addition to their regular tax liability (BEAT liability). Liability for BEAT is generally limited to corporate taxpayers with substantial gross receipts that also make deductible payments to foreign related parties above a specified threshold (referred to as a “base erosion payment”). Taxpayers potentially liable for this additional tax have three-year average gross receipts in excess of \$500 million and a “base erosion percentage” exceeding a specified threshold. The base erosion percentage is generally determined by dividing the taxpayer’s “base erosion tax benefits” by the amount of all deductions allowed to the taxpayer for the taxable year.¹

A taxpayer’s BEAT liability is computed by reference to the taxpayer’s “modified taxable income” and comparing the resulting amount to the taxpayer’s regular tax liability (as reduced by certain credits against such tax). For taxable years beginning after December 31, 2025, the regular tax liability is reduced by all credits for this purpose. A taxpayer’s modified taxable income is equal to its regular taxable income increased by base erosion tax benefits with respect to base erosion payments and an adjustment for the taxpayer’s net operating loss (NOL) deduction, if any. The taxpayer’s BEAT liability generally equals the difference, if any, between 10 percent of the taxpayer’s modified taxable income and the taxpayer’s regular tax liability (as reduced by certain credits against such tax). For taxable years beginning after December 31, 2025, the relevant share of modified taxable income for calculating BEAT liability increases from 10 percent to 12.5 percent.² Under current Treasury regulations, certain deductible payments made to foreign related parties are not treated as base erosion payments (e.g., interest on total loss-absorbing capacity (or TLAC) securities that are required to be issued by Globally Systemically Important Banking Organizations under Federal Reserve Board regulations).

Reasons for Change

The Administration has determined that the BEAT does not adequately address the concern of erosion of the U.S. corporate base, while inefficiently favoring certain types of activities over others. For example, firms with lower profit margins are more likely to have a BEAT liability than similarly situated firms with higher profit margins because the BEAT has embedded a form of alternative minimum tax. Further, the BEAT does not distinguish between a payment to a foreign related party subject to a low effective tax rate and a payment to a foreign related party subject to a high effective tax rate.

In addition, the Administration has determined that the BEAT’s approach of targeting the existence of amounts deducted in the United States and paid to a foreign person does not

¹ Under current Treasury regulations, taxpayers can avoid a BEAT liability by electing to “waive” deductions for payments made to related foreign persons sufficient to remain below the base erosion percentage threshold.

² For all periods, the relevant BEAT rate is one percentage point higher for certain banks and registered securities dealers.

adequately address the incentives that lead to the erosion of the U.S. tax base and the loss of U.S. jobs and activities. These incentives are not limited to separating activities from profits or the shifting of profits from one jurisdiction to another (which were the core focus of the OECD/G20's Base Erosion and Profit Shifting project). In addition, a fundamental problem is the existence of a race to the bottom by jurisdictions on corporate tax rates that incentivizes multinational companies to report income (including, in some cases, the activities that give rise to that income) in low-tax jurisdictions. This race to the bottom hampers the United States from maintaining a competitive corporate income tax rate that meets its revenue needs. It also incentivizes U.S.-based multinational companies to relocate their headquarters to low-tax jurisdictions that do not tax foreign earnings. The resulting shifting of profits and activities to low-tax jurisdictions erodes the U.S. tax base and results in a loss of U.S. jobs and investment.

This race to the bottom on tax rates can be stopped by ensuring that income earned by any multinational, whether based in the United States or elsewhere, and whether that income is earned in the United States or elsewhere, is subject to a minimum rate of taxation. The Administration has included a separate proposal to reform the GILTI regime to ensure a minimum per-jurisdiction rate of tax is paid by U.S.-based companies on income earned through controlled foreign corporations (CFCs). A comparable rule that applies to entities that are not CFCs is necessary to ensure that companies cannot avoid a minimum rate of taxation by, for example, inverting to a foreign jurisdiction.

In addition, under the auspices of the OECD/G20 Inclusive Framework on BEPS project under Pillar Two, the United States and the international community are negotiating a comprehensive agreement on minimum taxation which would help end the race to the bottom on tax rates in a manner that puts the United States and other jurisdictions on a more level playing field. This agreement would include adoption of an "income inclusion rule" imposed on a jurisdiction-by-jurisdiction basis similar to the minimum tax proposal contained in this document under *Revise the Global Minimum Tax Regime, Disallow Deductions Attributable to Exempt Income, and Limit Inversions*. The Administration has determined that strong measures are needed to ensure that, if a Pillar Two agreement is reached, jurisdictions have an incentive to adopt the income inclusion rule.

Proposal

The proposal would repeal the BEAT, replacing it with a new rule disallowing deductions to domestic corporations or branches by reference to low-taxed income of entities that are members of the same financial reporting group (including a member that is the common foreign parent, in the case of a foreign-parented controlled group). Specifically, under the Stopping Harmful Inversions and Ending Low-Tax Developments (SHIELD) rule, a deduction (whether related or unrelated party deductions) would be disallowed to a domestic corporation or branch, in whole or in part, by reference to all gross payments that are made (or deemed made) to "low-taxed members," which is any financial reporting group member whose income is subject to (or deemed subject to) an effective tax rate that is below a designated minimum tax rate.³ The

³ Corresponding provisions would take into account reductions in the gross amount of premiums and other consideration on insurance and annuity contracts arising out of indemnity insurance; deductions from the amount of gross premiums written on insurance contracts during the taxable year for premiums paid for reinsurance; and

“designated minimum tax rate” will be determined by reference to the rate agreed to under Pillar Two. If SHIELD is in effect before a Pillar Two agreement has been reached, the designated minimum tax rate trigger will be the U.S. global minimum tax rate (which is 21 percent under the proposal to *Revise the Global Minimum Tax Regime, Disallow Deductions Attributable to Exempt Income, and Limit Inversions*).

A financial reporting group is any group of business entities that prepares consolidated financial statements and that includes at least one domestic corporation, domestic partnership, or foreign entity with a U.S. trade or business. Consolidated financial statements means those determined in accordance with U.S. Generally Accepted Accounting Principles (GAAP), International Financial Reporting Standards (IFRS), or other method authorized by the Secretary under regulations. A financial reporting group member’s effective tax rate is determined based on the income earned (in the aggregate, taking into account both related and unrelated party income) and taxes paid or accrued with respect to the income earned in that jurisdiction by financial reporting group members, as determined based on the members’ separate financial statements or the financial reporting group’s consolidated financial statements, as disaggregated on a jurisdiction by jurisdiction basis. The proposal will include authority for the Secretary to provide special rules to address differences (both permanent and temporary) between the relevant income tax base and the base as determined under financial accounting, and to provide rules to account for net operating losses in a jurisdiction.

Payments made by a domestic corporation or branch directly to low-tax members would be subject to the SHIELD rule in their entirety. In particular, payments that are otherwise deductible costs would be disallowed in their entirety, while in the case of payments for other types of costs (such as cost of goods sold), other deductions (including unrelated party deductions) would be disallowed up to the amount of the payment. In addition, payments made to financial reporting group members that are not low-tax members would be partially subject to the SHIELD rule to the extent that other financial reporting group members were subject to an effective tax rate of less than the designated minimum tax rate in any jurisdiction. In such cases, the domestic corporation or branch would effectively be treated as having paid a portion of its related party amounts to the low-taxed members, if any, of the financial reporting group based on the aggregate ratio of the financial reporting group’s low-taxed profits to its total profits, as reflected on the financial reporting group’s consolidated financial statements.

The proposal provides authority for the Secretary to exempt from SHIELD payments in respect of financial reporting groups that meet, on a jurisdiction-by-jurisdiction basis, a minimum effective level of taxation as determined to the satisfaction of the Secretary. Finally, the proposal provides authority for the Secretary to exempt payments to domestic and foreign members that are investment funds, pension funds, international organizations, or non-profit entities, and to take into account payments by partnerships.

The rule would apply to financial reporting groups with greater than \$500 million in global annual revenues (as determined based on the group’s consolidated financial statement).

insurance policy claims and benefits accrued and losses paid during a taxable year (which would be deductible payments that are within scope of the SHIELD).

The proposal to repeal BEAT and replace with SHIELD would be effective for taxable years beginning after December 31, 2022.

LIMIT FOREIGN TAX CREDITS FROM SALES OF HYBRID ENTITIES

Current Law

A corporation that makes a qualified stock purchase of a target corporation is permitted to elect under section 338 of the Internal Revenue Code (section 338 election) to treat the stock acquisition as an asset acquisition for U.S. tax purposes, thereby generally adjusting the post-acquisition tax basis of the target corporation's assets to fair market value. For this purpose, a qualified stock purchase is any transaction or series of transactions in which the purchasing corporation acquires at least 80 percent of the stock of the target corporation. Section 338(h)(16) provides that (subject to certain exceptions) the deemed asset sale resulting from a section 338 election is generally ignored in determining the source or character of any item for purposes of applying the foreign tax credit rules to the seller. Instead, for these purposes, any gain recognized by the seller is treated as gain from the sale of the stock of the target corporation. Thus, in the case of a foreign target corporation, section 338(h)(16) prevents the earnings and profits generated from the deemed asset sale from changing the character of the gain from capital to ordinary and thereby permitting the use of foreign tax credits to reduce or eliminate residual U.S. tax on the stock gain. Similar to a section 338 election, Treasury regulations under section 336(e) allow a corporation to elect to treat certain dispositions of stock of a domestic corporation (but not a foreign corporation) instead as a disposition of the assets of the domestic corporation. These regulations apply section 338(h)(16) to a deemed sale of foreign assets of the domestic corporation.

Reasons for Change

Section 338(h)(16) applies to a qualified stock purchase for which a section 338 election is made, but it does not apply to transactions that produce similar results -- sales of an interest in an entity that is treated as a corporation for foreign tax purposes but as a partnership or a disregarded entity for U.S. tax purposes (specified hybrid entity), or taxable changes in the classification of an entity for U.S. tax purposes that are not recognized for foreign tax purposes. These transactions present the same foreign tax credit concerns as those addressed by section 338(h)(16) in the case of a qualified stock purchase for which a section 338 election is made and therefore should be subject to similar limitations.

Proposal

The proposal would apply the principles of section 338(h)(16) to determine the source and character of any item recognized in connection with a direct or indirect disposition of an interest in a specified hybrid entity and to a change in the classification of an entity that is not recognized for foreign tax purposes (for example, due to an election under the entity classification regulations). Thus, for purposes of applying the foreign tax credit rules, the source and character of any item resulting from the disposition of the interest in the specified hybrid entity, or change in entity classification, would be determined based on the source and character of an item of gain or loss the seller would have taken into account upon the sale or exchange of stock (determined without regard to section 1248). In addition, because the proposal is limited to determining the source and character of such an item of gain or loss for purposes of applying the foreign tax

credit rules, the proposal does not affect the amount of gain or loss recognized as a result of the disposition or the change in entity classification. The Secretary would be granted authority to issue any regulations necessary or appropriate to carry out the purposes of the proposal, including those applying the proposal to other transactions that have a similar effect and exempting certain transactions among related parties from application of the proposal.

The proposal would be effective for transactions occurring after the date of enactment.

RESTRICT DEDUCTIONS OF EXCESSIVE INTEREST OF MEMBERS OF FINANCIAL REPORTING GROUPS FOR DISPROPORTIONATE BORROWING IN THE UNITED STATES

Current Law

Business interest expense generally is deductible from regular taxable income. An exception to this general rule is section 163(j) of the Internal Revenue Code, which generally limits U.S. tax deductions for business interest expense to the sum of (1) business interest income, (2) 30 percent of adjusted taxable income (not less than zero), and (3) floor plan financing interest. Business interest expense for which a deduction is disallowed under section 163(j) may be carried forward indefinitely for deduction in a subsequent year.

Certain interest paid to a foreign related party is also treated as a base erosion payment for purposes of the base erosion and anti-abuse tax (BEAT), in which case the deduction is added back to the BEAT modified taxable income base. See *Replace the Base Erosion Anti-Abuse Tax with the Stopping Harmful Inversions and Ending Low-Tax Developments Rule*. In addition, certain interest paid to a foreign related party may not be deductible by reason of the anti-hybrid rules of section 267A.

Certain rules affect the timing of a deduction for interest, for example section 267(a). In addition, both case law and regulations issued under section 385 can determine whether an instrument issued by an entity is treated as indebtedness that gives rise to interest expense for federal income tax purposes, or as stock. Specifically, regulations under section 385 treat as stock certain debt instruments issued by a corporation to a controlling shareholder in a distribution or in certain other related-party transactions that achieve an economically similar result.

Reasons for Change

The fungibility of money makes it easy for multinational groups to substitute debt for equity in a controlled entity in order to shift profits to lower-tax jurisdictions. Although section 163(j) limits the amount of interest expense a corporation can deduct relative to its U.S. earnings, section 163(j) does not consider the leverage of a multinational group's U.S. operations relative to the leverage of the group's worldwide operations. Therefore, under current law, multinational groups are able to reduce their U.S. tax on income earned from U.S. operations by over-leveraging their U.S. operations relative to those located in lower-tax jurisdictions. In addition, while certain interest paid to a foreign related party is added to the modified taxable income base for determining a taxpayer's BEAT liability, many taxpayers are able to avoid a BEAT liability because of the various exceptions for certain deductible payments. In addition, the BEAT rate is less than half of the regular corporate income tax rate. See *Replace the Base Erosion Anti-Abuse Tax with the Stopping Harmful Inversions and Ending Low-Tax Developments Rule* (referred to below as the "SHIELD").

Proposal

The proposal generally would apply to an entity that is a member of a multinational group that prepares consolidated financial statements (“financial reporting group”) in accordance with U.S. Generally Accepted Accounting Principles (GAAP), International Financial Reporting Standards (IFRS), or other method identified by the Secretary under regulations. Under the proposal, a financial reporting group member’s deduction for interest expense generally would be limited if the member has net interest expense for U.S. tax purposes and the member’s net interest expense for financial reporting purposes (computed on a separate company basis) exceeds the member’s proportionate share of the financial reporting group’s net interest expense reported on the group’s consolidated financial statements (excess financial statement net interest expense). A member’s proportionate share of the financial reporting group’s net interest expense would be determined based on the member’s proportionate share of the group’s earnings (computed by adding back net interest expense, tax expense, depreciation, depletion, and amortization) reflected in the financial reporting group’s consolidated financial statements.

When a financial reporting group member has excess financial statement net interest expense, a deduction will be disallowed for the member’s excess net interest expense for U.S. tax purposes. For this purpose, the member’s excess net interest expense equals the member’s net interest expense for U.S. tax purposes multiplied by the ratio of the member’s excess financial statement net interest expense to the member’s net interest expense for financial reporting purposes. Conversely, if a member’s net interest expense for financial reporting purposes is less than the member’s proportionate share of the net interest expense reported on the group’s consolidated financial statements, such excess limitation would be converted into a proportionate amount of excess limitation for U.S. tax purposes and carried forward as set forth below.

Alternatively, if a financial reporting group member fails to substantiate its proportionate share of the group’s net interest expense for financial reporting purposes, or a member so elects, the member’s interest deduction would be limited to the member’s interest income plus ten-percent of the member’s adjusted taxable income (as defined under section 163(j)). Regardless of whether a taxpayer computes the interest limitation under the proportionate share approach or using the ten-percent alternative, any disallowed interest expense could be carried forward indefinitely. A member of a financial reporting group that is subject to the proposal would continue to be subject to the application of section 163(j). Thus, the amount of interest expense disallowed for a taxable year of a taxpayer that is subject to both interest expense disallowance provisions would be determined based on whichever of the two provisions imposes the lower limitation. A member of a financial reporting group may also be subject to the new Stopping Harmful Inversions and Ending Low-Tax Developments (SHIELD) rule (see *Replace the Base Erosion Anti-Abuse Tax with the Stopping Harmful Inversions and Ending Low-Tax Developments Rule*).

U.S. subgroups of a financial reporting group would be treated as a single member of the financial reporting group for purposes of applying the proposal. For this purpose, a U.S. subgroup is comprised of any U.S. entity that is not owned directly or indirectly by another U.S. entity, and all members (domestic or foreign) that are owned directly or indirectly by such entity. If a member of a U.S. subgroup owns stock in one or more foreign corporations, this proposal

would apply before the application of section 265, which generally disallows a deduction for amounts allocable to tax-exempt income. Under the Administration's proposals, tax-exempt income would include dividends from a foreign corporation eligible for a section 245A deduction and a GILTI inclusion eligible for a section 250 deduction. See *Revise the Global Minimum Tax Regime, Disallow Deductions Attributable to Exempt Income, and Limit Inversions*.

The proposal would not apply to financial services entities, and such entities would be excluded from the financial reporting group for purposes of applying the proposal to other members of the financial reporting group. The proposal also would not apply to financial reporting groups that would otherwise report less than \$5 million of net interest expense, in the aggregate, on one or more U.S. income tax returns for a taxable year.

The Secretary would be granted authority to promulgate any regulations necessary to carry out the purposes of the proposal, including (i) coordinating the application of the proposal with other interest deductibility rules, including the SHIELD, (ii) defining interest and financial services entities, (iii) permitting financial reporting groups to apply the proportionate share approach using the group's net interest expense for U.S. tax purposes rather than net interest expense reported in the group's financial statements, (iv) providing for the treatment of pass-through entities, (v) providing adjustments to the application of the proposal to address differences in functional currency of members, (vi) if a U.S. subgroup has multiple U.S. entities that are not all members of a single U.S. consolidated group for U.S. tax purposes, providing for the allocation of the U.S. subgroup's excess net interest expense for U.S. tax purposes among the members of the U.S. subgroup; and (vii) providing rules to address structures with a principal purpose to limit application of the proposal. In addition, if a financial reporting group does not prepare financial statements under U.S. GAAP or IFRS, it is expected that regulations generally would allow the use of financial statements prepared under other jurisdictions' generally accepted accounting principles in appropriate circumstances.

The proposal would be effective for taxable years beginning after December 31, 2021.

IMPOSE A 15 PERCENT MINIMUM TAX ON BOOK EARNINGS OF LARGE CORPORATIONS

Current Law

Taxpayers are generally required to compute their taxable income based on their books and records. Although books and records are the starting point for determining taxable income, various provisions of the Internal Revenue Code result in providing profitable corporations with a variety of allowances that reduce their income subject to federal income tax. Corporations are simultaneously able to report large profits to shareholders in financial reports and reward executives based on these measures, while claiming that their taxable income is at such a low level that they do not have any federal income tax liability. In a typical year, around 120 companies report pre-tax net income of \$2 billion or more on their financial statements but a significant share of these firms pay zero income tax or receive tax refunds.

Reasons for Change

The proposal would work to reduce the significant disparity between the income reported by large corporations on their federal income tax returns and the profits reported to shareholders in financial statements by requiring them to pay a minimum amount of tax based on their reported financial income. The proposal is a targeted approach to ensure that the most aggressive corporate tax avoiders bear meaningful federal income tax liabilities. The proposal would also provide a backstop for the proposed new international tax regime since highly profitable multinational corporations would no longer be able to report significant profits to shareholders while avoiding federal income taxation entirely.

Proposal

The proposal would impose a 15 percent minimum tax on worldwide book income for corporations with such income in excess of \$2 billion. In particular, taxpayers would calculate book tentative minimum tax (BTMT) equal to 15 percent of worldwide pre-tax book income (calculated after subtracting book net operating loss deductions from book income), less General Business Credits (including R&D, clean energy and housing tax credits) and foreign tax credits. The book income tax equals the excess, if any, of tentative minimum tax over regular tax. Additionally, taxpayers would be allowed to claim a book tax credit (generated by a positive book tax liability) against regular tax in future years but this credit could not reduce tax liability below book tentative minimum tax in that year.

The proposal would be effective for taxable years beginning after December 31, 2021.

PROVIDE TAX INCENTIVES FOR LOCATING JOBS AND BUSINESS ACTIVITY IN THE UNITED STATES AND REMOVE TAX DEDUCTIONS FOR SHIPPING JOBS OVERSEAS

Current Law

Under current law, there are limited tax incentives for U.S. employers to bring offshore jobs and investments into the United States. In addition, costs incurred to offshore U.S. jobs generally are deductible for U.S. income tax purposes.

Reasons for Change

The Administration would like to create a tax incentive to bring offshore jobs and investments to the United States. In addition, the Administration would like to reduce the tax benefits that exist under current law for expenses incurred to move U.S. jobs offshore.

Proposal

The proposal would create a new general business credit equal to 10 percent of the eligible expenses paid or incurred in connection with onshoring a U.S. trade or business. For this purpose, onshoring a U.S. trade or business means reducing or eliminating a trade or business (or line of business) currently conducted outside the United States and starting up, expanding, or otherwise moving the same trade or business to a location within the United States, to the extent that this action results in an increase in U.S. jobs. While the eligible expenses may be incurred by a foreign affiliate of the U.S. taxpayer, the tax credit would be claimed by the U.S. taxpayer. If a non-mirror code U.S. territory (the Commonwealth of Puerto Rico and American Samoa) implements a substantially similar proposal, the U.S. Treasury will reimburse the U.S. territory for the new general business credits provided to their taxpayers pursuant to a plan. Furthermore, the U.S. Treasury will reimburse a mirror code U.S. territory (Guam, the Commonwealth of the Northern Mariana Islands, and the U.S. Virgin Islands) for the new general business credits provided to their taxpayers by reason of the enactment of the proposal.

In addition, to reduce tax benefits associated with U.S. companies moving jobs outside of the United States, the proposal would disallow deductions for expenses paid or incurred in connection with offshoring a U.S. trade or business. For this purpose, offshoring a U.S. trade or business means reducing or eliminating a trade or business or line of business currently conducted inside the United States and starting up, expanding, or otherwise moving the same trade or business to a location outside the United States, to the extent that this action results in a loss of U.S. jobs. In determining the income of a U.S. shareholder of a controlled foreign corporation (CFC) on its global minimum tax inclusion or Subpart F income, no deduction would be allowed in determining such amounts for any expenses paid or incurred in connection with moving a U.S. trade or business outside the United States.

For purposes of the proposal, expenses paid or incurred in connection with onshoring or offshoring a U.S. trade or business are limited solely to expenses associated with the relocation of the trade or business and do not include capital expenditures or costs for severance pay and

other assistance to displaced workers. The Secretary may prescribe rules to implement the provision, including rules to determine covered expenses and treatment of independent contractors.

The proposal would be effective for expenses paid or incurred after the date of enactment.

SUPPORT HOUSING AND INFRASTRUCTURE

EXPAND THE LOW-INCOME HOUSING TAX CREDIT

Current Law

Low-income housing tax credits (LIHTCs) incentivize and subsidize the construction and rehabilitation of affordable rental housing for low-income tenants. The Internal Revenue Code (Code) offers LIHTCs to each State, the District of Columbia, and each territory of the United States (each referred to as a State). Every year, the Code makes available to each State an inflation-adjusted finite pool of new housing credit dollar amounts (HCDAs), which are potential LIHTCs. The total amount available for the State to allocate each year also includes unused or returned HCDAs from prior years. The predominant way for a project to become eligible to earn LIHTCs is by receiving an allocation of HCDAs. Because the HCDA pools are almost always oversubscribed, potential developers of LIHTC projects compete by offering proposed projects to the relevant State or local housing credit agency (HCA). Each HCA must have a Qualified Allocation Plan (QAP) to guide its allocations.

To actually receive LIHTCs, a project that receives such an allocation must construct and operate the building(s) in the project in compliance with applicable Federal law (including limitations on tenant income, restrictions on gross rents, and habitability requirements). For each of 10 years, the project may claim LIHTCs equal to the lesser of the initial HCDA allocation and the product of three figures: (a) the depreciable cost of the entire building (eligible basis); (b) the portion of the building that consists of low-income units; and (c) a credit rate.

The Code allows a deeper subsidy in certain cases, notably for projects located in difficult development areas (DDAs). A DDA is an area designated by the Secretary of Housing and Urban Development (HUD) as an area that has high construction, land, or utility costs relative to area median gross income. If an HCA both determines that a higher subsidy is necessary for the financial feasibility of a project and allocates sufficient additional HCDAs to support the project's increased annual LIHTCs, the project may compute its LIHTCs based on 130 percent of actual depreciable basis (colloquially called a "basis boost").

Reasons for Change

The volume of HCDAs (and thus of LIHTCs) that are available under current law are grossly insufficient to meet low-income tenants' needs for affordable rental housing. And that inadequate amount will decrease in 2022 with the expiration of a temporary statutory increase in HCDAs.

The current allocation of HCDAs is based on population and does not consider differences among States such as average rent burden or the costs of providing affordable rental housing.

Many HCAs' allocations of HCDAs are concentrated in projects in high-poverty areas, a practice that tends to increase concentrations of poverty in the community, as well as limiting the social mobility of tenants and their families.

Proposal

The proposal would create an additional type of HCDA, called an "Opportunity HCDA" (OHCDAs). HCAs would have a separate ceiling for OHCDAs from their existing allocation ceilings of HCDAs. HCAs would continue to receive annual infusions of regular HCDAs, without change to the allocation and ceilings for those HCDAs under current law.

HCAs would be required to allocate the majority of their OHCDAs to projects in Census Tracts of Opportunity (CTOs). The proposal would define a CTO as a tract which is entirely in one or more DDAs or which has low poverty or other advantages, as determined by the Secretary of the Treasury in consultation with HUD.

In each calendar year 2022 through 2026, the aggregate number of new OHCDAs would be 118 percent of the aggregate annual number of new HCDAs under current law. These additional OHCDAs would be made available to all States on a *per capita* basis, but with a different *per capita* amount applied to each State. The *per capita* amount for a State would be determined by a formula established by the Secretary in consultation with HUD that provides higher amounts to States with higher costs of constructing and operating affordable housing, as demonstrated by, for example, larger populations living in DDAs or higher percentages of rent-burdened households.

Buildings in DDAs that receive allocations of either HCDAs or OHCDAs would receive basis boosts of up to 50 percent. All other basis boosts in current law (including those for bond-financed buildings in DDAs) would be unchanged.

The proposal would be effective for calendar years beginning with 2022. The restrictions on use of OHCDAs would last until all OHCDAs ceilings (including unused and returned amounts) had been allocated or had expired. The increased basis boost for buildings in DDAs with allocations would be permanent.

PROVIDE NEIGHBORHOOD HOMES INVESTMENT TAX CREDIT

Current Law

Low-income housing credits (LIHTCs) support low-income renters, as do Section 8 housing vouchers from the Department of Housing and Urban Development (HUD). The mortgage interest deduction, tax-exempt housing bonds, and mortgage credit certificates assist homeowners by reducing the after-tax costs of their mortgage payments. The new markets tax credit and the opportunity zone tax incentive primarily support commercial real estate and businesses rather than homeownership. Thus, there are no Federal tax provisions that directly support building or renovating owner-occupied housing or that cover a development or financing gap.

Reasons for Change

Every State has neighborhoods where the homes are in poor condition and the property values are too low to support new construction or substantial renovation. The lack of move-in-ready homes makes it difficult to attract or retain homebuyers in these areas.

This new proposed credit would apply to these neighborhoods. It would ameliorate those problems by covering the gap between the cost of building or renovating homes and the price at which they can be sold. It would also help existing homeowners rehabilitate their homes, even in the absence of any plans to sell them.

Proposal

The proposal would create a new tax credit—the Neighborhood Homes Investment Credit (NHIC). The credit would support new construction for sale, substantial rehabilitation for sale, and substantial rehabilitation for existing homeowners. The constructed or rehabilitated residence must be a single-family home (including homes with up to four dwelling units), a condominium, or a residence in a housing cooperative.

For each year between 2022 and 2031, inclusive, a specified amount of potential NHICs would be allocated to the 50 States, the District of Columbia, and U.S. possessions (collectively, States). The amount for 2022 would be \$2 billion, and this amount would be indexed for inflation for the years 2023 to 2031. The Secretary of the Treasury or her delegate (Secretary) would establish rules to divide the potential NHICs among the States, with an emphasis based on populations living in distressed urban, suburban, and rural neighborhoods. The Secretary, in consultation with HUD, would provide criteria for identifying distressed neighborhoods for this purpose and for purposes of determining where NHIC-supported projects must generally be located (NHIC-Qualified Neighborhoods). In addition, the Secretary, in consultation with HUD, may establish criteria according to which a limited volume of NHICs may be earned in certain additional rural communities and/or in gentrifying census tracts for owner-occupied rehabilitation.

Each State would create a new agency (or identify a pre-existing agency) to serve as the Neighborhood Homes Credit Agency (NHCA), with authority to allocate potential NHICs to project sponsors. Sponsors seeking potential NHICs would apply on a competitive basis by providing candidate plans for construction or rehabilitation, generally in one or more NHIC-Qualified Neighborhoods. The NHCA would be responsible for monitoring compliance with all provisions governing NHICs and for reporting violations to the Internal Revenue Service.

Each NHCA would establish a qualified allocation plan (QAP) to guide it in allocating potential NHICs among competing proposals. Every QAP would be required by statute to contain certain factors and preferences.¹ The Secretary could require additional attributes, and each NHCA could add further criteria to address local conditions. NHCAs would also set standards for development costs, building quality, and developer fees.²

Each NHCA would be prohibited from allocating more potential NHICs than are reasonably expected to be necessary for financial feasibility. If unforeseen matters render an allocation inadequate, the taxpayer may seek an additional allocation. If potential NHICs remain after the sponsor and the sponsor's investors have received their NHICs from a construction or rehabilitation, the unused potential credits would revert to the NHCA for future allocation. The sponsor returning the potential NHICs would receive a preference in the competition for the returned credits.

A taxpayer may claim NHICs only after construction, inspection, and owner occupancy. In the case of a home to be sold to a qualifying new, purchasing owner-occupant, the credit is claimed when that owner-occupant begins residence. In the case of continuing qualifying owner-occupants who are rehabilitating their homes, the credit is claimed when construction has been completed and inspected and the owner-occupant is in residence.

NHICs can be claimed only if the owner-occupant after construction or rehabilitation is a NHIC-Qualified Owner. NHIC-Qualified Owners are those who meet criteria to be established by the Secretary and whose household income does not exceed 140 percent of area/State median income, adjusting for household size as determined by the Secretary of HUD. The method for determining household income shall be established in consultation with HUD. If, within five years of the date of qualification for the NHIC, the purchasing or rehabilitating owner/occupant ceases to be the residence's owner/occupant, a portion of the claimed NHIC amount would

¹ QAPs would require assessments of (i) neighborhood need for new or rehabilitated homes, (ii) neighborhood revitalization strategy and impact, (iii) sponsor capability, and (iv) likely long-term homeownership sustainability. In addition, QAPs would include (v) a preference for proposals that would affirmatively further the purposes of 42 USC, Chapter 45, Subchapter I, as interpreted by HUD. Moreover, the statute would require that non-profit sponsors receive at least 10 percent of potential-NHIC allocations made each year.

² Development costs are amounts paid for construction, substantial rehabilitation, and any necessary demolition and environmental remediation. In the case of construction or rehabilitation for sale, development costs include the cost of acquisition of building and land; however, development costs are not taken into account to the extent they exceed two times sales proceeds. In the case of rehabilitation for sale, acquisition costs are not taken into account in excess of 75 percent of costs for construction, substantial rehabilitation, and any necessary demolition and environmental remediation. Rehabilitation costs are not taken into account unless they are at least \$20,000 per unit. In the case of rehabilitation for an owner-occupant, the Secretary may establish a lower minimum amount of development costs.

generally have to be repaid to the NHCA for use in activities that further the purposes of the NHIC.³

Broadly conceived, the amount of the credit is computed as development costs less the sales price or, in the case of a homeowner rehabilitation, less the amounts paid by the homeowners. The amounts that may actually be claimed, however, are subject to several limits.

The following principles contribute to determining the amount of credit—

- *Necessity*: When sales proceeds meet or exceed development costs, no credit may be claimed.
- *Limited subsidy*: The credit may not exceed 35 percent of the lesser of development costs or 80 percent of the national median sales price for new homes, nor may it exceed the excess of development costs over sales proceeds.
- *Skin in the game*: The taxpayer always has an incentive to sell the residence for a higher sales price. That is, an increase in sales price can result in an increase in the taxpayer's after-tax income. This determination considers both reduction in the credit and reduction in the taxpayer's tax loss on the property. A similar consideration applies to receipt of owner payments toward rehabilitation of an owner-occupant's home.
- *No cliffs*: There is no point at which an additional dollar of sales proceeds precipitously reduces the credit to zero. Instead, the credit smoothly phases out such that it reaches zero at the maximum amount of permitted sales proceeds.

The IRS would be authorized and mandated to collect data relevant to evaluating the socioeconomic effects of the operation of the credit, whether or not that information is directly related to tax administration.

The Secretary would be granted strong anti-abuse regulatory authority, including the ability to recharacterize the otherwise applicable tax consequences of a residence seller's original receipt of the NHIC and a passthrough investor's receipt of the credit as part of a distributive share or other pass-through allocation (including an investor that obtained its interest in the original NHIC recipient not long before receipt of the NHIC).

The proposal would apply to allocations of potential NHICs to and by NHCAs in calendar years after 2021. Credits could be claimed in taxable years ending after December 31, 2021.

³ If the residence is sold or exchanged to an unrelated person, the repayment amount is the lesser of the amount of the NHIC and 50 percent of the owner-occupant's gain on the sale if the sale is in the first year following the date of qualification for the NHIC. Each year thereafter, the percentage of gain declines by 10 percent until it is zero in the sixth year. In any other case in which the purchasing or rehabilitating owner-occupant ceases to be the residence's owner or occupant, the amount to be repaid is determined as if the owner-occupant had sold the residence on that date and there had been gain in the amount of the NHIC. This includes a sale or exchange with a related person and a transaction, such as a gift, in which gain or loss is not taxed. This rule, however, does not apply if the owner-occupant, or the owner-occupant's spouse, dies or develops a physical condition that makes continued residence unsafe. The rule also does not apply in additional circumstances specified by the Secretary. To secure the NHCA's right to the possible repayment, the residence must be burdened by a recorded right of first refusal giving the NHCA the right to buy the residence for the amount of the NHIC. The owner occupant can buy out this amount by paying the required repayment amount. The right of first refusal ceases to apply in case of a foreclosure or transfer of the residence to a mortgage lender in full satisfaction of the mortgage loan.

MAKE PERMANENT THE NEW MARKETS TAX CREDIT (NMTC)

Current Law

The NMTC is an up-to-39-percent tax credit for qualified equity investments (QEIs) made to acquire stock in a corporation, or a capital interest in a partnership, that is a qualified community development entity (CDE). The investment must be held for a period of at least seven years and must have been made within five years after the CDE receives an allocation out of the national credit limitation amount for the year. The CDEs in turn make investments in low-income communities.

For calendar years 2010 through 2019, the national credit limitation amount for the year was \$3.5 billion, and for 2020 through 2025 the annual amount is \$5 billion. No new credit allocation authority is provided beyond 2025.

A taxpayer's allowable credit amount for any given year is the applicable percentage of the amount paid to the CDE for the investment at its original issue. Specifically, the applicable percentage is five percent for the year the equity interest is purchased from the CDE and for each of the two subsequent years, and it is six percent for each of the following four years. The NMTC is available for a taxable year to the taxpayer who holds the QEI on the date of the initial investment or on an investment anniversary date that occurs during the taxable year. The credit is recaptured if, at any time during the seven-year period that begins on the date of the original issue of the investment, the entity ceases to be a qualified CDE, the proceeds of the investment cease to be used as required, or the equity investment is redeemed.

The NMTC can be used to offset regular Federal income tax liability but, if the taxpayer is not a corporation and has an alternative minimum tax (AMT) liability, the NMTC cannot be used to offset the AMT.

Reasons for Change

Permanent extension of the NMTC would allow CDEs to continue to generate investments in low-income communities. This would also create greater certainty for investment planning purposes.

Proposal

The proposal would permanently extend the NMTC, with a new allocation for each year after 2025. These annual amounts would be \$5 billion, indexed for inflation after 2026.

The proposal would be effective after the date of enactment.

PROVIDE FEDERALLY SUBSIDIZED STATE AND LOCAL BONDS FOR INFRASTRUCTURE

Current Law

State and local governments issue tax-exempt bonds to finance a wide range of projects, including school construction. There are two basic kinds of tax-exempt bonds: governmental bonds and qualified private activity bonds. Bonds generally are treated as governmental bonds if the proceeds and any financed property are used to carry out governmental purposes or the bonds are repaid with governmental funds. Bonds that have excess private business involvement or private loans are classified as “private activity bonds.” Private activity bonds may be issued on a tax-exempt basis only if they meet the general requirements applicable to governmental bonds and certain additional requirements necessary for “qualified private activity bonds.”

Section 11143 of Title XI of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) added highway and freight transfer facilities to the types of qualified activities for private activity bonds in 2005. Moreover, the law provided a total of \$15 billion for such bonds to be allocated by the Secretary of Transportation among qualified projects. These tax-exempt bonds were not subject to state volume caps. As of April 2021, \$13.54 billion in these private activity bonds have been issued, with an additional \$1.18 billion in bonds approved by the U.S. Department of Transportation.

Build America Bonds (BABs) and Qualified School Construction Bonds (QSCBs) were enacted under the American Recovery and Reinvestment Act of 2009 (ARRA) and could finance educational facilities. BABs were taxable bonds issued by State and local governments in which the Federal Government either makes direct payments to State and local governmental issuers or provides tax credits to bondholders (called “refundable credits”) to subsidize a portion of the State and local governments borrowing costs in an amount equal to 35 percent of the coupon interest on the bonds. ARRA authorized the issuance of BABs in 2009 and 2010 without volume limitation, and the authority to issue these bonds expired at the end of 2010. Issuers could choose in 2009 and 2010 to issue BABs or traditional tax-exempt bonds. In 2009 and 2010, approximately \$50 billion of BABs were issued to finance education.

QSCBs were enacted by ARRA as bonds for which the bondholders receive taxable interest and Federal tax credits. The Hiring Incentives to Restore Employment Act of 2010 made it possible for the issuer to elect to receive direct payment refundable credits to support the issuer’s payments of taxable cash interest to the bondholders. The cash payments to the bondholders were in lieu of the Federal tax credits that the bondholder might have otherwise received. The amounts of the refundable credits are determined by a formula and could subsidize up to 100 percent of the interest costs. Issuance of QSCBs was limited to original financing for the construction, rehabilitation, or repair of a public school facility or for the acquisition of land on which such a facility was to be constructed with part of the proceeds of the bond issue. ARRA authorized a volume limitation of \$11 billion for each of 2009 and 2010 and permitted unused volume to be carried forward into subsequent years.

Reasons for Change

Aging educational facilities create a need to renovate educational facilities and to encourage construction of new facilities. A subsidy for investment in school facilities that exceeds the current subsidy for tax-exempt governmental bonds would result in more such investment.

The BAB and QSCB programs expanded the market for State and local governmental debt by: (1) providing a broader market for investors without regard to tax liability (e.g., pension funds, charitable endowments, and other tax indifferent persons); and (2) delivering an efficient Federal subsidy directly to State and local governments.

School infrastructure bonds build upon the successful model of the BAB program by providing a new bond program that will attract new sources of capital for investment in our nation's schools.

Similarly, the Administration recognizes the importance of public infrastructure investment and the role that the private sector can play in public infrastructure projects. The existing framework for tax-exempt bonds can limit private sector involvement in public infrastructure projects. The proposal aims to encourage greater private investment in public infrastructure by expanding the types of transportation projects that qualify for tax-exempt bonds and increasing the amount of such bonds eligible to be allocated by the U.S. Department of Transportation.

Proposal

School infrastructure bonds

The proposal would create qualified School Infrastructure Bonds (QSIBs), which would be similar to BABs under prior law. There would be a total national QSIB limitation of \$50 billion—\$16.7 billion each for 2022, 2023, and 2024. The allocation of this bond authority among States would be based on the proportion of funds that each State receives under Title I, Part A of the Elementary and Secondary Education Act of 1965.

Analogous to the operation of BABs, interest on QSIBs would be taxable. Either the bondholders' interest would take the form of a tax credit equal to 100 percent of the interest on a QSIB, or the bondholders would receive cash from the bond issuer, and the Federal Government would make corresponding direct payments to the bond issuer.

Each State would have to use no less than 0.5 percent of its total QSIB allocation for outlying areas. Similarly, no less than 0.5 percent of the QSIB allocation would have to be for schools funded by the Bureau of Indian Education.

States could enable local education agencies to issue QSIBs to expand access to high-speed broadband sufficient for digital learning. The local authorization may not exceed 10 percent of the State's total authorization to issue QSIBs and must be competitively allocated among local education agencies based on the poverty level of the schools' student population and the severity of the need to improve school facilities.

For QSIBs issued under the 2022 authorization, States would be required to prioritize allocations to finance projects necessary to reopen schools in line with Centers for Disease Control and Prevention (CDC) guidelines.

Bonds for transportation infrastructure

The proposal would also expand the category of private activity bonds created by SAFETEA-LU. It would increase the amount of such bonds to be allocated by the Secretary of Transportation by an additional \$15 billion. The proposal would also add public transit, passenger rail, and infrastructure for zero emissions vehicles as qualified activities for which such bonds may be issued. These bonds would not be subject to state private activity bond volume caps.

Both the proposal for QSIBs and the increase in transportation bond volume would be effective beginning with calendar year 2022.

PRIORITIZE CLEAN ENERGY

ELIMINATE FOSSIL FUEL TAX PREFERENCES

Current Law

Current law provides several credits, deductions and other special provisions that are targeted towards encouraging oil, gas, and coal production.

Enhanced oil recovery credit

The general business credit includes a 15 percent credit for eligible costs attributable to enhanced oil recovery (EOR) projects. Eligible costs include the cost of constructing a gas treatment plant to prepare Alaska natural gas for pipeline transportation, the cost of depreciable or amortizable tangible property that is integral to a qualified EOR project, intangible drilling and development costs (IDCs), and deductible tertiary injectant costs. A qualified EOR project must be located in the United States and must involve the application of one or more of nine listed tertiary recovery methods. The allowable credit is phased out over a \$6 range for a taxable year if the annual reference price exceeds an inflation adjusted threshold. The credit is completely phased out in 2020 because the 2019 reference price, \$55.55, exceeds the beginning of the phase out range, \$49.32, by more than \$6.

Credit for oil and natural gas produced from marginal wells

In addition, the general business credit includes a credit for crude oil and natural gas produced from marginal wells. The credit rate in 2019 is \$3.90 per barrel of oil and 65 cents per 1,000 cubic feet of natural gas and is adjusted for inflation. The credit per well is limited to 1,095 barrels of oil or barrel-of-oil equivalents per year. The credit rates for crude oil and natural gas are phased out for a taxable year if the reference price exceeds the applicable thresholds. The crude oil phase-out range and the applicable threshold at which phase-out begins in 2019 are \$3.90 and \$19.52 respectively. The natural gas phase-out range and the applicable threshold at which phase-out begins are \$0.43 and \$2.17. Both sets of rates are adjusted for inflation. In 2019, the credit amount was \$0.08 per 1,000 cubic feet of natural gas and the credit for oil was completely phased out.

Expensing of intangible drilling costs

IDCs include all expenditures made by an operator for wages, fuel, repairs, hauling, supplies, and other expenses incident to and necessary for the drilling of wells and the preparation of wells for the production of oil and natural gas. Generally, IDCs do not include expenses for items which have a salvage value or items related to the acquisition of the property. An operator who pays or incurs IDCs in the development of an oil or natural gas property located in the United States, including certain wells drilled offshore, may elect either to expense or capitalize those costs. If a taxpayer elects to expense IDCs, the amount of the IDCs is deductible as an expense in the taxable year the cost is paid or incurred. For any particular taxable year, a taxpayer may deduct some portion of its IDCs and capitalize the rest under the provision.

Deduction of costs paid or incurred for any tertiary injectant used as part of tertiary recovery method

Taxpayers are allowed to deduct the cost of qualified tertiary injectant expenses for the taxable year. Qualified tertiary injectant expenses are amounts paid or incurred for any tertiary injectants, except for recoverable hydrocarbon injectants, that are used as a part of a tertiary recovery method to increase the recovery of crude oil. The deduction is treated as an amortization deduction in determining the amount subject to recapture upon disposition of the property.

Exception to passive loss limitations provided to working interests in oil and natural gas properties

Deductions attributable to passive activities, to the extent they exceed income from passive activities, generally may not be used against other income, such as wages, portfolio income, or business income that is derived from a nonpassive activity. A similar rule applies to credits. Passive activities are defined to include trade or business activities in which the taxpayer does not materially participate. An exception is provided, however, for any working interest in an oil or natural gas property that the taxpayer holds directly or through an entity that does not limit the liability of the taxpayer with respect to the interest. Suspended deductions and credits are carried forward and treated as deductions and credits from passive activities in the next year. The suspended losses and credits from a passive activity are allowed in full when the taxpayer completely disposes of the activity.

Use of percentage depletion with respect to oil and natural gas wells

The capital costs of oil and natural gas wells are recovered through the depletion deduction. Under the cost depletion method, the basis recovery for a taxable year is proportional to the exhaustion of the property during the year and cannot exceed basis. A taxpayer may also qualify for percentage depletion; hence, the amount of the deduction is a statutory percentage of the gross income from the property. In general, only independent producers and royalty owners, in contrast to integrated oil companies, qualify for the percentage depletion deduction. A qualifying taxpayer determines the depletion deduction for each oil and natural gas property under both the percentage depletion method and the cost depletion method then deducts the larger of the two amounts. Because percentage depletion is computed without regard to the taxpayer's basis in the depletable property, a taxpayer may continue to claim percentage depletion after all the expenditures incurred to acquire and develop the property have been recovered.

Two-year amortization of independent producers' geological and geophysical expenditures

Geological and geophysical expenditures are costs incurred for the purpose of obtaining and accumulating data that will serve as the basis for the acquisition and retention of mineral properties. The amortization period for geological and geophysical expenditures incurred in connection with oil and natural gas exploration in the United States is two years for independent producers and seven years for integrated oil and natural gas producers.

Expensing of exploration and development costs

A taxpayer may elect to expense the exploration costs incurred for the purpose of ascertaining the existence, location, extent, or quality of a domestic ore or mineral deposit, including a deposit of coal or other hard mineral fossil fuel. After the existence of a commercially marketable deposit has been disclosed, costs incurred for the development of a mine to exploit the deposit are deductible in the year paid or incurred unless the taxpayer elects to deduct the costs on a ratable basis as the minerals or ores produced from the deposit are sold.

Percentage depletion for hard mineral fossil fuels

The capital costs of coal mines and other hard-mineral fossil-fuel properties are recovered through the depletion deduction. Under the cost depletion method, the basis recovery for a taxable year is proportional to the exhaustion of the property during the year. A taxpayer may also qualify for percentage depletion; hence, the amount of the deduction is a statutory percentage of the gross income from the property. A qualifying taxpayer determines the depletion deduction for each property under both the percentage depletion method and the cost depletion method and deducts the larger of the two amounts. Because percentage depletion is computed without regard to the taxpayer's basis in the depletable property, a taxpayer may continue to claim percentage depletion after all the expenditures incurred to acquire and develop the property have been recovered.

Capital gains treatment for royalties

Royalties received on the disposition of coal or lignite generally qualify for treatment as long-term capital gain, and the royalty owner does not qualify for percentage depletion with respect to the coal or lignite. This treatment does not apply unless the taxpayer has been the owner of the mineral in place for at least one year before it is mined.

Exemption from the corporate income tax for fossil fuel publicly traded partnerships

Publicly traded partnerships are generally subject to the corporate income tax. Partnerships that derive at least 90 percent of their gross income from depletable natural resources, real estate, or commodities are exempt from the corporate income tax. Instead they are taxed as partnerships. They pass through all income, gains, losses, deductions, and credits to their partners, with the partners then being liable for income tax (or benefitting from the losses) on their distributive shares.

Oil Spill Liability Trust Fund (OSTLF) excise tax exemption for crude oil derived from bitumen and kerogen-rich rock

Crudes such as those that are produced from bituminous deposits as well as kerogen-rich rock are not treated as crude oil or petroleum products for purposes of the Oil Spill Liability Trust Fund tax. They are exempt from the oil spill liability excise tax of \$0.09 per barrel of crude oil

received at a United States refinery, and on petroleum products entered into the United States for consumption, use or warehousing.

Amortization of Air Pollution Control Facilities

Under current law, expenses related to certain pollution control facilities are entitled to amortization over 60 months or 84 months. The 60-month life applies to property placed in service at a plant that began operation prior to January 1, 1976. The 84-month life applies to property placed in service after April 11, 2005 at coal-fired power plants constructed after December 31, 1975. Eligible pollution control facilities include new identifiable treatment facilities which are used, in connection with a plant or other property, to abate or control water or atmospheric pollution by removing, altering, disposing, storing, or preventing the creation or emission of pollutants, contaminants, wastes, or heat. Eligible facilities must be certified by a state certifying authority and a federal certifying authority as being in compliance with applicable regulations and requirements. Without this special treatment, most pollution control facilities would be depreciated over 39 years as nonresidential real estate property.

Reasons for Change

These oil, gas, and coal tax preferences distort markets by encouraging more investment in the fossil fuel sector than would occur under a more neutral tax system. This market distortion is detrimental to long-term energy security and is also inconsistent with the Administration's policy of supporting a clean energy economy, reducing our reliance on oil, and reducing greenhouse gas emissions. Moreover, the subsidies for oil, natural gas, and coal must ultimately be financed with taxes that cause further economic distortions including underinvestment in other, potentially more productive, areas of the economy.

Proposal

The proposal would repeal: (1) the enhanced oil recovery credit for eligible costs attributable to a qualified enhanced oil recovery project; (2) the credit for oil and gas produced from marginal wells; (3) the expensing of intangible drilling costs; (4) the deduction for costs paid or incurred for any tertiary injectant used as part of a tertiary recovery method; (5) the exception to passive loss limitations provided to working interests in oil and natural gas properties; (6) the use of percentage depletion with respect to oil and gas wells; (7) two-year amortization of independent producers' geological and geophysical expenditures, instead allowing amortization over the seven-year period used by integrated oil and gas producers; (8) expensing of exploration and development costs; (9) percentage depletion for hard mineral fossil fuels; (10) capital gains treatment for royalties; (11) the exemption from the corporate income tax for publicly traded partnerships with qualifying income and gains from activities relating to fossil fuels; (12) the Oil Spill Liability Trust Fund excise tax exemption for crude oil derived from bitumen and kerogen-rich rock; and (13) accelerated amortization for air pollution control facilities.

Unless otherwise specified, the proposal provisions would be effective for taxable years beginning after December 31, 2021. In the case of royalties, the proposal provision would be effective for amounts realized in taxable years beginning after December 31, 2021. The repeal of

the exemption from the corporate income tax for publicly traded partnerships with qualifying income and gains from activities relating to fossil fuels would be effective for taxable years beginning after December 31, 2026.

EXTEND AND ENHANCE RENEWABLE AND ALTERNATIVE ENERGY INCENTIVES

Current Law

Renewable Electricity Production Credit

The general business tax credits include a renewable electricity production tax credit for each kilowatt hour of electricity produced from qualified energy resources at a qualified facility. The electricity must be sold to an unrelated third party and a taxpayer may generally claim the credit for a 10-year period beginning on the date the facility was placed in service. The production tax credit rate is 1.5 cents per kilowatt hour of electricity, adjusted annually for inflation. Qualified energy resources include wind, open and closed-loop biomass, geothermal energy, municipal solid waste, hydropower, and marine and hydrokinetic renewable energy. Different timing rules apply to the various types of facilities. For example, construction of a wind facility must begin before January 1, 2022 to be eligible for the credit. Further, the credits for wind facilities are reduced by 20 percent if construction begins in 2017, 40 percent if construction begins in 2018, 60 percent if construction begins in 2019, and 40 percent if construction begins in 2020 or 2021. There is no credit for facilities that begin construction after 2021.

Renewable Energy Investment Credit

Current law provides an investment tax credit for certain energy property, including solar and geothermal electric property, qualified fuel cell power plants, stationary microturbine power plants, geothermal heat pumps, small wind property, waste energy recovery property, and combined heat and power property. The investment credit is calculated as a percentage of the basis of energy property placed in service during the taxable year. Generally, the investment credit is 30 percent for property that begins construction before January 1, 2020, 26 percent for property that begins construction after December 31, 2019 and before January 1, 2023, and 22 percent for property that begins construction in after December 31, 2022 and before January 1, 2024, and the energy property must be placed in service before January 1, 2026. For combined heat and power, geothermal electric, geothermal heat pumps, and microturbines, the credit is 10 percent. A 10 percent credit is available for geothermal electric or qualified solar property placed in service after December 31, 2025. Taxpayers cannot claim both the production and investment credit for the same property; however, special rules apply where a taxpayer that is eligible for the production tax credit may elect to claim the investment tax credit in lieu of the production tax credit. For example, offshore wind energy property is eligible for the investment tax credit if construction begins before January 1, 2026.

Residential Energy Efficiency Credit

Taxpayers may claim a nonrefundable credit for the purchase of certain residential energy efficient property, including solar electric property, solar water heaters, fuel cell property, geothermal heat pumps, small wind turbines, and biomass fuel property installed in a taxpayer's U.S. residence. Special rules for fuel cell property require the installation at the taxpayer's principal residence and limit the tax credit to \$500 with respect to each half kilowatt of capacity

of the qualified fuel cell property. The credit is equal to 30 percent of the cost of qualified property placed in service after December 31, 2016 and before January 1, 2020, 26 percent for property placed in service after December 31, 2019 and before January 1, 2023, and 22 percent for qualified property placed in service after December 31, 2022 and before January 1, 2024. The credit shall not apply to property placed in service after December 31, 2023.

Reasons for Change

The proposal incentivizes investments in renewable energy resources and expands renewable power generation across the economy. Promoting clean energy sources would reduce carbon and other kinds of air pollution, bolster domestic clean energy industries and supply chains, create high-quality jobs, and align the country with international climate initiatives such as the Paris Climate Agreement. The Residential Energy Efficiency Credit encourages similar clean energy investment at the individual household level.

Proposal

The proposal would extend the full production tax credit for qualified facilities commencing construction after December 31, 2021 and before January 1, 2027. Starting in 2027, the credit rate would begin to phase down to zero over five years. The credit rate would be reduced by 20 percent for facilities commencing construction after December 31, 2026 and before January 1, 2028, 40 percent for facilities commencing construction after December 31, 2027 and before January 1, 2029, and so on until the credit rate reaches zero.

The proposal would extend the credits for investments in solar and geothermal electric energy property, qualified fuel cell power plants, geothermal heat pumps, small wind property, offshore wind property, waste energy recovery property, and combined heat and power property. Starting in 2022, the investment credit would be expanded to include stand-alone energy storage technology that stores energy for conversion to electricity and has a capacity of not less than five kilowatt hours. The credit would be restored to the full 30 percent rate for eligible property that begins construction after December 31, 2021 and before January 1, 2027. After 2026, the credit rate will begin to phase down to zero over five years. Eligible property commencing construction after December 31, 2026 and before January 1, 2028 will receive 80 percent of the full credit, property commencing construction after December 31, 2027 and before January 1, 2029 will receive 60 percent of the full credit, and so on until the credit rate reaches zero in 2031.

Taxpayers would have the option to elect a cash payment in lieu of the business tax credits (i.e., a direct pay option).

The Administration will work with Congress on measures to pair these credits with strong labor standards, benefitting employers that provide good-paying and good-quality jobs.

The proposal would also extend the Residential Energy Efficiency Credit and expand residential energy efficient property to include qualified battery storage technology of at least three kilowatt hours of capacity installed in a residence. Starting in 2022, the credit would return to the full 30 percent rate for property placed in service after December 31, 2021 and before January 1, 2027.

The credit would be phased out over the next five years. The credit would be reduced by 20 percent of the full credit for property placed in service after December 31, 2026 and before January 1, 2028, 40 percent of the full credit for property placed in service after December 31, 2027 and before January 1, 2029, and so on until the credit reaches zero in 2031.

The proposal would be effective after December 31, 2021.

PROVIDE TAX CREDIT FOR ELECTRICITY TRANSMISSION INVESTMENTS

Current Law

The Internal Revenue Code (Code) provides investment credits for various types of energy property used to generate electricity from several different sources. Presently there is no credit for investments in transmission infrastructure used to deliver electricity from where it is generated to where it is used.

Reasons for Change

It is widely recognized that significant investments in the United States' electricity transmission system are necessary to facilitate the clean energy transition. These investments are also instrumental in enhancing and maintaining the reliability and resilience of the electricity supply. Many factors will influence the viability and pace of these transmission investments, including permitting considerations and the need for cross-jurisdictional coordination. However, targeted Federal financial support for these investments via the Code can make them more attractive to those that must navigate the many hurdles to bringing such projects to fruition. The benefits of such support can also extend beyond the users and payers of specific facilities, generating positive externalities such as system-wide reliability, job creation, and cleaner air.

Proposal

The proposal would provide a credit equal to 30 percent of a taxpayer's investment in qualifying electric power transmission property placed in service in a given year. Qualifying electric power transmission property would include overhead, submarine, and underground transmission facilities meeting certain criteria, including a minimum voltage of 275 kilovolts and a minimum transmission capacity of 500 megawatts. Qualifying property would also include any ancillary facilities and equipment necessary for the proper operation of the transmission facility.

Taxpayers would have the option to elect a cash payment in lieu of the tax credits (i.e., a direct pay option).

The Administration will work with Congress on measures to pair these credits with strong labor standards, benefitting employers that provide good-paying and good-quality jobs.

The proposal would be effective for property placed in service after December 31, 2021, and before January 1, 2032.

PROVIDE ALLOCATED CREDIT FOR ELECTRICITY GENERATION FROM EXISTING NUCLEAR POWER FACILITIES

Current Law

Section 45J of the Internal Revenue Code provides an allocated production tax credit for the first 8 years of operation of new advanced nuclear power facilities. The credit is based on the amount of electricity produced and sold by the advanced nuclear power facility. The amount of the credit is subject both to a national limit on the amount of eligible new nuclear capacity and to a facility-specific limit on the amount of credit that can be received. Presently, there is no tax credit for generation of electricity from existing nuclear power facilities.

Reasons for Change

In 2020, existing nuclear power facilities contributed about one-fifth of the United States' total electricity generation and about half of all generation that did not produce greenhouse gas emissions. Changes in wholesale electricity markets in recent years have significantly affected the economics of many of these facilities. Many considerations influence decisions to retire nuclear power facilities. However, under current conditions, some facilities are expected to be retired before the expiration of their existing operating licenses, and before they would be retired if their revenue reflected the full value of their electricity. This full value includes nuclear power facilities' contribution to avoiding pollution, such as greenhouse gas emissions, that would otherwise result from meeting U.S. electricity demand.

Targeted Federal financial support for generation from economically-at-risk facilities could prevent the premature retirement of nuclear power facilities that could otherwise continue to operate safely for decades. Such support could maintain these facilities' contributions to employment and the economy, and it could help maintain the progress that has already been made in the United States' clean energy transition.

Proposal

The proposal would create an allocated production credit for electricity generation from eligible existing nuclear power facilities that bid for the credits. Eligibility to bid for these credits would depend on, among other potential requirements, demonstration of a good operation and safety record, demonstration that the facility is facing financial operating losses and that future projections include continued losses, and demonstration that emissions of various air pollutants would increase if the facility ceased operations. Eligible facilities would bid to receive credits over two-year windows. A solicitation of bids would be held every two years. In addition to providing all information necessary for determination of eligibility, bidding facilities would identify the minimum credit amount per megawatt-hour of their generation that would be sufficient for them to maintain operations during the two-year window.

Up to \$1 billion in credits would be available in each year to be allocated based on an evaluation of the bids received and the goal of maximizing the preservation of existing nuclear electricity

generation. Eligible facilities would have the option to elect a cash payment in lieu of the allocated tax credits (i.e., a direct pay option).

The Administration will work with Congress on measures to pair these credits with strong labor standards, benefitting employers that provide good-paying and good-quality jobs.

The proposal would be effective after December 31, 2021. The first two-year crediting window would commence on January 1, 2022, and the last crediting window would commence on January 1, 2030.

ESTABLISH NEW TAX CREDITS FOR QUALIFYING ADVANCED ENERGY MANUFACTURING

Current Law

Section 48C of the Internal Revenue Code (Code) authorized the Department of the Treasury to award \$2.3 billion in tax credits (48C tax credits) to promote investment and job creation in clean energy manufacturing. The tax credit is equal to 30 percent of the eligible investment in qualifying advanced energy projects. A qualifying advanced energy project is a project that re-equips, expands, or establishes a manufacturing facility for the production of: solar, wind, geothermal, or other renewable energy equipment; electric grids and storage for renewables; fuel cells and microturbines; energy storage systems for electric or hybrid vehicles; carbon dioxide capture and sequestration equipment; equipment for refining or blending renewable fuels; equipment for energy conservation, including lighting and smart grid technologies; and other advanced energy property designed to reduce greenhouse gas emissions may also be eligible as determined by the Secretary of the Treasury or her delegate.

The Department of the Treasury, in consultation with the Department of Energy, established the 48C tax credit program to review and evaluate applications and award the tax credits to qualified applicants. Projects are assessed on the following criteria: commercial viability, domestic job creation, technological innovation, speed to project completion, and potential for reducing air pollution and greenhouse gas emissions. Additional factors such as diversity of geography, technology, project size, and regional economic development are also considered.

All \$2.3 billion of tax credits were allocated through two application rounds with the last allocations awarded in November 2013. The Congress has not authorized additional 48C tax credits.

Reasons for Change

Domestic manufacturing of clean energy property is a critical component of building a clean and equitable economy. The \$2.3 billion cap on 48C tax credits resulted in the funding of less than one-third of the technically acceptable applications that were received. Applicants requested over \$8 billion in tax credits. The 48C tax credits have proven successful in leveraging private investment in building and equipping factories that produce clean energy products and create good jobs for workers and communities. To support worthy projects that could be deployed quickly to create jobs and economic activity, 48C tax credits should be expanded.

Proposal

The proposal would modify and expand section 48C of the Code. The definition of a qualifying advanced energy project would be revised to include: industrial facilities; recycling in addition to production; and expanded eligible technologies, including but not limited to energy storage and components, electric grid modernization equipment, carbon oxide sequestration, and energy conservation technologies. Selection criteria would be revised to include evaluating wages for

laborers and additional consideration for projects that create jobs in communities impacted by the closure of coal mines or coal power plants.

The proposal would authorize an additional \$10 billion of 48C tax credits for investments in eligible property used in a qualifying advanced energy manufacturing project. Of the \$10 billion allocation, \$5 billion would be specifically allocated to projects in coal communities. Successful applicants would have the option to elect a cash payment in lieu of the 48C tax credits (i.e., a direct pay option).

Applications for the additional 48C tax credits would be made during the three-year period beginning on the date on which the additional authorization is enacted. Applicants who are allocated the additional credits must provide evidence that program requirements have been met within 18 months of the date of acceptance of the application and must place the property in service within three years of the date of the issuance of the certification.

The Administration will work with Congress on measures to pair these credits with strong labor standards, benefitting employers that provide good-paying and good-quality jobs.

The proposal would be effective after December 31, 2021.

ESTABLISH TAX CREDITS FOR HEAVY- AND MEDIUM-DUTY ZERO EMISSIONS VEHICLES

Current Law

Section 30D of the Internal Revenue Code provides business and individual taxpayers a nonrefundable tax credit for “qualified plug-in electric drive motor vehicles” including passenger vehicles and light trucks. A qualified plug-in electric motor vehicle is defined, in part, as a vehicle weighing less than 14,000 pounds that is propelled by an electric motor that uses a rechargeable battery and such vehicle is subject to and in compliance with applicable Clean Air Act Standards. The vehicle must be acquired for use or lease and not for resale, the original use of the vehicle must commence with the taxpayer, and the vehicle must be used predominantly in the United States. Vehicle manufacturers submit to the Internal Revenue Service the vehicles eligible for the credit that satisfy the specifications of the credit.

The credit amount varies based on the battery size and the number of electric vehicles sold per manufacturer. The total amount of the credit allowed for a vehicle is limited to \$7,500. The credit begins to phase out for a manufacturer’s vehicles when at least 200,000 qualifying vehicles have been sold for use in the United States (determined on a cumulative basis for sales after December 31, 2009).

Notably, this tax credit for electric vehicles does not extend to medium- and heavy-duty vehicles. A tax credit of up to \$18,000 for heavy-duty hybrid electric vehicles expired in 2009. Individual states do provide tax credits for medium- and heavy-duty all-electric vehicles. For example, Colorado’s tax credit for medium- and heavy-duty vehicles varies by vehicle size and is capped at \$16,000 per vehicle.

Reasons for Change

The current tax credit applies only to passenger vehicles and light-duty trucks. There are no similar federal tax incentives for medium- and heavy-duty vehicles. Heavy duty trucks emit 23 percent of U.S. transportation greenhouse gas emissions and are a major source of local pollution. The Administration supports a rapid shift to zero emission vehicles, including battery electric and fuel cell electric vehicles. A tax credit specifically for medium- and heavy-duty vehicles will accelerate adoption of such vehicles, which is a key component of the overall shift to a zero-emission economy.

Proposal

The proposal would provide a business tax credit for new medium- and heavy-duty zero-emission vehicles, including battery electric vehicles and fuel cell electric vehicles, to promote consumer choice and vehicle adoption. These vehicles would be in Classes 3 through 8, as defined by the Federal Highway Administration’s vehicle classification system.

Similar to the section 30D tax credit, vehicle manufacturers would submit to the Internal Revenue Service the medium- and heavy-duty vehicles eligible for the credit. Additionally, the

vehicle must be acquired for use or lease by the taxpayer and not for resale, the original use of the vehicle must commence with the taxpayer, and the vehicle must be used predominantly in the United States. Compliance with applicable Clean Air Act standards and federal motor vehicle safety standards would be required for a vehicle to be eligible for the tax credit.

For each vehicle class, the tax credit would be a set amount per vehicle as follows:

- For a Class 3 vehicle, the credit is:
 - \$25,000 per vehicle purchased between January 1, 2022 and December 31, 2024.
 - \$20,000 per vehicle purchased between January 1, 2025 and December 31, 2025.
 - \$15,000 per vehicle purchased between January 1, 2026 and December 31, 2026.
 - \$10,000 per vehicle purchased between January 1, 2027 and December 31, 2027.
- For Class 4-6 vehicles, the credit is:
 - \$45,000 per vehicle purchased between January 1, 2022 and December 31, 2024.
 - \$40,000 per vehicle purchased between January 1, 2025 and December 31, 2025.
 - \$35,000 per vehicle purchased between January 1, 2026 and December 31, 2026.
 - \$30,000 per vehicle purchased between January 1, 2027 and December 31, 2027.
- For Class 7-8 short-haul vehicles, the credit is:
 - \$120,000 per vehicle purchased between January 1, 2022 and December 31, 2023.
 - \$100,000 per vehicle purchased between January 1, 2024 and December 31, 2024.
 - \$80,000 per vehicle purchased between January 1, 2025 and December 31, 2027.
- For Class 7-8 long-haul vehicles, the credit is:
 - \$120,000 per vehicle purchased between January 1, 2022 and December 31, 2024.
 - \$100,000 per vehicle purchased between January 1, 2025 and December 31, 2027.

Taxpayers would have the option to elect a cash payment in lieu of a general business credit (i.e., a direct pay option).

The Administration will work with Congress on measures to pair these credits with strong labor standards, benefitting employers that provide good-paying and good-quality jobs.

The proposal would be effective after December 31, 2021.

PROVIDE TAX INCENTIVES FOR SUSTAINABLE AVIATION FUEL

Current Law

Current law does not include an investment tax credit for sustainable aviation fuel production facilities or property. However, sustainable aviation fuel is eligible for the biodiesel tax credit. The current production tax credit of \$1 per gallon of biodiesel is set to expire on December 31, 2022.

Reasons for Change

While the ground transportation industry is expanding use of clean energy technologies such as electrification and fuel cell technology, the aviation industry is heavily reliant on fossil fuels and lacks similar renewable alternatives. Sustainable aviation fuel is a substitute for fossil jet fuel up to a certain blending percentage and multiple types have been certified by the American Society for Testing and Materials (ASTM) International for safe use in aviation up to certain blending levels.

Sustainable aviation fuel is beginning to enter the U.S. market but at a very slow pace due to its expense and demand for the same feedstock inputs to produce marginally cheaper renewable diesel. Providing incentives to spur the production of sustainable aviation fuel would deliver more feedstocks to sustainable aviation fuel production and help decarbonize the aviation industry.

Proposal

The proposal would introduce a production tax credit of \$1.50 per gallon for sustainable aviation fuel that achieves at least a 50 percent reduction in emissions relative to conventional jet fuel. The credit would be offered for fuel produced after December 31, 2021 and before January 1, 2028. A supplementary credit of up to \$0.25 per gallon would be available on a sliding scale depending on the emissions reduction relative to conventional jet fuel. The emissions reduction certification amount would be \$0.01 for every two percentage points above the 50 percent reduction baseline. Sustainable aviation fuel with a 50 percent emissions reduction relative to conventional fuel would receive a \$1.50 per gallon credit, while fuel with a 100 percent emissions reduction would receive a \$1.75 per gallon credit.

The Administration will work with Congress on measures to pair these credits with strong labor standards, benefitting employers that provide good-paying and good-quality jobs.

The proposal would be effective after December 31, 2021.

PROVIDE A PRODUCTION TAX CREDIT FOR LOW-CARBON HYDROGEN

Current Law

Section 30B of the Internal Revenue Code (Code) provides alternative motor vehicle credits to taxpayers who place in service new qualified fuel cell motor vehicles, including vehicles propelled by hydrogen fuel cells. Prior to 2021, the Code had also provided a 30 percent credit for the cost of qualified alternative fuel vehicle refueling property placed in service by a taxpayer, including for fuel at least 85 percent of the volume of which consists of hydrogen. Current law does not provide a tax credit for low-carbon hydrogen production.

Reasons for Change

The use of low-carbon hydrogen as a fuel source, an industrial feedstock, or to produce and store electricity, can play a critical role in accelerating the reduction of carbon emissions (and other kinds of pollution) in the United States. Investments in facilities for producing low-carbon hydrogen will provide an opportunity to transition existing jobs and create new jobs needed to support a low-carbon economy. In order to create a low-carbon economy at the scale necessary to achieve national objectives, the Federal government must take action to significantly reduce the carbon intensity of hydrogen production.

Proposal

The proposal would implement a low-carbon hydrogen production tax credit. For the purposes of the proposal, “low-carbon” refers to hydrogen produced using zero-carbon emissions electricity (renewables or nuclear) and water as a feedstock, or hydrogen produced using natural gas as a feedstock and with all carbon emitted in the production process captured and sequestered. The credit would apply to each kilogram of qualified low-carbon hydrogen: (1) produced by the taxpayer, (2) for an end use application in the energy, industrial, chemicals, or transportation sector; and (3) from a qualified low-carbon hydrogen production facility during the 6-year period beginning on the date the facility was originally placed in service. The credit would be indexed annually for inflation measured after the facility is placed into service, based upon the initial amount of \$3.00 per kilogram of hydrogen between 2022 and 2024 and \$2.00 per kilogram between 2025 and 2027. Taxpayers would have the option to elect a cash payment in lieu of the tax credits (i.e., a direct pay option).

The hydrogen may be sold to an unrelated third party or, if directly consumed by the taxpayer that owns the facility, the production must be independently verified. Construction of a qualified facility must have begun before the end of 2026 for the facility to be eligible for the low-carbon hydrogen production tax credit.

The Administration will work with Congress on measures to pair these credits with strong labor standards, benefitting employers that provide good-paying and good-quality jobs.

The proposal would be effective after December 31, 2021.

EXTEND AND ENHANCE ENERGY EFFICIENCY AND ELECTRIFICATION INCENTIVES

Current Law

Taxpayers can claim deductions and tax credits for investments in energy efficiency property and improvements for their homes and businesses.

Nonbusiness energy property

Section 25C of the Internal Revenue Code (Code) provides a tax credit for certain expenditures to improve the energy efficiency of a taxpayer's principal U.S. residence. Two types of property qualify for the credit: "qualified energy efficiency improvements" and "residential energy property expenditures." The 25C tax credit is equal to the sum of ten percent of the cost of qualified energy efficiency improvements and eligible costs for residential energy property expenditures, subject to a limit of a \$500 nonrefundable tax credit for the taxpayer's lifetime. Qualified energy efficiency improvements are defined, in part, as energy efficient building components, including insulation, windows, exterior doors, certain metal or asphalt roofs, that satisfy energy savings criteria established by the 2009 International Energy Conservation Code (IECC). Residential energy property expenditures must meet energy efficiency standards prescribed by the Secretary and include certain types of property, such as natural gas, propane, or oil furnace or hot water boiler; an advanced main air circulating fan; and "energy-efficient building property." For residential energy property expenditures, the credit amount is limited to \$50 for any advanced main air circulating fan; \$150 for any qualified natural gas, propane, or oil furnace or hot water boiler; and \$300 for any item of energy-efficient building property. A separate tax credit limit of \$200 applies to windows. The 25C tax credit will expire December 31, 2021.

Construction of new energy efficient homes

Section 45L of the Code provides a tax credit for the construction of new energy efficient homes that are purchased on or before December 31, 2021. A new energy efficient home is defined as a dwelling unit located in the United States that meets specified energy saving requirements. Energy savings may be accomplished through energy-efficient roofs, windows, insulation, air conditioners, and other energy efficient property. The tax credit for a new energy efficient home is \$2,000 per dwelling unit. For manufactured homes, the tax credit is \$1,000 per dwelling unit and manufactured homes are subject to different energy savings requirements. A certification process requires that the energy savings are verified. The 45L tax credit will expire December 31, 2021.

Energy efficient commercial buildings

Section 179D of the Code provides a tax deduction for energy efficient commercial building property placed in service during a taxable year. Energy efficient commercial building property is defined as property to which depreciation or amortization is allowable and meets certain building energy efficiency standards established by the American Society of Heating,

Refrigerating, and Air Conditioning Engineers and the Illuminating Engineering Society of North America. A certification process is required to ensure compliance with energy-savings plans and targets for the buildings.

The maximum allowable section 179D deduction is \$1.80 per square foot. In the case of a building that does not achieve at least 50 percent energy savings, a partial deduction of \$0.60 per square foot is available for systems that meet energy-saving targets established by the Secretary of the Treasury.

The section 179D deduction has been in effect since 2006 and was made permanent in 2020. For taxable years beginning after 2020, the dollar amount of the allowable deduction will be indexed for inflation using the C-CPI-U determined for the calendar year in which the taxable year begins.

Mechanical insulation labor costs

Presently, there is no tax credit solely for the labor costs for mechanical insulation.

Reasons for Change

Increasing the value and duration of the energy efficiency incentives would help bring clean energy building projects into existence. Also, increasing incentives for electric appliances and expanding credits for equipment that supports higher on-premise electricity demand will help promote electrification goals.

Proposal

Nonbusiness energy property

The proposal would extend the section 25C tax credit five years and increase the lifetime limit to \$1,200 for property placed in service after December 31, 2021 and before January 1, 2027. For qualified energy efficiency improvements, the credit rate would be increased to 15 percent and the credit amounts for certain types of residential energy property expenditures would also be increased. Also, the proposal would modify the definitions of eligible qualified energy efficiency improvements and residential energy property expenditures and update the required energy efficiency standards for such property. Roofs, advanced circulating fans, and certain equipment, such as water heaters and furnaces, powered by fossil fuels, would no longer be eligible for the tax credit; however, certain geothermal and load center equipment would be eligible for the tax credit.

The proposal would be effective after December 31, 2021.

Construction of new energy efficient homes

The proposal would increase the section 45L tax credit for an energy efficient home from \$2,000 to \$2,500 and extend the tax credit five years to December 31, 2026. The proposal would also

modify and expand the dwelling units eligible for the credit. For new energy efficient homes, the required energy savings percentage would increase from 50 percent to 60 percent under the 2006 IECC standards. In addition, certified Energy Star homes would also be eligible for the 45L tax credit as well as dwelling units with annual heating and cooling consumption at least 15 percent below the annual energy consumption level of a comparable dwelling unit under the 2018 IECC standards.

The proposal would be effective after December 31, 2021.

Energy efficient commercial buildings

The proposal would increase the maximum section 179D deduction per square foot from \$1.80 to \$3.00 for qualifying property placed in service after December 31, 2021. The partial deduction rate would be increased from \$0.60 to \$1.00 per square foot for qualifying property placed in service after December 31, 2021. The required efficiency standard in relation to the reference building's total annual energy reduction would be adjusted from 50 percent to 30 percent.

The proposal would be effective after December 31, 2021.

Mechanical insulation labor costs

The proposal would create a new general business tax credit for qualifying mechanical insulation labor costs. The tax credit would be equal to 10 percent of the mechanical insulation labor costs paid or incurred by the taxpayer during such taxable year. Mechanical insulation labor costs would include the labor cost of installing mechanical insulation property, including insulation materials, and facings and accessory products, for a depreciable mechanical system that is placed in service in the United States and that satisfies certain energy loss reductions. The credit would be available for labor costs incurred after December 31, 2021 through December 31, 2026.

The Administration will work with Congress on measures to pair these credits with strong labor standards, benefitting employers that provide good-paying and good-quality jobs.

The proposal would be effective after December 31, 2021.

PROVIDE DISASTER MITIGATION TAX CREDIT

Current Law

Federal tax credits related to disasters, such as earthquakes, fire, and hurricanes, focus on providing tax relief after damage has occurred. Generally, home- and business-owners can deduct casualty losses if the loss is caused by a Federal declared disaster. These losses only include those not covered by insurance or other federal aid. Taxpayers whose principal residences are involuntarily destroyed or condemned by a Federal declared disaster are allowed special treatment. Owners of low-income rental properties are allowed disaster-based relief from certain requirements of credit programs.

In addition to these and other permanent features the Internal Revenue Code, there are temporary measures to allow for tax relief after specific disasters. Features of these temporary packages may include enhanced access to retirement funds, employee retention tax credits, increased charitable giving limits, and increased casualty loss deductions.

Reasons for Change

The National Oceanic and Atmospheric Administration reports that since 1980, the United States has sustained 241 weather and climate disasters with overall damage costs exceeding \$1.6 trillion. The benefit-to-cost ratio of mitigation efforts for the United States is estimated to be around 4; for every \$1 spent on mitigation, \$4 are saved in rehabilitation costs after disasters. Several states, including Alabama, Louisiana, and South Carolina, have tax credits for installation of disaster mitigation measures. The proposal offers a federal incentive to install disaster mitigation measures prior to the occurrence of a disaster.

Proposal

The proposal provides a nonrefundable tax credit for homeowners and businesses equal to 25 percent of qualified disaster mitigation expenditures capped at \$5,000. For individual taxpayers, the credit begins to phase out at an adjusted gross income of approximately \$85,000 for single tax filers and approximately \$170,000 for joint filers. For businesses, the credit begins to phase out when the business has gross receipts above \$5 million. The credit is only available to homeowners and businesses in areas where a Federal disaster declaration has been made within the preceding 10-year period or in areas adjacent to where a Federal disaster declaration has been made within the preceding 10-year period.

The credit would be available for taxable years beginning after the date of enactment.

EXPAND AND ENHANCE THE CARBON OXIDE SEQUESTRATION CREDIT

Current Law

Current law allows a tax credit for the capture and sequestration of qualified carbon oxide using carbon capture equipment that is placed in service at a qualified facility on or after February 9, 2018. The amount of the credit depends on when and how the carbon oxide is sequestered. In 2020, qualified carbon oxide disposed of in secure geological storage and not used as a tertiary injectant in a qualified enhanced oil or natural gas recovery project could receive a credit of \$31.77 per metric ton. The credit increases to \$50 by 2026 and is adjusted for inflation in later years. In 2020, qualified carbon oxide that is used as a tertiary injectant in an enhanced oil or natural gas recovery project could receive a credit of \$20.22 per metric ton. This credit increases to \$35 by 2026 and is adjusted for inflation in later years.¹ In 2020, the fixation of qualified carbon oxide through photosynthesis or chemosynthesis, the chemical conversion of qualified carbon oxide to a material or chemical compound in which qualified carbon oxide is securely stored, or the use of qualified carbon oxide for any other purpose for which a commercial market exists as determined by the Secretary could receive a credit of \$20.22 per metric ton. The credit increases to \$35 by 2026 and is adjusted for inflation in later years.

Qualified facilities must begin construction by January 1, 2026. Taxpayers may claim these credits for a 12-year period from the date the carbon capture equipment was originally placed in service.

Reasons for Change

Carbon oxide sequestration can play an important role in reducing greenhouse gas emissions from point sources and from the ambient air. The current credit provides incentives for carbon oxide sequestration, but additional incentives are required to achieve greater carbon oxide reductions and address the cost differences among methods of carbon capture. With additional incentives, nascent carbon capture technologies could continue to become less expensive over time and with experience. Additional investments in carbon oxide capture and sequestration technologies will help facilitate further technological improvements that will be important for reducing the costs of controlling future greenhouse gas emissions.

Proposal

The proposal would extend the “commence construction” date by 5 years, such that qualified facilities must begin construction by January 1, 2031.

¹ Current law provides lower credit rates for carbon oxide that is captured using carbon capture equipment that was placed in service before February 9, 2018. For these earlier projects, current law allows for a \$23.82 (in 2020) per metric ton of qualified carbon oxide disposed of in secure geological storage and not used as a tertiary injectant in a qualified enhanced oil or natural gas recovery project. A credit of \$11.91 (in 2020) per metric ton is available if qualified carbon oxide is used as a tertiary injectant in an enhanced oil or natural gas recovery project. The credit in connection with pre-February 9, 2018 equipment is allowed through the end of the calendar year in which the Secretary certifies that 75 million metric tons of qualified carbon dioxide have been sequestered under this credit. As of June 2020, 72 million metric tons had been sequestered.

The proposal would provide an enhanced credit for carbon oxide captured from hard-to-abate industrial carbon oxide capture sectors such as cement production, steelmaking, hydrogen production, and petroleum refining. The enhanced credit for industrial capture would not apply to ethanol, natural gas processing, or ammonia production facilities. An additional \$35 per metric ton of qualified carbon oxide is available for qualified carbon oxide that is captured from such sources and is disposed of in secure geological storage. The amount of the \$35 per-ton additional credit does not change each year. The total per-ton credit for these projects would be \$85 in 2026.

The proposal would also provide an enhanced credit for direct air capture projects. An additional \$70 per metric ton of qualified carbon oxide is available for qualified carbon oxide that is disposed of in secure geological storage. The amount of the \$70 per-ton additional credit does not change each year. The total per-ton credit for direct air capture projects with secure geological storage would be \$120 in 2026.

Taxpayers would have the option to elect a cash payment in lieu of the carbon sequestration credit (i.e., a direct pay option).

The Administration will work with Congress on measures to pair these credits with strong labor standards, benefitting employers that provide good-paying and good-quality jobs.

The proposal would be effective after December 31, 2021.

EXTEND AND ENHANCE THE ELECTRIC VEHICLE CHARGING STATION CREDIT

Current Law

Current law allows an investment tax credit equal to 30 percent of the cost of alternative fuel vehicle refueling property, which includes electric vehicle charging stations and hydrogen refueling stations. The tax credit is capped at \$1,000 for refueling property installed at a taxpayer's residence and at \$30,000 for refueling property installed for commercial use. Notably, the credit is allowed on a per-location basis, not on a per-device basis. The credit is currently set to expire on December 31, 2021.

Reasons for Change

Since the tax credit is currently applied on a per-location basis, it is difficult to finance multiple charging or refueling stations at one commercial location. Also, the \$30,000 tax credit limit on business investments, which is set to expire at the end of 2021, does not provide adequate financial incentive to promote refueling infrastructure. The proposal seeks to encourage more private, long-term investment in the latest technologies in refueling infrastructure.

Proposal

The proposal modifies and expands the tax credit for electric vehicle charging stations. The proposal allows taxpayers to claim the tax credits on a per-device basis (i.e., electric vehicle supply equipment, or ESVE, also called a port or a charger), increases the tax credit limit on individual devices to \$200,000, and extends the tax credit for five years through December 31, 2026. Taxpayers would have the option to elect a cash payment in lieu of the general business tax credits (i.e., a direct pay option). The \$1,000 tax credit for refueling property installed at a taxpayer's residence would not increase but would also be extended for five years.

The Administration will work with Congress on measures to pair these credits with strong labor standards, benefitting employers that provide good-paying and good-quality jobs.

The proposal would be effective for taxable years beginning after December 31, 2021.

REINSTATE SUPERFUND EXCISE TAXES AND MODIFY OIL SPILL LIABILITY TRUST FUND FINANCING

Current Law

The following Superfund excise taxes were imposed before January 1, 1996: (1) An excise tax on domestic crude oil and on imported petroleum products at a rate of 9.7 cents per barrel; (2) An excise tax on listed hazardous chemicals at a rate that varied from 22 cents to \$4.87 per ton; and (3) An excise tax on imported substances that use as materials in their manufacture or production one or more of the hazardous chemicals subject to the excise tax described in (2) above.

The revenues from these taxes were dedicated to the Hazardous Substance Superfund Trust Fund. Amounts in the Trust Fund are available for expenditures incurred in connection with releases or threats of releases of hazardous substances into the environment under specified provisions of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (as amended).

An excise tax to finance the Oil Spill Liability Trust Fund (OSLTF) is imposed on: (1) crude oil received at a U.S. refinery; (2) imported petroleum products (including crude oil) entered into the United States for consumption, use, or warehousing; and (3) any domestically produced crude oil that is used (other than on the premises where produced for extracting oil or natural gas) in or exported from the United States if, before such use or exportation, no taxes were imposed on the crude oil. The tax is eight cents per barrel before January 1, 2017, and nine cents per barrel thereafter. Crudes such as those that are produced from bituminous deposits as well as kerogen-rich rock (e.g., tar sands) are not treated as crude oil or petroleum products for purposes of the tax. The tax is deposited in the OSLTF to pay costs associated with oil removal and damages resulting from oil spills, as well as to provide annual funding to certain agencies for a wide range of oil pollution prevention and response programs, including research and development. In the case of an oil spill, the OSLTF makes it possible for the Federal government to pay for removal costs up front, and then seek full reimbursement from the responsible parties.

The Customs drawback statute (Title 19 U.S.C (Customs Duties) section 1313) has been administratively interpreted to allow drawback of the tax when products subject to this tax are exported.

Reasons for Change

The Superfund excise taxes should be reinstated and increased because of the continuing need for funds to remedy damages caused by releases of hazardous substances. In addition, it is appropriate to extend the tax to other crudes such as those produced from bituminous deposits as well as kerogen-rich rock.

The magnitude of the Federal response to recent disasters has reinforced the importance of the OSLTF and the need to maintain a sufficient balance, particularly in order to accommodate spills

of national significance. It is appropriate to extend the tax to other sources of crudes that present environmental risks comparable to those associated with crude oil and petroleum products.

The drawback of the tax is granted when the product is exported even though there is no concomitant reduction in the risk of an oil spill. A prohibition on the drawbacks of the tax will strengthen the finances of the OSLTF and remove an incentive to export crude and like products.

Proposal

The proposal would reinstate the three Superfund excise taxes at double the previous rates for periods beginning after December 31, 2021 and through December 31, 2031. In addition, the proposal would extend the Superfund excise tax on domestic crude oil and imported petroleum products to other crudes such as those produced from bituminous deposits as well as kerogen-rich rock. To support the OSLTF, the proposal would also extend the OSLTF tax to include crudes such as those produced from bituminous deposits as well as kerogen-rich rock. Finally, the eligibility of the OSLTF for drawback would be eliminated.

The proposal would be effective after December 31, 2021.

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STRENGTHEN TAXATION OF HIGH-INCOME TAXPAYERS

INCREASE THE TOP MARGINAL INCOME TAX RATE FOR HIGH EARNERS

Current Law

For taxable years beginning after December 31, 2017 and before January 1, 2026, the top marginal tax rate for the individual income tax is 37 percent. For taxable years beginning after December 31, 2025, the top marginal tax rate for the individual income tax is 39.6 percent.

For 2021, the 37 percent marginal individual income tax rate applies to taxable income over \$628,300 for married individuals filing a joint return and surviving spouses, \$523,600 for unmarried individuals (other than surviving spouses) and head of household filers, and \$314,150 for married individuals filing a separate return.

Reasons for Change

The proposal would reverse a recent tax cut for the highest income taxpayers. It would raise revenue while increasing the progressivity of the tax system.

Proposal

The proposal would increase the top marginal individual income tax rate to 39.6 percent. This rate would be applied to taxable income in excess of the 2017 top bracket threshold, adjusted for inflation. In taxable year 2022, the top marginal tax rate would apply to taxable income over \$509,300 for married individuals filing a joint return, \$452,700 for unmarried individuals (other than surviving spouses), \$481,000 for head of household filers, and \$254,650 for married individuals filing a separate return. After 2022, the thresholds would be indexed for inflation using the C-CPI-U, which is used for all current tax rate thresholds for the individual income tax.

The proposal would be effective for taxable years beginning after December 31, 2021.

REFORM THE TAXATION OF CAPITAL INCOME

Current Law

Most realized long-term capital gains and qualified dividends are taxed at graduated rates under the individual income tax, with 20 percent generally being the highest rate (23.8 percent including the net investment income tax, if applicable, based on the taxpayer's modified adjusted gross income). Moreover, capital gains are taxable only upon realization, such as the sale or other disposition of an appreciated asset. When a donor gives an appreciated asset to a donee during the donor's life, the donee's basis in the asset is the basis of the donor; in effect, the basis is "carried over" from the donor to the donee. There is no realization of capital gain by the donor at the time of the gift, and there is no recognition of capital gain (or loss) by the donee until the donee later disposes of that asset. When an appreciated asset is held by a decedent at death, the basis of the asset for the decedent's heir is adjusted (usually "stepped up") to the fair market value of the asset at the date of the decedent's death. As a result, the amount of appreciation accruing during the decedent's life on assets that are still held by the decedent at death completely avoids federal income tax.

Reasons for Change

Preferential tax rates on long-term capital gains and qualified dividends disproportionately benefit high-income taxpayers and provide many high-income taxpayers with a lower tax rate than many low- and middle-income taxpayers. The rate disparity between ordinary income taxes and capital gains and dividends taxes also encourages economically wasteful efforts to convert labor income into capital income as a tax avoidance strategy.

Under current law, since a person who inherits an appreciated asset receives a basis in that asset equal to the asset's fair market value at the time of the decedent's death, appreciation that had accrued during the decedent's life is never subjected to income tax. In contrast, less-wealthy individuals who must spend down their assets during retirement pay income tax on their realized capital gains. This increases the inequity in the tax treatment of capital gains. In addition, the preferential treatment for assets held until death produces an incentive for taxpayers to inefficiently lock in portfolios of assets and hold them primarily for the purpose of avoiding capital gains tax on the appreciation, rather than reinvesting the capital in more economically productive investments.

Moreover, the distribution of wealth among Americans has grown increasingly unequal, concentrating economic resources among a steadily shrinking percentage of individuals. Coinciding with this period of growing inequality, the long-term fiscal shortfall of the United States has significantly increased. Reforms to the taxation of capital gains and qualified dividends will reduce economic disparities among Americans and raise needed revenue.

Proposal

Tax capital income for high-income earners at ordinary rates.

Long-term capital gains and qualified dividends of taxpayers with adjusted gross income of more than \$1 million would be taxed at ordinary income tax rates, with 37 percent generally being the highest rate (40.8 percent including the net investment income tax),¹ but only to the extent that the taxpayer's income exceeds \$1 million (\$500,000 for married filing separately), indexed for inflation after 2022.²

This proposal would be effective for gains required to be recognized after the date of announcement.

Treat transfers of appreciated property by gift or on death as realization events.

Under the proposal, the donor or deceased owner of an appreciated asset would realize a capital gain at the time of the transfer. For a donor, the amount of the gain realized would be the excess of the asset's fair market value on the date of the gift over the donor's basis in that asset. For a decedent, the amount of gain would be the excess of the asset's fair market value on the decedent's date of death over the decedent's basis in that asset. That gain would be taxable income to the decedent on the Federal gift or estate tax return or on a separate capital gains return. The use of capital losses and carry-forwards from transfers at death would be allowed against capital gains income and up to \$3,000 of ordinary income on the decedent's final income tax return, and the tax imposed on gains deemed realized at death would be deductible on the estate tax return of the decedent's estate (if any).

Gain on unrealized appreciation also would be recognized by a trust, partnership, or other non-corporate entity that is the owner of property if that property has not been the subject of a recognition event within the prior 90 years, with such testing period beginning on January 1, 1940. The first possible recognition event for any taxpayer under this provision would thus be December 31, 2030.

A transfer would be defined under the gift and estate tax provisions and would be valued using the methodologies used for gift or estate tax purposes. However, for purposes of the imposition of this tax on appreciated assets, the following would apply. First, a transferred partial interest would be its proportional share of the fair market value of the entire property. Second, transfers of property into, and distributions in kind from, a trust, partnership, or other non-corporate entity, other than a grantor trust that is deemed to be wholly owned and revocable by the donor, would be recognition events. The deemed owner of such a revocable grantor trust would recognize gain on the unrealized appreciation in any asset distributed from the trust to any person other than the deemed owner or the U.S. spouse of the deemed owner, other than a distribution made in discharge of an obligation of the deemed owner. All of the unrealized appreciation on assets of

¹ A separate proposal would first increase the top ordinary individual income tax rate to 39.6 percent (43.4 percent including the net investment income tax).

² For example, a taxpayer with \$900,000 in labor income and \$200,000 in preferential capital income would have \$100,000 of capital income taxed at the current preferential tax rate and \$100,000 taxed at ordinary income tax rates.

such a revocable grantor trust would be realized at the deemed owner's death or at any other time when the trust becomes irrevocable.

Certain exclusions would apply. Transfers by a decedent to a U.S. spouse or to charity would carry over the basis of the decedent. Capital gain would not be recognized until the surviving spouse disposes of the asset or dies, and appreciated property transferred to charity would not generate a taxable capital gain. The transfer of appreciated assets to a split-interest trust would generate a taxable capital gain, with an exclusion allowed for the charity's share of the gain based on the charity's share of the value transferred as determined for gift or estate tax purposes.

The proposal would exclude from recognition any gain on tangible personal property such as household furnishings and personal effects (excluding collectibles). The \$250,000 per-person exclusion under current law for capital gain on a principal residence would apply to all residences and would be portable to the decedent's surviving spouse, making the exclusion effectively \$500,000 per couple. Finally, the exclusion under current law for capital gain on certain small business stock would also apply.

In addition to the above exclusions, the proposal would allow a \$1 million per-person exclusion from recognition of other unrealized capital gains on property transferred by gift or held at death. The per-person exclusion would be indexed for inflation after 2022 and would be portable to the decedent's surviving spouse under the same rules that apply to portability for estate and gift tax purposes (making the exclusion effectively \$2 million per married couple). The recipient's basis in property received by reason of the decedent's death would be the property's fair market value at the decedent's death. The same basis rule would apply to the donee of gifted property to the extent the unrealized gain on that property at the time of the gift was not shielded from being a recognition event by the donor's \$1 million exclusion. However, the donee's basis in property received by gift during the donor's life would be the donor's basis in that property at the time of the gift to the extent that the unrealized gain on that property counted against the donor's \$1 million exclusion from recognition.

Payment of tax on the appreciation of certain family-owned and -operated businesses would not be due until the interest in the business is sold or the business ceases to be family-owned and operated. Furthermore, the proposal would allow a 15-year fixed-rate payment plan for the tax on appreciated assets transferred at death, other than liquid assets such as publicly traded financial assets and other than businesses for which the deferral election is made. The Internal Revenue Service (IRS) would be authorized to require security at any time when there is a reasonable need for security to continue this deferral. That security may be provided from any person, and in any form, deemed acceptable by the IRS.

Additionally, the proposal would include other legislative changes designed to facilitate and implement this proposal, including: the allowance of a deduction for the full cost of appraisals of appreciated assets; the imposition of liens; the waiver of penalty for underpayment of estimated tax to the extent that underpayment is attributable to unrealized gains at death; the grant of a right of recovery of the tax on unrealized gains; rules to determine who has the right to select the return filed; the achievement of consistency in valuation for transfer and income tax purposes; coordinating changes to reflect that the recipient would have a basis in the property equal to the

value on which the capital gains tax is computed; and a broad grant of regulatory authority to provide implementing rules.

To facilitate the transition to taxing gains at gift, death and periodically under this proposal, the Secretary would be granted authority to issue any regulations necessary or appropriate to implement the proposal, including rules and safe harbors for determining the basis of assets in cases where complete records are unavailable, reporting requirements for all transfers of appreciated property including value and basis information, and rules where reporting could be permitted on the decedent's final income tax return.

The proposal would be effective for gains on property transferred by gift, and on property owned at death by decedents dying, after December 31, 2021, and on certain property owned by trusts, partnerships, and other non-corporate entities on January 1, 2022.

RATIONALIZE NET INVESTMENT INCOME AND SELF-EMPLOYMENT CONTRIBUTIONS ACT TAXES

Current Law

Individuals with incomes over a threshold amount are subject to a 3.8 percent tax on net investment income. The threshold is \$200,000 for single and head of household returns and \$250,000 for joint returns. Net investment income generally includes: (1) interest, dividends, rents, annuities, and royalties, other than such income derived in the ordinary course of a trade or business; (2) income derived from a trade or business in which the taxpayer does not materially participate; (3) income from a business of trading in financial instruments or commodities; and (4) net gain from the disposition of property other than property held in a trade or business in which the taxpayer materially participates. The net investment income tax (NIIT) does not apply to self-employment earnings. Proceeds from the NIIT flow into the General Fund of the Treasury.

Self-employment earnings and wages are subject to employment taxes under either the Self-Employment Contributions Act (SECA) or the Federal Insurance Contributions Act (FICA), respectively. Both SECA and FICA taxes apply at a rate of 12.4 percent for social security tax on employment earnings (capped at \$142,800 in 2021) and at a rate of 2.9 percent for Medicare tax on all employment earnings (not subject to a cap). An additional 0.9 percent Medicare tax is imposed on self-employment earnings and wages of high-income taxpayers, above the same NIIT thresholds of \$200,000 for single and head of household filers and \$250,000 for joint filers. The SECA and FICA taxes flow into the Social Security and Hospital Insurance Trust Funds.

General partners and sole proprietors pay SECA tax on the full amount of their net trade or business income, subject to certain exceptions. Section 1402(a)(13) of the Internal Revenue Code provides that limited partners are statutorily excluded from paying SECA tax with respect to their distributive shares of partnership income or loss, although they are subject to SECA tax on their section 707(c) guaranteed payments from the partnership that are for services they provide to, or on behalf of, the partnership. Because the statutory exclusion only refers to limited partners, questions have arisen as to the meaning of this term and whether the limited partner exclusion might be applicable to limited liability company (LLC) members. Some partners who might more accurately be considered general partners and some LLC members avoid SECA by claiming the treatment of limited partners.

S corporation shareholders are not subject to SECA tax. However, tax law requires that owner-employees pay themselves “reasonable compensation” for services provided, on which they pay FICA tax like any other employee. Nonwage distributions to shareholders of S corporations are not subject to either FICA or SECA taxes.

Reason for Change

Active owners of pass-through businesses are treated differently for purposes of the NIIT and SECA tax according to the legal form of their ownership and the legal form of the payment that they receive. While general partners and sole proprietors pay SECA tax on earnings from their

businesses, S corporation owner-employees and limited partners (their counterparts and sometimes competitors) pay employment taxes on only a portion of their earnings. LLC members often pay little or no SECA tax at all. Although the NIIT reflects an intention to impose the 3.8 percent tax on both earned and unearned income of high-income taxpayers, certain income escapes both SECA tax and the NIIT, including the distributive shares of S corporation shareholder-employees, limited partners, and LLC members who claim the statutory exclusion for limited partners. Different treatment is unfair, inefficient, distorts choice of organizational form, and provides tax planning opportunities for business owners, particularly those with high incomes, to avoid paying their fair share of taxes.

The current system is also a challenge for the Internal Revenue Service (IRS) to administer. The determination of “reasonable compensation” of S corporation owners generally depends on facts and circumstances and requires a valuation analysis, which is expensive, and which can be contested by the taxpayer, adding to the cost of administration and enforcement. Uncertainty surrounding the treatment of limited partners and LLC members who materially participate in their businesses undermines the IRS’s ability to ensure payment of SECA tax and the NIIT.

In addition, proceeds from the NIIT are paid into the General Fund of the Treasury, while the Medicare portion of FICA and SECA taxes are paid into the Hospital Insurance Trust Fund. This treatment of the taxes is inconsistent with the fact that the taxes are intended for the same purpose.

Proposal

The proposal would (i) ensure that all pass-through business income of high-income taxpayers is subject to either the NIIT or SECA tax, (ii) redirect NIIT funds to the Hospital Insurance Trust Fund, (iii) make the application of SECA to partnership and LLC income more consistent for high-income taxpayers, and (iv) apply SECA to the ordinary business income of high-income nonpassive S corporation owners.

First, the proposal would ensure that all trade or business income of high-income taxpayers is subject to the 3.8-percent Medicare tax, either through the NIIT or SECA tax. In particular, for taxpayers with adjusted gross income in excess of \$400,000, the definition of net investment tax would be amended to include gross income and gain from any trades or businesses that is not otherwise subject to employment taxes.

Second, all of the revenue from the NIIT (that raised under current law and that which would be raised by the proposed expansion) would be directed to the Hospital Insurance Trust Fund, just as is the revenue from the 3.8 percent tax under FICA and SECA.

Third, limited partners and LLC members who provide services and materially participate in their partnerships and LLCs would be subject to SECA tax on their distributive shares of partnership or LLC income to the extent that this income exceeds certain threshold amounts. The exemptions from SECA tax provided under current law for certain types of partnership income (e.g., rents, dividends, capital gains, and certain retired partner income) would continue to apply to these types of income.

Fourth, S corporation owners who materially participate in the trade or business would be subject to SECA taxes on their distributive shares of the business's income to the extent that this income exceeds certain threshold amounts. The exemptions from SECA tax provided under current law for certain types of S corporation income (e.g., rents, dividends, and capital gains) would continue to apply to these types of income.

In order to determine the amount of partnership income and S corporation income that would be subject to SECA tax under the proposal, the taxpayer would sum (a) ordinary business income derived from S corporations for which the owner materially participates in the trade or business, and (b) ordinary business income derived from either limited partnership interests or interests in LLCs that are classified as partnerships to the extent a limited partner or LLC member materially participates in its partnership's or LLC's trade or business (this sum referred to as the "potential SECA income"). Beginning in 2022, the additional income that would be subject to SECA tax would be the lesser of (i) the potential SECA income, and (ii) the excess over \$400,000 of the sum of the potential SECA income, wage income subject to FICA under current law, and 92.35 percent of self-employment income subject to SECA tax under current law. The \$400,000 threshold amount would not be indexed for inflation.

Material participation standards would apply to individuals who participate in a business in which they have a direct or indirect ownership interest. Taxpayers are usually considered to materially participate in a business if they are involved in it in a regular, continuous, and substantial way. Often this means they work for the business for at least 500 hours per year. The statutory exception to SECA tax for limited partners would not exempt a limited partner from SECA tax if the limited partner otherwise materially participated.

The proposal would be effective for taxable years beginning after December 31, 2021.

SUPPORT WORKERS, FAMILIES, AND ECONOMIC SECURITY

MAKE PERMANENT THE AMERICAN RESCUE PLAN EXPANSION OF PREMIUM TAX CREDITS

Current Law

A premium assistance tax credit (premium tax credit or PTC) is provided to certain individuals who purchase health insurance through a Marketplace exchange in the individual health insurance market established under the Affordable Care Act of 2010 (ACA). The PTC is refundable and payable in advance (as advance payments of the premium tax credit, or APTC) directly to the insurer. Eligibility for the APTC is based on the individual's household income and family size for the most recent available year of tax data. However, eligibility may be updated to reflect changes in income, marital status or other household circumstances, and employment status.

The PTC is generally available to individuals with household income between 100 and 400 percent of the Federal poverty line (FPL) for the relevant family size. Individuals are eligible for the PTC only if they are not eligible for health care under programs such as Medicare, Medicaid, the Children's Health Insurance Program, or Tricare, or for certain types of health insurance provided through an employer.

A taxpayer's PTC is equal to the lesser of: (1) the premium for the plan chosen by the taxpayer, or (2) the amount by which the cost of the benchmark plan exceeds a required contribution by the taxpayer. The taxpayer's required contribution is a percentage of household income (the applicable contribution percentage) calculated with reference to the taxpayer's FPL.

The American Rescue Plan Act of 2021 (ARP) decreased the applicable contribution percentages and extended PTC eligibility to taxpayers with household income above 400 percent of FPL for taxable years 2021 and 2022. The ARP changed the household income limitation on eligibility for the credit so that the PTC phases out with income as the required contribution eventually exceeds the benchmark premium. By fixing the parameters for two years, the ARP paused the pre-ARP indexation of the applicable contribution percentages. The chart below shows the applicable contribution percentages for 2021 under the ARP and prior law.

Applicable Contribution Percentages for 2021¹

Percent of FPL	ARP²	Pre-ARP³
Up to 133%	0%	2%
133% up to 150%	0%	3%-4%
150% up to 200%	0%-2%	4%-6.3%
200% up to 250%	2%-4%	6.3%-8.05%
250% up to 300%	4%-6%	8.05%-9.5%
300% up to 400%	6%-8.5%	9.5%
400%+	8.5%	Not Eligible

¹ Required contributions increase incrementally between income breaks.

² These percentages also apply in 2022.

³ Pre-ARP applicable contribution percentages have been indexed beginning in 2015. These are the percentages for 2021.

Reasons for Change

Even with the ACA's changes to the individual market, health coverage can still be expensive for some families and out of reach for others. Under the American Families Plan, expanding the PTC will reduce individuals' cost of individual market coverage by increasing the amount and availability of premium tax credits for a wide range of income levels.

Proposal

The proposal would make permanent the ARP decrease in the applicable contribution percentages of household income used for determining the PTC. The proposal would also make permanent the ARP expansion of PTC eligibility to taxpayers with household income above 400 percent of FPL.

In addition, the proposal would permanently repeal the indexation of the applicable contribution percentages for years after 2022.

The proposal would be effective after December 31, 2022.

MAKE PERMANENT THE EXPANSION OF THE EARNED INCOME TAX CREDIT (EITC) FOR WORKERS WITHOUT QUALIFYING CHILDREN

Current Law

Low- and moderate-income workers may be eligible for a refundable EITC. Eligibility for the EITC is based on the presence and number of qualifying children in the worker's household, as well as the worker's earned income, adjusted gross income (AGI), investment income, filing status, age, and immigration and work status in the United States.

The EITC has a phase-in range (where each additional dollar of earned income results in a larger credit), a plateau (where additional dollars of earned income or AGI have no effect on the size of the credit), and a phase-out range (where each additional dollar of the larger of earned income or AGI results in a smaller total credit). The dollar thresholds are adjusted annually for inflation.

The American Rescue Plan Act of 2021 (ARP) expanded the credit for workers without children in taxable year 2021 by increasing the phase-in and phase-out rates, and increasing the income range over which the credit phases in. These changes increased the maximum credit from \$542 to \$1,502. The chart below shows the 2021 parameters for workers without children, with and without the ARP expansion.

EITC Parameters for Workers Without Children in 2021

Parameter	ARP	Pre-ARP
Credit phase-in rate	15.30%	7.65%
Credit phase-out rate	15.30%	7.65%
End of phase-in range	\$9,820	\$7,100
End of plateau	\$11,610	\$8,880
(married joint filers)	\$17,550	\$14,820
End of phase-out range	\$21,430	\$15,980
(married joint filers)	\$27,370	\$21,920
Maximum credit	\$1,502	\$543

To be eligible for the EITC for workers without qualifying children, the taxpayer must meet the relevant age requirements. In 2021, the taxpayer must be at least 19 years old or at least 23 if a full-time student. In the case of married taxpayers filing jointly, the credit may be claimed if at least one spouse is over age 19 (or at least 23 if a full-time student). Former foster children and qualified homeless individuals are eligible at age 18, regardless of student status. In years before and after 2021 the taxpayer must be at least 25 years old and less than 65. In the case of married taxpayers filing jointly, at least one spouse must be within the eligible age range to qualify for the credit.

In all years there is no age limitation to the EITC for workers with qualifying children. A taxpayer who may be claimed as a dependent or as a qualifying child by another taxpayer, including most college students, is not eligible to claim the EITC for workers without children.

Also, in all taxable years beginning with 2021 taxpayers who live with qualifying children who they do not claim for EITC purposes because the children do not have social security numbers may claim the EITC for workers without children if otherwise eligible.

U.S. Territories (Permanent Change):

The ARP provides for a reimbursement of mirror code Territories (those whose tax codes mirror the U.S. federal income tax code: Guam, the U.S. Virgin Islands, and the Northern Mariana Islands) for the costs of this credit in 2021; reimbursement is done on a permanent basis so it will also affect credits in future years. American Samoa will be reimbursed if it institutes a similar earned income tax credit. Puerto Rico will be reimbursed for increasing the credit they have, plus some base amount that depends on the cost of Puerto Rico's EITC.

Reasons for Change

The permanent EITC for workers without children is relatively small and phases out at very low incomes. As such, it provides little or no assistance to individuals at or near the poverty line. For example, in 2021 under pre-ARP law, a single worker without children who earned \$13,000 (a wage close to the poverty line), would be in the phase-out range and eligible for a credit of about \$228. This credit would generate a net refund of about \$183 after subtracting his or her Federal income tax. (The taxpayer would pay nearly \$1,000 in Federal payroll taxes.) A larger EITC for workers without children would promote employment and reduce poverty for this group of workers. It also would increase the progressivity of the Federal tax system.

The current age restrictions prevent young workers and older workers from claiming the EITC. As a result, young workers living independently from their families are unable to benefit from the antipoverty and work-related effects of the EITC just when they are establishing the patterns of behavior that may persist throughout their working lives. The EITC, by increasing the effective after-tax wage, encourages additional work effort in the short run, which may in turn affect long-run labor force attachment and wages.

The current age restriction on older workers is inconsistent with recent increases in the full retirement age for Social Security retirement benefits and the increased labor force participation by older adults.

Proposal

The proposal would make permanent the increase in the EITC parameters for workers without children that was enacted in the ARP. The end of the phase-in and the end of the plateau income ranges would be indexed for inflation in the same manner as other EITC parameters (by the C-CPI-U).

The proposal would also make permanent the ARP expansion of age-eligibility. As under ARP law, taxpayers who could be claimed as a qualifying child or a dependent would not be eligible for the EITC for childless workers. Thus, full-time students who are dependent on their parents would not be allowed to claim the EITC for workers without qualifying children, despite meeting

the new age requirements, even if their parents did not claim a dependent exemption or an EITC on their behalf.

This proposal would be effective for taxable years beginning after December 31, 2021.

MAKE PERMANENT AMERICAN RESCUE PLAN CHANGES TO THE CHILD AND DEPENDENT CARE TAX CREDIT

Current Law

Taxpayers with child or dependent care expenses who are working, training, or looking for work are eligible for a tax credit that partially offsets the cost of care. Married couples are eligible only if they file a joint return and either both spouses are working or looking for work, or if one spouse is working or looking for work and the other is attending school full-time. To qualify for the tax credit, the child and dependent care expenses must be for either (1) a child under age 13 when the care was provided or (2) a disabled dependent of any age with the same place of abode as the taxpayer. The expenses eligible for tax credit are reduced by the total amount of dependent care expenses that the taxpayer excludes from income under a dependent care assistance program.

The credit is calculated as a percentage of qualified expenses up to a cap. The cap varies with the number of qualified children or other dependents, up to two. The percentage match decreases with income.

Taxpayers may also be offered dependent care assistance through their employers. Certain amounts of employer assistance or employee contributions to a flexible spending account (FSA) may be excluded from employee wages for both income and payroll tax purposes. The maximum amount of expenses that may be used to claim the Child and Dependent Care Tax Credit (CDCTC) must be reduced by any amount of employer assistance that is excluded from wages.

Under current law, expenses are self-reported, though taxpayers provide employment identification number (EIN) or taxpayer identification number (TIN) for the payee. The Internal Revenue Service (IRS) has limited ability to identify noncompliance outside of an audit.

Paid preparers of returns with a claim for the earned income tax credit, the child tax credit/additional child tax credit, the credit for other dependents, the American opportunity tax credit and/or head of household status must meet due diligence requirements in determining the taxpayer's eligibility and the appropriate credit amount(s). These are described in section 6695(g) of the Internal Revenue Code.

Low and moderate-income families with childcare expenses may receive financial assistance from federal, state, local or private organizations that offset some or all of the out-of-pocket costs for child and dependent care. Providers include the state and local partners of the Child Care Development Fund (CCDF) in the Department of Health and Human Services.

The CDCTC and dependent care employer assistance plans have special rules for taxable year 2021, which were part of the American Rescue Plan Act of 2021 (ARP).

The CDCTC and dependent care assistance for taxable year 2021

Eligible taxpayers may claim a refundable credit for up to 50 percent of up to \$8,000 in eligible expenses for one child or disabled dependent and up to \$16,000 in eligible expenses for more than one child and/or disabled dependent. The percentage of expenses for which a credit may be taken (the match rate) is reduced by 1 percentage point for each \$2,000 or part thereof by which the taxpayer's adjusted gross income (AGI) exceeds \$125,000 until the match rate reaches 20 percent (at an AGI of \$183,000) after which point the match rate plateaus. The match rate begins decreasing again by 1 percentage point for each \$2,000 or part thereof by which the taxpayer's AGI exceeds \$400,000, reaching zero at AGI in excess of \$438,000.

Up to \$10,500 in employer assistance or employee contributions for dependent care may be excluded from employee wages for both income and payroll tax purposes. As under pre-ARP law, the maximum amount of expenses that may be used to claim the CDCTC must be reduced by any amount of employer assistance that is excluded from wages.

Reporting of expenses is unchanged by ARP.

The CDCTC and dependent care assistance before and after taxable year 2021

Eligible taxpayers may claim a nonrefundable credit for up to 35 percent of up to \$3,000 in eligible expenses for one child or disabled dependent and up to \$6,000 in eligible expenses for more than one child and/or disabled dependent. The percentage of expenses for which a credit may be taken is reduced by 1 percentage point for each \$2,000 or part thereof by which the taxpayer's AGI exceeds \$15,000 until the percentage of expenses reaches 20 percent (at an AGI of \$43,000). This 20 percent credit rate applies at all income levels above \$43,000. The phase-down thresholds and the amount of expenses eligible for the credit are not indexed for inflation and have been unchanged since 2003.

The value of the credit has eroded over time. No taxpayer actually receives the maximum credit of \$2,100 (35 percent of \$6,000) because no taxpayer with dependent children incurs an income tax liability with AGI as low as \$15,000.

Up to \$5,000 in employer assistance or employee contributions to a dependent care flexible spending account (FSA) may be excluded from employee wages for both income and payroll tax purposes. The maximum amount of expenses that may be used to claim the CDCTC must be reduced by any amount of employer assistance that is excluded from wages.

US territories (permanent change)

The ARP provides for a reimbursement of mirror code Territories (those whose tax codes mirror the U.S. federal income tax code: Guam, the U.S. Virgin Islands, and the Northern Mariana Islands) for the costs of this refundable credit in 2021; reimbursement is done on a permanent basis, so it also affects credits in future years. Additionally, for non-mirror code Territories (that is, Puerto Rico and American Samoa), the ARP provides a reimbursement for the aggregate value of such a credit, provided the Territory develops a plan, approved by the Secretary, to

distribute these amounts to its residents promptly. This extension of a CDCTC to the Territories is permanent.

Reasons for Change

Good quality care for children and disabled dependents is expensive. For moderate income taxpayers, the cost of childcare can be more than a third of their resources, and good quality care may be out of reach. The expansions in the ARP recognize the importance of access to quality childcare by providing a broad subsidy to most families, including those with limited income tax liability.

Strong reporting requirements maintain the integrity of the tax system. The expansion of the CDCTC will increase the number of people who claim the credit and the total value of the credits claimed. In order to maintain compliance, improved reporting requirements are useful. A small additional burden to taxpayers and providers is appropriate given the size of the tax benefit.

Families who pay for childcare find solutions to their childcare needs through many different types of care, including large childcare centers, small centers or individual providers, or week-long or day-long “camps” coordinated with school closings. Relationships between a family and a provider might last for years or change with employment or preferences. A broad set of reporting rules is needed to address all kind of care.

Proposal

The proposal would make permanent the changes to the CDCTC enacted in the ARP for taxable year 2021.

In addition, the proposal would establish reporting requirements appropriate for an expanded refundable tax credit. For example, the following requirements would further compliance:

The CDCTC would be added to the list of credits subject to paid preparer due diligence requirements described in section 6695(g). This change would treat the CDCTC in a comparable manner to the other refundable credits.

To claim the CDCTC, taxpayers would be required to provide the information about the organizations or persons who provide the care, including the name, address, and the EIN or TIN of the care provider. Math error authority would be provided to the IRS to decline credit claims if such information is missing or deemed invalid.

Another helpful measure would be the establishment of an information return requirement for agencies that provide childcare subsidies on behalf of children or other dependents, including those associated with the Child Care Development Fund (CCDF) or the Child Care for American Families program proposed in this Budget. This requirement would prevent credit claims in excess of allowable limits or on amounts not paid by the taxpayer. The Secretary of the Treasury or her delegate would be granted authority to issue regulations to exempt certain agencies from this reporting requirement and to prescribe a standardized form detailing the information about

the care expenses claimed for the CDCTC that would apply to the exempted agencies and other care providers.

The American Families Plan would establish Child Care for American Families to ensure that low and middle-income families pay no more than 7 percent of their income for high-quality childcare for children from birth to five-years-old. While families can benefit from both this childcare program and the tax benefits, including for the same child, they cannot claim the CDCTC (or the exclusion) for a care expense, including a co-pay, that was already subsidized under Child Care for American Families.

The proposal would be effective for taxable years beginning after December 31, 2021.

EXTEND THE CHILD TAX CREDIT INCREASE THROUGH 2025 AND MAKE PERMANENT FULL REFUNDABILITY

Current Law

A taxpayer may claim a child tax credit (CTC) for each qualifying child. A qualifying child for the CTC must meet the following five requirements:

1. Relationship – The child generally must be the taxpayer’s son, daughter, grandchild, sibling, niece, nephew, or foster child.
2. Residence – The child must live with the taxpayer in the same principal place of abode for over half the year.
3. Support – The child must not have provided more than half of his or her own support.
4. Age – The child must be under the age of 17 (or under age 18 in taxable year 2021).
5. Identification – The child must have a taxpayer identification number (TIN) at the time the return is filed. (In taxable years 2021 through 2025 this TIN must be a social security number valid for work.)

The value of the credit, the portion of the credit that may be received as a refund, the presence of a related credit for children and dependents who do not meet the requirements for the CTC, and the income thresholds differ across taxable years. Taxpayers receive the credit in two parts: the portion that offsets individual income tax liability which is generally called the CTC, and the remainder which is received as an additional child tax credit (ACTC).

The CTC was substantially expanded for taxable year 2021 by the American Rescue Plan of 2021 (ARP). Prior expansions under the Tax Cuts and Jobs Act of 2017 (TCJA) still apply for taxable years 2021 through 2025. For subsequent taxable years, most elements of the child credit reflect pre-TCJA law. Specific rules for each period are described below:

CTC in taxable year 2021 (ARP in effect)

Taxpayers may claim a child tax credit (CTC) for up to \$3,600 for each qualifying child under age 6 and up to \$3,000 for all other qualifying children under age 18. To be a qualifying child in taxable year 2021, a child must have a social security number (SSN) at the time the return is due.

The full amount of the credit is refundable, regardless of the taxpayer’s Federal income tax liability or the presence of earned income.

A taxpayer may also claim a \$500 nonrefundable credit for all children and other dependents for whom a CTC may not be claimed. This second credit is called the credit for other dependents (ODTC).

The first \$1,600 of the CTC per qualifying child under age 6 and the first \$1,000 per qualifying child age 6 through 17 phase out sequentially with modified adjusted gross income (modified AGI) in excess of \$150,000 for married joint filers or surviving spouses, \$112,500 for head of household filers, and \$75,000 for all other filers, at a rate of \$50 per \$1,000 (or part thereof) of modified AGI in excess of the relevant threshold.

The remainder of the CTC, plus any amount of ODTTC, is further reduced by \$50 for each \$1,000 (or part thereof) that exceeds \$200,000 (\$400,000 for married taxpayers filing a joint return) of modified AGI. Larger families follow a modified phaseout rule that extends the AGI range of the phaseout.

For taxable year 2021 only, taxpayers may receive up to 50 percent of their estimated total CTC (including ACTC) in advance, in a series of periodic payments. These payments will be issued from July to December of 2021. A taxpayer may receive up to 50 percent of their otherwise allowable credit based on information reported on their 2020 individual income tax return (or the 2019 return if the 2020 return is not available).

Taxpayers may opt out of advance payments using a designated Internal Revenue Service (IRS) portal. The portal may also be used to report changes in circumstances during the year that affect taxable year 2021 CTC eligibility. A taxpayer's Federal income tax will be increased, dollar-for-dollar, if their total CTC advance payments during 2021 exceeds the amount of the CTC to which they are eventually entitled. However, safe harbor rules may reduce the additional income tax owed depending on the taxpayer's modified AGI.

CTC for taxable years 2022-2025 (TCJA in effect, ARP changes expired)

For taxable years 2022 through 2025, a taxpayer may claim a CTC of up to \$2,000 per qualifying child, only part of which is refundable. To be a qualifying child in these taxable years, a child must be under age 17 and have an SSN valid for work at the time the return is due.

A taxpayer without sufficient Federal income tax liability to claim the full CTC can claim the ACTC. The ACTC will be the lesser of (1) \$1,400 per qualifying child, and (2) 15 percent of earnings in excess of \$2,500, up to the amount of any unclaimed CTC.

As in taxable year 2021, a taxpayer may claim a \$500 ODTTC for all children and other dependents for whom a CTC may not be claimed. The sum of the CTC (including any ACTC) and the ODTTC will be reduced by \$50 for each \$1,000 that exceeds \$200,000 of modified AGI (or \$400,000 for married taxpayers filing a joint return).

The \$1,400 maximum refundable amount per qualifying child is indexed for inflation but cannot exceed \$2,000. The maximum credit amount per qualifying child, the income at which the phaseout begins, and the \$2,500 earned income threshold for refundability are not indexed.

CTC in taxable years after 2025 (TCJA has expired)

For taxable years beginning after December 31, 2025, a taxpayer may claim a CTC of up to \$1,000 per qualifying child. To be a qualifying child, a child must have a TIN at the time the return is due.

A taxpayer without sufficient Federal income tax liability to claim the full \$1,000 credit can claim the ACTC. The ACTC will be the lesser of (1) \$1,000 per qualifying child, and (2) 15 percent of earnings in excess of \$3,000, up to the amount of any unclaimed CTC.

The credit will be reduced for taxpayers with over \$75,000 of modified AGI (or \$110,000 for married taxpayers filing a joint return). No parameters are indexed for inflation.

U.S. territories (permanent change):

The ARP provides for a reimbursement of mirror code Territories (those whose tax codes mirror the U.S. Federal income tax code: Guam, the U.S. Virgin Islands, and the Northern Mariana Islands) for the costs of this credit in 2021; reimbursement is done on a permanent basis so it will also affect child tax credits in future years. Mirror code Territories also receive administrative costs to set up the advance child tax credit payments in 2021. Puerto Rico's child tax credit will be administered by the IRS directly, with no advance payments. American Samoa may choose to be reimbursed (and issue advance payments of the CTC) or have IRS administer (no advance payments).

Reasons for Change

The ARP expansion of the Child Tax Credit will substantially reduce child poverty by supplementing the earnings of families receiving the tax credit, making the full credit available to a significant number of new families with limited earnings and income tax liability (through complete refundability), and providing regular financial assistance to families throughout the year.

Proposal

The proposal would extend to taxable years beginning before January 1, 2026 most of the ARP changes to the CTC:

1. The age to qualify for the CTC would be increased one additional year to include children who are 17 years old.
2. The maximum tax credit per child would be increased to \$3,600 for qualifying children under 6 and to \$3,000 for all other qualifying children. The portion of the credit in excess of \$2,000 will phase out sequentially with income in excess of \$150,000 of modified AGI for married joint filers or surviving spouses, \$112,500 for head of household filers, and \$75,000 for all other filers, with a modified rule for large families.

3. Allow 50 percent of the otherwise allowable credit to be paid in advance based on information on the previous year's income tax return.

The CTC would be made fully refundable, regardless of earned income, for all taxable years.

Advance payments of the CTC would be automatically deposited by electronic funds transfer into the recipient's bank or card account each month to the maximum extent possible. This disbursement method would help ensure the quick and secure delivery of advance CTC payments.

The Treasury and the Internal Revenue Service will develop strategies to minimize the amount of advance CTC payments that is paid to individuals who are ultimately not eligible for the credit. This effort will include additional statutory recommendations, regulatory changes, data collection, and data matching.

The proposal would be effective for taxable years beginning after December 31, 2021.

INCREASE THE EMPLOYER-PROVIDED CHILDCARE TAX CREDIT FOR BUSINESSES

Current Law

Employers who provide childcare facilities or contract with an outside facility for the provision of care may claim a nonrefundable credit of 25 percent of qualified care expenses and 10 percent of referral expenses, for a maximum total credit of \$150,000 per year. Qualified expenses include the acquisition, construction, rehabilitation or expansion of qualifying properties, operating costs, or contracting with a qualified childcare facility to provide services for the taxpayer's employees.

Reasons for Change

Increased tax credits available to businesses would subsidize the cost and encourage the provision of childcare for employees. On-site childcare is valued by parents, and may generate important benefits such as lower absenteeism, higher employee performance, higher employee retention, and higher employee satisfaction.

Proposal

The proposal would increase the existing tax credit to 50 percent of the first \$1 million of qualified care expenses for a maximum total credit of \$500,000 per year. The portion of the tax credit related to referral expenses would remain at 10 percent with a maximum amount of \$150,000.

The proposal would be effective for taxable years beginning after December 31, 2021.

CLOSE LOOPHOLES

TAX CARRIED (PROFITS) INTERESTS AS ORDINARY INCOME

Current Law

A partnership is not subject to Federal income tax. Instead, an item of income or loss of the partnership retains its character and flows through to the partners who must include such item on their tax returns. Generally, certain partners receive partnership interests in exchange for contributions of cash and/or property, while certain partners (not necessarily other partners) receive partnership interests, typically interests in future partnership profits referred to as “profits interests” or “carried interests,” in exchange for services. Accordingly, if and to the extent a partnership recognizes long-term capital gain, the partners, including partners who provide services, will reflect their shares of such gain on their tax returns as long-term capital gain. If the partner is an individual, such gain would be taxed at the reduced rates for long-term capital gains. Gain recognized on the sale of a partnership interest, whether it was received in exchange for property, cash, or services, is generally capital gain. Section 1061 of the Internal Revenue Code (Code) generally extends the long-term holding period requirement for certain capital gains resulting from partnership property dispositions and from partnership interest sales, from one year to three years.

Under current law, income attributable to a profits interest is generally subject to self-employment tax, except to the extent the partnership generates types of income that are excluded from self-employment taxes, e.g., capital gains, certain interest, and dividends. A limited partner’s distributive share is generally excluded from self-employment tax under section 1402(a)(13) of the Code.

Reasons for Change

Although profits interests are structured as partnership interests, the income allocable to such interests is received in connection with the performance of services. A service provider’s share of the income of a partnership attributable to a carried interest should be taxed as ordinary income and subject to self-employment tax because such income is derived from the performance of services. By allowing service partners to receive capital gains treatment on labor income without limit, even with the holding period extension provided by section 1061, the current system creates an unfair and inefficient tax preference. Activity among large private equity firms and investment funds has increased the breadth and cost of this tax preference, with some of the highest-income Americans benefiting from this preferential tax treatment.

Proposal

The proposal would generally tax as ordinary income a partner’s share of income on an “investment services partnership interest” (ISPI) in an investment partnership, regardless of the character of the income at the partnership level, if the partner’s taxable income (from all sources) exceeds \$400,000. Accordingly, such income would not be eligible for the reduced rates that apply to long-term capital gains. In addition, the proposal would require partners in such

investment partnerships to pay self-employment taxes on such income. In order to prevent income derived from labor services from avoiding taxation at ordinary income rates, this proposal assumes that the gain recognized on the sale of an ISPI would generally be taxed as ordinary income, not as capital gain, if the partner is above the income threshold. To ensure more consistent treatment with the sales of other types of businesses, the Administration remains committed to working with Congress to develop mechanisms to assure the proper amount of income recharacterization where the business has goodwill or other assets unrelated to the services of the ISPI holder.

An ISPI is a profits interest in an investment partnership that is held by a person who provides services to the partnership. A partnership is an investment partnership if substantially all of its assets are investment-type assets (certain securities, real estate, interests in partnerships, commodities, cash or cash equivalents, or derivative contracts with respect to those assets), but only if over half of the partnership's contributed capital is from partners in whose hands the interests constitute property not held in connection with a trade or business. To the extent (1) the partner who holds an ISPI contributes "invested capital" (which is generally money or other property) to the partnership, and (2) such partner's invested capital is a qualified capital interest (which generally requires that (a) the partnership allocations to the invested capital be made in the same manner as allocations to other capital interests held by partners who do not hold an ISPI and (b) the allocations to these non-ISPI holders are significant), income attributable to the invested capital would not be recharacterized. Similarly, the portion of any gain recognized on the sale of an ISPI that is attributable to the invested capital would be treated as capital gain. However, "invested capital" will not include contributed capital that is attributable to the proceeds of any loan or advance made or guaranteed by any partner or the partnership (or any person related to such persons).

Also, any person who performs services for any entity and holds a "disqualified interest" in the entity is subject to tax at rates applicable to ordinary income on any income or gain received with respect to the interest, if the person's taxable income (from all sources) exceeds \$400,000. A "disqualified interest" is defined as convertible or contingent debt, an option, or any derivative instrument with respect to the entity (but does not include a partnership interest, stock in certain taxable corporations, or stock in an S corporation). This is an anti-abuse rule designed to prevent the avoidance of the property through the use of compensatory arrangements other than partnership interests. Other anti-abuse rules may be necessary.

The proposal is not intended to adversely affect qualification of a real estate investment trust owning a profits interest in a real estate partnership.

The proposal would repeal section 1061 for taxpayers with taxable income (from all sources) in excess of \$400,000 and would be effective for taxable years beginning after December 31, 2021.

REPEAL DEFERRAL OF GAIN FROM LIKE-KIND EXCHANGES

Current Law

Currently, owners of appreciated real property used in a trade or business or held for investment can defer gain on the exchange of the property for real property of a “like kind.” As a result, the tax on the gain is deferred until a later recognition event, provided that certain requirements are met.

Reasons for Change

The proposal would treat the exchanges of real property used in a trade or business (or held for investment) similarly to sales of real property, resulting in fewer distortions.

The change would raise revenue while increasing the progressivity of the tax system.

Proposal

The proposal would allow the deferral of gain up to an aggregate amount of \$500,000 for each taxpayer (\$1 million in the case of married individuals filing a joint return) each year for real property exchanges that are like kind. Any gains from like-kind exchanges in excess of \$500,000 (or \$1 million in the case of married individuals filing a joint return) during a taxable year would be recognized by the taxpayer in the year the taxpayer transfers the real property subject to the exchange.

The proposal would be effective for exchanges completed in taxable years beginning after December 31, 2021.

MAKE PERMANENT EXCESS BUSINESS LOSS LIMITATION OF NONCORPORATE TAXPAYERS

Current Law

Section 461(l) of the Internal Revenue Code limits the extent to which pass-through business losses may be used to offset other income. In particular, for taxable years beginning after December 31, 2020, and before January 1, 2027, noncorporate taxpayers may not deduct an “excess business loss” from taxable income. Instead, these losses are carried forward to subsequent taxable years as net operating losses.

Excess business loss is defined as the excess of losses from business activities over the sum of (a) gains from business activities, and (b) a specified threshold amount. In 2021, these thresholds are \$524,000 for married couples filing jointly and \$262,000 for all other taxpayers; these amounts are indexed for inflation thereafter. The determination of excess business loss is made at the taxpayer level, aggregating across all business activities. However, gains or losses attributable to any trade or business of performing services as an employee are not considered.

Reasons for Change

The proposal would bring the tax treatment of losses from nonpassive pass-through business activities closer in line with the tax treatment of losses from corporations and passive pass-through business activities.

Corporate losses do not flow through to individual owners. Instead, they are carried forward (or backward) to other taxable years to offset other income sources derived from the same business.

Losses from passive pass-through business activities face somewhat less restrictive constraints. They may generally only be used to offset income derived from other passive pass-through business activities. Generally, they may not offset other income sources, such as wage income.

By constraining individuals’ abilities to offset income sources such as wages with nonpassive pass-through business losses, section 461(l) creates a more similar tax regime for business losses across different forms of business organization and types of business activity. However, the provision is set to expire in 2027.

Proposal

The proposal would make permanent the section 461(l) excess business loss limitation on noncorporate taxpayers.

The proposal would be effective for taxable years beginning after December 31, 2026.

IMPROVE COMPLIANCE

IMPLEMENT A PROGRAM INTEGRITY ALLOCATION ADJUSTMENT AND PROVIDE ADDITIONAL FUNDING FOR TAX ADMINISTRATION

Current Law

Almost all Internal Revenue Service (IRS) operating costs are funded by congressional appropriations. Previous Administrations and Congresses have used a budget mechanism called a program integrity allocation adjustment to increase congressional allocations for annual budget appropriations. Under the mechanism, funding above the discretionary levels specified in the annual congressional appropriations process is granted for certain program integrity purposes, where the term “program integrity” broadly refers to activity that maintains the effectiveness of a government program. In the past, Congress has appropriated funding to the IRS through a program integrity allocation adjustment for enforcement and compliance programs that generate positive net revenue.

Reasons for Change

The IRS’s operating budget fell by about 20 percent in constant dollars between 2010 and 2020. At the same time, the IRS needed additional resources to identify and respond to many emerging areas of noncompliance, implement some of the most significant tax legislative changes in decades, and stand up several new or expanded programs in response to a global pandemic and economic crisis. A robust and reliable stream of resources is critical for the IRS to maintain its enforcement functions, expand and improve its compliance programs, and help the agency increase its effectiveness and efficiency. A visible, robust presence of IRS functions helps promote voluntary compliance and ensure confidence in the tax system.

Proposal

The Administration proposes a multi-year adjustment to the discretionary spending allocation for the IRS Enforcement and Operations Support accounts. The total adjustment would be \$6.7 billion over the budget window. The proposed allocation adjustment for 2022 would fund \$417 million in enforcement and compliance initiatives and investments above current levels of activity. The adjustment would cover inflation and the cost to sustain the new initiatives and investments through 2031.

In addition, the Administration proposes to provide the IRS \$72.5 billion in mandatory funding over the budget window. A portion of these proposed IRS resources would fund improvements and expansions in enforcement and compliance activities. The proposed mandatory funding would also provide the IRS with resources to enhance its information technology capability, including implementation of the proposed financial information reporting regime, and to strengthen taxpayer service.

The proposal would direct that additional resources go toward enforcement against those with the highest incomes, rather than Americans with actual income of less than \$400,000.

Details about these IRS funding programs are provided elsewhere in the Budget.

INTRODUCE COMPREHENSIVE FINANCIAL ACCOUNT REPORTING TO IMPROVE TAX COMPLIANCE

Current Law

Business income is subject to limited information reporting. Current information reporting of gross receipts exists for only certain types of revenue (from Forms 1099-MISC, 1099-NEC, and 1099-K), and there is no information reporting on total deductible expenses.

Reasons for Change

The tax gap for business income (outside of large corporations) from the most recently published Internal Revenue Service (IRS) estimates is \$166 billion a year.¹ The scale of this revenue loss is driven primarily by the lack of comprehensive information reporting and the resulting difficulty identifying noncompliance outside of an audit. While the net misreporting percentage is only 5 percent for income subject to substantial information reporting, the net misreporting percentage for certain categories of business income exceeds 50 percent.

Requiring comprehensive information reporting on the inflows and outflows of financial accounts will increase the visibility of gross receipts and deductible expenses to the IRS. Increased visibility of business income will enhance the effectiveness of IRS enforcement measures and encourage voluntary compliance.

Proposal

This proposal would create a comprehensive financial account information reporting regime. Financial institutions would report data on financial accounts in an information return. The annual return will report gross inflows and outflows with a breakdown for physical cash, transactions with a foreign account, and transfers to and from another account with the same owner. This requirement would apply to all business and personal accounts from financial institutions, including bank, loan, and investment accounts,² with the exception of accounts below a low de minimis gross flow threshold of \$600 or fair market value of \$600.

Other accounts with characteristics similar to financial institution accounts will be covered under this information reporting regime. In particular, payment settlement entities would collect Taxpayer Identification Numbers (TINs) and file a revised Form 1099-K expanded to all payee accounts (subject to the same de minimis threshold), reporting not only gross receipts but also gross purchases, physical cash, as well as payments to and from foreign accounts, and transfer inflows and outflows.

Similar reporting requirements would apply to crypto asset exchanges and custodians. Separately, reporting requirements would apply in cases in which taxpayers buy crypto assets

¹ Computed from individual income tax business income, small corporations, and self-employment tax components.

² Current income reporting by financial institutions would be expanded to all entities, including certain corporations. Interest payments would be included in the loan account reporting. Transferee information would be reported for all real estate transactions on Form 1099-S.

from one broker and then transfer the crypto assets to another broker, and businesses that receive crypto assets in transactions with a fair market value of more than \$10,000 would have to report such transactions.

The Secretary would be given broad authority to issue regulations necessary to implement this proposal.

The proposal would be effective for tax years beginning after December 31, 2022.

IMPROVE TAX ADMINISTRATION

INCREASE OVERSIGHT OF PAID TAX RETURN PREPARERS

Current Law

Oversight of paid preparers by the Internal Revenue Service (IRS)

Taxpayers are increasingly turning to paid tax return preparers and software to assist them in meeting their tax filing obligations. Under U.S.C. Title 31 (Money and Finance), Section 330 – Practice before the Department, the Secretary has the authority to regulate practice before the IRS. Regulations under that section, referred to as “Circular 230,” regulate the practice of licensed attorneys, certified public accountants, and enrolled agents and actuaries. In 2009, in response to concerns about the lack of regulation of unlicensed and unenrolled paid tax return preparers, the IRS conducted a formal review of its regulation of paid tax return preparers. After significant consideration and input from taxpayers, tax professionals, and other stakeholders, Treasury and the IRS amended Circular 230 to regulate the practice of all paid tax return preparers, including individuals who are unlicensed and unenrolled. Paid tax return preparers challenged these regulations in *Loving v. Commissioner*. The Court of Appeals for the District of Columbia Circuit determined that these regulations exceeded the authority of the IRS.

Penalties on ghost preparers

By law, anyone who is paid to prepare or assists in preparing federal tax returns must identify themselves on those returns by using the prescribed identifying number. Under the applicable regulations, that number is a valid Preparer Tax Identification Number, or PTIN. Paid tax return preparers must sign and include their PTIN on the return. Paid tax return preparers who fail to identify themselves on tax returns are generally referred to as “ghost preparers.” The penalty for failure to identify a paid tax return preparer is \$50 per return, not to exceed \$25,000 per preparer per year. The penalty must be assessed within three years after the return has been filed.

Reasons for Change

These proposals would improve compliance by increasing the tools available to ensure that those who prepare tax returns do so in a high-quality and professional manner.

Paid tax return preparers have an important role in tax administration because they assist taxpayers in complying with their obligations under the tax laws. Incompetent and dishonest tax return preparers increase collection costs, reduce revenues, disadvantage taxpayers by potentially subjecting them to penalties and interest as a result of incorrect returns, and undermine confidence in the tax system. Regulation of paid tax return preparers, in conjunction with diligent enforcement, will help promote high quality services from paid tax return preparers, will improve voluntary compliance, and will foster taxpayer confidence in the fairness of the tax system. The lack of authority to provide federal oversight on tax preparers can result in greater non-compliance by taxpayers due to their preparers’ incompetence or unscrupulous conduct. This potentially harms taxpayers who become subject to penalties or avoidable costs of litigation.

It also results in less revenue to the IRS when the noncompliance is not mitigated during return processing.

Requiring paid tax return preparers to obtain and report a PTIN improves tax compliance. Ghost preparers are compensated for preparing returns but refuse to identify themselves on the returns purposely to avoid detection. These preparers may be: (1) attempting to avoid IRS scrutiny of positions taken on the return; (2) already subject to a compliance action or under a federal court order barring them from further return preparation; or (3) underreporting their own income from tax preparation, thereby increasing the tax gap.

The IRS spends significant resources identifying and investigating those paid tax return preparers who fail to include a valid identifying number on returns they prepared. The costs to the IRS for a single infraction can easily exceed the \$50 penalty per return.

Proposal

Increase oversight of paid tax return preparers

The proposal would amend Title 31, U.S. Code (Money and Finance) to provide the Secretary with explicit authority to regulate all paid preparers of Federal tax returns, including by establishing mandatory minimum competency standards.

The proposal would be effective on the date of enactment.

Increase penalties on ghost preparers

The proposal would increase the penalty amount to the greater of \$500 per return or 100 percent of the income derived per return by a ghost preparer. The proposal would also increase the limitations period during which the penalty may be assessed from three years to six years.

The proposal would be effective for returns required to be filed after December 31, 2021.

ENHANCE ACCURACY OF TAX INFORMATION

Current Law

Electronic filing of forms and returns

Generally, the Secretary of the Treasury or her delegate (Secretary) may issue regulations that require electronic filing of returns (as opposed to paper filing of returns) if the taxpayer files a minimum number of returns during a year. For example, corporations that have assets of \$10 million or more and file at least 250 returns of any type during a calendar year are required to file electronically their Form 1120/1120S income tax returns. Partnerships with more than 100 partners are required to file electronically, regardless of how many returns they file.

Before requiring electronic filing, the Internal Revenue Service (IRS) and the Department of the Treasury are generally required to take into account the ability of taxpayers to comply at a reasonable cost. Taxpayers may request waivers of the electronic filing requirement if they cannot meet that requirement due to technological constraints, or if compliance with the requirement would result in undue financial burden on the taxpayer. In general, the Secretary may not require individuals, estates, and trusts to file their income tax returns electronically.

Reportable payments subject to backup withholding

Backup withholding applies to a reportable payment if a payee fails to furnish the payee's taxpayer identification number (TIN) to the payor in the manner required. Currently, the IRS may only require that the payee furnish the TIN under penalties of perjury with respect to interest, dividends, patronage dividends, and amounts subject to broker reporting. Accordingly, payees of these reportable payments are generally required to provide payors with a certified TIN using a Form W-9, Request for Taxpayer Identification Number and Certification under penalties of perjury. Payees of other reportable payments subject to backup withholding may furnish their TINs in other ways, including orally, unless the IRS has notified a payor that the TIN furnished is incorrect. This applies to payments under sections 6041, 6041A, 6050A, 6050N, and 6050W of the Internal Revenue Code.

Reasons for Change

Facilitating more accurate tax information supports the broader goals of improving IRS service to taxpayers, enhancing compliance, and modernizing tax administration.

Expanding electronic filing will help provide tax return information to the IRS in a more uniform electronic form, which will enhance the ability of the IRS to better target its audit activities. This in turn can reduce burdens on compliant taxpayers by decreasing the probability that they will be among those selected for audit. Consequently, increased electronic filing of returns may improve satisfaction and confidence in the filing process. The proposal would provide the Secretary broader authority to require electronic filing that would facilitate the IRS's compliance risk assessment process and allow for more efficient tax administration, particularly with respect to

large or complex business entities and certain types of transactions that may warrant greater scrutiny.

The intent of backup withholding is to serve as an enforcement tool in ensuring payors and payees are compliant with their reporting obligations. Requiring payees to certify their TINs to payors on a Form W-9 or equivalent form reduces the level of enforcement necessary to ensure information is accurate. Information reporting increases compliance by providing taxpayers with the information that they need to accurately complete their tax returns and by providing the IRS with information that can be used to verify taxpayer compliance. Without accurate taxpayer identifying information, information reporting requirements impose avoidable burdens on businesses and the IRS.

Proposal

Expand the Secretary's authority to require electronic filing for forms and returns

Electronic filing would be required for returns filed by taxpayers reporting larger amounts or that are complex business entities, including: (1) income tax returns of individuals with gross income of \$400,000 or more; (2) income, estate, or gift tax returns of all related individuals, estates, and trusts with assets or gross income of \$400,000 or more in any of the three preceding years; (3) partnership returns for partnerships with assets or any item of income of more than \$10 million in any of the three preceding years; (4) partnership returns for partnerships with more than 10 partners; (5) returns of REITs, REMICs, RICs, and all insurance companies; and (6) corporate returns for corporations with \$10 million or more in assets or more than 10 shareholders. Further, electronic filing would be required for the following forms: (1) Forms 8918, "Material Advisor Disclosure Statement"; (2) Forms 8886, "Reportable Transaction Disclosure Statement"; (3) Forms 1042, "Annual Withholding Tax Return for U.S. Source Income of Foreign Persons"; (4) Forms 8038-CP, "Return for Credit Payments to Issuers of Qualified Bonds"; and (5) Forms 8300, "Report of Cash Payments Over \$10,000 Received in a Trade or Business."

Return preparers that expect to prepare more than 10 corporation income tax returns or partnership returns would be required to file such returns electronically.

The Secretary would also be authorized to determine which additional returns, statements, and other documents must be filed in electronic form in order to ensure the efficient administration of the internal revenue laws without regard to the number of returns that a person files during a year.

Improve information reporting for reportable payments subject to backup withholding

The proposal would also treat all information returns subject to backup withholding similarly. Specifically, the IRS would be permitted to require payees of any reportable payments to furnish their TINs to payors under penalty of perjury. The proposal would be effective for payments made after December 31, 2021.

EXPAND BROKER INFORMATION REPORTING WITH RESPECT TO CRYPTO ASSETS

Current Law

Under current law, any person doing business as a broker is required to report certain information about their customers to the Internal Revenue Service (IRS), such as the identity of each customer, the gross proceeds from sales of securities and certain commodities for such customer, and, for covered securities, cost basis information. A broker means a dealer, barter exchange, or a person who, for a consideration, regularly acts as a middleman with respect to property or services. A customer means any person for whom the broker has transacted any business.

Pursuant to an income tax treaty or other international agreement to which the United States is a party and that authorizes the exchange of tax information with a foreign jurisdiction (information exchange agreements), the United States may receive, as well as provide, tax information. Information that is foreseeably relevant for tax administration may be exchanged under these agreements, including information about the identity of beneficial owners of entities.

Reasons for Change

Tax evasion using crypto assets is a rapidly growing problem. Since the industry is entirely digital, taxpayers can transact with offshore crypto exchanges and wallet providers without leaving the United States. The global nature of the crypto market offers opportunities for U.S. taxpayers to conceal assets and taxable income by using offshore crypto exchanges and wallet providers. U.S. taxpayers also attempt to avoid U.S. tax reporting by creating entities through which they can act. To combat the potential for crypto assets to be used for tax evasion, third party information reporting is critical to help identify taxpayers and bolster voluntary tax compliance.

The United States has established a broad network of information exchange relationships with foreign jurisdictions under information exchange agreements. The information obtained through those agreements has been central to recent successful IRS enforcement efforts against offshore tax evasion involving traditional assets. The strength of those information exchange relationships depends, however, on cooperation and reciprocity. Further, as the IRS has gained more experience with exchange of tax information on an automatic basis with appropriate partner jurisdictions, it is clear that a jurisdiction's willingness to share information on an automatic basis with the United States often depends on the United States' willingness and ability to reciprocate by exchanging comparable information.

In order to ensure that the United States is able to benefit from a global automatic exchange of information framework with respect to offshore crypto assets and receive information about U.S. beneficial owners it is essential that United States reciprocally provide information on foreign beneficial owners of certain entities transacting in crypto assets with U.S. brokers.

Proposal

The proposal would expand the scope of information reporting by brokers who report on crypto assets to include reporting on certain beneficial owners of entities holding accounts with the broker. This would allow the United States to share such information on an automatic basis with appropriate partner jurisdictions, in order to reciprocally receive information on U.S. taxpayers that directly or through passive entities engage in crypto asset transactions outside the United States pursuant to a global automatic exchange of information framework.

The proposal would require brokers, including entities such as U.S. crypto asset exchanges and hosted wallet providers, to report information relating to certain passive entities and their substantial foreign owners when reporting with respect to crypto assets held by those entities in an account with the broker. The proposal, if adopted, and combined with existing law, would require a broker to report gross proceeds and such other information as the Secretary may require with respect to sales of crypto assets with respect to customers, and in the case of certain passive entities, their substantial foreign owners.

The proposal would be effective for returns required to be filed after December 31, 2022.

ADDRESS TAXPAYER NONCOMPLIANCE WITH LISTED TRANSACTIONS

Current Law

Generally, the assessment of any internal revenue tax must be made within three years after the date the return is filed. A special rule applies if a taxpayer fails to include on any return or statement information that is required with respect to a listed transaction. A listed transaction means a reportable transaction which is the same as, or substantially similar to, a transaction specifically identified by the Secretary of the Treasury or her delegate (Secretary) as a tax avoidance transaction. The period for assessment of tax with respect to a listed transaction does not expire before one year after the earlier of the date the required information is furnished to the Secretary or the date that a material advisor makes the required disclosure.

The Department of the Treasury and Internal Revenue Service (IRS) have identified “Intermediary Transaction Tax Shelters” as listed transactions that require disclosure on a tax return to avoid certain penalties. These transactions typically involve a sale of a controlling interest in the stock of a C corporation to another entity (an intermediary entity) that is undertaken as part of a plan to cause the C corporation to recognize income or gain from the sale of its assets shortly before or shortly after the sale of the C corporation’s stock.

In a typical case, an intermediary entity borrows funds to purchase the stock of the C corporation from the C corporation’s shareholders, and the consideration received by the C corporation from the sale of its assets is effectively used to repay that loan. These transactions are structured so that when a C corporation’s assets are sold, the C corporation is ultimately left with insufficient assets from which to pay the tax owed from the asset sale. In many cases, the intermediary does not pay the corporate income tax liability and is judgment-proof, frustrating the IRS’ ability to collect taxes that are legally owed.

The transaction may yield the selling shareholders a higher sales price for their C corporation stock than could be supported if the corporate income tax liability were to be paid. However, outside of the consolidated return context, former shareholders of a C corporation generally are not liable for any unpaid income taxes, interest, additions to tax, or penalties owed by the C corporation.

Reasons for Change

Additional time is needed for the IRS to conduct examinations and assess taxes in connection with listed transactions, which may be complex in nature and require a thorough examination of the relevant facts.

Despite Intermediary Transaction Tax Shelters having been identified by the IRS as listed transactions since 2001, shareholders, corporate officers, directors, and their advisors have continued to engage in Intermediary Transaction Tax Shelters or substantially similar transactions. Because the unpaid Federal tax evaded through these transactions is reflected in the price paid for the corporation’s stock, either the buyer or the seller could be liable for such unpaid amounts. Although the Federal government generally has adequate tools under current

law to collect amounts from the buyer or its lenders, these parties typically do not have assets in the United States against which the IRS can proceed to collect the unpaid taxes. The selling shareholders are typically the only parties with sufficient assets in the United States against which the IRS could proceed for collection; however, it has proven difficult for the IRS to effectively collect the unpaid Federal taxes from these selling shareholders under current law. Even though the IRS has pursued litigation to enforce collection from the selling shareholders of several corporations, these actions have yielded mixed results in factually similar cases. Thus, existing law does not adequately protect the Federal government's interest in collecting the amounts due from selling shareholders as a result of these transactions.

Proposal

Extend statute of limitations for listed transactions

The proposal would increase the limitations period under section 6501(a) of the Internal Revenue Code (Code) for returns reporting benefits from listed transactions from three years to six years. The proposal also would increase the limitations period for listed transactions under section 6501(c)(10) from one year to three years. This proposed change would be effective on the date of enactment.

Impose liability on shareholders to collect unpaid income taxes of applicable corporations

The proposal would also add a new section to the Code that would impose on shareholders who sell the stock of an "applicable C corporation" secondary liability (without resort to any State law) for payment of the applicable C corporation's income taxes, interest, additions to tax, and penalties to the extent of the sales proceeds received by the shareholders. The proposal applies to shareholders who, directly or indirectly, dispose of a controlling interest (at least 50 percent) in the stock of an applicable C corporation within a 12-month period in exchange for consideration other than stock issued by the acquirer of the applicable C corporation stock. The secondary liability would arise only after the applicable C corporation was assessed income taxes, interest, additions to tax, and penalties with respect to any taxable year within the 12-month period before or after the date that its stock was disposed of and the applicable C corporation did not pay such amounts within 180 days after assessment.

For purposes of the proposal, an applicable C corporation is any C corporation (or successor) two thirds or more of whose assets consist of cash, passive investment assets, or assets that are the subject of a contract of sale or whose sale has been substantially negotiated on the date that a controlling interest in its stock is sold. The proposal would grant the Department of the Treasury authority to prescribe regulations necessary or appropriate to carry out the proposal.

The proposal would not apply with respect to dispositions of a controlling interest (1) in the stock of a C corporation or real estate investment trust with shares traded on an established securities market in the United States, (2) in the shares of a regulated investment company that offers shares to the public, or (3) to an acquirer whose stock or securities are publicly traded on an established market in the United States, or is consolidated for financial reporting purposes with such a public issuer of stock or securities.

The proposal would close the taxable year of an applicable C corporation as of the later of a disposition of a controlling interest in its stock or a disposition of all of its assets. The proposal would also amend the Code to provide that the amount that the selling shareholder was secondarily liable for under this proposal would constitute a deficiency that was governed by the general notice and demand rules of the Code but with an additional year added to the statute of limitations for assessment. The proposal would not limit the government's ability to pursue any cause of action available under current law against any person.

The proposed changes above would be effective for sales of controlling interests in the stock of applicable C corporations occurring on or after April 10, 2013.

MODIFY TAX ADMINISTRATION RULES

Current Law

Centralized partnership audit regime

Section 6226 of the Internal Revenue Code (Code) requires reviewed year partners to include in their reporting year taxes an amount equal to the change in tax that would have occurred for the reviewed year and all years between the reviewed year and the reporting year if the partnership adjustments were taken into account by the partners in those taxable years. The statutory formula provides, however, that for each of those years, the partners take into account the changes in tax liability that would have occurred in those years by increasing or decreasing their tax liability on their reporting year return by the sum of those changes in tax. If the calculation results in a net decrease, current law treats that net decrease as an amount that can be used by the partners to reduce their reporting year income tax liabilities to zero. Any excess of that amount not offset with an income tax due in the reporting year at the partner level does not result in an overpayment that can be refunded. The excess amount cannot be carried forward and is permanently lost.

Requisite supervisory approval of penalty included in notice

Section 6751(b)(1) provides that no penalty under Title 26 shall be assessed unless the initial determination of such assessment is personally approved in writing by the immediate supervisor of the individual making such determination or such higher-level official as the Secretary of the Treasury or her delegate may designate. This section applies to all civil penalties imposed by the Code, except for penalties under section 6651 for failure to file tax returns or to pay tax; section 6654 for failure by individuals to pay estimated income tax; section 6655 for failure by corporations to pay estimated income tax; section 6662 with respect to an overstatement of certain qualified charitable contributions; and penalties that are automatically calculated through electronic means. With respect to individuals, the Internal Revenue Service (IRS) has the burden of production in a United States Tax Court proceeding challenging penalties to show the penalties are appropriate.

Reasons for Change

The inability for reviewed year partners to receive the full benefit of any reductions in tax as a result of partnership adjustments can lead to situations where a partner may be viewed as being taxed more for an adjustment made under the centralized partnership audit regime than the partner would have outside of the centralized partnership audit regime.

With respect to obtaining supervisory approval pursuant to section 6751(b), recent court decisions have led to uncertainty concerning, among other things, the requisite timing of the approval and qualified approvers. Judicial opinions have required supervisory approval of a penalty before the penalty is communicated to a taxpayer when a taxpayer still has the opportunity to raise defenses to the penalty. As a result, a supervisor may not have all the information relevant to making a decision whether a penalty is appropriate by the deadline

certain opinions have imposed. Many judicial opinions have barred penalties that a supervisor approved before assessment and before any opportunity for judicial review. When supervisory approval did not meet judicially-created deadlines, courts have barred penalties without considering whether the penalties were appropriate under the facts of the particular case. These barred penalties have included accuracy-related penalties where the taxpayers did not show they acted with reasonable care for underpayments on their returns. Barred penalties have also included those arising from understatements attributable to reportable transactions that the IRS identified as tax avoidance transactions or that taxpayers entered into with a significant purpose of income tax avoidance or evasion. In some cases, barred penalties have even included civil fraud penalties where the IRS has met its burden of showing by clear and convincing evidence that an underpayment of tax was attributable to fraud. These cases undercut the purpose of penalties to deter taxpayer non-compliance with tax laws, based on unclear, hard to apply rules that often apply retroactively.

Proposal

Amend the centralized partnership audit regime to address tax decreases greater than a partner's income tax liability

The proposal would amend sections 6226 and 6401 of the Code to provide that the amount of the net negative change in tax that exceeds the income tax liability of a partner in the reporting year is considered an overpayment under section 6401 and may be refunded.

Modify requisite supervisory approval of penalty included in notice

The proposal also clarifies that a penalty can be approved at any time prior to the issuance of a notice from which the Tax Court can review the proposed penalty and, if the taxpayer petitions the court, the IRS may raise a penalty in the court if there is supervisory approval before doing so. For any penalty not subject to Tax Court review prior to assessment, supervisory approval may occur at any time before assessment. In addition, this proposal expands approval authority from an "immediate supervisor" to any supervisory official, including those that are at higher levels in the management structure or others responsible for review of a potential penalty. Finally, this proposal eliminates the written approval requirement under section 6662 for underpayments of tax; section 6662A for understatements with respect to reportable transactions; and section 6663 for fraud penalties.

The proposals would be effective upon enactment.

AUTHORIZE LIMITED SHARING OF BUSINESS TAX RETURN INFORMATION TO MEASURE THE ECONOMY MORE ACCURATELY

Current Law

Current law authorizes the Internal Revenue Service (IRS) to disclose certain Federal tax information (FTI) for governmental statistical use. Business FTI may be disclosed to officers and employees of the Census Bureau for all businesses. Similarly, business FTI may be disclosed to officers and employees of the Bureau of Economic Analysis (BEA), but only for corporate businesses. Specific items permitted to be disclosed are detailed in the associated Treasury Regulations. The Bureau of Labor Statistics (BLS) is currently not authorized to receive FTI.

Reasons for Change

BEA's limited access to business FTI and BLS's lack of access to business FTI prevent BEA, BLS, and Census Bureau from synchronizing their business lists. Synchronization of business lists would significantly improve the consistency and quality of sensitive economic statistics including productivity, payroll, employment, and average hourly earnings.

In addition, given the growth of non-corporate businesses, especially in the service sector, the current limitation on BEA's access to corporate FTI impedes the measurement of income and international transactions in the National Accounts. The accuracy and consistency of income data are important to the formulation of fiscal policies.

Further, the Census Bureau's Business Register is constructed using both FTI and non-tax business data derived from the Economic Census and current economic surveys. Because this non-tax business data is inextricably comingled with FTI, it is not possible for the Census Bureau to share data with BEA and BLS in any meaningful way.

Proposal

The proposal would give officers and employees of BEA access to FTI of those sole proprietorships with receipts greater than \$250,000 and of all partnerships. BEA contractors would not have access to FTI.

The proposal would also give BLS officers and employees access to certain business (and tax-exempt entities) FTI including: TIN; name(s) of the business; business address (mailing address and physical location); principal industry activity (including business description); number of employees and total business-level wages (including wages, tips, and other compensation, quarterly from Form 941, Employer's Quarterly Federal Tax Return, and annually from Forms 943, Employer's Annual Federal Return for Agricultural Employees, and 944, Employer's Annual Federal Tax Return); and sales revenue for employer businesses only. BLS would not have access to individual employee FTI. In other words, the proposal would allow officers and employees of each of BLS, BEA, and the Census Bureau to access the same FTI for businesses, and would permit BLS, BEA, and the Census Bureau to share such FTI amongst themselves (subject to the restrictions described below).

For the purpose of synchronizing BLS and Census Bureau business lists, the proposal would permit employees of State agencies to receive from BLS the following FTI identity items: TIN, business name(s), business address(es), and principal industry activity (including business description). No BLS contractor or State agency contractor would have access to FTI.

The proposal would require any FTI to which BEA and BLS would have access, either directly from the IRS, from the Census Bureau, or from each other, to be used for statistical purposes consistently with the Confidential Information Protection and Statistical Efficiency Act (CIPSEA). The three statistical agencies and State agencies would be subject to taxpayer privacy law, safeguards, and penalties. They would also be subject to CIPSEA confidentiality safeguard procedures, requirements, and penalties. Conforming amendments to applicable statutes would be made as necessary to apply the taxpayer privacy law, including safeguards and penalties to BLS as well as the Census Bureau and BEA. BLS would be required to monitor compliance by State agencies with the prescribed safeguard protocols.

The proposal would be effective upon enactment.

TABLE OF REVENUE ESTIMATES

**REVENUE ESTIMATES OF THE
ADMINISTRATION'S FISCAL YEAR 2022 REVENUE PROPOSALS 1/2/**
(fiscal years, in millions of dollars)

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2022-26	2022-31
AMERICAN JOBS PLAN													
Reform corporate taxation:													
Raise the corporate income tax rate to 28 percent	0	51,127	86,182	88,059	89,385	91,784	92,065	90,730	89,357	88,798	90,330	406,537	857,817
Revise the global minimum tax regime, disallow deductions attributable to exempt income, and limit inversions	0	29,816	51,386	54,192	57,030	55,283	54,699	56,056	56,988	58,223	59,830	247,707	533,503
Reform taxation of foreign fossil fuel income: <i>Modify foreign oil and gas extraction income and foreign oil related income rules</i>	0	4,178	7,173	7,468	7,834	8,393	9,055	9,633	10,051	10,358	10,638	35,046	84,781
<i>Modify tax rule for dual capacity taxpayers</i>	0	48	123	128	134	143	154	165	173	178	183	576	1,429
Subtotal, reform taxation of foreign fossil fuel income	0	4,226	7,296	7,596	7,968	8,536	9,209	9,798	10,224	10,536	10,821	35,622	86,210
Repeal the deduction for Foreign-Derived Intangible Income	0	8,839	15,210	16,010	16,828	12,962	10,410	10,640	10,781	10,988	11,275	69,849	123,943
Provide additional support for research and experimentation expenditures	0	-8,839	-15,210	-16,010	-16,828	-12,962	-10,410	-10,640	-10,781	-10,988	-11,275	-69,849	-123,943
Subtotal, repeal the deduction for Foreign-Derived Intangible Income	0	0	0	0	0	0	0	0	0	0	0	0	0
Replace the Base Erosion Anti-Abuse Tax with the Stopping Harmful Inversions and Ending Low-Tax Developments Rule	0	0	33,244	53,796	51,111	47,655	44,463	41,914	39,425	38,990	39,453	185,806	390,051
Limit foreign tax credits for sales of hybrid entities	0	23	39	41	43	45	47	48	49	50	51	191	436
Restrict deductions of excessive interest of members of financial reporting groups for disproportionate borrowing in the United States	0	2,100	2,334	1,586	1,638	1,690	1,743	1,795	1,846	1,900	1,956	9,348	18,588
Impose a 15 percent minimum tax on book earnings of large corporations	0	10,736	15,245	14,588	13,812	14,561	15,203	16,049	16,158	15,775	16,217	68,942	148,344
Provide tax incentives for locating jobs and business activity in the United States and remove tax deductions for shipping jobs overseas:	0	-6	-10	-10	-11	-11	-12	-12	-13	-13	-14	-48	-112
Provide tax credit for in-shoring jobs to the United States	0	6	10	10	11	11	12	12	13	13	14	48	112
Remove tax deductions for shipping jobs overseas	0	-6	-10	-10	-11	-11	-12	-12	-13	-13	-14	-48	-112
Subtotal, provide tax incentives for locating jobs and business activity in the United States and remove tax deductions for shipping jobs overseas	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal, reform corporate taxation	0	98,028	195,726	219,858	220,987	219,554	217,429	216,390	214,047	214,272	218,658	984,153	2,034,949
Support housing and infrastructure:													
Expand the Low-Income Housing Tax Credit	0	-35	-212	-707	-1,592	-2,527	-3,427	-4,370	-5,362	-6,339	-7,356	-5,073	-31,927
Provide Neighborhood Homes Investment Tax Credit	0	-10	-99	-398	-944	-1,512	-1,889	-2,063	-2,083	-2,035	-2,001	-2,963	-13,034
Make permanent the New Markets Tax Credit	0	0	0	0	0	-97	-280	-492	-736	-1,006	-1,294	-97	-3,905
Provide federally subsidized state and local bonds for infrastructure 3/	0	-291	-767	-1,292	-1,458	-1,439	-1,403	-1,357	-1,308	-1,257	-1,204	-5,247	-11,776
Subtotal, support housing and infrastructure	0	-336	-1,078	-2,397	-3,994	-5,575	-6,999	-8,282	-9,489	-10,637	-11,855	-13,380	-60,642
Prioritize clean energy:													
Eliminate fossil fuel tax preferences:	0	158	389	599	808	951	988	980	975	974	976	2,905	7,798
Repeal enhanced oil recovery credit	0	39	100	128	116	78	38	14	3	0	0	461	516
Repeal credit for oil and gas produced from marginal wells	0	2,182	1,954	1,569	1,174	747	562	586	591	585	536	7,626	10,486
Repeal expensing of intangible drilling costs	0	10	10	9	9	9	8	8	8	8	7	47	86
Repeal deduction for tertiary injectants	0	678	767	794	831	890	946	996	1,045	1,093	1,132	3,960	9,172
Repeal exception to passive loss limitations provided to working interests in oil and natural gas properties	0	38	139	227	247	246	242	233	217	201	195	897	1,985
Repeal percentage depletion with respect to oil and natural gas wells	0	190	170	136	102	65	49	51	51	51	46	663	911
Increase geological and geophysical amortization period for independent producers	0	97	110	114	119	127	136	142	149	156	161	567	1,311
Repeal expensing of exploration and development costs	0	46	47	48	49	51	52	50	44	37	31	241	455
Repeal percentage depletion for hard mineral fossil fuels	0	0	0	0	0	0	0	0	0	0	0	0	1,027
Repeal capital gains treatment for royalties	0	31	39	39	39	39	40	41	41	42	44	187	395
Repeal the exemption from the corporate income tax for fossil fuel publicly traded partnerships	0	0	0	0	0	0	0	0	0	0	0	0	0
Repeal the excise tax exemption for crude oil derived from bitumen and kerogen-rich rock	0	0	0	0	0	0	0	0	0	0	0	0	0

included in repeal enhanced oil recovery credit

**REVENUE ESTIMATES OF THE
ADMINISTRATION'S FISCAL YEAR 2022 REVENUE PROPOSALS 1/ 2/ -- continued**
(fiscal years, in millions of dollars)

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2022-26	2022-31
<i>Repeal amortization of air pollution control facilities</i>	0	16	39	60	80	99	117	134	132	119	105	294	901
Subtotal, eliminate fossil fuel tax preferences	0	3,485	3,764	3,723	3,574	3,302	3,261	3,404	3,472	3,525	3,533	17,848	35,043
Extend and enhance renewable and alternative energy incentives:													
<i>Extend and modify the renewable electricity production credit 3/</i>	0	-2,059	-2,106	-937	-1,429	-1,903	-2,780	-4,606	-6,267	-7,730	-8,802	-8,434	-38,619
<i>Extend and modify the renewable energy investment credit 3/</i>	0	-1,397	-5,767	-26,324	-30,423	-31,149	-35,455	-26,833	-23,061	-18,540	-11,642	-95,060	-210,591
<i>Extend and modify the residential energy efficient credit</i>	0	-290	-480	-1,594	-2,256	-2,538	-2,846	-2,425	-1,933	-1,342	-392	-7,158	-16,096
Subtotal, extend and enhance renewable and alternative energy incentives	0	-3,746	-8,353	-28,855	-34,108	-35,590	-41,081	-33,864	-31,261	-27,612	-20,836	-110,652	-285,306
Provide tax credit for electricity transmission investments 3/	0	-187	-250	-1,746	-2,280	-2,863	-3,118	-3,239	-3,246	-3,420	-3,447	-7,326	-23,796
Provide allocated credit for electricity generation from existing nuclear power facilities 3/	0	-750	-1,000	-1,000	-1,000	-1,000	-1,000	-1,000	-1,000	-1,000	-1,000	-4,750	-9,750
Establish new tax credits for qualifying advanced energy manufacturing 3/	0	-425	-1,102	-1,492	-988	-824	-940	-1,396	-576	-58	-131	-4,831	-7,932
Establish tax credits for heavy- and medium-duty zero emission vehicles 3/	0	-71	-295	-835	-1,471	-2,692	-4,028	-1,178	-63	-11	0	-5,364	-10,644
Provide tax incentives for sustainable aviation fuel	0	-363	-503	-633	-693	-1,313	-1,696	-743	-376	-199	-117	-3,505	-6,636
Provide a production tax credit for low-carbon hydrogen 3/	0	-14	-53	-156	-358	-548	-979	-1,570	-445	-5	0	-1,129	-4,128
Extend and enhance energy efficiency and electrification incentives:													
<i>Extend and modify the nonbusiness energy property credit</i>	0	-532	-1,806	-2,460	-1,940	-1,056	-634	0	0	0	0	-7,794	-8,428
<i>Extend and increase the tax credit for construction of new energy efficient homes</i>	0	-128	-271	-298	-313	-337	-220	-72	-25	-8	-2	-1,347	-1,674
<i>Extend and increase the energy efficient commercial buildings deduction</i>	0	-146	-280	-328	-346	-350	-350	-350	-350	-351	-354	-1,450	-3,205
<i>Provide tax credits for mechanical insulation labor costs</i>	0	-317	-606	-736	-867	-1,007	-737	-454	-344	-229	-110	-3,533	-5,407
Subtotal, extend and enhance energy efficiency and electrification incentives	0	-1,123	-2,963	-3,822	-3,466	-2,750	-1,941	-876	-719	-588	-466	-14,124	-18,714
Provide disaster mitigation tax credit	0	-391	-411	-415	-415	-415	-415	-415	-415	-415	-332	-2,047	-4,039
Expand and enhance the carbon oxide sequestration credit 3/	0	-21	-10	-10	-19	-27	-101	-101	-53	-2,082	-3,634	-87	-6,058
Expand and enhance the electric vehicle charging station credit 3/	0	-236	-432	-848	-1,457	-2,599	-771	-18	26	35	33	-5,572	-6,267
Reinstate Superfund excise taxes and modify Oil Spill Liability Trust Fund financing:													
<i>Reinstate Superfund excise taxes</i>	0	1,715	2,340	2,406	2,455	2,517	2,560	2,610	2,670	2,723	2,787	11,433	24,783
<i>Modify Oil Spill Liability Trust Fund financing</i>	0	38	51	53	53	53	53	53	53	53	53	248	513
Subtotal, reinstate Superfund excise taxes and modify Oil Spill Liability Trust Fund financing	0	1,753	2,391	2,459	2,508	2,570	2,613	2,663	2,723	2,776	2,840	11,681	25,296
Subtotal, prioritize clean energy	0	-2,089	-9,217	-33,630	-40,173	-44,749	-50,196	-38,333	-31,933	-29,054	-23,557	-129,858	-302,931
Subtotal, American Jobs Plan	0	95,603	185,431	183,831	176,820	169,230	160,234	169,775	172,625	174,581	183,246	810,915	1,671,376
AMERICAN FAMILIES PLAN													
Strengthen taxation of high-income taxpayers:													
Increase the top marginal income tax rate for high earners	0	19,991	30,594	33,278	36,525	11,532	0	0	0	0	0	131,920	131,920
Reform the taxation of capital income	1,241	7,656	25,451	32,906	36,303	33,947	32,252	34,276	36,064	37,937	45,693	136,263	322,485
Rationalize net investment income and Self-Employment Contributions Act taxes	0	11,383	19,535	20,779	23,038	24,205	25,464	26,719	27,559	28,416	29,402	98,940	236,500
Subtotal, strengthen taxation of high-income taxpayers	1,241	39,030	75,580	86,963	95,866	69,684	57,716	60,995	63,623	66,353	75,095	367,123	690,905
Support workers, families, and economic security:													
Make permanent the American Rescue Plan expansion of Premium Tax Credits 3/	0	0	-11,490	-15,679	-16,513	-17,215	-18,076	-18,888	-20,149	-21,704	-23,334	-60,897	-163,048
Make permanent the expansion of the Earned Income Tax Credit for workers without qualifying children 3/	0	-27	-5,589	-11,782	-11,970	-12,145	-12,445	-12,576	-12,745	-12,908	-13,032	-41,513	-105,219
Make permanent American Rescue Plan changes to the Child and Dependent Care Tax Credit 3/	0	-3,134	-10,588	-10,588	-10,633	-12,303	-11,032	-11,195	-11,391	-11,573	-11,761	-47,246	-104,198
Extend the Child Tax Credit increase through 2025 and make permanent full refundability 3/	0	-47,125	-110,999	-108,559	-107,190	-62,060	-2,860	-2,725	-2,611	-2,512	-2,420	-435,933	-449,061
Increase the employer-provided childcare tax credit for businesses	0	-28	-28	-29	-29	-29	-31	-31	-32	-32	-33	-143	-302
Subtotal, support workers, families, and economic security	0	-50,314	-138,694	-146,637	-146,335	-103,752	-44,444	-45,415	-46,928	-48,729	-50,580	-585,732	-821,828

**REVENUE ESTIMATES OF THE
ADMINISTRATION'S FISCAL YEAR 2022 REVENUE PROPOSALS 1/ 2/ -- continued**
(fiscal years, in millions of dollars)

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2022-26	2022-31
Close loopholes:													
Tax carried (profits) interest as ordinary income	0	100	135	138	141	143	149	155	162	169	176	657	1,468
Repeal deferral of gain from like-kind exchanges	0	676	1,857	1,914	1,971	2,030	2,091	2,154	2,218	2,285	2,354	8,448	19,550
Make permanent excess business loss limitation of noncorporate taxpayers	0	0	0	0	0	0	9,996	11,782	7,627	6,836	6,619	0	42,860
Subtotal, close loopholes	0	776	1,992	2,052	2,112	2,173	12,236	14,091	10,007	9,290	9,149	9,105	63,878
Improve compliance:													
Implement a program integrity allocation adjustment and provide additional funding for tax administration:													
<i>Implement a program integrity allocation adjustment</i>	0	334	1,858	3,165	4,055	4,894	5,889	6,595	7,243	7,796	8,451	14,306	50,280
<i>Provide additional funding for tax administration</i>	0	0	631	3,312	7,562	13,837	22,342	34,081	46,941	62,253	74,937	25,342	265,896
Subtotal, implement a program integrity allocation adjustment and provide additional funding for tax administration	0	334	2,489	6,477	11,617	18,731	28,231	40,676	54,184	70,049	83,388	39,648	316,176
Introduce comprehensive financial account reporting to improve tax compliance	0	8,378	32,413	36,551	42,517	46,980	53,032	57,123	61,024	61,896	62,742	166,839	462,646
Subtotal, improve compliance	0	8,712	34,902	43,028	54,134	65,711	81,263	97,799	115,208	131,935	146,130	206,487	778,822
Improve tax administration:													
Increase oversight of paid tax return preparers:													
<i>Increase oversight of paid tax return preparers 3/</i>	0	35	52	57	59	58	55	57	61	68	73	261	575
<i>Increase penalties on ghost preparers 3/</i>	0	13	19	21	24	25	26	27	28	29	30	102	242
Subtotal, increase oversight of paid tax return preparers	0	48	71	78	83	83	81	84	89	97	103	363	817
Enhance accuracy of tax information:													
<i>Expand the Secretary's authority to require electronic filing for forms and returns</i>													
<i>Improve information reporting for reportable payments subject to backup withholding</i>	0	36	83	141	193	202	211	221	231	241	252	655	1,811
Subtotal, enhance accuracy of tax information	0	36	83	141	193	202	211	221	231	241	252	655	1,811
Expand broker information reporting with respect to crypto assets													
Address taxpayer noncompliance with listed transactions:													
<i>Extend statute of limitation for listed transactions</i>	0	23	52	66	79	77	76	74	73	71	70	297	661
<i>Impose liability on shareholders to collect unpaid income taxes of applicable corporations</i>	0	395	412	428	444	462	479	498	518	539	560	2,141	4,735
Subtotal, address taxpayer noncompliance with listed transactions	0	418	464	494	523	539	555	572	591	610	630	2,438	5,396
Modify tax administration rules:													
<i>Amend the centralized partnership audit regime to address tax decreases greater than a partner's income tax liability</i>	0	-5	-5	-5	-5	-6	-6	-7	-7	-7	-7	-26	-60
<i>Modify requisite supervisory approval of penalty included in notice</i>	0	29	254	245	248	222	197	174	173	179	186	998	1,907
Subtotal, modify tax administration rules	0	24	249	240	243	216	191	167	166	172	179	972	1,847
Authorize limited sharing of business tax return information to measure the economy more accurately													
Subtotal, improve tax administration	0	526	867	953	1,042	1,040	1,038	1,044	1,077	1,120	1,164	4,428	9,871
Subtotal, American Families Plan	1,241	-1,270	-25,353	-13,641	6,819	34,856	107,809	128,514	142,987	159,969	180,958	1,411	721,648
Total, Administration's Fiscal Year 2022 Revenue Proposals	1,241	94,333	160,078	170,190	183,639	204,086	268,043	298,289	315,612	334,550	364,204	812,326	2,393,024
Total, receipt effect	1,241	185,012	336,167	376,280	396,721	339,548	357,817	379,787	392,050	409,093	434,925	1,633,728	3,607,400
Total, outlay effect	0	90,679	176,089	206,090	213,082	135,462	89,774	81,498	76,438	74,543	70,721	821,402	1,214,376

Department of the Treasury

Notes:
1/ Presentation in this table does not necessarily reflect the order in which these proposals were estimated.

2/ The FY 2022 Budget includes additional receipts effects from the proposal to create a mandatory reemployment services and eligibility assessment program and to account for interactions with proposed spending programs to make community college and child and dependent care more affordable, and to spark further adoption of electric vehicles.

**REVENUE ESTIMATES OF THE
ADMINISTRATION'S FISCAL YEAR 2022 REVENUE PROPOSALS 1/2/ -- continued**
(fiscal years, in millions of dollars)

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2022-26	2022-31
3/ This proposal affects both receipts and outlays. Both effects are shown above. The outlay effects included in these estimates are listed below.													
Provide federally subsidized state and local bonds for infrastructure	0	345	964	1,637	1,880	1,819	1,753	1,686	1,620	1,554	1,488	6,645	14,746
Extend and modify the renewable electricity production credit	0	3,416	4,582	4,703	5,895	6,530	7,167	8,574	9,749	10,557	10,895	25,126	72,068
Extend and modify the renewable energy investment credit	0	3,936	9,020	29,234	33,801	34,021	38,010	29,039	24,531	19,430	12,567	110,012	233,589
Provide tax credit for electricity transmission investments	0	203	270	1,789	2,295	2,801	2,970	3,071	3,105	3,308	3,375	7,358	23,187
Provide allocated credit for electricity generation from existing nuclear power facilities	0	675	900	900	900	900	900	900	900	900	900	4,275	8,775
Establish new tax credits for qualifying advanced energy manufacturing	0	385	1,000	1,350	889	735	847	1,261	518	39	117	4,359	7,141
Establish tax credits for heavy- and medium-duty zero emission vehicles	0	66	272	768	1,346	2,462	3,673	992	0	0	0	4,914	9,579
Provide a production tax credit for low-carbon hydrogen	0	11	42	128	313	469	839	1,495	419	0	0	963	3,716
Expand and enhance the carbon oxide sequestration credit	0	547	655	752	939	1,206	2,063	2,767	2,950	5,018	6,520	4,099	23,417
Extend and enhance the electric vehicle charging station credit	0	158	259	334	412	540	144	0	0	0	0	1,703	1,847
Make permanent the American Rescue Plan expansion of Premium Tax Credits	0	0	8,620	11,666	12,244	12,327	12,768	13,247	14,073	15,052	16,094	44,857	116,091
Make permanent the expansion of the Earned Income Tax Credit for workers without qualifying children	0	0	5,231	10,670	10,839	10,984	11,122	11,018	11,163	11,304	11,409	37,724	93,740
Make permanent American Rescue Plan changes to the Child and Dependent Care Tax Credit	0	0	6,442	6,455	6,486	6,554	4,694	4,758	4,835	4,908	4,977	25,937	50,109
Extend the Child Tax Credit increase through 2025 and make permanent full refundability	0	80,956	137,868	135,741	134,880	54,147	2,851	2,716	2,602	2,503	2,411	543,592	566,675
Increase oversight of paid tax return preparers	0	-19	-34	-35	-34	-30	-24	-23	-24	-27	-29	-152	-279
Increase penalties on ghost preparers	0	0	-2	-2	-3	-3	-3	-3	-3	-3	-3	-10	-25
Total, outlay effect	0	90,679	176,089	206,090	213,082	135,462	89,774	81,498	76,438	74,543	70,721	821,402	1,214,376

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Good Neighbor Plan for 2015 Ozone NAAQS

Proposed “Good Neighbor” Plan to Cut Smog Across Much of the United States

Basic Information

Federal Register Citations:

- 87 FR 20036 EXIT <<https://www.federalregister.gov/documents/2022/04/06/2022-04551/federal-implementation-plan-addressing-regional-ozone-transport-for-the-2015-ozone-national-ambient>> (April 6, 2022 Proposed Rule)

Docket Number

- EPA_FRDOC_0001-28128 EXIT <https://www.regulations.gov/document/epa_frdoc_0001-28128>

On this page:

- Rule Summary



- Maps
- Rule History
- Additional Resources

Rule Summary

How to Comment and Participate in the Public Hearing

EPA will accept comments on this proposal until June 6, 2022. Comments may be submitted through the Federal eRulemaking Portal [EXIT](https://www.regulations.gov/document/epa_frdoc_0001-28128) <https://www.regulations.gov/document/epa_frdoc_0001-28128> or by alternative methods described in the fact sheet.

EPA will hold a public hearing on the proposal on April 21, 2022 <<https://epa.gov/csapr/public-hearing-epas-proposed-good-neighbor-plan-2015-ozone-naaqs>>. If you would like to speak at the public hearing, please complete the registration form [EXIT](https://2015ozonefip-publichearing.eventbrite.com/) <<https://2015ozonefip-publichearing.eventbrite.com/>>.

On February 28, 2022, the Administrator signed a proposed Federal Implementation Plan (FIP) to assure that the 26 states identified in the proposal do not significantly contribute to problems attaining and maintaining the 2015 Ozone National Ambient Air Quality Standards (NAAQS) in downwind states. This action, known as a “Transport Rule” would help states fully resolve their Clean Air Act “good neighbor” obligations for the 2015 Ozone NAAQS.

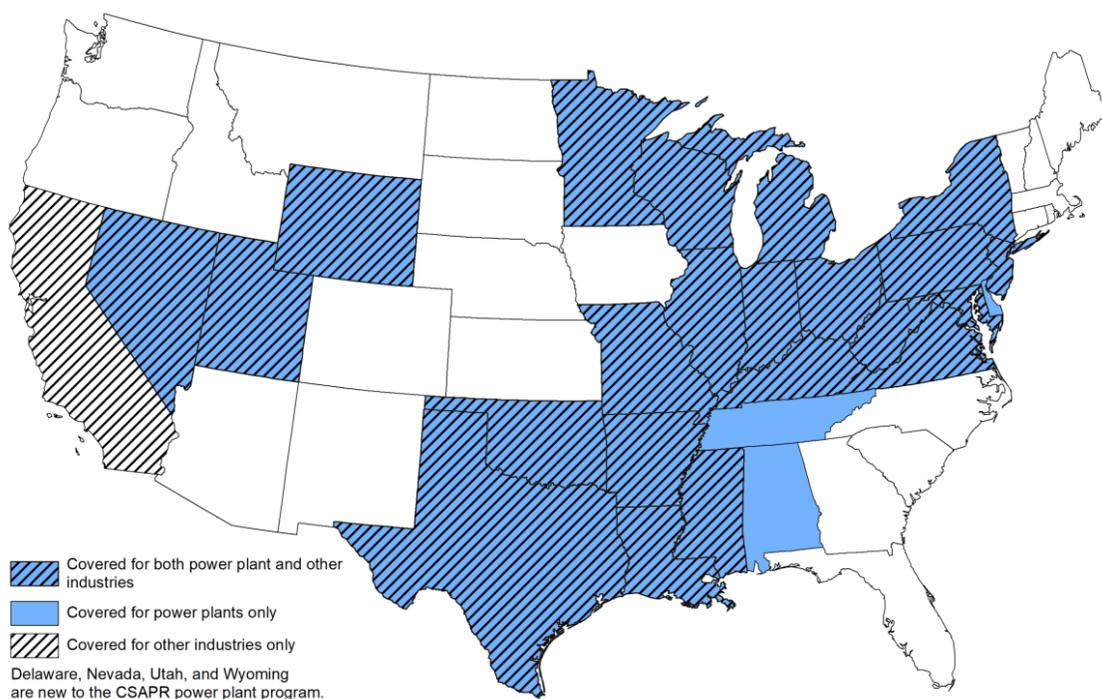
The rule would establish an allowance-based ozone season trading program with nitrogen oxides (NO_x) emissions budgets for fossil fuel-fired power plants in 25 states. The rule would also establish NO_x emissions limitations for certain other industrial stationary sources in 23 states.

EPA will hold a public hearing on the proposal and will post details on this page as soon as they are available. The public comment period for the proposal is open for 60 days after publication in the Federal Register.

Maps

Provided are four maps that show various aspects of the Good Neighbor Plan. Click on each map to see a larger version.

States Covered Under the Power Plant and Other Industries Portions of the Good Neighbor Plan for the 2015 Ozone NAAQS



EGU Emissions Reductions in 2026 Relative to 2021



Non-EGU Emissions Reductions in 2026 Relative to Pre-Proposal Levels



Upwind States Contributing Above 1% to Downwind States in 2023 for the 2015 Ozone NAAQS



Rule History

February 28, 2022 - Proposed Good Neighbor Plan for the 2015 Ozone NAAQS

The Environmental Protection Agency proposed significant steps to reduce ozone forming NO_x emissions. This action would ensure that the 26 states identified in the proposal do not “significantly contribute” to problems attaining and maintaining the 2015 Ozone National Ambient Air Quality Standards (NAAQS) in downwind states through a combination of requirements for power plants and certain other industrial sources.

- Proposed Good Neighbor Plan for the 2015 Ozone NAAQS [EXIT](https://www.govinfo.gov/content/pkg/fr-2022-04-06/pdf/2022-04551.pdf) (April, 2022)
-  Fact Sheet: Proposed Good Neighbor Plan for the 2015 Ozone NAAQS (pdf) (March, 2022)

- [Table of State Budgets for Power Plants](https://epa.gov/csap/proposed-state-budgets-under-csapr-2015-ozone-naaqs) <https://epa.gov/csap/proposed-state-budgets-under-csapr-2015-ozone-naaqs>
- [Summary of Proposed NO_x Emission Limits for Industrial Sources](https://epa.gov/csapr/summary-proposed-no-emission-limits-industrial-sources) <https://epa.gov/csapr/summary-proposed-no-emission-limits-industrial-sources>
-  [Regulatory Impact Analysis for Proposed Federal Implementation Plan Addressing Regional Ozone Transport for the 2015 Ozone National Ambient Air Quality Standard \(pdf\)](https://epa.gov/system/files/documents/2022-03/transport_ria_proposal_fip_2015_ozone_naaqs_2022-02.pdf) <https://epa.gov/system/files/documents/2022-03/transport_ria_proposal_fip_2015_ozone_naaqs_2022-02.pdf> (2022, EPA-452/D-22-001)
 -  [Addendum to the RIA: Monetizing Climate Benefits for the Proposed FIP \(pdf\)](https://epa.gov/system/files/documents/2022-04/2015-fip-climate-benefits-technical-memo_04052022.pdf) <https://epa.gov/system/files/documents/2022-04/2015-fip-climate-benefits-technical-memo_04052022.pdf>
- [Power Sector Modeling](https://epa.gov/power-sector-modeling/analysis-proposed-federal-implementation-plan-addressing-regional-ozone) <https://epa.gov/power-sector-modeling/analysis-proposed-federal-implementation-plan-addressing-regional-ozone>

Informational Stakeholder Webinars

EPA hosted three, 90-minute stakeholder webinars on March 29, March 30, and March 31. See the slides used during those sessions:

2015 Ozone Transport Proposed Rule Overview (pdf)

<https://epa.gov/system/files/documents/2022-03/2015-ozone-transport-proposed-rule-overview.pdf> (March, 2022)

Technical Support Documents (TSDs)

-  [Preparation of Emissions Inventories for the 2016v2 North American Emissions Modeling Platform \(pdf\)](https://epa.gov/system/files/documents/2022-03/2016v2_emismod_tsd_february2022.pdf) <https://epa.gov/system/files/documents/2022-03/2016v2_emismod_tsd_february2022.pdf> (March, 2022)
-  [Air Quality Modeling \(pdf\)](https://epa.gov/system/files/documents/2022-03/aq-modeling-tsd_proposed-fip.pdf) <https://epa.gov/system/files/documents/2022-03/aq-modeling-tsd_proposed-fip.pdf> (March, 2022)
 -  [Data File with Ozone Design Values and Ozone Contributions \(xlsx\)](https://epa.gov/system/files/documents/2022-03/2016v2_dvs_state_contributions.xlsx) <https://epa.gov/system/files/documents/2022-03/2016v2_dvs_state_contributions.xlsx>
-  [2019 National Emissions Inventory: Point Data Category \(pdf\)](https://epa.gov/system/files/documents/2022-03/nei2019_tsd_point_feb2022.pdf) <https://epa.gov/system/files/documents/2022-03/nei2019_tsd_point_feb2022.pdf> (March, 2022)

-  **Power Plants: Allowance Allocation under the Proposed Rule (pdf)**
<<https://epa.gov/system/files/documents/2022-03/allowance-allocation-under-the-proposed-rule-tds.pdf>> (April, 2022)
 -  **Unit-level Allocations and Underlying Data for the Proposed Rule (xlsx)**
<<https://epa.gov/system/files/documents/2022-03/unit-level-allocations-and-underlying-data-for-the-proposed-rule.xlsx>>
 -  **Impact of Coal Consent Decrees for the Proposed Rule (xlsx)**
<<https://epa.gov/system/files/documents/2022-03/impact-of-coal-consent-decrees-for-the-proposed-rule.xlsx>>
-  **Power Plants: EGU NO_x Mitigation Strategies (pdf)**
<<https://epa.gov/system/files/documents/2022-03/egu-nox-mitigation-strategies-proposed-rule-tds.pdf>> (March, 2022)
-  **Industrial Sources: Technical Memorandum: Screening Assessment of Potential Emissions Reductions, Air Quality Impacts, and Costs from Non-EGU Emissions Units for 2026 (pdf)** <<https://epa.gov/system/files/documents/2022-03/nonegu-reductions-ppb-impacts-2015-o3-transport-fip-final-memo.pdf>> (March, 2022)
-  **Industrial Sources: Non-EGU Sectors TSD (pdf)**
<<https://epa.gov/system/files/documents/2022-03/nonegu-sectors-tds.pdf>> (March, 2022)
-  **Ozone Transport Policy Analysis (pdf)** <<https://epa.gov/system/files/documents/2022-03/ozone-transport-policy-analysis-proposed-rule-tds.pdf>> (March, 2022)
 -  **Appendix A: Proposed Rule State Emission Budget Calculations and Engineering Analytics (xls)** <<https://epa.gov/system/files/documents/2022-03/proposal-appendix-a-proposed-rule-state-emission-budget-calculations-and-engineering-analytics.xls>>
 -  **Ozone Air Quality Assessment Tool (AQAT) (xlsx)**
<https://epa.gov/system/files/documents/2022-03/ozone_aqat_proposal.xlsx>
-  **Status of CAA Section 110(a)(2)(D)(i)(I) SIP Submissions for the 2015 Ozone NAAQS for States Covered by the Proposed Federal Implementation Plan Addressing Regional Ozone Transport for the 2015 Ozone National Ambient Air Quality Standards Proposed Rule (pdf)** <<https://epa.gov/system/files/documents/2022-03/status-of-2015-naaqs-110a2dii-sips-proposed-rule-tds.pdf>> (March, 2022)

Additional supporting information and data for the listed TSDs will be available in the forthcoming official docket.

Additional Resources

- [Interstate Air Pollution Transport](https://epa.gov/interstate-air-pollution-transport/interstate-air-pollution-transport) <https://epa.gov/interstate-air-pollution-transport/interstate-air-pollution-transport>
- [Revised Cross-State Air Pollution Rule Update](https://epa.gov/csapr/revised-cross-state-air-pollution-rule-update) <https://epa.gov/csapr/revised-cross-state-air-pollution-rule-update>
- [Cross-State Air Pollution Rule Update](https://epa.gov/csapr/final-cross-state-air-pollution-rule-update) <https://epa.gov/csapr/final-cross-state-air-pollution-rule-update>
- [Cross-State Air Pollution Rule](https://epa.gov/csapr/cross-state-air-pollution-rule-csapr-regulatory-actions-and-litigation) <https://epa.gov/csapr/cross-state-air-pollution-rule-csapr-regulatory-actions-and-litigation>

[Contact Us](https://epa.gov/csapr/forms/contact-us-about-cross-state-air-pollution-rule) <https://epa.gov/csapr/forms/contact-us-about-cross-state-air-pollution-rule> to ask a question, provide feedback, or report a problem.



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U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

CLIMATE ACTION PLAN

NOVEMBER 2021



U.S. Department of Housing and Urban Development

Climate Action Plan

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INTRODUCTION

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Introduction

Background

Climate change is a crisis impacting communities across the United States. From severe storms and flooding, to wildfires, drought, and extreme heat or cold, Americans are already feeling its effects. As the Federal agency dedicated to creating strong, sustainable, inclusive communities and quality affordable homes, HUD is on the front lines of the nation's efforts to increase resilience to climate impacts.

HUD also plays an essential role in mitigating climate change by reducing greenhouse gas emissions, due to its portfolio of approximately 4.5 million public and assisted housing units¹ and given its role in the development and preservation of affordable housing. HUD's spending on utilities in public and assisted housing is an estimated \$6.9 billion annually and, according to an internal analysis, consumes as much as 14 percent of the agency's total budget and produces an estimated 13.6 million metric tons of carbon emissions each year. HUD is committed to improving the efficiency of public and assisted housing to not only lower carbon emissions, but also to increase housing affordability and quality by allowing more funds to be spent on the provision of housing instead of on utilities.

HUD has significant influence over how the nation's households and communities will respond to the climate crisis. In addition to public and assisted housing, HUD provides mortgage financing for both single-family home buyers and multifamily rental housing. HUD's FHA-insured portfolio consists of 76 million single family insured loans, 11,213 multifamily insured loans (1,405,260 units), 3,825 residential healthcare facilities, and 88 hospitals with \$1.2 trillion, \$111 billion, \$33 billion, and \$6.3 billion respectively of mortgage balances (as of June 30, 2021).

Further, the Department invests billions of dollars every year in housing, infrastructure, and services in neighborhoods and cities across the U.S. through its ever-increasing role in disaster recovery and risk mitigation. This investment includes over \$89.8 billion appropriated since 1993 by Congress for Community Development Block Grant-Disaster Recovery (CDBG-DR) grants, \$15.9 billion of which is allocated for CDBG-Mitigation (CDBG-MIT) for States and local governments that experienced Presidentially-declared disasters in 2015 – 2018. These grants have driven innovation and elevated the national conversation on resilient recovery through such initiatives as Rebuild by Design and the National Disaster Resilience Competition.

The most recent National Climate Assessment from the U.S. Global Change Research Program (USGCRP)² underscores how critical HUD's climate change mitigation and adaptation work is to achieving climate justice. It shows that climate change creates new risks and exacerbates existing vulnerabilities in communities across the U.S., presenting growing challenges to human health and safety, quality of life, and economic prosperity. Though these challenges are universal, our nation's low-income families and communities of color are disproportionately impacted by climate change due to historic disinvestment and a longstanding pattern of residential segregation. For low-income households and communities of color, climate change

¹ For the purposes of this plan, references to HUD public and assisted housing include public housing, multifamily assisted housing and Housing Choice Vouchers.

² *Four National Climate Assessment*, <https://nca2018.globalchange.gov/>

exacerbates existing vulnerabilities in their communities, such as aging infrastructure and the siting of toxic waste facilities.

Responding to this crisis is core to the Department's mission, which is why HUD recently established an internal Climate and Environmental Justice Council with representation at the Assistant Secretary level as well as a staff-level Working Group. HUD's Senior Advisor for Climate Change will lead the Council with support from the Office of Environment and Energy. The Climate and Environmental Justice Council will manage the implementation and monitoring of the climate and environmental justice priorities detailed in this plan. This Council is the main body responsible for the long-term integration of climate and environmental justice into HUD's programs and operations.

Policy Statement

One of President Biden's first actions in office was Executive Order (EO) 14008, *Tackling the Climate Crisis at Home and Abroad*. It lays out a broad vision for how the Federal government can address climate change while creating economic opportunity. The Department supports the President's message that our nation has limited time to act to avoid the most catastrophic impacts of this crisis and seize the opportunity that tackling climate change presents. HUD will play a critical role in implementing this vision.

It is the policy of the Department to organize and deploy the full capacity of its offices to combat the climate crisis and implement a department-wide approach that reduces greenhouse gas emissions; increases resilience to the impacts of climate change; protects public health; delivers environmental justice; and spurs well-paying union jobs and economic growth. The Department's policy is to do so in a way that delivers on the President's commitment to environmental justice and promoting racial equity, consistent with Executive Order 13985, which requires that HUD allocate resources in a manner that addresses the historic failure of the Federal government to invest sufficiently, justly, and equally in underserved communities, particularly communities of color. HUD is committed to taking actions that address the intersection of these two policy directives.

Indeed, the Department has already taken significant steps to address climate threats and environmental injustice. HUD has adapted its programs to help communities both prepare for and respond to the effects of climate change and will continue to take comprehensive action to advance this Administration's priorities on climate adaptation and resilience, decarbonization, and environmental justice. Furthermore, HUD will help lead the Federal government's response to this unprecedented challenge consistent with the Department's unique and historic role in supporting underserved communities, investing in housing across the country, and guiding communities through post disaster recovery and rebuilding.

HUD is recommitting to tackling the climate crisis through the development of this ambitious Climate Action Plan. This plan will guide the integration of climate resilience and environmental justice into HUD's core programs and policies. The actions outlined in this plan will help communities across the nation build more resilient infrastructure, promote responsible utility consumption, create good-paying jobs, and address environmental injustices.

Moreover, HUD has affirmed its dedication to this plan's actions by centering them in the Department's current budget priorities, which highlight HUD's intent to promote climate resilience, environmental justice, and energy efficiency within its portfolio and across the

housing sector. The Department's fiscal year 2022 budget request included \$800 million in proposed funding to reduce carbon pollution, increase resilience to climate impacts, and address environmental injustice. As part of the Administration's whole-of-government approach to the climate crisis, the budget reflects HUD's commitment to expanding energy efficiency and climate resiliency in public and assisted housing. HUD's ability to further its commitment hinges upon the support of Congress through appropriation and authorization.

HUD is not alone in this effort; the Department will work with Federal partners, stakeholders, grantees, and members of the public to develop innovative solutions that equitably prepare for and adapt to climate change. The Administration has recognized the profound climate crisis facing the U.S. and the world – yet in this crisis, there is opportunity to build back better. Tackling climate change is an opportunity to improve the lives of individuals and communities across the nation through increased resilience and equity.

Plan Organization

In response to the policy set forth in Executive Order 14008, this Plan is organized around three overarching Climate Action Goals for programs and policies under HUD's purview:

Goal 1: Increase Climate Resilience

Goal 2: Reduce Greenhouse Gas Emissions

Goal 3: Pursue Environmental Justice

Each goal contains a number of subgoals, organized into topic areas. Each subgoal contains a table with the specific actions that HUD will undertake to achieve the primary goal. Each action will serve as a metric that, when accomplished, will move HUD closer to accomplishing its primary goal. For each of these actions, the plan identifies the method for implementing such action (e.g., rulemaking, technical assistance, coordination), the lead office(s) responsible for implementation, the implementation timeline, and the resource needs. Given that each action contains a subset of actions, HUD has detailed the common approach used for each implementation method. The implementation method summaries below give an overview of the underlying work that will be required for each type of action.

To emphasize HUD's commitment to addressing climate change, HUD will be integrating this Climate Action Plan into its agency Strategic Plan. Integrating the actions from this plan into the Strategic Plan not only underscores the importance of this work to HUD achieving its mission, but also provides a platform for HUD to track and report on the progress of achieving its climate goals.

HUD's Climate Action Plan has been developed in close consultation with the Office of Management and Budget. Under OMB's guidance, HUD has chosen a format for its plan for climate action that better fits the nature of HUD's programs and authorities and reflects the fact that HUD does not own buildings or infrastructure.

Additionally, HUD determined it was important to incorporate Environmental Justice into this plan because of the close link between climate change and issues of environmental justice. Placing environmental justice actions in the Department's Climate Action Plan allows for an integrated response to interlinked climate and environmental justice challenges and recognizes advancing environmental justice as core to HUD's mission.

Implementation methods: For each action, HUD has identified seven distinct implementation methods, each with specific processes and timelines according to agency procedure. These are further outlined below.

1. **Research.** This includes studies of problems and issues within HUD's purview, evaluations of HUD programs, and identification and evaluation of new technologies and approaches to solving problems. Studies and reports include housing and community development matters such as climate-related research on high-performance buildings, energy, and the environment. HUD's Office of Policy Development and Research (PD&R) accepts independent proposals, carries out research in-house, and contracts with external researchers to fulfill HUD's research agenda. Research projects typically take several years to complete.

HUD notes the importance of PD&R research studies to inform Department climate policy and program implementation. PD&R is committed to exploring new studies and research opportunities that will enable HUD to assess the success of the actions identified in this plan as well as expand climate and environmental justice efforts in the future depending on available resources.

2. **Assessment.** These are short-term reviews or evaluations of specific topics that need to be addressed to implement a policy or program. Assessments are conducted in response to staff or stakeholder concerns or to determine the impact of potential policy or program changes. Assessments can take between 6 months and 2 years.
3. **Coordination.** This involves cross-program and/or interagency collaboration on initiatives or policies in which the organizations share objectives or concerns. While individual programs may have specific regulations or requirements, some objectives can be met by maximizing coordination across programs and partnering with other Federal agencies to harmonize climate-related goals and policies. Agencies can formalize coordination through Memorandums of Understanding and through participation on Federal task forces and working groups.
4. **Rulemaking.** Where program regulations require updating or modification, or when required by Congress to implement a statute, HUD implements a rulemaking process following procedures outlined in 24 CFR part 10. Rulemaking involves multiple rounds of Federal Register publications, Paperwork Reduction Act compliance, stakeholder consultation, legal and program analysis, and approval from the Office of Management and Budget. From beginning to end, rulemaking processes usually takes at least 24 months. While rulemaking itself may not require additional resources, the actions and responsibilities that stem from the rulemaking may require additional funding to implement.
5. **Information Technology.** HUD develops IT systems to improve both data collection and program monitoring or reporting. This plan identifies several IT updates needed to improve tracking, monitoring or assessing energy and climate related performance of HUD's inventory of public and assisted housing. IT solutions often take 2 to 4 years to implement.

6. **Guidance.** Guidance as referenced in this report may be published through a program notice, Mortgagee Letter, or guides or handbooks posted on [HUD Exchange](#) or www.hud.gov. Depending on the implementation requirements under statute and regulations, new guidance is based on internal program office deliberation, so it can be drafted and released in a shorter time period (e.g., 2 to 4 months).
7. **Technical Assistance.** Technical Assistance (TA) is the transfer of skills and knowledge to HUD customers that may need additional capacity. HUD TA is guidance which enables HUD's customers to overcome a lack of specific skills or knowledge of an associated HUD program, which results in the successful performance of and compliance with that program. TA can take many forms and can be provided directly by HUD staff or delivered by HUD TA providers through the HUD-funded TA program. HUD funds TA and capacity building activities for HUD customers through the Departmentwide Community Compass Technical Assistance program. Outside of the standard Departmentwide two-year, Congressionally funded Community Compass program, Congress often provides supplemental funding for TA tied to specific program appropriations (e.g., HOME-American Rescue Plan, CDBG-DR, CDBG-CV).

Resource Implications: This column in each table indicates the nature of the resources needed to implement each proposed action—whether offices can undertake proposed actions using existing resources, are anticipating using funds that were included in the President's FY22 Budget request to Congress, or will need to reprioritize existing resources.

1. **None.** Many of the actions identified in this plan utilize existing HUD authority and staff in the implementation and therefore do not require any additional resources.
2. **FY 22 Budget Request.** The Department has existing resources and authorities that can be deployed to increase the efficiency and resilience of HUD-funded new construction and substantial rehabilitation; however, there are meaningful gaps in the Department's existing resources that if filled, could result in more influential climate change action. Recognizing these gaps, the Department was the first ever Federal agency to have a climate-specific section in its budget request. HUD requested \$800M in its FY22 budget, across five programs, for energy and resilience. If appropriated, these new resources would be a critical component of this plan.
3. **Reprioritize Existing Resources.** For HUD funded TA, the reprioritization of existing resources may require an update to HUD TA Plans from previous years, depending on the nature of the priority adjustment and the source year of the funding identified in each case. The program office will work with the Technical Assistance Division to assess any adjustments to approved plans and ensure the proper process is followed prior to assigning TA. For forthcoming actions, these will be reflected in upcoming HUD TA Plans and Notice of Funding Opportunities (NOFO), not yet issued. For other aspects of HUD programs and TA provided directly by HUD staff, reprioritizing existing resources can occur at the program or office level through leadership approval, temporary staff rotations, and reprogramming older or expiring funds to new priorities.

Timeline: The timeline for each action listed in this Plan is defined by the fiscal year (FY) and quarter (Q) in which the action is expected to be initiated and completed.

GOAL 1:
Increase Climate
Resilience



Goal 1: Increase Climate Resilience

Affordable housing (including but not limited to public and assisted housing) is increasingly at risk from both extreme weather events and sea-level rise. Recent analysis and mapping by Climate Central projects that the number of affordable housing units at risk from flooding in coastal areas will triple by 2050.³ Coastal communities are especially at risk – a report from the Denali Commission found that 144 Native Alaskan Villages (43 percent of all Alaskan communities) experienced infrastructure damage from erosion, flooding, and permafrost thaw.⁴

A specific threat to HUD programs is the potential vulnerability of the Federal Housing Administration (FHA) Mutual Mortgage Insurance (MMI) and General Insurance and Special Risk (GI/SR) Funds to increased defaults and loss severities due to physical damage, disruptions in borrowers' ability to repay, and declining property values in vulnerable communities. Johns Hopkins researchers warn of a "potential threat to the stability of financial institutions" as global warming leads to more frequent and more severe disasters, forcing more HUD-insured and other loans to go into default as homeowners cannot or will not make mortgage payments.⁵

Many HUD programs help communities recover from and build resilience to climate hazards and natural disasters. HUD's disaster recovery portfolio alone accounts for the Federal government's single largest investment in recovery and resilience in low-to-moderate-income communities. While HUD already plays a major role in this space, the Department must expand its climate resilience work to increase resources for grantees and stakeholders and make it easier for them to implement climate resilient activities. HUD can accomplish its goal of increasing the resilience of communities nationwide through improving climate resources and continuing investment in areas most vulnerable to the impacts of climate threats.

Scale: Nationwide.

Risks and opportunities: Low-income families and communities of color are disproportionately impacted by climate change.⁶ Without targeted intervention, this climate injustice will continue.

Accomplishments to Date

Disaster recovery and mitigation. HUD works with communities to respond to or prepare for natural disasters through two primary funding sources: CDBG-DR and CDBG-MIT. Since 1993, Congress has appropriated a total of \$89.8 billion for CDBG-DR. As of April 2021, this encompasses 137 grants awarded to 64 grantees (34 states and territories and 30 local governments). Active CDBG-DR and CDBG-MIT grants total over \$67 billion. This includes

³ Climate Central, [Report: Coastal Flood Risk to Affordable Housing Projected to Triple by 2050](#), November 2020.

⁴ Denali Commission, *Statewide Threat Assessment: Identification of Threats from Erosion, Flooding, and Thawing Permafrost in Remote Alaska Communities*, November 2019. <https://www.denali.gov/wp-content/uploads/2019/11/Statewide-Threat-Assessment-Final-Report-20-November-2019.pdf>

⁵ Amine Ouazad, Matthew E. Kahn, *Mortgage Finance and Climate Change: Securitization Dynamics in the Aftermath of Natural Disasters*, http://www.ouazad.com/resources/paper_kahn_ouazad.pdf. January 2021. See also New York Times September 27, 2019, <https://www.nytimes.com/2019/09/27/climate/mortgage-climate-risk.html>

⁶ *Fourth National Climate Assessment*, <https://nca2018.globalchange.gov/>

funding to support resilient rebuilding after Superstorm Sandy in New York, New Jersey, and Connecticut; Hurricane Katrina on the Gulf Coast; and, more recently, Hurricane Harvey in Texas, Hurricanes Irma and Maria in Florida, Puerto Rico, and the U.S. Virgin Islands; and wildfires in California – as well as many other disasters.

Since 2019, HUD has allocated more than \$16 billion of CDBG-MIT funds to 22 states and local governments for activities that lessen the impact of future disasters. Fifty percent of these grant funds must benefit low- and moderate-income persons. The State of Louisiana, for example, will use its \$1.2 billion CDBG-MIT allocation to implement the Louisiana Watershed Initiative, to “fundamentally change Louisiana’s approach to statewide flood mitigation activities” (<https://www.watershed.la.gov/action-plan>). CDBG-MIT is a unique and significant opportunity for grant recipients to use this assistance in areas impacted by recent disasters to carry out strategic and high-impact activities that mitigate disaster risk and reduce future losses, especially for low- and moderate-income families and households.

CDBG-DR grants are also a significant source of Federal support for building resilience, particularly in low- and moderate-income areas. HUD has long required CDBG-DR grantees to implement certain climate-related measures as part of recovery (e.g., elevation of structures in the flood plain, green building standards) and many CDBG-DR grantees have implemented additional forward-looking investments in resilience. The State of New Jersey, for example, has used \$200 million of funding from its Hurricane Sandy CDBG-DR grant to increase the energy resilience of many of its hospitals, allowing for continued operations in the event of future power disruptions.

Additionally, HUD obligated nearly \$1 billion of funding through the National Disaster Resilience competition, funding 13 innovative resilience projects across the country. This includes initiatives in Virginia to foster the development of businesses focused on resilience⁷ and to increase California’s resilience to wildfires.⁸ HUD has also obligated \$930 million for regional flood mitigation projects in New York, New Jersey, and Connecticut through Rebuild by Design.⁹

While CDBG-DR and CDBG-MIT grants are not permanently authorized, after more than 20 years of supplemental appropriations to fund the awards, CDBG-DR is one of the largest sources of funding for recovery and resilience building, and the largest source that primarily benefits persons with low and moderate income.

Flood resilience. HUD has implemented program-specific policies to increase climate resilience, particularly related to flooding. For example, residential new construction and substantial improvements funded with CDBG-DR assistance are now required to elevate two feet above base flood elevation. Similarly, the Federal Housing Administration (FHA) Office of Multifamily Housing (MF) recently updated its standards to require new construction projects in 100-year floodplains to elevate two feet above base flood elevation. FHA MF has extended the same limitations that apply in Coastal High Hazard Areas (V Zones) to all areas within the Limit of

⁷ RISE Coastal Community Resilience Challenges, <https://riseresilience.org/>

⁸ California Department of Housing and Community Development, National Disaster Resilience Competition. <https://www.hcd.ca.gov/community-development/disaster-recovery-programs/ndrc.shtml>

⁹ Rebuild by Design, Hurricane Sandy Design Competition, <http://www.rebuildbydesign.org/our-work/sandy-projects>

Moderate Wave Action (LiMWA) for new construction and substantial rehabilitation, with lesser but still significant limitations on existing properties. HUD will continue this effort by assessing and initiating a modernization of its floodplain management regulations in 24 CFR part 55, potentially extending increased flood protection across all HUD programs.

Community Development Block Grants (CDBG). CDBG is both a flexible and widespread program, reaching over 1,200 local governments in all states and territories. The program's scope and promotion of community-specific solutions make CDBG a powerful tool for climate resilience. As a condition for funding, CDBG grantees are required to submit a Consolidated Plan every three to five years. In 2016, HUD promulgated the rule *Modernizing HUD's Consolidated Planning Process to Narrow the Digital Divide and Increase Resilience to Natural Hazards*.¹⁰ This rule requires jurisdictions to incorporate resilience to natural hazard risks and a discussion of how climate change will increase those risks into their Consolidated Plan. The rule also requires CDBG grantees to address the impacts of climate change on low- and moderate-income residents. HUD plans to create additional resources and guidance around this rule to help grantees better incorporate climate change adaptation into their regular planning process.

HUD Climate Communities Initiative. HUD, in partnership with local leaders, is announcing a suite of resources, support, and tools to help cities respond to equitably the climate crisis. This includes the HUD Community Resilience Toolkit, a user-friendly guide to help Community Planning and Development (CPD) grant recipients learn how current and future natural hazard risks may impact their community and how to reduce said risks, as well as implementation models, peer-to-peer learning opportunities, stakeholder engagement with underserved communities, and direct support to a cohort of climate cities. With the suite of flexible block grant funding that local governments already receive, this concerted effort will help cities focus climate action on the needs of the most vulnerable and further climate justice.

Indian Housing Community Development Block Grant (ICDBG). The ICDBG Program provides eligible grantees with direct grants for use in developing Indian and Alaska Native communities, including the provision of decent housing, a suitable living environment, and economic opportunities, primarily for low- and moderate-income persons. The ICDBG provides single purpose grants which are awarded on a competition basis as well as imminent threat grants which are awarded first come, first served to lessen or eliminate problems which pose an imminent threat to the health and safety of Tribal residents.

Climate Risk Data

1.1 Collect Data and Map Risk

Implementing offices: Housing, PD&R, CPD, FHEO

Description: Collect complete and accurate building-level data across HUD programs to map existing climate risks and environmental justice concerns. Comprehensive and modernized data collection can help inform how to best address climate impacts to protect HUD-assisted assets and their occupants, with a focus on underserved communities, tribal communities, communities of color, and individuals with disabilities. Accurate and easily available data will enable HUD,

¹⁰ 81 FR 90997 (Dec. 16, 2016).

grantees, borrowers, and the public to conduct vulnerability assessments and develop resilience plans addressing climate impacts.

Office	Action	Implementation Method	Resource Implications	Timeline
FHA MF, PIH	Review current building-level data to ensure accuracy and facilitate mapping of the portfolio's climate risk	Assessment, IT Solution	Requested in the President's FY22 Budget	FY22 Q3 – FY23 Q3
Housing	Procure data sources to enable modeling for climate risks	IT Solution	Reprioritize Existing Resources	FY22 Q3 – FY23 Q4
FHA SF	Identify additional data elements during underwriting and servicing for all FHA insured mortgages	Assessment	None	FY22 Q2 – FY23 Q4
OEE, FHEO, PIH, Housing	Implement vulnerability assessments for multifamily properties, including a consideration of equity and the impact on relevant protected class groups	Technical Assistance	Reprioritize Existing Resources	FY22 Q4 – ongoing
PD&R	Assess feasibility of expanding existing HUD planning applications to include climate risk data	Assessment	None	FY22 Q1 – FY22 Q3
PD&R	Assess HUD's research and capacity-building needs related to climate risk of underrepresented communities for inclusion in HUD's 2022-25 Learning Agenda	Assessment	None	FY22 Q1 – FY22 Q2

1.2 Conduct Research on Climate Resilience

Implementing Offices: PD&R, FHEO

Description: HUD's Office of Policy Development and Research's research agenda will include new studies to assess the effectiveness of current building efficiency codes and recovery programs and to identify resilience best practices. This research will inform and encourage HUD policy makers, grantees, and stakeholders to adopt stricter building requirements, improve programs, and invest in climate resilience.

Office	Action	Implementation Method	Resource Implications	Timeline
PD&R	Assess HUD's research and capacity-building needs related to building efficiency and resiliency codes for inclusion in HUD's 2022-25 Learning Agenda	Research	None	FY22 Q3 – FY23 Q1
PD&R	Assess HUD's research and capacity-building needs related to buyouts and resettlement for inclusion in HUD's 2022-25 Learning Agenda	Research & Guidance	None	FY22 Q2 – FY22 Q4

PD&R	Conduct cost effectiveness research of CDBG-DR resilience funding and generate guidance on best practices, vulnerability assessments, and evaluative framework	Research & Guidance	None	FY23 Q1 - FY24 Q1
PD&R	Provide resources and expertise to the Advanced Research Projects Agency – Climate (ARPA-C) at the Department of Energy for research on housing, climate adaptation, and resilience	Research, Coordination	Requested in FY22 Budget	FY22 - ongoing

Mortgage Financing

1.3 Reduce Climate-Related Financial Risk

Implementing Offices: PD&R, Housing, FHEO

Description: HUD mortgage financing programs, primarily its insurance programs, enable billions of dollars of capital to fund the purchase, refinance, construction, and rehabilitation of single- and multifamily housing, assisted housing, and healthcare facilities around the country. Per the Executive Order on Climate-Related Financial Risk (EO 14030), HUD is collaborating with the Departments of Veterans Affairs and Agriculture to consider approaches to better integrate climate-related financial risk into underwriting standards, loan terms and conditions, and asset management and servicing procedures. HUD is also exploring market strategies to incentivize both energy and water efficiency and climate-resilient building practices.

Office	Action	Implementation Method	Resource Implications	Timeline
PD&R	Assess HUD’s research and capacity-building needs related to economic threats of climate change to housing finance ecosystem for inclusion in HUD’s 2022-25 Learning Agenda	Assessment	None	FY22 Q3 – FY23 Q2
PD&R	Assess HUD’s research and capacity-building needs related to benefits and fair housing implications of including climate risk in FHA underwriting for inclusion in HUD’s 2022-25 Learning Agenda	Assessment	None	FY22 Q1 – FY22 Q2
FHA	Identify and assess approaches to integrate climate-related financial risk into underwriting standards, loan terms and conditions, and asset management and servicing procedures	Assessment	None	FY22 Q2 – FY23 Q4
FHA SF, OHP	Consider using reduced Mortgage Insurance Premiums to incentivize	Assessment	None	FY22 Q2 – FY23 Q4

	property owners to adopt higher building standards			
FHA SF	Review and update the standards for Manufactured Housing to allow the use of stretch ratios for a Manufactured Home that is certified as ENERGY STAR	Guidance	None	FY22 Q1
FHA SF	Review and update program standards and documentation requirements for underwriting, repairs, and escrow to make it easier for lenders and borrowers to understand and use the Single Family 203(k) Program for Energy Retrofits and Climate Mitigation	Assessment, Guidance, Rulemaking	None	FY22 Q4 – FY25 Q2
FHA SF	Assess the benefits and risks of introducing a new loan product, Resilience and Energy Assistance Loan (REAL) Title 1 Property Improvement Program, to provide low-cost financing for consumers making climate hazard mitigation and energy efficiency improvements	Assessment	Reprioritize Existing Resources	FY22 Q2 – FY25 Q1
FHA MF	Assess benefits and risks of expanding the Green MIP Program to encourage climate resilience actions. Expansion could include incentives for climate resilience actions such as creating defensible space in fire-prone areas; building or retrofitting to withstand extreme weather; or mitigating for flood risk	Assessment	Reprioritize Existing Resources	FY22 Q4 – FY23 Q4
Ginnie Mae	As part of an overall environmental, social, and governance (ESG) strategy, enhance (i) analytical capabilities for environmental assessments; (ii) securities disclosures that create value for investors utilizing ESG metrics, and (iii) pooling, issuance and reporting flexibilities to support FHA, VA, USDA and PIH program innovations having ESG aspects	IT Solution	Reprioritize Existing Resources	FY22 Q2 – FY23 Q4
Ginnie Mae	Until such time that the new platform goes into production, Ginnie Mae will explore how current capabilities can be leveraged in current form, or with some level of modification, to support shorter term goals of supporting environmental justice initiatives that may be pursued by FHA, VA, USDA	Assessment	None	FY22 Q1 – FY23 Q4

	and PIH. Securities disclosures are routinely enhanced to meet the ever-evolving demands of MBS investors and Ginnie Mae will explore opportunities to target increased ESG data disclosure with a goal of generating greater investor demand for securities supporting ESG objectives.			
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Disaster Recovery and Resilience

1.4 Update CDBG-DR Grant Requirements to Promote Resilience and Environmental Justice

Implementing Offices: CPD

Description: With over \$67 billion in active grants, CDBG-DR and CDBG-MIT funds are arguably the Federal Government’s largest investment in resilience and addressing environmental injustice in some of the nation’s most vulnerable areas. 2020 was the sixth consecutive year in which there were ten or more weather and climate disaster events impacting the United States that caused more than a billion dollars in damage. The sheer scale of these events illustrates the importance of HUD’s disaster recovery work. A more holistic integration of resilience and environmental justice principles into the CDBG-DR program will ensure that communities recovering from disasters are more resilient in the future. A commitment to environmental justice means ensuring equal protection from environmental and health hazards and providing all people a meaningful opportunity to participate in the decision-making process to achieve a healthy environment.

Office	Action	Implementation Method	Resource Implications	Timeline
CPD	Finalize the CDBG-DR implementing notices to reflect climate priorities and describe policies and requirements that can foster resilient projects and promote environmental justice.	Guidance	None	FY22 Q1 – FY22 Q2

1.5 Enable a Sustainable Recovery for Puerto Rico and the U.S. Virgin Islands

Implementing Office: CPD

Description: Collaborate with Puerto Rico and the U.S. Virgin Islands (USVI) to support targeted resilience plans and innovative energy solutions for their sustainable long-term recovery.

Office	Action	Implementation Method	Resource Implications	Timeline
OEE	Work with the DOE, Puerto Rico Field Office and Public Housing Authority (PRPHA)	Coordination, Technical Assistance, Assessment	None	FY22 Q2 – FY23 Q1

	PowerOasis solar plus battery storage pilot			
DRSI	Collaborate with grantees on their work with Federal partners (DOE, DOI, FEMA) to implement required actions in the Federal Register Notice providing \$2 billion for resilient CDBG-DR Electrical Power Systems for Puerto Rico and USVI	Coordination, Guidance	None	FY22 Q1 – FY22 Q3
DRSI	Provide technical assistance to Puerto Rico and USVI to deliver the clean energy and green building programs outlined in their CDBG-DR and CDBG-MIT Action Plans	Coordination, Technical Assistance	None	FY22 Q1

1.6 Strengthen Flood Resilience Standards

Implementing Offices: CPD

Description: Implement EO 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input, by implementing the Federal Flood Risk Management Standard (FFRMS) and updating HUD’s floodplain management regulations in 24 CFR part 55. (EO 13690 was revoked in 2017 by EO 13807, but was recently reinstated through EO 14030, Climate-Related Financial Risk.) This rulemaking will focus on increasing flood resilience, clarifying processes and standards, promoting environmental justice concerns in floodplain decision-making, improving fiscal security, and minimizing adverse impacts to the beneficial functions of floodplains and wetlands.

Office	Action	Implementation Method	Resource Implications	Timeline
OEE	Update floodplain management and wetlands protection regulations in 24 CFR part 55 to implement FFRMS and otherwise increase flood resilience standards in HUD projects	Rulemaking	None ¹¹	In Progress – FY23 Q1
Department-wide	Develop a training series for HUD grantees and update HUD’s online tools to reflect updated policy	Technical Assistance, IT Solution	Reprioritize Existing Resources	FY22 Q4 – FY23 Q2

Capacity Building

1.7 Provide Climate Resilience and Environmental Justice Training

Implementing Offices: PD&R, PIH, CPD, FHEO

Description: Before HUD can advance its work on climate adaptation, mitigation, and environmental justice, it will be necessary for HUD staff, grantees, and stakeholders to have a

¹¹ Although there may be resource implications for implementing any rulemaking, the full resource implications cannot be known until the rule has been drafted. Therefore, the resource implications for rulemaking apply only to the resources required to draft and publish the rule.

baseline understanding of climate resilience and environmental justice. HUD will begin to create spaces, both formal and informal, for mutual learning around climate change and its impacts. This learning culture will also focus on environmental justice issues impacting low-income communities, communities of color, individuals with disabilities, and other protected classes.

Office	Action	Implementation Method	Resource Implications	Timeline
Department-wide	Facilitate trainings for grantees and partners that includes climate adaptation and environmental justice, incorporating climate risk in their areas	Technical Assistance	None	FY22 Q4 – ongoing
PIH, CPD, FHEO	Conduct trainings and provide information to PHAs on adaptation and mitigation activities	Technical Assistance	None	FY22 Q4 – ongoing

1.8 Create Community Resilience and Sustainability Resources

Implementing Office(S): PD&R, CPD, FHEO, Field Policy and Management (FPM)

Description: Design the next generation of best practices, case studies, and tools developed from HUD research studies and collaboration with other Federal agencies and HUD stakeholders. These resources will be dynamic, user-friendly, and inclusive.

Office	Action	Implementation Method	Resource Implications	Timeline
PD&R	Generate case studies and guidance on resilience planning, disaster recovery, strategic funding strategies, and land use planning for HUD customers	Guidance, Technical Assistance	None	FY22 Q1 – ongoing
PD&R, FHEO	Collaborate with Home Innovation Research Labs to create a series of residential resilience guidelines for homebuilders and developers. Guidelines will incorporate the latest resilience construction techniques and best practices presented in a practical, user-friendly format	Coordination, Guidance	None	FY21 Q1 – FY22 Q3
CPD	Develop a tool and webinar series for HUD customers on the need to incorporate resilience measures and stronger building codes when rebuilding after a disaster	Technical Assistance	None	FY22 Q1 – FY22 Q4
CPD	Conduct grant “launch” and program implementation technical assistance to CDBG-MIT grantees	Technical Assistance	None	FY22 Q2 – ongoing

	who are working to implement hazard mitigation projects			
CPD	Work with HUD CDBG-DR and CDBG grantees to improve resilience decision making using science-based tools	Technical Assistance	None	FY22 Q2 – ongoing
CPD. FPM	Collaborate with local climate city leaders to facilitate peer-to-peer learning opportunities, stakeholder engagement, and direct support as part of the HUD Climate Communities Initiative	Technical Assistance	Reprioritize Existing Resources	FY22 Q1 – ongoing
CPD, FHEO	Organize and expand online library of resources, trainings, and toolkits for climate resilience and environmental justice. Resources will include a range of on-demand webinars and trainings, as well as toolkits, implementation guides, and best practices	Technical Assistance	Reprioritize Existing Resources	FY22 Q2 – ongoing
OLHCHH	Collaborate with the Centers for Disease Control and Prevention on its Building Resilience Against Climate Effects (BRACE) grant program	Guidance	None	FY22 Q1 – ongoing

GOAL 2:
Reduce Greenhouse
Gas Emissions

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Goal 2: Reduce Greenhouse Gas Emissions

HUD has a portfolio of approximately 4.5 million public and assisted housing units (including 2.2 million market-rate apartments occupied by Housing Choice Voucher households) and plays a key role in the development and preservation of affordable housing. HUD's annual outlays on utilities in this portfolio (primarily subsidizing energy and water costs for both property owners and tenants) account for as much as 14 percent of the agency's total budget and, according to an internal HUD analysis, consume enough on-site energy to produce an estimated 13.6 million metric tons of carbon emissions.¹² HUD spends at least \$6.9 billion on utilities across the components of its portfolio: 36 percent or \$2.49 billion in multifamily assisted housing; 30 percent or \$2.02 billion in public housing; and 34 percent or \$2.35 billion for Housing Choice Voucher utility allowances.¹³

In order to meet the Administration's goal of lowering economy-wide net greenhouse gas pollution by 50-52 percent by 2030¹⁴, HUD must significantly improve the energy performance of HUD-assisted and FHA-insured assets while scaling up deployment of renewable energy. HUD will accomplish this goal by increasing investments in climate and energy retrofits of existing housing, incentivizing green building design in new construction, and proactively advancing climate mitigation and adaptation strategies across HUD programs.

In addition to spurring significant reductions in carbon emissions associated with public and assisted housing, these actions will advance economic equity by reducing utility costs for HUD assisted and FHA insured stakeholders and creating green job opportunities in disadvantaged communities. HUD must also explore incentivizing or otherwise assisting communities to implement land use changes that allow for denser, transit-oriented housing development that reduces households' reliance on cars, by far the largest source of greenhouse gas emissions in the transportation sector, which is itself the greatest contributor to economy-wide emissions since surpassing the electricity generation sector in 2017.¹⁵ These land-use changes will simultaneously help to address exclusionary policies that have resulted in racial disparities in wealth, public health, and economic opportunity (see Goal 3 below).¹⁶

Scale: Nationwide.

¹² Preliminary internal HUD estimate of carbon emissions, March 2021. Assisted multifamily and Housing Choice Voucher unit counts from *Characteristics of HUD-Assisted Renters and Their Units in 2017 (2020)* and public housing unit counts from PIC database were used to estimate total BTU consumption for each subsidy type by Census Division, using per-household annual BTU consumption rates from the Residential Energy Consumption Survey (RECS).

¹³ HUD, *Achieving Utility Savings in HUD-Assisted Housing: Progress Report to Congress*, September 2019
¹⁴ *FACT SHEET: President Biden Sets 2030 Greenhouse Gas Pollution Reduction Target Aimed at Creating Good-Paying Union Jobs and Securing U.S. Leadership on Clean Energy Technologies*, April 2021, www.whitehouse.gov.

¹⁵ *Data Highlights: Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019*, Environmental Protection Agency.

¹⁶ Cecilia Rouse, Jared Bernstein, Helen Knudsen, and Jeffery Zhang, "Exclusionary Zoning: Its Effect on Racial Discrimination in the Housing Market," June 17, 2021, www.whitehouse.gov.

Risks and opportunities: Up to 14 percent of HUD’s budget is tied up in utility payments. Investing in substantially lowering the budget impact of utilities will lower the per-household subsidy for public and assisted housing, freeing up resources to allow HUD to serve more low-income families while improving health and comfort for existing residents. In addition, 67 percent of low-income households in the U.S. face a high energy burden. Black, Hispanic, Native American, and older adult households, as well as families residing in low-income multifamily housing, manufactured housing, and older buildings experience disproportionately high energy burdens.¹⁷ Without targeted intervention, this climate injustice will continue.

Accomplishments to Date

HUD has a demonstrated history of promoting clean energy and energy efficiency investments through voluntary leadership and incentive programs, as well as mandatory above-code building standard requirements. Current and previous energy and water conservation initiatives demonstrate the potential for achieving energy savings and carbon reduction with the right mix of incentives, direct financial support, and/or technical assistance. This includes the following initiatives.

Renew300. Under the Obama Administration, HUD launched the Renew300 Initiative, aimed at significantly increasing the adoption of solar and renewable energy in federally assisted housing properties through on-site installations or community solar. A 300-Megawatt (MW) target was established to take advantage of millions of square feet of federally subsidized roofs with on-site or community generation potential. More than 80 affordable housing owners committed to the installation of 344 MW of renewable energy using technical assistance through Renew300.

The Green Mortgage Insurance Premium (Green MIP) provides a strong incentive for FHA multifamily borrowers to adopt one of several approved green building standards. A total of \$38.2 billion in multifamily mortgage insurance for green projects has been endorsed for 1,413 developments with 281,000 units of multifamily housing since the Green MIP was introduced in 2016.¹⁸ Green MIP borrowers must also commit to benchmarking utilities and achieve a minimum 75 Energy Star score in the Environmental Protection Agency’s (EPA) Portfolio Manager.

Benchmarking. HUD’s primary benchmarking initiative is the Multifamily Better Buildings Challenge, part of the DOE’s Better Buildings Challenge. Its goal is to support participating partners who have made a commitment to reducing their portfolio-wide energy consumption by at least 20 percent over 10 years through the use of better utility usage data collection and tracking methods. There are 92 Multifamily BBC partners, accounting for approximately 553,400 units of public and assisted housing (accounting for 23 percent of those programs’ units). As of 2020, 70 percent of multifamily partners are successfully benchmarking, producing actionable data on over 400,000 multifamily units. As a result, the multifamily program has facilitated over 21 trillion British thermal units (Btus) of documented energy savings.

¹⁷ Ariel Drehoj, Lauren Ross, and Roxana Ayala, *How High Are Household Energy Cost Burdens? An Assessment of National and Metropolitan Energy Burden across the United States*, September 2020, American Council for an Energy-Efficient Economy.

¹⁸ HUD Office of Multifamily Housing, Internal Green MIP Report, Through 2021, Quarter 2.

Energy Incentives in Public Housing Operating Fund. Energy incentives including Add-On Subsidy (AOS), Resident Paid Utility (RPU), and Frozen Rolling Base (FRB) are used to incentivize investment for energy and water efficiency measures and renewable energy through the Public Housing Energy Performance Contract (EPC).

Rental Assistance Demonstration (RAD). All RAD conversions undertake an environmental review to assess the site and proposed activities for hazards to the residents, including lead, asbestos, radon, or flooding. PHAs and owners undergoing RAD conversion are required to mitigate any environmental risks that arise from the environmental review. For rehab and new construction projects, PHAs complete a green Capital Needs Assessment (CNA) that provides a detailed analysis of energy-saving alternatives and other green building components and are required to utilize the most energy- and water-efficient options that are financially feasible. At minimum, PHAs or owners must use Energy Star®, WaterSense® or Federal Energy Management Program (FEMP)-designated products and appliances.

HUD has also adopted innovative program provisions to ensure that owners have incentives to undertake cost-effective energy and water efficient improvements, regardless of whether utilities are paid by the owner or by the tenant. All projects are strongly encouraged to use building components that improve air quality and/or reduce environmental impact if doing so would incur little or no cost premium. Public Housing projects converting with any new construction construction must meet or exceed the latest IECC or ASHRAE codes that are adopted by HUD.

They are also encouraged to meet or exceed the requirements for Energy Star for New Homes or Energy Star for Multifamily High-Rise buildings and to use industry-recognized green building certifications such as the US Green Building Council's LEED Rating System, Enterprise Green Communities Criteria, the National Green Building Standard, Green Globes, GreenPoint Rating, EarthCraft, Earth Advantage, Passive House, or Living Buildings. In addition, HUD has required above-code building standards in the Capital Fund Program, Choice Neighborhoods Program, the Section 202 Supportive Housing for the Elderly program for new construction, and recent CDBG-DR grants.

Benchmarking and Data Collection

In order to achieve significant reductions in greenhouse gas pollution, HUD must be able to measure the performance of its portfolio, prioritize investments in energy and water conservation, and track savings over time. To do this, HUD will need to collect and analyze comprehensive data on utility consumption and expenditures as well as building characteristics and investments in energy efficiency and renewable energy. OEE will provide cross-agency coordination to ensure alignment between program office actions and the enterprise-wide data collection and analysis that are required to meet HUD's greenhouse gas reduction goals.

2.1 Assess Current Data Collections

Implementing Offices: PIH, Housing, PD&R, CPD

Description: Assess current data collections and identify alternative data sources where necessary to improve data collection on energy- and hazard mitigation. In order to meet the ambitious goal of cutting greenhouse gas pollution across public, assisted, and FHA-insured housing by 50-52 percent by 2030, HUD needs to have a full accounting of all utility consumption and expenditures in its portfolio. The first step will be to analyze current data collections and identify gaps and deficiencies.

Office	Action	Implementation Method	Resource Implications	Timeline
FHA SF	Identify additional data elements during underwriting and servicing for single-family FHA insured mortgages	Assessment	None	FY22 Q2 – FY23 Q4
PIH	Assess utility data collection and analysis and identify deficiencies	Assessment	None	FY22 Q3 – FY23 Q1
PD&R, OEE, PIH	Compare and analyze data reported from the Better Buildings Challenge and data reported through Form 52722	Assessment	None	FY23 Q1 – FY24 Q1

2.2 Improve Utility Data Reporting and Tracking

Implementing Offices: Housing, PIH, CPD, PD&R, OCIO

Description: In 2016, PIH and Multifamily Housing proposed utility benchmarking requirements for their portfolios of public and assisted housing that will play a foundational role in achieving HUD’s emission reduction goals. Both program offices will reevaluate the proposed rules in light of public comments and determine how to proceed toward the adoption of this crucial requirement. Separately, Multifamily Housing proposes to fund utility benchmarking for a majority of units in the Multifamily-assisted portfolio through the Green and Resilient Retrofit Program (GRRP).

Concurrent with reevaluation of approaches to benchmarking, HUD will work to assess existing data collections and take steps to address identified gaps and deficiencies and create a more effective agency-wide data architecture consistent with Data Governance principles established under the leadership of the Chief Data Officer and OCIO Enterprise Architect. These efforts will include developing agency-wide data standards for utility management and risk mitigation such that all data collections across programs can contribute to an enterprise-wide analysis of climate risks and carbon reduction opportunities. The data on building performance and energy usage HUD collects as part of these actions will be critical to HUD’s Equitable Decarbonization Roadmap discussed in 2.3, Publish Actionable Analysis on Greenhouse Gas Reduction.

Office	Action	Implementation Method	Resource Implications	Timeline
FHA SF	Develop capacity to collect third party data such as utility data to enable HUD to assess effectiveness of single-family energy investments	IT Solution	None	FY23 Q4 – FY25 Q3

PIH	Migrate HUD Forms 52722 and 52723 to the Operating Fund Web Portal	IT Solution, Guidance	Reprioritize Existing Resources	FY22 Q1 – FY24 Q3
CPD, FHA, PIH	Develop enterprise - wide minimum data standards for utility management and risk mitigation	Coordination	None	FY22 Q1 – FY22 Q3
FHA MF, PIH, OEE	Formulate and implement an updated enterprise-wide approach to utility benchmarking	Rulemaking, TA	Requested in FY 22 Budget	FY22 Q1 – FY24 Q1
CPD, OCIO, FHA, PIH	Pursue Portfolio Manager interoperability solutions	IT solution	Reprioritize Existing Resources	FY22 Q2 – FY24 Q4

2.3 Publish Actionable Analysis on Greenhouse Gas Emissions Reduction

Implementing Offices: PIH, OEE

Description: HUD will work to provide new data products and data analysis that help program offices and grantees better understand their utility consumption and energy efficiency and renewable energy opportunities nationwide.

Office	Action	Implementation Method	Resource Implications	Timeline
PIH	Publish utility data dashboards for PHAs and HUD	IT solution, policy	Reprioritize Existing Resources	FY23 Q1 – FY23 Q2
OEE	Develop scope for a High-Performance Building Database in partnership with DOE	Coordination	Reprioritize Existing Resources	FY22 Q2 – FY24 Q1
OEE	Develop updated approach to modeling carbon reductions and energy savings	Research	None	FY22 Q3 – FY24 Q2
Department-wide	Publish an Equitable Decarbonization Roadmap establishing a path for HUD's portfolio to meet the Nation's climate commitments equitably	Assessment	Reprioritize Existing Resources	FY22 Q1 – FY23 Q1

Green Building Requirements and Incentives

2.4 Update Codes and Standards **Implementing Offices:** CPD, Housing, PD&R, PIH

Description: Some HUD funding sources, including Choice Neighborhoods, CDBG-DR, and CDBG-MIT, have set minimum above-code Energy Star New Home or green building standards for new construction. Other programs, such as RAD, encourage adoption of these above-code green building standards. HUD will take steps to strengthen these green building standards and update minimum HUD new construction standards to align with IECC and ASHRAE 90.1 standards contingent on an affordability analysis as required by statute.

Office	Action	Implementation Method	Resource Implications	Timeline
OEE, FHA, PIH	Update Minimum Energy Standards through rulemaking	Rulemaking	None	FY23 Q3 – FY25 Q1
OEE	Evaluate voluntary stretch energy and/or resilience codes	Assessment	None	FY22 Q4 – FY23 Q2
OMHP	Consult with DOE on updating the building and energy efficiency standards for manufactured homes	Coordination, Rulemaking	None	FY22 Q1 – FY23 Q1

2.5 Align Incentives with Efficiency

Implementing Offices: PD&R, CPD, OLHCHH, Housing, FHEO

Description: Existing utility subsidies in HUD public and assisted housing programs do not encourage or discourage recipients from taking steps to make their buildings more energy and water efficient. Program offices will take every opportunity to shift incentives toward energy- and water-saving investments in an equitable manner consistent with civil rights requirements and identify persistent barriers that require congressional action.

Office	Action	Implementation Method	Resource Implications	Timeline
Department-wide	Establish points for climate mitigation and adaptation measures in competitive Notices of Funding Opportunity (NOFOs), where appropriate	Coordination	None	FY22 Q1 – FY24 Q1
PIH	Implement Small Rural Frozen Rolling Base program	Technical Assistance	Reprioritize Existing Resources	FY23 Q1 – FY23 Q4
PIH	Initiate an Energy Performance Contracting (EPC) Innovation Pilot to encourage new strategies and approaches to utilizing the EPC Program	New Resource	Requested in the President's FY22 Budget	FY23 Q1 – FY24 Q4
PIH	Implement the Public Housing Rapid Return Utility Conservation Program, offering competitive grants to fund	New Resource	Requested in the President's FY22 Budget	FY23 Q1 – FY24 Q4

	capital investments to reduce utility consumption			
PIH	Target resources to make Indian Housing Block Grant-assisted housing more energy efficient and resilient, and to reduce energy and water consumption and utility burden	New Resource	Requested in the President's FY 22 Budget	FY23 Q2 – ongoing
PIH	Expand Choice Neighborhoods grants to support energy efficient and resilient design	New Resource	Requested in the President's FY 22 Budget	FY22 Q2 – ongoing
OEE	Coordinate with DOE to qualify HUD-assisted properties for DOE weatherization assistance	Coordination	None	FY22 Q1 – FY24 Q4
OEE, OLHCHH	Streamline and harmonize income eligibility requirements among HUD-funded rehab and lead hazard control programs, and DOE and HHS/LIHEAP-funded weatherization assistance programs	Coordination	None	FY22 Q1 – FY22 Q2
OLHCHH	Award cooperative agreements for joint interventions by OLHCHH Lead Hazard Reduction grantees and DOE Weatherization Assistance Program subgrantees to improve residential energy efficiency	New Resource	Requested in the President's FY22 Budget	FY22 Q1 – ongoing
OEE, OLHCHH	Pilot a model for integrating Lead Hazard Control, HOME/CDBG rehab, HHS and DOE weatherization funds	Coordination, Assessment	None	FY22 Q2 – FY23 Q3
FHA SF	Assess single family mortgage programs to identify opportunities to incentivize energy efficiency	Assessment	None	FY22 Q2 – FY23 Q4
FHA MF	Create the Green and Resilient Retrofit Program to combine direct loan subsidy and competitive grants to support energy efficiency and climate resilient improvements in assisted multifamily properties	New Resource	Requested in the President's FY 22 Budget	FY 22 Q1 – ongoing
Housing	Strengthen energy and resilience investments in RAD conversions	New Resource	Requested in the President's FY 22 Budget	FY22 Q2 – FY22 Q4

PIH	Award funds to Tribes for energy and water efficiency retrofits	New Resource	Requested in the President's FY22 Budget	FY22 Q1 – FY24 Q3
OEE	Create working group with program offices to assess current programmatic barriers to energy efficiency, including utility allowance methodologies	Coordination, Assessment	None	FY22 Q2 – FY24 Q1

Capacity Building

2.6 Deliver Education and Training

Description: HUD program offices will provide educational materials and training to increase utilization of existing incentives for energy efficiency and resilience improvements among grantees, borrowers, and other program beneficiaries.

Implementing Offices: Housing, PIH, PD&R, CPD

Office	Action	Implementation Method	Resource Implications	Timeline
FHA SF	Develop stakeholder education strategy regarding tools and resources FHA offers to finance energy-related improvements and to mitigate climate hazards	Technical Assistance	Reprioritize Existing Resources	FY22 Q2 – FY24 Q4
FHA SF	Make necessary updates to training and marketing materials to ensure lenders and consumers are aware of flexibility of FHA's 203(k) program	Technical Assistance	None	FY22 Q2 – FY24 Q4
FHA SF	Develop and deliver training to ensure single family appraisers are aware of approaches for valuing energy- and hazard-mitigation-related improvements into valuation	Technical Assistance	Reprioritize Existing Resources	FY22 Q2 – FY24 Q4
PIH	Update guidance, and training for EPC, Energy Incentive Programs, and other programs, to support rural communities' energy efficiency hazard risk reduction efforts	Guidance, Technical Assistance	None	FY22 Q1 – FY23 Q3
CPD	Deliver training to spur adoption of Health@Home Rehabilitation Guidelines by HUD grantees	Technical Assistance	None	FY22 Q1 – FY23 Q1
PD&R	Collaborate with DOE to hold HUD-wide training and informational forum on energy efficiency	Training	None	FY21 Q4 – FY22 Q1

2.7 Foster Innovation and Remove Barriers

Implementing Offices: CPD, PD&R, PIH

Description: PHAs and owners of HUD-assisted multifamily housing face a unique collection of barriers to energy and water conservation. The multifamily portfolio has a greater range of building types and systems than in any other building sector, there are potentially hundreds of different utility accounts per building, access to financing is limited by program rules, and organizations often lack the staff capacity to plan and implement a portfolio-wide investment strategy. HUD offices, often in partnership with the Department of Energy, will add to the current state of knowledge and find new strategies and solutions to help HUD grantees overcome these barriers.

Office	Action	Implementation Method	Resource Implications	Timeline
CPD	Support DOE Multifamily Solar Collaborative to address barriers and implement community solar in affordable multifamily housing	Coordination	None	FY22 Q1 – FY23 Q4
PD&R	Assess HUD’s research and capacity-building needs related to health and safety compliance of older manufactured housing units for inclusion in HUD’s 2022-25 Learning Agenda	Assessment	None	FY22 Q4 – FY24 Q2
PD&R	Assess HUD’s research and capacity-building needs related to submetering and sale of renewable energy for inclusion in HUD’s 2022-25 Learning Agenda	Assessment	Reprioritize Existing Resources	FY22 Q4 – FY24 Q2
CPD	Partner with DOE on Low-Carbon Pilot and launch of 50 percent Carbon Reduction Challenge	Coordination	None	FY22 Q1 – FY23 Q4

GOAL 3:
Pursue
Environmental Justice

03

Goal 3: Pursue Environmental Justice

Addressing climate and environmental justice is at the core of HUD's mission to create strong, sustainable, inclusive communities. Environmental justice means ensuring equal protection from environmental and health hazards and providing equal and meaningful opportunity to participate in the decision-making process to achieve a healthy environment. In this plan, HUD commits to a variety of actions to empower communities to achieve climate resilience, facilitate economic opportunities, and eliminate health risks caused by environmental injustices. HUD has established environmental justice as a budget priority, ensuring that both HUD staff and its external stakeholders are aware of the significance of avoiding and reversing environmental inequities.

HUD strongly supports the Administration's whole-of-government effort to ensure that at least 40 percent of overall Federal investments in climate and clean energy are delivered to disadvantaged communities. Because of its unique focus on supporting low-income communities, HUD anticipates that most of its programs already exceed this goal. Nonetheless, HUD will strive to maximize investments in low-income communities, communities of color, and other disadvantaged and historically underserved communities.

Scale: Nationwide.

Risks and opportunities: Low-income communities and communities of color experience disproportionately large impacts from climate change and environmental hazards due to a history of disinvestment and discrimination. Without targeted intervention, these environmental inequities will widen.

Accomplishments to Date

Affirmatively Furthering Fair Housing. In addition to barring housing discrimination, the Fair Housing Act requires HUD and its grantees to administer programs and activities relating to housing and urban development in a manner that affirmatively furthers the purposes of the Fair Housing Act. This means taking meaningful actions that not only overcome patterns of segregation but foster inclusive communities free from barriers that restrict access to opportunity based on protected characteristics. Specifically, Affirmatively Furthering Fair Housing (AFFH) means implementing concrete changes that, taken together, address significant disparities in housing needs and in access to opportunity. These actions would replace segregated living patterns with truly integrated and balanced living patterns, transform racially or ethnically concentrated areas of poverty into areas of opportunity, and foster and maintain compliance with civil rights and fair housing laws.

On July 31, 2021, HUD's interim final rule to restore certain definitions related to AFFH and certifications incorporating those definitions became effective. Program participants covered by the rule certify that they will comply with the obligation to AFFH, consistent with the restored definitions. Program participants may voluntarily engage in fair housing planning to support their certifications, and HUD provides technical assistance and support to assist program participants in carrying out their obligation to AFFH, including by supporting funding recipients that carry out this voluntary fair housing planning process. HUD intends to undertake a separate rulemaking to build upon and further improve the 2015 AFFH rule by instituting a new fair housing planning process and framework to achieve material, positive change that affirmatively furthers fair housing.

Partnership with EPA’s Superfund program. Since 2017, EPA and HUD have been engaged in a coordinated effort to address potential Superfund site-related exposure to residents of HUD Public Housing and multifamily assisted housing. This effort has helped EPA prioritize site work to protect communities located within Superfund site areas while also helping to inform future decisions and coordination with HUD. HUD and EPA continue to refine this analysis both to inform the interagency workgroup’s ongoing effort to review HUD-assisted properties that may be at risk for site contamination and to reach the goal of providing accurate data to the public. Next steps and goals for this effort are discussed in section 3.4 below.

Radon protection. HUD’s Offices of Housing, Multifamily Housing, and Healthcare have existing radon policies that are leading the mortgage insurance industry. HUD’s Office of Multifamily Housing received the AARST Policy Leadership Award for “Leadership in Establishing and Implementing Effective Radon Risk Reduction Policies that Save Lives” in September 2019. Multifamily and Healthcare continuously refine radon policy in the MAP guide, 232 Handbook and the RAD program in coordination with HUD’s Office of Healthy Homes, EPA, and the ANSI-AARST standards.

Empowering Disadvantaged Communities

3.1 Promote Climate Justice in Tribal Communities

Implementing Offices: PIH, PD&R

Description: HUD recognizes the unique legal and political relationship that exists between the United States and Tribal governments. The Department also recognizes the history of environmental inequities that has created barriers to achieving climate resilience in Tribal communities. HUD intends to help Tribal communities achieve safe, resilient housing and infrastructure through improved access to data, technical support, and funding opportunities.

Office	Action	Implementation Method	Resource Implications	Timeline
PD&R, ONAP	Assess HUD’s research and capacity-building needs related to exclusion of Tribal Lands and communities in national climate, weather, utility, geological and infrastructure data for inclusion in HUD’s 2022-25 Learning Agenda, and Coordinate with National Labs to address exclusions	Coordination	None	FY22 Q1 – FY23 Q1
PD&R, ONAP	Assess HUD’s research and capacity-building needs related to Sustainable Construction in Indian County for inclusion in HUD’s 2022-25 Learning Agenda.	Assessment, Guidance	None	FY22 Q1 – FY23 Q1
ONAP	Build capacity of Tribes and Federal agencies to develop efficient, coordinated environmental reviews and strengthen environmental	Technical Assistance	None	In progress – FY24 Q1

	compliance through the Tribal Housing and Related Infrastructure Interagency Task Force, led by HUD's Office of Native American Programs			
ONAP	Provide technical assistance to HUD customers to support sustainable, net zero/next generation building that is reflective of Tribal cultures and supports job creation	Technical Assistance	Reprioritize Existing Resources	FY22 Q3 – FY23 Q3

3.2 Create Green Job Opportunities

Implementing Offices: PIH, CPD

Description: Invest in the creation of green jobs in partnership with PHAs and local workforce partners. Many HUD programs are subject to requirements in section 3 of the Housing and Community Development Act of 1968, which requires that employment and other economic opportunities generated by Federal financial assistance for housing and community development programs be directed, to the greatest extent feasible, toward low- and very low-income persons, particularly those who are recipients of government assistance for housing. HUD has an opportunity to guide and empower Section 3 compliance that supports green workforce development in the communities that HUD serves.

Office	Action	Implementation Method	Resource Implications	Timeline
CPD, PIH	Provide direct technical assistance to help PHAs and local workforce partners leverage Section 3 training and improve green economy employment outcomes through the newly created Building Futures pilot	Technical Assistance	None	FY21 Q3 – FY23 Q1
CPD, PIH	Based on experience in the Building Futures pilot, identify best practices and possibilities to scale up the program	Assessment	None	FY23 Q1 – FY23 Q2
PIH	Leverage EPC (including EPC Innovation Pilot Program) and Small Rural Frozen Rolling Base Programs to support investment and green jobs at the public housing level	Rulemaking, Guidance	None	In progress – FY23 Q4

3.3 Encourage Equitable Community Planning and Engagement

Implementing Offices: FHEO, PD&R, CPD

Description: Provide resources and technical support to help communities improve equity in both community planning and community engagement. HUD will seek to include best practices related to removing barriers to and promoting the development of affordable housing in areas with low environmental hazards, providing meaningful access for individuals with Limited English Proficiency (LEP) and effective communication for individuals with disabilities, and advancing equity with selection criteria that avoid disproportionate allocations based on race other protected characteristics.

Office	Action	Implementation Method	Resource Implications	Timeline
PD&R, FHEO	Generate guidance on best practices for community land use and site planning, including zoning reforms and transit-oriented development, that promote energy efficiency and hazard mitigation	Research, Guidance	None	In progress – FY23 Q3
CPD, FHEO	Create a Citizen Participation and Engagement Toolkit for CDBG-DR and CDBG-MIT grantees. This online, interactive toolkit will help to ensure whole community recovery and resilience by providing information and resources to help grantees bring in the “whole” community to the conversation, specifically historically disadvantaged populations and protected classes	Technical Assistance	None	In progress – FY22 Q3
FHEO	Consider expanding Citizen Participation and Engagement Toolkit to other programs and audiences	Assessment	None	FY22 Q4 – FY24 Q1
CPD, FHEO	Publish guidance on how to incorporate use of Social Vulnerability Index (SOVI) and similar data into Consolidated Plan development and grantee priority setting	Guidance	None	FY22 Q3 – FY22 Q4
PD&R, FHEO	Assess practices that advance equitable implementation of disaster recovery resilience funding and generate guidance on best practices	Assessment, Guidance	None	FY23 Q1 – FY24 Q1
CPD	HUD’s Office of Block Grant Assistance is assessing ways to provide specialized TA, best practices and guidance to field office staff and grantees around the existing required zoning element of the Consolidated Plan	Assessment, Guidance, TA		FY22 Q1 – FY23 Q1

Healthy Housing Initiatives

3.4 Prevent Residential Lead Poisoning

Implementing Offices: OLHCHH, PD&R, PIH, CPD, Housing

Description: HUD is a leader in increasing awareness of lead poisoning prevention and reducing childhood lead exposure. HUD will continue to prioritize comprehensive reductions in Americans’ exposure to lead pollution in their homes by addressing lead contamination in soil, air, water, and paint. This includes expanding HUD’s existing lead control programs as well as continuing an ongoing partnership with EPA to assess and remediate potential health risks to residents of public and assisted housing both within and near Superfund site boundaries.

Office	Action	Implementation Method	Resource Implications	Timeline
OLHCHH	Update the soil-lead hazard standard for OLHCHH Lead Hazard Reduction Program grants by working with the EPA to identify a lower, more protective “action level” than the current standard	Guidance	None ¹⁹	FY22 Q3 – FY23 Q3
OLHCHH, PD&R	Assess HUD’s research and capacity-building needs related to lead risk and geospatial products for inclusion in HUD’s 2022-25 Learning Agenda	Assessment	Reprioritize Existing Resources	FY22 Q1 – FY23 Q3
PIH	Issue policy guidance, provide technical assistance, and monitor public and voucher housing to further compliance with lead-based paint safety regulations	Guidance, Technical Assistance	None	FY22 Q1 – FY24 Q1
PIH	Launch competitive Lead-based Paint Capital Funds program for PHAs to test and abate lead paint	Guidance	FY22 Budget Request	FY22 Q4 – FY24 Q4
OLHCHH	Develop plans and implement Justice40 pilot in Lead Hazard Control and Healthy Homes Grants	Assessment, Guidance	None	FY22 Q1 – FY23 Q1
OEE, PIH, Housing, OLHCHH	Continue ongoing partnership with EPA to identify and investigate Public Housing and Multifamily assisted housing in which lead pollution and other contaminants of concern from NPL sites could impact residents’ health	Coordination, Assessment	None	FY21 Q2 – FY22 Q4
CPD, PIH,	Where contamination is found in HUD-assisted housing, work across	Coordination, assessment	None	FY21 Q4–FY23 Q4

¹⁹ Although there may be resource implications for implementing any rulemaking, the full resource implications cannot be known until the rule has been drafted. Therefore, the resource implications for rulemaking apply only to the resources required to draft and publish the rule.

Housing, OLHCHH	Federal, Tribal, State, and Local agencies and nongovernmental organizations to help the impacted community identify available resources and appropriate solutions to eliminate hazards and improve residents' overall health			
PD&R, CPD, PIH, Housing, OLHCHH	Collaborate with EPA's Office of Brownfields and Land Revitalization, as well as State and Tribal Response Programs, to ensure cross-agency alignment with respect to changing climate conditions and brownfields policies	Coordination	None	FY23 Q1 – FY24 Q1

3.5 Minimize Residential Radon Exposure

Implementing Offices: OLHCHH, CPD, Housing, PIH

Description: Coordinate across programs to develop targeted policy, guidance, and technical assistance to HUD customers to minimize radon exposure in the Nation's housing stock.

Office	Action	Implementation Method	Resource Implications	Timeline
OLHCHH, CPD, PIH, Housing	Deliver radon training series and guidance materials to HUD customers covering topics including radon basics, regulatory requirements, and testing and mitigation best practices	Technical Assistance	None	FY22 Q1- FY23 Q4
OEE, OLHCHH	Develop a simple departmental radon policy clarifying current regulatory minimums	Guidance	None	FY21 Q4- FY22 Q1
CPD, PIH	Develop program-specific radon policies for grantees and PHAs	Guidance	None	FY22 Q1- FY22 Q4
OEE, OLHCHH, PIH, Housing	Refine departmentwide radon testing and mitigation standards by rule	Rulemaking	None	FY22 Q1- FY24 Q4

3.6 Update HUD's National Environmental Policy Act (NEPA) Policies

Implementing Offices: CPD, PIH, Housing

Description: Revise HUD's environmental review policies to ensure consideration of climate- and environmental justice-related hazards and health risks in all proposed site selection and placement of new assistance activities. HUD will update its NEPA-implementing regulations, guidance materials, and online tools to specify how HUD and grantees will consider climate-related hazards and environmental justice concerns in environmental reviews prepared pursuant to 24 CFR parts 50 and 58. This effort will reflect diverse concerns and resources, including guidance from the White House Council on Environmental Quality (CEQ), recent

evaluations of the potential health risks from lead and radon in public and assisted housing, and the particular impacts of climate change on vulnerable communities. CPD will work closely with program offices across the department to define program-specific policies and standards.

Office	Action	Implementation Method	Resource Implications	Timeline
OEE	Follow up on HUD’s 2014 Climate Adaptation Plan and CEQ guidance by updating guidance on how to assess climate resilience and environmental justice when completing Environmental Assessments under 24 CFR parts 50 and 58	Guidance	None	FY22 Q1 – FY22 Q3
OEE	Revise HUD’s environmental regulations – including 24 CFR parts 50, 55, and 58 – to better integrate strategies to mitigate climate- and EJ-related hazards and health risks in HUD-assisted activities	Rulemaking	None	FY22 Q1- FY23 Q4
CPD, PIH, Housing	Update Program guidance on environmental review procedures to include analysis of climate mitigation measures, adaptation strategies, and environmental justice	Guidance	None	FY22 Q2- FY23 Q4
CPD	Develop a training series for HUD customers and update HUD’s online tools to reflect updated policy	Technical Assistance, IT Solution	None	FY22 Q3- FY23 Q4
CPD, PIH, Housing, FHEO	Extend ongoing efforts to improve environmental review compliance across HUD programs through improved guidance, technical support, and monitoring	Guidance, Technical Assistance	None	Ongoing

APPENDIX

APP

Appendix A: Abbreviations and Acronyms

AFFH	Affirmatively Furthering Fair Housing
AOS	Add-On Subsidy
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
BBC	Better Buildings Challenge
Btus	British thermal units
CDBG	Community Develop Block Grant
CDBG-DR	Community Development Block Grant Disaster Recovery program
CDBG-MIT	Community Development Block Grant Mitigation program
CEQ	White House Council on Environmental Quality
CFR	Code of Federal Regulations
CNA	Capital Needs Assessment
CPD	Office of Community Planning and Development
DOE	U.S. Department of Energy
DOI	U.S. Department of Interior
DRSI	Disaster Recovery and Special Issues Division
EEH	Energy Efficient Home
EJ	Environmental Justice
EO	Executive Order
EPA	Environmental Protection Agency
EPC	Energy Performance Contract
FEMA	Federal Emergency Management Agency
FFRMS	Federal Flood Risk Management Standard
FHA MF	Federal Housing Administration, Multifamily Housing
FHA SF	Federal Housing Administration, Single-Family Housing
FHEO	Office of Fair Housing and Equal Opportunity
FPM	Office of Field Policy and Management
FRB	Frozen Rolling Base

FY	Fiscal Year
GAO	Government Accountability Office
GHG	Greenhouse Gas
GI/SR	General Insurance and Special Risk
HHS	U.S. Department of Health and Human Services
HUD	U.S. Department of Housing and Urban Development
IECC	International Energy Conservation Code
IT	Information Technology
LiMWA	Limit of Moderate Wave Action
MIP	Mortgage Insurance Premium
MMI	Mutual Mortgage Insurance
MW	Megawatt
NEPA	National Environmental Policy Act
NIST	National Institute of Standards and Technology
NPL	National Priorities List
OCIO	Office of the Chief Information Officer
OEE	Office of Environment and Energy
OLHCHH	Office of Lead Hazard Control and Healthy Homes
ONAP	Office of Native American Programs
PD&R	Office of Policy Development and Research
PHA	Public Housing Authority
PIH	Office of Public and Indian Housing
Q	Quarter
RAD	Rental Assistance Demonstration
REAL	Resilience and Energy Assistance Loan
RPU	Resident Paid Utility
SOVI	Social Vulnerability Index
TA	Technical Assistance
USVI	U.S. Virgin Islands



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NASA Aeronautics has always been about improving aviation efficiency and safety, while reducing noise, fuel use and harmful emissions. For decades, our NASA-developed technologies have contributed to making aviation more sustainable – environmentally and economically.

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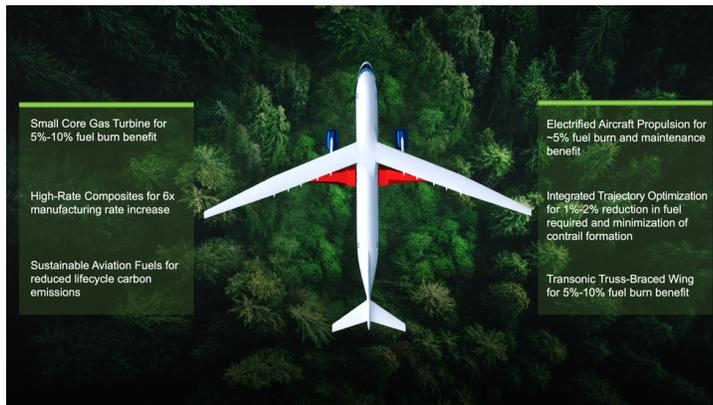
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Proposed Rule to Revise Existing National GHG Emissions Standards for Passenger Cars and Light Trucks Through Model Year 2026

Basic Information

Code of Federal Regulations Citations

- 40 CFR Part 19
- 40 CFR Part 86
- 40 CFR 600
- 40 CFR 523
- 40 CFR 1066
- 40 CFR 1867

Docket Numbers

- EPA-HQ-OAR-2021-0208

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Regulations for Greenhouse Gas Emissions from Passenger Cars and Trucks

<https://epa.gov/node/159769>

Clean Trucks Plan <https://epa.gov/node/270593>

The Environmental Protection Agency (EPA) proposed to strengthen federal greenhouse gas (GHG) emissions standards for passenger cars and light trucks by setting stringent requirements for reductions through Model Year (MY) 2026. The proposed 2023-2026 MY standards would achieve significant GHG emissions reductions along with reductions in other pollutants. The proposal would result in substantial public health and welfare benefits, while providing consumers with savings from lower fuel costs. The proposal would incentivize technology available today to make vehicles cleaner and to encourage more hybrid and electric vehicle technology.

Comment and Public Hearing Information:

To view comments submitted for this proposed rulemaking, please visit [regulations.gov](https://www.regulations.gov) ^{EXIT} <https://www.regulations.gov/> and access the rule under Docket ID No. EPA-HQ-OAR-2021-0208.

EPA held a virtual public hearing on this proposal on August 25, and August 26, 2021. The transcripts can be found on the Public Hearing <https://epa.gov/node/270524> page.

Additional Resources

- Proposed Rulemaking: Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards (pdf) ^{EXIT} <https://www.govinfo.gov/content/pkg/fr-2021-08-10/pdf/2021-16582.pdf> (86 pp, 1.7 MB, published August 10, 2021)
- Regulatory Impact Analysis (RIA) (PDF) (263 pp, 4.7 MB, EPA-420-R-21-018, August 2021)
- Fact Sheet: Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards (PDF) (7 pp, 187 K, EPA-420-F-21-060, August 2021)
- Fact Sheet: By the Numbers - Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards (PDF) (2 pp, 102 K, EPA-420-F-21-058, August 2021)
- EPA model runs and files supporting the proposed rule's benefit-cost analysis. EPA CCEM PostProcessingTool Project (zip) <https://www3.epa.gov/otaq/ld/epa-ccems-postprocessingtool-project.zip> (2.9 GB, August 2021)
- Public Hearing Information <https://epa.gov/node/270524>
- Final Rule to Revise Existing National GHG Emissions Standards for Passenger Cars and Light Trucks Through Model Year 2026 <https://epa.gov/regulations-emissions-vehicles-and-engines/final-rule-revise-existing-national-ghg-emissions>

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RIN 3235-AM87

The Enhancement and Standardization of Climate-Related Disclosures for Investors

AGENCY: Securities and Exchange Commission

ACTION: Proposed rule.

SUMMARY: The Securities and Exchange Commission (“Commission”) is proposing for public comment amendments to its rules under the Securities Act of 1933 (“Securities Act”) and Securities Exchange Act of 1934 (“Exchange Act”) that would require registrants to provide certain climate-related information in their registration statements and annual reports. The proposed rules would require information about a registrant’s climate-related risks that are reasonably likely to have a material impact on its business, results of operations, or financial condition. The required information about climate-related risks would also include disclosure of a registrant’s greenhouse gas emissions, which have become a commonly used metric to assess a registrant’s exposure to such risks. In addition, under the proposed rules, certain climate-related financial metrics would be required in a registrant’s audited financial statements.

DATES: Comments should be received on or before May 20, 2022.

ADDRESSES: Comments may be submitted by any of the following methods:

Electronic comments:

- Use the Commission’s internet comment form
[\(<https://www.sec.gov/rules/submitcomments.htm>\)](https://www.sec.gov/rules/submitcomments.htm).

- Send an email to rule-comments@sec.gov. Please include File Number S7-10-22 on the subject line.

Paper comments:

- Send paper comments to Vanessa A. Countryman, Secretary, Securities and Exchange Commission, 100 F Street NE, Washington, DC 20549-1090.

All submissions should refer to File Number S7-10-22. This file number should be included on the subject line if email is used. To help the Commission process and review your comments more efficiently, please use only one method of submission. The Commission will post all comments on the Commission's website (<https://www.sec.gov/rules/proposed.shtml>). Comments are also available for website viewing and printing in the Commission's Public Reference Room, 100 F Street NE, Washington, DC 20549 on official business days between the hours of 10 a.m. and 3 p.m. Operating conditions may limit access to the Commission's Public Reference Room. All comments received will be posted without change. Persons submitting comments are cautioned that we do not redact or edit personal identifying information from comment submissions. You should submit only information that you wish to make available publicly.

Studies, memoranda, or other substantive items may be added by the Commission or staff to the comment file during this rulemaking. A notification of the inclusion in the comment file of any such materials will be made available on our website. To ensure direct electronic receipt of such notifications, sign up through the "Stay Connected" option at www.sec.gov to receive notifications by email.

FOR FURTHER INFORMATION CONTACT: Elliot Staffin, Special Counsel, Office of Rulemaking, at (202) 551-3430, in the Division of Corporation Finance; or Anita H. Chan,

Professional Accounting Fellow or Shehzad K. Niazi, Acting Deputy Chief Counsel, in the Office of the Chief Accountant, at (202) 551-5300, U.S. Securities and Exchange Commission, 100 F Street NE, Washington, DC 20549.

SUPPLEMENTARY INFORMATION: We are proposing to add 17 CFR 210.14-01 and 14-02 (Article 14 of Regulation S-X) and 17 CFR 229.1500 through 1506 (subpart 1500 of Regulation S-K) under the Securities Act¹ and the Exchange Act,² and amend 17 CFR 239.11 (Form S-1), 17 CFR 239.18 (Form S-11), 17 CFR 239.25 (Form S-4), and 17 CFR 239.34 (Form F-4) under the Securities Act, and 17 CFR 249.210 (Form 10), 17 CFR 249.220f (Form 20-F), 17 CFR 249.306 (Form 6-K), 17 CFR 249.308a (Form 10-Q), and 17 CFR 249.310 (Form 10-K) under the Exchange Act.

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¹ 15 U.S.C. 77a *et seq.*

² 15 U.S.C. 78a *et seq.*

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I. INTRODUCTION

We are proposing to require registrants to provide certain climate-related information in their registration statements and annual reports, including certain information about climate-related financial risks and climate-related financial metrics in their financial statements. The disclosure of this information would provide consistent, comparable, and reliable—and therefore decision-useful—information to investors to enable them to make informed judgments about the impact of climate-related risks on current and potential investments.

The Commission has broad authority to promulgate disclosure requirements that are “necessary or appropriate in the public interest or for the protection of investors.”³ We have considered this statutory standard and determined that disclosure of information about climate-related risks and metrics would be in the public interest and would protect investors. In making this determination, we have also considered whether the proposed disclosures “will promote efficiency, competition, and capital formation.”⁴

We are proposing to require disclosures about climate-related risks and metrics reflecting those risks because this information can have an impact on public companies’ financial performance or position and may be material to investors in making investment or voting decisions. For this reason, many investors—including shareholders, investment advisers, and investment management companies—currently seek information about climate-related risks from companies to inform their investment decision-making. Furthermore, many companies have

³ See, e.g., Section 7 of the Securities Act [15 U.S.C. 77g] and Sections 12, 13, and 15 of the Exchange Act [15 U.S.C. 78l, 78m, and 78o].

⁴ See, e.g., Section 2(b) of the Securities Act [15 U.S.C. 77b(b)] and Section 3(f) of the Exchange Act [15 U.S.C. 78c(f)].

begun to provide some of this information in response to investor demand and in recognition of the potential financial effects of climate-related risks on their businesses.

We are concerned that the existing disclosures of climate-related risks do not adequately protect investors. For this reason, we believe that additional disclosure requirements may be necessary or appropriate to elicit climate-related disclosures and to improve the consistency, comparability, and reliability of climate-related disclosures. With respect to their existing climate-related disclosures (to the extent registrants are already disclosing such information), registrants often provide information outside of Commission filings and provide different information, in varying degrees of completeness, and in different documents and formats—meaning that the same information may not be available to investors across different companies. This could result in increased costs to investors in obtaining useful climate-related information and impair the ability to make investment or voting decisions in line with investors’ risk preferences. Also, companies may not disclose certain information needed to understand their existing climate-related disclosures, such as the methodologies, data sources, assumptions, and other key parameters used to assess climate-related risks. To the extent companies primarily provide this information separate from their financial reporting, it may be difficult for investors to determine whether a company’s financial disclosures are consistent with its climate-related disclosures.⁵ In addition, the information provided outside of Commission filings is not subject to the full range of liability and other investor protections that help elicit complete and accurate disclosure by public companies.

⁵ S&P Global, [Seven ESG Trends to Watch in 2021](https://www.spglobal.com/en/research-insights/featured/seven-esg-trends-to-watch-in-2021) (Feb. 7, 2021), available at <https://www.spglobal.com/en/research-insights/featured/seven-esg-trends-to-watch-in-2021>. This study found that approximately 90% of S&P 500 companies publish sustainability reports but only 16% include any reference to ESG factors in their Commission filings.

Investors need information about climate-related risks—and it is squarely within the Commission’s authority to require such disclosure in the public interest and for the protection of investors—because climate-related risks have present financial consequences that investors in public companies consider in making investment and voting decisions.⁶ Investors have noted that climate-related inputs have many uses in the capital allocation decision-making process including, but not limited to, insight into governance and risks management practices,⁷ integration into various valuation models, and credit research and assessments.⁸ Further, we understand investors often employ diversified strategies, and therefore do not necessarily consider risk and return of a particular security in isolation but also in terms of the security’s effect on the portfolio as a whole, which requires comparable data across registrants.⁹

While climate-related risks implicate broader concerns—and are subject to various other regulatory schemes—our objective is to advance the Commission’s mission to protect investors,

⁶ See Financial Stability Oversight Council (“FSOC”), [Report on Climate-Related Financial Risk 2021](https://home.treasury.gov/system/files/261/FSOC-Climate-Report.pdf) (Oct. 2021) (“2021 FSOC Report”), available at <https://home.treasury.gov/system/files/261/FSOC-Climate-Report.pdf> (detailing the myriad ways that climate-related risks pose financial threats both at the firm level and financial system level). See also *Managing Climate Risk in the U.S. Financial System*, Report of the Climate-Related Market Risk Subcommittee, Market Risk Advisory Committee of the U.S. Commodity Futures Trading Commission (2020), available at <https://www.cftc.gov/sites/default/files/2020-09/9-9-20%20Report%20of%20the%20Subcommittee%20on%20Climate-Related%20Market%20Risk%20-%20Managing%20Climate%20Risk%20in%20the%20U.S.%20Financial%20System%20for%20posting.pdf> (“CFTC Advisory Subcommittee Report”) (stating that climate-related risks pose a major risk to the stability of the U.S. financial system and to its ability to sustain the American economy).

⁷ See, e.g., letters from Amalgamated Bank (June 14, 2021); and Norges Bank Investment Management (June 13, 2021).

⁸ See, e.g., letter from Principles for Responsible Investment (PRI) (Consultation Response) (June 11, 2021).

⁹ See, e.g., *id.* (stating that broadly diversified investors evaluating any individual asset for addition to a portfolio need to consider its risk and return characteristics not in isolation, but in terms of the asset’s effect on the portfolio as a whole, and providing CalPERS as an example of an asset owner holding a diversified growth-oriented portfolio that has integrated climate risk assessment into its investment process); see also letter from Amalgamated Bank (stating that the principal mitigant of investment risk is diversity of exposure and indicating that comprehensive climate disclosures help investors assess systemic risk); and Norges Bank Investment Management (stating that for sustainability information to support investment decisions, risk management processes, and ownership activities across a diversified portfolio, it must be consistent and comparable across companies and over time).

maintain fair, orderly and efficient markets, and promote capital formation, not to address climate-related issues more generally. In particular, the impact of climate-related risks on both individual businesses and the financial system as a whole are well documented.¹⁰ For example, the Financial Stability Oversight Council’s (“FSOC’s”) Report on Climate-Related Financial Risk 2021 found that businesses, financial institutions, investors, and households may experience direct financial effects from climate-related risks, and observed that the costs would likely be broadly felt as they are passed through supply chains and to customers and as they reduce firms’ ability to service debt or produce returns for investors.¹¹ As a result, these climate-related risks and their financial impact could negatively affect the economy as a whole and create systemic

¹⁰ In 2020 alone, a record 22 separate climate-related disasters with at least \$1 billion in damages struck across the United States, surpassing the previous annual highs of 16 such events set in 2011 and 2017. See NOAA, National Center for Environmental Information, *Billion Dollar Weather and Climate Disasters: Summary Stats* (3rd Quarter release 2021), available at <https://www.ncdc.noaa.gov/billions/summary-stats/US/2020>. In 2021, the United States experienced 20 separate billion-dollar climate-related disasters. See NOAA, *U.S. saw its 4th-warmest year on record, fueled by a record-warm December* (Jan. 10, 2022), available at <https://www.noaa.gov/news/us-saw-its-4th-warmest-year-on-record-fueled-by-record-warm-december>.

¹¹ See 2021 FSOC Report, Chapter 1: *From Climate-Related Physical Risks to Financial Risks; From Climate-related Transition Risks to Financial Risks*. We discuss climate-related physical risks and climate-related transition risks in greater detail in Section II.B.1.

risk for the financial system.¹² SEC-reporting companies and their investors are an essential component of this system.¹³

Climate-related risks can affect a company's business and its financial performance and position in a number of ways. Severe and frequent natural disasters can damage assets, disrupt operations, and increase costs.¹⁴ Transitions to lower carbon products, practices, and services, triggered by changes in regulations, consumer preferences,¹⁵ availability of financing,

¹² See 2021 FSOC Report, Chapter 1: An Emerging Consensus Framework for Climate-related Financial Risks (stating that these effects would likely propagate through the financial sector, which may experience credit and market risks associated with loss of income, defaults and changes in the values of assets, liquidity risks associated with changing demand for liquidity, and operational risks associated with disruptions to infrastructure). See also Financial Stability Board ("FSB"), *The Implications of Climate Change for Financial Stability* (Nov. 2020) (stating that climate-related effects may be far-reaching in their breadth and magnitude, and could affect a wide variety of firms, sectors and geographies in a highly correlated manner, indicating that the value of financial assets/liabilities could be affected either by the actual or expected economic effects of a continuation of climate-related physical risks, which could lead to a sharp fall in asset prices and increase in uncertainty, or by risks associated with a transition towards a low-carbon economy, particularly if the transition is disorderly, which could have a destabilizing effect on the global financial system). See also Basel Committee on Banking Supervision, *Climate-related Risk Drivers and Their Transmission Channels* (Apr. 2021), at <https://www.bis.org/bcbs/publ/d517.pdf>.

¹³ See, e.g., The Editors, *Don't Drag Banks Into the Culture Wars*, *The Washington Post* (Mar. 7, 2022) ("No doubt, all companies — including those in the financial sector — must do more to manage social and environmental risks, in particular those related to climate change. To that end, the Securities and Exchange Commission is rightly working on climate-risk disclosure rules, so investors will have the information they need to make the best possible decisions and to hold public companies accountable.").

¹⁴ See, e.g., 2021 FSOC Report, Chapter 1: From Climate-related Physical Risks to Financial Risks.

¹⁵ See, e.g., *Why the automotive future is electric*, McKinsey & Company (Sept. 7, 2021), at <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/why-the-automotive-future-is-electric> (attributing the shift toward lower emissions forms of transportation, such as electric vehicles, to a combination of regulation, consumer behavior and technology); *A Fifth Of World's Largest Companies Committed To Net Zero Target*, *Forbes* (Mar. 24, 2021), at <https://www.forbes.com/sites/dishashetty/2021/03/24/a-fifth-of-worlds-largest-companies-committed-to-net-zero-target/?sh=2a72640f662f>; See also, *More than 1,000 companies commit to science-based emissions reductions in line with 1.5°C climate ambition*, Joint Press Release by the United Nations Global Compact and the Science Based Targets Initiative (Nov. 9, 2021), at <https://finance.yahoo.com/news/more-1-000-companies-commit-000800027.html> (1,045 companies with more than \$23 trillion in market capitalization are setting 1.5°C aligned science based targets). See also, *Why Engage Suppliers on GHG Emissions?*, EPA Center for Corporate Climate Leadership, at <https://www.epa.gov/climateleadership/why-engage-suppliers-ghg-emissions> ("As organizations commit to reduce the carbon footprints of the products and services they provide, they look to their suppliers to align their efforts with the organization's sustainability goals").

technology and other market forces,¹⁶ can lead to changes in a company’s business model.¹⁷

Governments around the world have made public commitments to transition to a lower carbon economy, and efforts towards meeting those greenhouse gas (“GHG”) reduction goals have financial effects that may materially impact registrants.¹⁸ In addition, banking regulators have recently launched initiatives to incorporate climate risk in their supervision of financial

¹⁶ See, e.g., World Economic Forum, *First Movers Coalition is tackling the climate crisis*, at <https://www.weforum.org/our-impact/first-movers-coalition-is-tackling-the-climate-crisis/#:~:text=The%20First%20Movers%20Coalition%2C%20which%20was%20launched%20at,companies%20that%20use%20steel%20to%20build%20wind%20turbines> (“The World Economic Forum is partnering with the US Special Presidential Envoy for Climate John Kerry and over 30 global businesses to invest in innovative green technologies so they are available for massive scale-up by 2030 to enable net-zero emissions by 2050 at the latest.”); *COP26 made net zero a core principle for business. Here’s how leaders can act*, McKinsey & Company (Nov. 12, 2021), at *What COP26 means for business | McKinsey*, at <https://www.mckinsey.com/business-functions/sustainability/our-insights/cop26-made-net-zero-a-core-principle-for-business-heres-how-leaders-can-act> (“The net-zero imperative is no longer in question—it has become an organizing principle for business. . . leaders who put convincing net-zero plans in place can distinguish their companies from peers. To put that another way: the basis of competition has changed, and there is now a premium on sound net-zero planning and execution.”); see also *S&P Dow Jones Indices Launches Net Zero 2050 Climate Transition and Paris-Aligned Select Indices* (Nov. 22, 2021), at <https://finance.yahoo.com/news/p-dow-jones-indices-launches-090000812.html> (The index is designed to “bring greater transparency in measuring climate-related risks” and help market participants “achieve their goals in the path to net zero by 2050”).

¹⁷ See, e.g., Juan C.Reboredo and Luis A. Otero, *Are investors aware of climate-related transition risks? Evidence from mutual fund flows*, 189 *Ecological Economics* (Nov. 2021), available at <https://www.sciencedirect.com/science/article/abs/pii/S0921800921002068#!>; and BlackRock, *Climate risk and the transition to a low-carbon economy*, available at <https://www.blackrock.com/corporate/literature/publication/blk-commentary-climate-risk-and-energy-transition.pdf>.

¹⁸ See Antony J. Blinken, Secretary of State, *The United States Officially Rejoins the Paris Agreement*, Press Statement, (Feb. 19, 2021). 191 countries plus the European Union have now signed the Paris Climate Agreement. The central aim of the Paris Climate Agreement is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century to well below 2° Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5° degrees Celsius. See Paris Agreement (Paris, Dec. 12, 2015) (entered into force Nov. 4, 2016). Moreover, at the UN Climate Change Conference (COP 26), the United States committed to become net zero by 2050, China by 2060, and India by 2070. Further, over 100 countries formed a coalition to reduce methane emissions by 30 percent by 2030. See Environment+Energy Leader, *COP26 Net Zero Commitments will Speed Energy Transition, Increase Pressure on Industries, According to Moody’s Report* (Nov. 17, 2021).

institutions.¹⁹ How a company assesses and plans for climate-related risks may have a significant impact on its future financial performance and investors' return on their investment in the company.

Consistent, comparable, and reliable disclosures on the material climate-related risks public companies face would serve both investors and capital markets. Investors would be able to use this information to make investment or voting decisions in line with their risk preferences. Capital allocation would become more efficient as investors are better able to price climate-related risks. In addition, more transparency and comparability in climate-related disclosures would foster competition. Many other jurisdictions and financial regulators around the globe have taken action or reached similar conclusions regarding the importance of climate-related disclosures and are also moving towards the adoption of climate-related disclosure standards.²⁰

This proposal builds on the Commission's previous rules and guidance on climate-related disclosures, which date back to the 1970s. In 2010, in response to increasing calls by the public and shareholders for public companies to disclose information regarding how climate change may affect their business and operations, the Commission published guidance ("2010 Guidance") for registrants on how the Commission's existing disclosure rules may require disclosure of the impacts of climate change on a registrant's business or financial condition.²¹ Since that time, as climate-related impacts have increasingly been well-documented and awareness of climate-

¹⁹ See, e.g., OCC announcement: Risk Management: Principles for Climate-Related Financial Risk Management for Large Banks; Request for Feedback | OCC (treas.gov), available at <https://www.occ.treas.gov/news-issuances/bulletins/2021/bulletin-2021-62.html>; and Principles for Climate-Related Financial Risk Management for Large Banks (treas.gov) (Dec. 16, 2021), available at <https://www.occ.treas.gov/news-issuances/bulletins/2021/bulletin-2021-62a.pdf>.

²⁰ See *infra* Section I.C.2.

²¹ See Commission Guidance Regarding Disclosure Related to Climate Change, Release No. 33-9106 (Feb. 2, 2010) [75 FR 6290 (Feb. 8, 2010)]. We discuss the 2010 Guidance in greater detail in Section I.A. below.

related risks to businesses and the economy has grown,²² investors have increased their demand for more detailed information about the effects of the climate on a registrant’s business and for more information about how a registrant has addressed climate-related risks and opportunities when conducting its operations and developing its business strategy and financial plans.²³ It is appropriate for us to consider such investor demand in exercising our authority and responsibility to design an effective and efficient disclosure regime under the federal securities laws.

In developing these proposals, we have considered the feedback we have received to date from a wide range of commenters, including comments from investors as to the information they need to make informed investment or voting decisions, as well as concerns expressed by registrants with regard to compliance burdens and liability risk.²⁴ While our proposals include disclosure requirements designed to foster greater consistency, comparability, and reliability of available information, they also include a number of features designed to mitigate the burdens on

²² See, e.g., *supra* notes 6, 10, and 12.

²³ See, e.g., Larry Fink, *A Fundamental Reshaping of Finance*, 2020 Letter to CEOs, at <https://www.blackrock.com/corporate/investor-relations/2020-larry-fink-ceo-letter>, available at <https://www.blackrock.com/corporate/investor-relations/2020-larry-fink-ceo-letter> (stating that climate risk is investment risk and asking the companies that BlackRock invests in to, among other matters, disclose climate-related risks in line with the recommendations of the Task Force on Climate-related Financial Disclosures); see also Climate Action 100+, at <https://www.climateaction100.org/>. Climate Action 100+ is an investor-led initiative composed of 615 investors who manage \$60 trillion in assets (as of Nov. 2021), who aim “to mitigate investment exposure to climate risk and secure ongoing sustainable returns for their beneficiaries.” See also Glasgow Financial Alliance for Net Zero (GFANZ), at <https://www.gfanzero.com/>, a global coalition of leading financial institutions focused on promoting the transition to a net zero global economy. Formed in Apr. 2021, its membership as of Nov. 2021 included over 450 financial firms controlling assets of over \$130 trillion. Further, more than 500 investor signatories with assets under management of nearly \$100 trillion are signatories to the CDP climate risk disclosure program, https://cdn.cdp.net/cdp-production/comfy/cms/files/files/000/004/697/original/2021_CDP_Capital_Markets_Brochure_General.pdf. We discuss the growing investor demand for climate-related information in greater detail in Section I.C below.

²⁴ See Acting Chair Allison Herren Lee Public Statement, *Public Input Welcomed on Climate Change Disclosures* (Mar. 15, 2021), available at <https://www.sec.gov/news/public-statement/lee-climate-change-disclosures>. See also, e.g., *Concept Release: Business and Financial Disclosure Required by Regulation S-K*, Release No. 33-10064 (Apr. 16, 2016), [83 FR 23915 (Apr. 22, 2016)] and related comments, available at <https://www.sec.gov/rules/concept/conceptarchive/conceptarch2016.shtml>.

registrants, such as phase-in periods for the proposed climate-related disclosure requirements,²⁵ a safe harbor for certain emissions disclosures,²⁶ and an exemption from certain emissions reporting requirements for smaller reporting companies.²⁷ In addition, the existing safe harbors for forward-looking statements under the Securities Act and Exchange Act would be available for aspects of the proposed disclosures.²⁸

Although the various requirements we are proposing are supported by overlapping rationales, we emphasize that the different aspects of the proposal serve independent, albeit complementary, objectives. In addition, we have carefully considered how to craft this proposal to best advance investor protection and the public interest, consistent with the Commission's disclosure authority and regulatory mission, and we welcome comments on how we can further achieve that goal.

A. Background

The Commission first addressed the disclosure of material environmental issues in the early 1970s when it issued an interpretive release stating that registrants should consider disclosing in their SEC filings the financial impact of compliance with environmental laws.²⁹ Throughout the 1970s, the Commission continued to explore the need for specific rules mandating disclosure of information relating to litigation and other business costs arising out of

²⁵ See *infra* Section II.M.

²⁶ See Section II.G.3.

²⁷ See *id.*

²⁸ See Securities Act Section 27A [15 U.S.C. 77z-2] and Exchange Act Section 21E [15 U.S.C. 78u-5]. We discuss the application of the existing forward-looking statement safe harbors to the proposed climate-related disclosures primarily in Sections II.C.3-4, II.E, II.G.1, and II.I.

²⁹ See Release No. 33-5170 (July 19, 1971) [36 FR 13989]. The Commission codified this interpretive position in its disclosure forms two years later. See Release 33-5386 (Apr. 20, 1973) [38 FR 12100] (“1972 Amendments”).

compliance with federal, state, and local laws that regulate the discharge of materials into the environment or otherwise relate to the protection of the environment. These topics were the subject of several rulemaking efforts, extensive litigation, and public hearings, all of which resulted in the rules that now specifically address disclosure of environmental issues.³⁰

After almost a decade of consideration, the Commission adopted rules in 1982 mandating disclosure of information relating to litigation and other business costs arising out of compliance with federal, state, and local laws that regulate the discharge of materials into the environment or otherwise relate to the protection of the environment.³¹ In addition to these specific disclosure requirements, the Commission's other disclosure rules requiring, for example, information about material risks and a description of the registrant's business, could give rise to an obligation to provide disclosure related to the effects of climate change.³²

³⁰ See Interpretive Release No. 33-6130 (Sept. 27, 1979) [44 FR 56924], which includes a brief summary of the National Environmental Policy Act of 1969 and the legal and administrative actions taken with regard to the Commission's environmental disclosure during the 1970s. See also *NRDC v. SEC*, 606 F.2d 1031, 1036-42 (DC Cir. 1979) (discussing this history). More information relating to the Commission's efforts in this area is chronicled in Release No. 33-6315 (May 4, 1981) [46 FR 25638].

³¹ See Release No. 33-6383 (Mar. 3, 1982) [47 FR 11380] ("1982 Release") (adopting 17 CFR 229.103, which requires a registrant to describe its material pending legal proceedings, other than ordinary routine litigation incidental to the business, and indicating that administrative or judicial proceedings arising under federal, state, or local law regulating the discharge of materials into the environment or primarily for the purpose of protecting the environment, shall not be deemed "ordinary routine litigation incidental to the business" and must be described if meeting certain conditions). The 1982 Release also moved the information called for by the 1973 Amendments to 17 CFR 229.101(c)(1)(xii), which, as part of a registrant's business description, required the disclosure of the material effects that compliance with Federal, State and local provisions regulating the discharge of materials into the environment, or otherwise relating to the protection of the environment, have had upon the registrant's capital expenditures, earnings and competitive position, as well as the disclosure of its material estimated capital expenditures for environmental control facilities. In 2020, the Commission amended 17 CFR 229.101(c)(1) to require, to the extent material to an understanding of the business taken as a whole, disclosure of the material effects that compliance with government regulations, including environmental regulations, may have upon the capital expenditures, earnings, and competitive position of the registrant and its subsidiaries. See *Modernization of Regulation S-K Items 101, 103, and 105*, Release No. 33-10825 (Aug. 26, 2020) [85 FR 63726 (Oct. 8, 2020)] ("2020 Release").

³² See Release No. 33-9106, Section III.

In its 2010 Guidance, the Commission observed that, in response to investor demand for climate-related information, many companies were voluntarily reporting climate-related information outside their filings with the Commission. The Commission emphasized that “registrants should be aware that some of the information they may be reporting pursuant to these mechanisms also may be required to be disclosed in filings made with the Commission pursuant to existing disclosure requirements.”³³ Specifically, the 2010 Guidance emphasized that climate change disclosure might, depending on the circumstances, be required in a company’s Description of Business, Risk Factors, Legal Proceedings, and Management’s Discussion and Analysis of Financial Condition and Results of Operations (“MD&A”).³⁴ The 2010 Guidance further identified certain climate-related issues that companies may need to consider in making their disclosures, including the direct and indirect impact of climate-related legislation or regulations, international agreements, indirect consequences of business trends including changing demand for goods, and the physical impacts of climate change.

The proposals set forth in this release would augment and supplement the disclosures already required in SEC filings. Accordingly, registrants should continue to evaluate the climate-related risks they face and assess whether disclosures related to those climate-related risks must be disclosed in their Description of Business, Risk Factors, Legal Proceedings, and MD&A as described in the 2010 Guidance. These disclosures should be based on the registrant’s specific facts and circumstances. While climate risks impact many issuers across industries, the impacts of those risks on a particular registrant and how the registrant addresses

³³ See Release No. 33-9106, Section I.

³⁴ The 2010 Guidance also applies to corresponding disclosure requirements in Form 20-F by foreign private issuers.

those risks are fact-specific and may vary significantly by registrant.³⁵ The disclosures required by our existing rules should reflect these company-specific risks.

B. The March 2021 Request for Public Input

On March 15, 2021, Acting Chair Allison Herren Lee requested public input on climate disclosure from investors, registrants, and other market participants.³⁶ The Acting Chair solicited input on several issues, including how the Commission could best regulate disclosure concerning climate change in order to provide more consistent, comparable, and reliable information for investors, whether the Commission should require the disclosure of certain metrics and other climate-related information, the role that existing third-party climate-related disclosure frameworks should play in the Commission's regulation of such disclosure, and whether and how such disclosure should be subject to assurance.

The Commission received approximately 600 unique letters and over 5800 form letters in response to the Acting Chair's request for public input.³⁷ We received letters from academics, accounting and audit firms, individuals, industry groups, investor groups, registrants, non-governmental organizations, professional climate advisors, law firms, professional investment

³⁵ Our recent amendments to Item 105 of Regulation S-K discourage the presentation of generic risks that could apply generally to any registrant or offering. The fact that climate risks are broad-based does not, in our view, cause them to be generic. For example, thousands of companies in Houston were impacted by Hurricane Harvey. However, (1) their flood risk varied and some companies may have been far more impacted than others (and would be more vulnerable to future catastrophic storms); (2) their operations were different and some may have been more disrupted as a result than others—*e.g.*, a services business on the 10th floor of a building may have experienced just a few days of disruption while an oil refinery may have been shut down for weeks; and (3) their risk management processes may have been different—two similarly situated companies may have different continuity of operations plans or may have taken steps to mitigate those types of risks. In sum, while the source of the risk may be common to many companies, the impact is not.

³⁶ See Acting Chair Allison Herren Lee Public Statement, Public Input Welcomed on Climate Change Disclosures.

³⁷ The comment letters are available at <https://www.sec.gov/comments/climate-disclosure/cll12.htm>. Except as otherwise noted, references to comments in this release pertain to these comments.

advisors and investment management companies, standard-setters, state government officials, and US Senators and Members of the House of Representatives.

Many of these commenters, including investors with trillions of dollars of assets under management collectively,³⁸ supported implementation of climate-related disclosure rules. A number of commenters³⁹ stated that mandated disclosures are necessary because climate change poses significant financial risks to registrants and their investors.⁴⁰ According to one of the commenters, 68 out of 77 industries are likely to be significantly affected by climate risk.⁴¹ Many commenters criticized the current disclosure practice, in which some issuers voluntarily provide climate disclosures based on a variety of different third-party frameworks, because it has

³⁸ See, e.g., letters from BlackRock (June 11, 2021) (\$9T); Ceres (June 10, 2021) (representing Investor Network on Climate Risk and Sustainability) (\$37T); Council of Institutional Investors (June 11, 2021) (\$4T); Investment Adviser Association (June 11, 2021) (\$25T); Investment Company Institute (June 4, 2021) (\$30.8T); PIMCO (June 9, 2021) (\$2T); SIFMA (June 10, 2021) (\$45T); State Street Global Advisors (June 14, 2021) (3.9T); and Vanguard Group, Inc. (June 11, 2021) (\$7T).

³⁹ See, e.g., letters from AllianceBernstein; Amalgamated Bank; Boston Common Asset Management (June 14, 2021); Calvert Research and Management (June 1, 2021); Ceres; the Committee on Mission Responsibility through Investment by Presbyterian Church (June 10, 2021); Katherine DiMatteo (June 1, 2021); Domini Impact Investments (June 14, 2021); Felician Sisters of North America (June 8, 2021); Friends Fiduciary (June 11, 2021); Melanie Bender (May 26, 2021); Miller/Howard Investments (June 11, 2021); Mercy Investment Services, Inc. (June 4, 2021); Parametric Portfolio Associates, LLC (June 4, 2021); San Francisco City and County Employees' Retirement System (June 12, 2021); Seventh Generation Interfaith, Inc. (May 20, 2021); State Street Global Advisors; Sustainability Accounting Standards Board (SASB) (May 19, 2021); the Sustainability Group (June 4, 2021); and Trillium Asset Management (June 9, 2021).

⁴⁰ Several commenters referred to various reports by the Intergovernmental Panel on Climate Change ("IPCC") to demonstrate that there is scientific consensus that climate change is the result of global warming caused by human-induced emissions of greenhouse gases and poses significant global risks. See, e.g., letters from Better Markets (June 14, 2021); Center for Human Rights and Environment (June 9, 2021); Commonwealth Climate and Law Initiative (June 13, 2021); Charles E. Frye (Apr. 3, 2021); Interfaith Center on Corporate Responsibility (June 14, 2021); and Mike Levin and 23 other Members of Congress (June 15, 2021). IPCC's latest report is IPCC,AR6 Climate Change 2021: The Physical Science Basis (Aug. 7, 2021), available at <https://www.ipcc.ch/report/ar6/wg1/>.

⁴¹ See letter from SASB.

not produced consistent, comparable, reliable information for investors and their advisors, who otherwise have difficulty obtaining that information.⁴²

Other commenters, however, questioned whether climate change posed a risk to companies or their investors. These commenters stated their belief that the assumptions underlying the assessment of the impact of climate change were too uncertain to permit companies to ascertain the real risks to their operations and financial condition caused by climate change.⁴³ These commenters stated that they opposed implementation of climate-related disclosure rules, and argued that such rules would exceed the Commission’s statutory authority. Some of these commenters also argued that such rules are not necessary because registrants are already required to disclose material climate risks, or that such rules would be more costly than the current “private ordering” of climate disclosures.⁴⁴ Some commenters also argued that mandated climate disclosure rules could violate First Amendment rights.⁴⁵

⁴² See, e.g., letters from Amalgamated Bank; Bank of Finland (June 1, 2021); Blueprint Financial (June 11, 2021); Canadian Coalition of Good Governance (June 9, 2021); Center for Climate and Energy Solutions (June 12, 2021); Clean Yield Asset Management (June 11, 2021); Coalition for Inclusive Capitalism (June 14, 2021); Felician Sisters of North America; First Affirmative Financial Network (June 2, 2021); William and Flora Hewitt Foundation (June 9, 2021); Impact Investors, Inc. (June 2, 2021); Impax Asset Management (June 9, 2021); Institute of International Bankers (June 8, 2021); Investment Company Institute; Investment Consultants Sustainability Working Group (June 11, 2021); Miller/Howard Investments; Norge Bank Investment Management (June 13, 2021); Parametric Portfolio Associates; Praxis Mutual Funds and Everence Financial (June 10, 2021); PRI (Consultation Response); Salesforce.com Inc. (June 11, 2021); San Francisco City and County Employees’ Retirement System; SASB; Seventh Generation Interfaith, Inc.; S&P Global (June 11, 2021); Trillium Asset Management; World Business Council for Development (WBCSD) (June 11, 2021); Vanguard Group, Inc.; and US Impact Investing Alliance (June 14, 2021).

⁴³ See, e.g., letters from American Enterprise Institute (June 10, 2021); CO₂ Coalition (June 1, 2021); the Heritage Foundation (June 13, 2021); Steve Milloy (June 1, 2021); Berkeley T. Rulon-Miller (Apr. 9, 2021); and the Texas Public Policy Foundation (June 11, 2021).

⁴⁴ See, e.g., letters from American Enterprise Institute; the Cato Institute; the Heritage Foundation; and Texas Public Policy Foundation.

⁴⁵ See, e.g., letters from the Institute for Free Speech (June 10, 2021); Patrick Morrissey, West Virginia Attorney General (Mar. 25, 2021); and Texas Public Policy Foundation.

As noted above, we have considered these comments and other feedback received from the public in formulating the current proposal. As part of its filing review process, the Commission staff also assessed the extent to which registrants currently disclose climate-related risks in their Commission filings. Since 2010, disclosures related to climate change have generally increased, but there is considerable variation in the content, detail, and location (*i.e.*, in reports filed with the Commission, in sustainability reports posted on registrant websites, or elsewhere) of climate-related disclosures. The staff has observed significant inconsistency in the depth and specificity of disclosures by registrants across industries and within the same industry. The staff has found significantly more extensive information in registrants' sustainability reports and other locations such as their websites as compared with their reports filed with the Commission. In addition, the disclosures in registrants' Forms 10-K frequently contain general, boilerplate discussions that provide limited information as to the registrants' assessment of their climate-related risks or their impact on the companies' business.⁴⁶

We are also mindful of the benefits to investors of requiring climate-related information in SEC filings. Providing more extensive climate-related disclosure in sustainability reports, while excluding such relevant information from Forms 10-K, may make it difficult for investors to analyze and compare how climate-related risks and impacts affect registrants' businesses and consolidated financial statements. The inclusion of climate-related disclosures in SEC filings should increase the consistency, comparability, and reliability of climate-related information for investors. The placement of climate-related information in different locations can make it difficult for investors to find comparable climate-related disclosures, whereas inclusion in a

⁴⁶ The staff of the Division of Corporation Finance has developed a sample comment letter for registrants to elicit improved disclosure on some of the deficient areas noted in their review of filings. *See* Climate Change Disclosure-Sample Letter, available at <https://www.sec.gov/corpfin/sample-letter-climate-change-disclosures>.

registrant’s Form 10-K or registration statement should make it easier for investors to find and compare this information.⁴⁷ Further, information that is filed with the Commission in Exchange Act periodic reports is subject to disclosure controls and procedures (“DCP”), which help to ensure that a registrant maintains appropriate processes for collecting and communicating the necessary information by which to formulate the climate-related disclosures.⁴⁸ Moreover, information filed as part of a registrant’s Form 10-K carries certain additional potential liability, which itself can cause registrants to prepare and review information filed in the Form 10-K more carefully than information presented outside SEC filings.⁴⁹

Having considered the public feedback and the staff’s experience with climate-related disclosures, we believe that the current disclosure system is not eliciting consistent, comparable, and reliable information that enables investors both to assess accurately the potential impacts of climate-related risks on the nature of a registrant’s business and to gauge how a registrant’s board and management are assessing and addressing those impacts.⁵⁰ The Commission has broad authority to promulgate disclosure rules that are in the public interest or for the protection

⁴⁷ See, e.g., letter from Pricewaterhouse Coopers.

⁴⁸ See 17 CFR 240.13a-15 and 17 CFR 240.15d-15.

⁴⁹ We note that the liability provisions of Section 10(b) and Rule 10b-5 of the Exchange Act can apply to statements made in filings with the SEC or elsewhere, such as in sustainability reports or on company websites. See, e.g., SEC v. Stinson, No. 10-3130, 2011 U.S. Dist. LEXIS 65723, 2011 WL 2462038, at 12 (E.D. Pa. June 20, 2011) (finding defendants liable under Section 10(b) when they communicated material misstatements and omissions in direct solicitations via e-mail, a webinar, and various web sites). As such, registrants should scrutinize and ensure the accuracy of such statements whether or not filed with the Commission. In addition, information filed in a Form 10-K is subject to Section 18 of the Exchange Act. Further, information filed in an annual report on Form 10-K (and other current and periodic reports) can be incorporated by reference in certain Securities Act registration statements, such as those filed on Form S-3, and thereby become subject to the liability provisions of the Securities Act. See Securities Act Section 11 (15 U.S.C. 77k) and Section 12 (15 U.S.C. 77l). See *infra* Section II.C.3-4, II.E, II.G.1, and II.I regarding the application to forward-looking climate disclosures of the safe harbor for forward-looking statements that was added to the Securities Act and Exchange Act pursuant to the Private Securities Litigation Reform Act of 1995.

⁵⁰ See *supra* note 42 and accompanying text.

of investors and that promote efficiency, competition, and capital formation.⁵¹ In light of the present and growing significance of climate-related risks to registrants and the inadequacies of current climate disclosures, we are proposing to revise our rules to include climate-related disclosure items and metrics to elicit investment decision-useful information that is necessary or appropriate to protect investors.

We also believe that enhanced climate disclosure requirements could increase confidence in the capital markets and help promote efficient valuation of securities and capital formation by requiring more consistent, comparable, and reliable disclosure about climate-related risks, including how those risks are likely to impact a registrant’s business operations and financial performance.⁵² The proposed requirements may also result in benefits to registrants, given existing costs to registrants that have resulted from the inconsistent market response to investor demand for climate-related information.⁵³ In this regard our proposal would provide registrants with a more standardized framework to communicate their assessments of climate-related risks

⁵¹ See letters from Jill E. Fisch and 18 other law professor signatories (June 11, 2021) (referencing Sections 7, 10, and 19(a) of the Securities Act; and Sections 3(b), 12, 13, 14, 15(d), and 23(a) of the Exchange Act); and Natural Resources Defense Council (June 11, 2021).

⁵² See letters from Eni SpA (June 12, 2021); Jill E. Fisch *et al*; Natural Resources Defense Council; SASB; and Value Balancing Alliance (June 28, 2021); *see also infra* Section IV.

⁵³ See, e.g., letter from SASB (stating that through the “multiple voluntary disclosure frameworks (*i.e.*, the “alphabet soup” decried by companies)...and numerous direct requests to companies for information through surveys, the current private ordering-led system has increased the burden on companies—and investors—while still leaving many companies uncertain as to whether they are, in practice, providing the decision-useful information required by investors.”); *see also* letters from Americans for Financial Reform Education Fund and Public Citizen (June 14, 2021) (stating that “the proliferation of differing frameworks has increased compliance complexities and costs for companies”); Eni SpA (stating that the fragmentation of data fostered by the proliferation of reporting frameworks has multiplied the efforts of companies in satisfying all their requirements); and BSR (June 11, 2021) (providing that “a fragmented environment is limiting the impact of reporting and creating undue confusion and cost on the part of reporters.”).

as well as the measures they are taking to address those risks.⁵⁴ At the same time, we are open to exploring ways in which registrants could be afforded flexibility in making the necessary disclosures while still providing appropriate consistency and comparability, and are seeking comment in that regard.

C. The Growing Investor Demand for Climate-Related Risk Disclosure and Related Information

1. Major Investor Climate-Related Initiatives

As the Commission recognized in 2010 and earlier, there has been significant investor demand for information about how climate conditions may impact their investments. That demand has been increasing in recent years. Several major institutional investors, which collectively have trillions of dollars in investments under management, have demanded climate-related information from the companies in which they invest because of their assessment of climate change as a risk to their portfolios, and to investments generally, and also to satisfy investor interest in investments that are considered “sustainable.” As a result, these investors have sought to include and consider climate risk as part of their investment selection process.⁵⁵ These institutional investors have formed investor initiatives to collectively urge companies to provide better information about the impact that climate change has had or is likely to have on

⁵⁴ Providing a more standardized framework for climate-related disclosures would be consistent with the Recommendation from the Investor-as-Owner Subcommittee of the SEC Investor Advisory Committee Relating to ESG Disclosure (May 14, 2020) (“IAC Recommendation”), available at <https://www.sec.gov/spotlight/investor-advisory-committee-2012/recommendation-of-the-investor-as-owner-subcommittee-on-esg-disclosure.pdf>. The term “ESG” refers to environmental, social, and governance matters, of which climate-related disclosures is a part. The IAC Recommendation focused on the inadequacies of ESG disclosures broadly, and not just on those involving climate. The IAC Recommendation stated that, to the extent that SEC reporting obligations would require a single standard of material, decision-useful ESG information, as relevant to each issuer, and based upon data that issuers already use to make their business decisions, such an approach would level the playing field between well-financed large issuers and capital constrained small issuers.

⁵⁵ See *supra* note 23.

their businesses, and to urge governments and companies to take steps to reduce investors' exposure to climate risks. Among these initiatives:⁵⁶

- In 2019, more than 630 investors collectively managing more than \$37 trillion signed the Global Investor Statement to Governments on Climate Change urging governments to require climate-related financial reporting;⁵⁷
- This investor initiative continued as the Investor Agenda's 2021 Global Investor Statement to Governments on the Climate Crisis, which was signed by 733 global institutional investors, including some of the largest investors, with more than US \$52 trillion in assets under management in the aggregate. This Statement called for governments to implement a number of measures, including mandating climate risk disclosure.⁵⁸
- The UN Principles for Responsible Investment ("PRI")⁵⁹ has acquired over 4,000 signatories who, as of July 13, 2021, have, in the aggregate, assets under management exceeding \$120 trillion as of July 13, 2021;⁶⁰

⁵⁶ There is some overlap in the signatories to the listed initiatives.

⁵⁷ See United Nations Climate Change, [631 Institutional Investors Managing More than USD 37 Trillion in Assets Urge Governments to Step up Climate Ambition](https://unfccc.int/news/631-institutional-investors-managing-more-than-usd-37-trillion-in-assets-urge-governments-to-step-up) (Dec. 9, 2019), available at <https://unfccc.int/news/631-institutional-investors-managing-more-than-usd-37-trillion-in-assets-urge-governments-to-step-up>.

⁵⁸ See The Investor Agenda, [2021 Global Investor Statement to Governments on the Climate Crisis](https://theinvestoragenda.org/wp-content/uploads/2021/09/2021-Global-Investor-Statement-to-Governments-on-the-Climate-Crisis.pdf) (Oct. 27, 2021), available at <https://theinvestoragenda.org/wp-content/uploads/2021/09/2021-Global-Investor-Statement-to-Governments-on-the-Climate-Crisis.pdf>.

⁵⁹ PRI was created by a UN-sponsored small group of large global investors in 2006. A stated core goal of the PRI is to help investors protect their portfolios from climate-related risks and to take advantage of climate-related opportunities associated with a shift to a low-carbon global economy. See PRI, *Climate Change*, available at <https://www.unpri.org/climate-change>.

⁶⁰ See PRI, *CEO quarterly update: celebrating 4000 signatories and supporting the evolution of PRI* (July 13, 2021), available at <https://www.unpri.org/pri-blog/ceo-quarterly-update-celebrating-4000-signatories-and-supporting-the-evolution-of-ri/8033.article>.

- The Net Zero Asset Managers Initiative, which was formed by an international group of asset managers, has 128 signatories that collectively manage \$43 trillion in assets as of July 2021;⁶¹
- The Climate Action 100+, an investor-led initiative, now comprises 617 global investors that together have more than \$60 trillion in assets under management;⁶² and
- The Glasgow Financial Alliance for Net Zero (“GFANZ”), a coalition of over 450 financial firms from 45 countries, responsible for assets of over \$130 trillion, that are committed to achieving net-zero emissions by 2050, reaching 2030 interim targets, covering all emission scopes and providing transparent climate-related reporting.⁶³

Each of these investor initiatives has emphasized the need for improved disclosure by companies regarding climate-related impacts. Each of these initiatives has advocated for mandatory climate risk disclosure requirements aligned with the recommendations of the Task Force on Climate-Related Financial Disclosures (“TCFD”)⁶⁴ so that disclosures are consistent, comparable, and reliable. The investor signatories of Climate Action 100+ emphasized that obtaining better disclosure of climate-related risks and companies’ strategies to address their

⁶¹ See Net Zero Asset Managers Initiative, *Net Zero Asset Managers initiative announces 41 new signatories, with sector seeing ‘net zero tipping point’* (July 6, 2021), available at <https://www.netzeroassetmanagers.org/net-zero-asset-managers-initiative-announces-41-new-signatories-with-sector-seeing-net-zero-tipping-point>.

⁶² See Climate Action 100+, *About Climate Action 100+*, available at <https://www.climateaction100.org/about/> (indicating that the initiative is engaging companies on strengthening climate-related financial disclosures).

⁶³ See GFANZ, *About Us*, available at <https://www.gfanzero.com/about/>. Another organization, the CDP, provides a means for investors to request that companies provide climate-related disclosures through the CDP. In 2021, over 590 investors with \$110 trillion in assets under management requested that thousands of companies disclose climate related information to them through the CDP. See CDP, *Request Environmental Information*, available at <https://www.cdp.net/en/investor/request-environmental-information#d52d69887a88f63e15931b5db2cbe80d>.

⁶⁴ We discuss the TCFD in greater detail in Section I.D.1 below.

exposure to those risks is consistent with the exercise of their fiduciary duties to their respective clients.⁶⁵

At the same time, many companies have made commitments with respect to climate change, such as commitments to reduce greenhouse gas emissions or become “net zero” by a particular date.⁶⁶ Companies may make these commitments to attract investors, to appeal to customers that prioritize sustainability, or to reduce their exposure to risks posed by an expected transition to a lower carbon economy.⁶⁷ In response to these commitments, investors have demanded more detailed information about climate-related targets and companies’ plans to achieve them in order to assess the credibility of those commitments and compare companies based on those commitments.⁶⁸

These initiatives demonstrate that investors are using information about climate risks now as part of their investment selection process and are seeking more informative disclosures about those risks. As an increasing number of investors incorporate this information, in particular

⁶⁵ See Climate Action 100+, *About Climate Action 100+*. Further, commenters noted their fiduciary obligations to consider climate-related risks. See, e.g., letters from PRI (Consultation Response); and California Public Employee Retirement System (CalPERS) (June 12, 2021).

⁶⁶ According to one publication, two-thirds of S&P 500 companies had set a carbon reduction target by the end of 2020. See Jean Eaglesham, *Climate Promises by Businesses Face New Scrutiny*, The Wall Street Journal (Nov. 5, 2021).

⁶⁷ See Global Survey Shows Race to Decarbonization is on: Johnson Controls finds Delivering Growth and Competitive Advantage are Main Drivers for Companies to Commit to Net Zero (Dec. 1, 2021), available at [https://www.mckinsey.com/business-functions/sustainability/our-insights/cop26-made-net-zero-a-core-principle-for-business-heres-how-leaders-can-act](https://ih.adfn.com/stock-market/NYSE/johnson-controls-JCI/stock-news/86696470/global-survey-shows-race-to-decarbonization-is-on#:~:text=Global%20Survey%20Shows%20Race%20to%20Decarbonization%20is%20on%3A,December%2001%202021%20-%2007%3A01AM%20PR%20Newswire%20%28US%29;and COP26 made net zero a core principle for business. Here’s how leaders can act, McKinsey (Nov. 12, 2021), available at <a href=).

⁶⁸ See, e.g., letters from Ceres; Investor Adviser Association (June 11, 2021); SIFMA Asset Management Group (June 10, 2021); Trillium Asset Management; and T. Rowe Price (June 11, 2021); see also letters from Boston University Impact Measurement and Allocation Program (June 7, 2021); CDP (June 11, 2021); Christopher Lish (June 12, 2021); and Pricewaterhouse Coopers (June 10, 2021).

GHG emissions, into their investment selection or voting decisions, this may in turn create transition risks for companies that are seeking to raise capital.

2. Third-Party Data, Voluntary Disclosure Frameworks, and International Disclosure Initiatives

Despite increasing investor demand for information about climate-related risks and strategies, many investors maintain that they cannot obtain the consistent, comparable, and material information that they need to properly inform their investment or voting decisions.⁶⁹ In 2020, the Commission’s Investor Advisory Committee (“IAC”) noted the fragmentation of information that has resulted from a rise in third-party data providers that have emerged to try to meet the informational demands of investors.⁷⁰ The IAC recommended that the Commission take action to ensure investors have the material, comparable, consistent information about climate and other ESG matters that they need to make investment and voting decisions.

In addition, a diverse group of third parties has developed climate-related reporting frameworks seeking to meet investors’ informational demands. These include the Global

⁶⁹ See *supra* note 42.

⁷⁰ See IAC Recommendation. The IAC Recommendation noted that more than 125 third-party ESG data providers, including ESG ratings firms, have emerged to try to meet the informational demands of investors. According to the IAC Recommendation, these data providers are limited in their ability collectively to provide investors with comparable and consistent information as they use different information sources and different—frequently opaque—methodologies to conduct their analyses, which compromises the usefulness and reliability of the information. This current heterogeneity in practices and disparate demands from investors and ratings firms places a significant burden on companies asked to provide this information in a variety of formats. The IAC Recommendation further observed that many companies feel compelled to respond to the multiple surveys of ESG rating firms because ignoring them or refusing to respond can lead to a low rating, which can adversely affect stock price and access to capital. While the proposed rules would not necessarily eliminate third-party questionnaires, they would help to provide standardized information to all investors and might reduce the need to obtain the information obtained through questionnaires.

Reporting Initiative (“GRI”),⁷¹ CDP (formerly the Carbon Disclosure Project),⁷² Climate Disclosure Standards Board (“CDSB”),⁷³ Value Reporting Foundation (formed through a merger of the Sustainability Accounting Standards Board (“SASB”) and the International Integrated Reporting Council (“IIRC”)),⁷⁴ and the TCFD.⁷⁵

To some extent, the development of these disparate frameworks has led to an increase in the number of companies that are providing some climate-related disclosures.⁷⁶ However, because they are voluntary, companies that choose to disclose under these frameworks may provide partial disclosures or they may choose not to participate every year. In addition, the form and content of the disclosures may vary significantly from company to company, or from period to period for the same company. The situation resulting from these multiple voluntary frameworks has failed to produce the consistent, comparable, and reliable information that investors need.⁷⁷ Instead, the proliferation of third-party reporting frameworks has contributed to reporting fragmentation, which can hinder investors’ ability to understand and compare registrants’ climate-related disclosures. An analysis conducted by the World Business Council

⁷¹ See GRI, *About GRI*, available at <https://www.globalreporting.org/about-gri/>.

⁷² See CDP, *About Us*, available at <https://www.cdp.net/en/info/about-us>. In 2018, CDP revised its questionnaire to companies so that it aligns with the TCFD recommended framework. See letter from CDP.

⁷³ See CDSB, *About the Climate Disclosure Standards Board*, available at <https://www.cdsb.net/our-story>.

⁷⁴ See Value Reporting Foundation, *Understanding the Value Reporting Foundation*, available at <https://www.valuereportingfoundation.org/>.

⁷⁵ See TCFD, *About*, available at <https://www.fsb-tcfid.org/about/>.

⁷⁶ For example, according to the CDP, over 3,000 companies have provided climate-related disclosures through the CDP’s platform by responding to the CDP’s questionnaires that are aligned with the TCFD’s disclosure recommendations. See letter from CDP. The TCFD has similarly reported growth in the number of companies and countries supporting its climate-related disclosure recommendations. See TCFD, *2021 Status Report* (Oct. 2021), available at https://assets.bbhub.io/company/sites/60/2021/07/2021-TCFD-Status_Report.pdf (stating that, as of Oct. 6, 2021, the TCFD had over 2,600 supporters globally, including 1,069 financial institutions responsible for assets of US \$194 trillion).

⁷⁷ See *supra* note 42.

for Sustainable Development found that investors had difficulty using existing sustainability disclosures because they lack consistency and comparability.⁷⁸ In addition, a 2020 study by the Yale Initiative on Sustainable Finance found that the proliferation of reporting frameworks may have made reporting more difficult for issuers.⁷⁹ Moreover, given the voluntary nature of these third-party frameworks, there may not be sufficient incentives or external disciplines to ensure that companies are providing complete and robust disclosure under those frameworks.⁸⁰

The staff has reviewed more than a dozen studies of climate-related disclosures conducted by third parties, such as the CDP,⁸¹ KPMG,⁸² TCFD⁸³, and Ernst & Young,⁸⁴ which assessed the adherence of the climate-related disclosures to various third-party frameworks, such as the TCFD. These studies have reinforced the staff's observations from their review of filings that there is significant variation across companies and industries with regard to the content of

⁷⁸ Dr. Rodney Irwin, Alan McGill, *Enhancing the Credibility of Non-Financial Information*, the Investor Perspective, WBCSD and PwC (Oct. 2018).

⁷⁹ Yale Initiative on Sustainable Finance, *Toward Enhanced Sustainability Disclosure: Identifying Obstacles to Broader and More Actionable ESG Reporting* (Sept. 2020), available at <https://pages.fiscalnote.com/rs/109-ILL-989/images/YISF%20ESG%20Reporting%20White%20Paper.pdf>.

⁸⁰ See, e.g., TCFD, *2021 Status Report* (indicating that there is a need to improve companies' climate-related disclosures, particularly regarding governance and risk management, to better align with the TCFD's recommendations).

⁸¹ See CDP, ANALYSIS OF CA100+ COMPANY DATA (2020), available at https://cdn.cdp.net/cdp-production/cms/reports/documents/000/005/312/original/Analysis_of_CA100_Data_for_CDP_Investor_Signatories_v5.pdf?1596046258

⁸² See KPMG, *The Time Has Come-The KPMG Survey of Sustainability Reporting 2020* (Dec. 2020), available at <https://assets.kpmg/content/dam/kpmg/xx/pdf/2020/11/the-time-has-come.pdf>.

⁸³ See TCFD 2020 Status Report (Sept. 2020), available at https://assets.bbhub.io/company/sites/60/2020/09/2020-TCFD_Status-Report.pdf.

⁸⁴ See Ernst & Young, *How can climate change disclosures protect reputation and value?-The 2019 EY Global Climate Risk Disclosure Barometer* (Apr. 2020), available at https://www.ey.com/en_us/climate-change-sustainability-services/how-can-climate-change-disclosures-protect-reputation-and-value.

current climate disclosures.⁸⁵ Further, much of this climate-related information, particularly GHG emissions and targets, appears outside of Commission filings, in sustainability reports, and on corporate websites. Other analyses of current climate reporting have found a lack of transparency and standardization with regard to the methodologies companies apply in disclosing climate-related information.⁸⁶

The increased fragmentation of climate reporting resulting from the proliferation of third-party reporting frameworks has motivated a number of recent international efforts to obtain more consistent, comparable, and reliable climate-related information for investors. For example:

- A consultation paper published by the IFRS Foundation⁸⁷ Trustees in 2020 noted the broad range of voluntary sustainability reporting frameworks that have increased

⁸⁵ For example, the TCFD report found that the average level of disclosure across the TCFD’s 11 disclosure categories was 40% for the energy sector, 30% for the materials and building sector, 18% for the consumer goods sector and 13% for the technology sector. The level of disclosure varied among categories with only 4% or reporting companies disclosing the resilience of their strategies in North America and 50% reporting their risks and opportunities (the category with the highest level of disclosure). The Ernst & Young report found many companies in industries considered to have high exposure to climate-related risks lack high quality climate disclosures. The Ernst & Young report graded the average quality of the disclosures at 27 out of 100.

⁸⁶ See, e.g., *The SEC’s Time to Act*, Center for American Progress (Feb. 19, 2021) (“[T]here is a lack of standardization of the data, assumptions, and methodologies companies use to meet the standards, with much of this information being opaque. Clearly, the current path of climate disclosure will not provide the transparency that an increasing number of investors are seeking and, indeed, a properly functioning market requires—consistency of disclosures across time, comparability of disclosures across companies, and reliability of the information that is disclosed.”) See, also, Andy Green and Andrew Schwartz, *Corporate Long-Termism, Transparency, and the Public Interest* (Oct. 2, 2018) (“[C]orporate disclosure available today is insufficient, not comparable, and unreliable”); and *Managing Climate Risk in the U.S. Financial System*, Report of the Climate-Related Market Risk Subcommittee, Market Risk Advisory Committee of the U.S. Commodity Futures Trading Commission (2020) (“Large companies are increasingly disclosing some climate-related information, but significant variations remain in the information disclosed by each company, making it difficult for investors and others to understand exposure and manage climate risks.”).

⁸⁷ The IFRS Foundation refers to the International Financial Reporting Standards Foundation, which was established to develop a single set of “high-quality,” enforceable, and globally accepted accounting standards. See *IFRS - Who we are*, available at <https://www.ifrs.org/about-us/who-we-are/>. The IFRS Foundation was formed in 2010 and succeeded the International Accounting Standards Foundation, which was formed in 2001.

complexity and cost to preparers without improving the quality of the information available to investors;⁸⁸

- Based on the response to the IFRS Foundation consultation paper, the IFRS Foundation took steps toward the establishment of an International Sustainability Standards Board (“ISSB”) operating within the existing governance structure of the IFRS Foundation;
- In 2021, following two roundtables hosted by its Sustainable Finance Task Force, IOSCO⁸⁹ issued a report that concluded that companies’ current sustainability disclosures do not meet investors’ needs, and the proliferation of voluntary disclosure frameworks has led to inconsistency in application of the frameworks and, in some cases “cherry picking” of information that might not present an accurate picture of companies’ risks.⁹⁰
- A Technical Experts’ Group of IOSCO worked with a Technical Readiness Working Group of the IFRS Foundation to assess and fine-tune a prototype climate-related financial disclosure standard (“Prototype”) drafted by an alliance of prominent sustainability reporting organizations and designed as a potential model for standards that an ISSB might eventually develop;⁹¹

⁸⁸ IFRS Foundation, [IFRS Foundation Trustees’ Feedback Statement on the Consultation Paper on Sustainability Reporting](https://www.ifrs.org/content/dam/ifrs/project/sustainability-reporting/sustainability-consultation-paper-feedback-statement.pdf) (Apr. 2021), available at <https://www.ifrs.org/content/dam/ifrs/project/sustainability-reporting/sustainability-consultation-paper-feedback-statement.pdf>.

⁸⁹ IOSCO refers to the International Organization of Securities Commissions, of which the Commission is a member.

⁹⁰ IOSCO, [Report on Sustainability-related Issuer Disclosures](https://www.iosco.org/library/pubdocs/pdf/IOSCOPD678.pdf), Final Report (June 2021) available at <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD678.pdf>.

⁹¹ See CDP, CDSB, GRI, IIRC and SASB, [Reporting on enterprise value Illustrated with a prototype climate-related financial disclosure standard](https://29kjwb3armds2g3gi4lq2sx1-wpengine.netdna-ssl.com/wp-content/uploads/Reporting-on-enterprise-value_climate-prototype_Dec20.pdf) (Dec. 2020), available at https://29kjwb3armds2g3gi4lq2sx1-wpengine.netdna-ssl.com/wp-content/uploads/Reporting-on-enterprise-value_climate-prototype_Dec20.pdf; and IFRS Foundation, [IFRS Foundation announces International Sustainability Standards Board, consolidation with CDSB and VRF, and publication of prototype disclosure requirements](https://www.ifrs.org/news-and-events/news/2021/11/ifrs-foundation-announces-issb-consolidation-with-cdsb-and-vrf-and-publication-of-prototype-disclosure-requirements/), available at <https://www.ifrs.org/news-and-events/news/2021/11/ifrs-foundation-announces-issb-consolidation-with-cdsb-vrf-publication-of-prototypes/>.

- In November 2021, the IFRS Foundation announced the formation of the ISSB.⁹² The ISSB is expected to engage in standard setting to build on the Prototype, including developing climate-specific disclosure standards based on the recommendations of the TCFD.⁹³
- Several jurisdictions, including the European Union,⁹⁴ are developing or revising their mandatory climate-related disclosure regimes to provide investors with more consistent, useful climate-related financial information, including associated assurance requirements and data tagging to facilitate the use of the information.⁹⁵

These international developments show an increasing global recognition of the need to improve companies' climate-related disclosures, which the proposed rules would help address, as well as the convergence of investors and issuers around the TCFD as a useful framework for communicating information about climate-related risks that companies may face.

⁹² See IFRS Foundation, [IFRS Foundation announces International Sustainability Standards Board, consolidation with CDSB and VRF, and publication of prototype disclosure requirements](https://www.ifrs.org/news-and-events/news/2021/11/ifrs-foundation-announces-issb-consolidation-with-cdsb-vrf-and-publication-of-prototype-disclosure-requirements/) (Nov. 3, 2021), available at <https://www.ifrs.org/news-and-events/news/2021/11/ifrs-foundation-announces-issb-consolidation-with-cdsb-vrf-publication-of-prototypes/>. At the same time, the IFRS Foundation announced the planned consolidation of the Climate Disclosure Standards Board and the Value Reporting Foundation into the ISSB during 2022. The ISSB is expected to develop reporting standards using the Prototype as a starting point and engaging in rigorous due process under the oversight of the IFRS Foundation Trustees' Due Process Oversight Committee.

⁹³ *Id.*

⁹⁴ [Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation \(EU\) No 537/2014, as regards corporate sustainability reporting](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0189) (Apr. 2021), available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0189>. In proposing revised corporate sustainability reporting requirements, the EU explained that there exists a widening gap between the sustainability information, including climate-related data, companies report and the needs of the intended users of that information, which may mean that investors are unable to take sufficient account of climate-related risks in their investment decisions.

⁹⁵ See IOSCO, [Report on Sustainability-related Issuer Disclosures](#), Final Report (June 2021) (noting progress in several jurisdictions, including Hong Kong, India, Japan, New Zealand and the United Kingdom, to incorporate TCFD's disclosure recommendations into their legal and regulatory frameworks).

D. Development of a Climate-Related Reporting Framework

In recent years, two significant developments have occurred that support and inform the Commission’s proposed climate-related reporting rules. The first involves the TCFD, which has developed a climate-related reporting framework that has become widely accepted by both registrants and investors.⁹⁶ The second involves the Greenhouse Gas Protocol (“GHG Protocol”), which has become a leading accounting and reporting standard for greenhouse gas emissions.⁹⁷ Both the TCFD and the GHG Protocol have developed concepts and a vocabulary that are commonly used by companies when providing climate-related disclosures in their sustainability or related reports. As discussed in greater detail below, the Commission’s proposed rules incorporate some of these concepts and vocabulary, which by now are familiar to many registrants and investors.

1. The Task Force on Climate-Related Financial Disclosure

Our proposed climate-related disclosure framework is modeled in part on the TCFD’s recommendations. A goal of the proposed rules is to elicit climate-related disclosures that are consistent, comparable, and reliable while also attempting to limit the compliance burden associated with these disclosures. The TCFD framework has been widely accepted by issuers,

⁹⁶ A number of registrants recommended basing the Commission’s climate-related disclosure rules on the TCFD framework. *See, e.g.*, letters from Adobe; Alphabet Inc. *et al.*; BNP Paribas (June 11, 2021); bp; Chevron (June 11, 2021); ConocoPhillips; and Walmart. Similarly, numerous investors and investor groups recommended the TCFD framework. *See* letters from Alberta Investment Management Corporation; BlackRock; CalPERS; CALSTRS (June 4, 2021); Impact Investors, Inc.; and San Francisco Employees Retirement System. *See also infra* Section II.A.1 for further discussion of the many commenters that recommended basing the Commission’s climate-related disclosure rules on the TCFD framework.

⁹⁷ *See, e.g.*, letter from Natural Resources Defense Council (stating that most companies providing climate-related information do so using the three-part (scope) framework developed by the GHG Protocol and noting other organizations, such as the CDP, that use the GHG Protocol’s framework and methodology); *see also* GHG Protocol, [Companies and Organizations](https://ghgprotocol.org/companies-and-organizations), available at <https://ghgprotocol.org/companies-and-organizations> (stating that 92% of companies responding to the CDP in 2016 used the GHG Protocol’s standards and guidance).

investors, and other market participants, and, accordingly, we believe that proposing rules based on the TCFD framework may facilitate achieving this balance between eliciting better disclosure and limiting compliance costs.⁹⁸

In April 2015, the Group of 20 Finance Ministers directed the Financial Stability Board (“FSB”) to evaluate ways in which the financial sector could address climate-related concerns.⁹⁹ The FSB concluded that better information was needed to facilitate informed investment decisions and to help investors and other market participants to better understand and take into account climate-related risks. The FSB established the TCFD, an industry-led task force charged with promoting better-informed investment, credit, and insurance underwriting decisions.¹⁰⁰ Since then, the framework for climate-related disclosures developed by the TCFD has been refined and garnered global support as a reliable framework for climate-related financial reporting.¹⁰¹

In 2017, the TCFD published disclosure recommendations that provide a framework by which to evaluate material climate-related risks and opportunities through an assessment of their projected short-, medium-, and long-term financial impacts on a registrant. The TCFD framework establishes eleven disclosure topics related to four core themes that provide a

⁹⁸ See *infra* Section II.A.1 and notes 145 through 149.

⁹⁹ See TCFD, 2020 Status Report (Oct. 2020). The Group of 20 (“G20”) is a group of finance ministers and central bank governors from 19 countries, including the United States, plus the European Union, which was formed in 1999 to promote global economic growth, international trade, and regulation of financial markets. According to the G20, its members represent more than 80% of world GDP, 75% of international trade, and 60% of the world population. See G20, [About the G20](https://g20.org/about-the-g20/), available at <https://g20.org/about-the-g20/>.

¹⁰⁰ See TCFD, [Recommendations of the Task Force on Climate-related Financial Disclosures](https://assets.bbhub.io/company/sites/60/2020/10/FINAL-2017-TCFD-Report-11052018.pdf) (June 2017), available at <https://assets.bbhub.io/company/sites/60/2020/10/FINAL-2017-TCFD-Report-11052018.pdf>.

¹⁰¹ See, e.g., Climate Action 100+, [The Three Asks](https://www.climateaction100.org/approach/the-three-asks/), available at <https://www.climateaction100.org/approach/the-three-asks/> (requiring participating investors to ask the companies with which they engage to provide enhanced corporate disclosure in line with the TCFD’s recommendations; and CDP, [How CDP is aligned to the TCFD](https://www.cdp.net/en/guidance/how-cdp-is-aligned-to-the-tcfid), available at <https://www.cdp.net/en/guidance/how-cdp-is-aligned-to-the-tcfid> (explaining how the CDP has aligned its questionnaires to elicit disclosures aligned with the TCFD’s recommendations).

structure for the assessment, management, and disclosure of climate-related financial risks: governance, strategy, risk management, and metrics and targets.¹⁰²

Support for the TCFD's recommendations by companies and other reporting frameworks has grown steadily since the TCFD's formation.¹⁰³ As of October 2021 more than 2,600 organizations globally, with a total market capitalization of \$25 trillion have expressed support for the TCFD.¹⁰⁴ Further, 1,069 financial institutions, managing assets of \$194 trillion, also support the TCFD.¹⁰⁵ In recognition of the widespread adoption by companies of TCFD reporting, a number of countries, including the United Kingdom, New Zealand, and Switzerland, and the European Union that have proposed mandatory climate-risk disclosure requirements have indicated an intention to base disclosure requirements on the TCFD framework.¹⁰⁶ Further, the TCFD's recommendations have been adopted by, and incorporated into, other voluntary climate disclosure frameworks such as the CDP, GRI, CDSB, and SASB frameworks. The TCFD also forms the framework for the Prototype that the IFRS Foundation provided to the

¹⁰² See TCFD, [TCFD Booklet FNL Digital March-2020.pdf \(bbhub.io\)](https://assets.bbhub.io/company/sites/60/2020/10/TCFD_Booklet_FNL_Digital_March-2020.pdf) (Mar. 2021), available at https://assets.bbhub.io/company/sites/60/2020/10/TCFD_Booklet_FNL_Digital_March-2020.pdf.

¹⁰³ According to the TCFD, “[for] companies, support is a commitment to work toward their own implementation of the TCFD recommendations.” <https://www.fsb-tcfid.org/support-tcfid/>

¹⁰⁴ See TCFD, 2021 Status Report. A recent survey by Moody's of over 3,800 companies worldwide indicated that the global average disclosure rate of companies that reported across all 11 TCFD's recommendations increased to 22% in 2021 from 16% in 2020. See Moody's [State of TCFD Disclosures 2021](https://assets.website-files.com/5df9172583d7eec04960799a/616d36184f3e6431a424b9df_BX9303_MESG_State%20of%20TCFD%20Disclosures%202021.pdf), available at https://assets.website-files.com/5df9172583d7eec04960799a/616d36184f3e6431a424b9df_BX9303_MESG_State%20of%20TCFD%20Disclosures%202021.pdf. In addition, according to a recent report by the Governance & Accountability Institute, Inc., 70% of companies in the Russell 1000 Index published sustainability reports in 2020, and of those reporters, 30% mentioned or aligned their disclosures with the TCFD framework, and 40% responded to the CDP questionnaires, which are aligned with the TCFD. See Governance & Accountability Institute, [Sustainability Reporting in Focus, 2021](https://www.ga-institute.com/fileadmin/ga_institute/images/FlashReports/2021/Russell-1000/G_A-Russell-Report-2021-Final.pdf?vgo_ee=NK5m02JiOOHgDiUUST7fBRwUnRnlmwuCIJkd9A7F3A%3D), available at https://www.ga-institute.com/fileadmin/ga_institute/images/FlashReports/2021/Russell-1000/G_A-Russell-Report-2021-Final.pdf?vgo_ee=NK5m02JiOOHgDiUUST7fBRwUnRnlmwuCIJkd9A7F3A%3D. We discuss the findings of this report, and other similar findings, in greater detail in Section IV.A.5.c below.

¹⁰⁵ See TCFD, 2021 Status Report.

¹⁰⁶ See *id.*

ISSB as a potential starting point for its standard setting initiative.¹⁰⁷ The G7 Finance Ministers and Central Bank Governors have also endorsed the TCFD.¹⁰⁸ As a result, although the reporting landscape is crowded with voluntary standards that seek different information in different formats, the TCFD framework has been widely endorsed by U.S. companies and regulators and standard-setters around the world.

2. The Greenhouse Gas Protocol

Quantitative greenhouse gas (“GHG”) emissions data can enable investors to assess a registrant’s exposure to climate-related risks, including regulatory, technological, and market risks driven by a transition to a lower-GHG intensive economy.¹⁰⁹ This data also could help investors to assess the progress of registrants with public commitments to reduce GHG emissions, which would be important in assessing potential future capital outlays that might be required to meet such commitments. For these reasons, many investors and other commenters recommended that we require disclosure of a registrant’s GHG emissions.¹¹⁰ Many commenters also recommended that we base any GHG emissions disclosure requirement on the GHG

¹⁰⁷ See Climate-related Disclosures Prototype, Developed by the Technical Readiness Working Group, chaired by the IFRS Foundation, to provide recommendations to the International Sustainability Standards Board for consideration (Nov. 2021).

¹⁰⁸ HM Treasury, *G7 Finance Ministers and Central Bank Governors Communique – Policy Paper* (June 2021), available at <https://www.gov.uk/government/publications/g7-finance-ministers-meeting-june-2021-communique/g7-finance-ministers-and-central-bank-governors-communique> (stating their support of mandatory climate-related financial disclosures based on the TCFD framework because of investors’ need for high quality, reliable, comparable climate-risk data).

¹⁰⁹ See, e.g., letters from Calvert Research and Management (June 1, 2021); Ceres *et al* (June 10, 2021); NY State Comptroller (June 8, 2021); and SASB (May 19, 2021).

¹¹⁰ See *infra* Section II.G.1 and note 412.

Protocol.¹¹¹ These commenters indicated that the GHG Protocol has become the most widely-used global greenhouse gas accounting standard.¹¹² For example, the Environmental Protection Agency (“EPA”) Center for Corporate Climate Leadership references the GHG Protocol’s standards and guidance as resources for companies that seek to calculate their GHG emissions.¹¹³

The GHG Protocol was created through a partnership between the World Resources Institute and the World Business Council for Sustainable Development, which agreed in 1997 to collaborate with businesses and NGOs to create a standardized GHG accounting methodology.¹¹⁴ The GHG Protocol has been updated periodically since its original publication and has been broadly incorporated into sustainability reporting frameworks, including the TCFD, Value Reporting Foundation, GRI, CDP, CDSB, and the IFRS Foundation’s Prototype.

The GHG Protocol’s Corporate Accounting and Reporting Standard provides uniform methods to measure and report the seven greenhouse gasses covered by the Kyoto Protocol – carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur

¹¹¹ See, e.g., letters from Apple, Inc. (June 11, 2021); bp (June 11, 2021); Carbon Tracker Initiative (June 14, 2021); Consumer Federation of America (June 14, 2021); ERM CVS (June 11, 2021); Ethic Inc. (June 11, 2021); First Affirmative Financial Network; Regenerative Crisis Response Committee; MSCI, Inc. (June 12, 2021); Natural Resources Defense Council; New York State Society of Certified Public Accountants (June 11, 2021); Paradise Investment Management (June 11, 2021); Stray Dog Capital (June 15, 2021); and Huw Thomas (June 16, 2021).

¹¹² See, e.g., letters from ERM CVS; and Natural Resources Defense Council; see also Greenhouse Gas Protocol, *About Us | Greenhouse Gas Protocol*, available at <https://ghgprotocol.org/about-us>.

¹¹³ See, e.g., EPA Center for Corporate Climate Leadership, *Scope 1 and Scope 2 Inventory Guidance*, at <https://www.epa.gov/climateleadership/scope-1-and-scope-2-inventory-guidance>.

¹¹⁴ See Greenhouse Gas Protocol, *About Us | Greenhouse Gas Protocol (ghgprotocol.org)*, available at <https://ghgprotocol.org/about-us>.

hexafluoride, and nitrogen trifluoride.¹¹⁵ The GHG Protocol introduced the concept of “scopes” of emissions to help delineate those emissions that are directly attributable to the reporting entity and those that are indirectly attributable to the company’s activities.¹¹⁶ Under the GHG Protocol, Scope 1 emissions are direct GHG emissions that occur from sources owned or controlled by the company. These might include emissions from company-owned or controlled machinery or vehicles, or methane emissions from petroleum operations. Scope 2 emissions are those emissions primarily resulting from the generation of electricity purchased and consumed by the company.¹¹⁷ Because these emissions derive from the activities of another party (the power provider), they are considered indirect emissions. Scope 3 emissions are all other indirect emissions not accounted for in Scope 2 emissions. These emissions are a consequence of the company’s activities but are generated from sources that are neither owned nor controlled by the company.¹¹⁸ These might include emissions associated with the production and transportation of

¹¹⁵ See *id.* The Kyoto Protocol, adopted in 1997, implemented the United Nations Framework Convention on Climate Change by obtaining commitments from industrialized countries to reduce emissions of the seven identified gasses according to agreed targets. See United Nations Climate Change, *What is the Kyoto Protocol?*, available at https://unfccc.int/kyoto_protocol. The EPA includes these seven greenhouse gases in its greenhouse gas reporting program. See, e.g., EPA, *GHGRP Emissions by GHG*, available at <https://www.epa.gov/ghgreporting/ghgrp-emissions-ghg>.

¹¹⁶ See World Business Council for Sustainable Development and World Resources Institute, *The Greenhouse Gas Protocol, A Corporate Accounting and Reporting Standard* REVISED EDITION, available at <https://ghgprotocol.org/corporate-standard>.

¹¹⁷ *Id.*

¹¹⁸ The Scope 3 emissions standard was developed over a three-year period with participation by businesses, government agencies, academics, and NGOs to help companies understand and manage their climate-related risks and opportunities in their upstream and downstream value chains. See Greenhouse Gas Protocol, *Corporate Value Chain (Scope 3) Accounting and Reporting Standard, Supplement to the GHG Protocol Corporate Accounting and Reporting Standard* (Sept. 2011), available at https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporting-Standard_041613_2.pdf. This standard identified eight upstream and seven downstream emission categories that can give rise to Scope 3 emissions. The GHG Protocol is developing additional guidance that may impact Scope 3 emissions related to land use and land sector activities. See Greenhouse Gas Protocol, *Update on Greenhouse Gas Protocol Carbon Removals and Land Sector Initiative* (July 8, 2021), available at <https://ghgprotocol.org/blog/update-greenhouse-gas-protocol-carbon-removals-and-land-sector-initiative>.

goods a registrant purchases from third parties, employee commuting or business travel, and the processing or use of the registrant's products by third parties.¹¹⁹

We have based our proposed GHG emissions disclosure requirement primarily on the GHG Protocol's concept of scopes and related methodology.¹²⁰ By basing this requirement on an established GHG emissions reporting framework, we believe the compliance burden would be mitigated, especially for those registrants that are already disclosing or estimating their GHG emissions pursuant to the GHG Protocol.

E. Summary of the Proposed Rules

We are proposing to add a new subpart to Regulation S-K, 17 CFR 229.1500-1507 ("Subpart 1500 of Regulation S-K") that would require a registrant to disclose certain climate-related information, including information about its climate-related risks that are reasonably likely to have material impacts on its business or consolidated financial statements, and GHG emissions metrics that could help investors assess those risks.¹²¹ A registrant may also include disclosure about its climate-related opportunities. The proposed new subpart to Regulation S-K

¹¹⁹ See Section II.G.1, below, for a more extensive discussion of Scope 3 categories and emissions.

¹²⁰ See *id.*

¹²¹ See *infra* Sections II.B through E and II.G through I.

would include an attestation requirement for accelerated filers¹²² and large accelerated filers¹²³ regarding certain proposed GHG emissions metrics disclosures.¹²⁴

We are also proposing to add a new article to Regulation S-X, 17 CFR 210.14-01 and 02 (“Article 14 of Regulation S-X”) that would require certain climate-related financial statement metrics and related disclosure to be included in a note to a registrant’s audited financial statements.¹²⁵ The proposed financial statement metrics would consist of disaggregated climate-related impacts on existing financial statement line items. As part of the registrant’s financial statements, the financial statement metrics would be subject to audit by an independent registered public accounting firm, and come within the scope of the registrant’s internal control over financial reporting (“ICFR”).¹²⁶

1. Content of the Proposed Disclosures

The proposed climate-related disclosure framework is modeled in part on the TCFD’s recommendations, and also draws upon the GHG Protocol. In particular, the proposed rules would require a registrant to disclose information about:

¹²² See 17 CFR 240.12b-2 (defining “accelerated filer” as an issuer after it first meets the following conditions as of the end of its fiscal year: (i) the issuer had an aggregate worldwide market value of the voting and non-voting common equity held by its non-affiliates of \$75 million or more, but less than \$700 million, as of the last business day of the issuer’s most recently completed second fiscal quarter; (ii) the issuer has been subject to the requirements of Section 13(a) or 15(d) of the Exchange Act for a period of at least twelve calendar months; (iii) the issuer has filed at least one annual report pursuant to Section 13(a) or 15(d) of the Exchange Act; and (iv) the issuer is not eligible to use the requirements for SRCs under the SRC revenue test).

¹²³ See 17 CFR 240.12b-2 (defining “large accelerated filer” as an issuer after it first meets the following conditions as of the end of its fiscal year: (i) the issuer had an aggregate worldwide market value of the voting and non-voting common equity held by its non-affiliates of \$700 million or more, as of the last business day of the issuer’s most recently completed second fiscal quarter; (ii) the issuer has been subject to the requirements of Section 13(a) or 15(d) of the Exchange Act for a period of at least twelve calendar months; (iii) the issuer has filed at least one annual report pursuant to Section 13(a) or 15(d) of the Exchange Act; and (iv) the issuer is not eligible to use the requirements for SRCs under the SRC revenue test).

¹²⁴ See *infra* Section II.H.

¹²⁵ See *infra* Section II.F.

¹²⁶ See *infra* Sections II.F.2 and 3.

- The oversight and governance of climate-related risks by the registrant’s board and management;¹²⁷
- How any climate-related risks identified by the registrant have had or are likely to have a material impact on its business and consolidated financial statements, which may manifest over the short-, medium-, or long-term;¹²⁸
- How any identified climate-related risks have affected or are likely to affect the registrant’s strategy, business model, and outlook;¹²⁹
- The registrant’s processes for identifying, assessing, and managing climate-related risks and whether any such processes are integrated into the registrant’s overall risk management system or processes;¹³⁰
- The impact of climate-related events (severe weather events and other natural conditions as well as physical risks identified by the registrant) and transition activities (including transition risks identified by the registrant) on the line items of a registrant’s consolidated financial statements and related expenditures,¹³¹ and disclosure of financial estimates and assumptions impacted by such climate-related events and transition activities.¹³²
- Scopes 1 and 2 GHG emissions metrics, separately disclosed, expressed:
 - Both by disaggregated constituent greenhouse gases and in the aggregate, and

¹²⁷ See *infra* Section II.D.

¹²⁸ See *infra* Sections II.B and C.

¹²⁹ See *infra* Section II.C.

¹³⁰ See *infra* Section II.E.

¹³¹ See *infra* Sections II.F.2 and 3.

¹³² See *infra* Sections II.F.4.

- In absolute and intensity terms;¹³³
- Scope 3 GHG emissions and intensity, if material, or if the registrant has set a GHG emissions reduction target or goal that includes its Scope 3 emissions; and
- The registrant’s climate-related targets or goals, and transition plan, if any.¹³⁴

When responding to any of the proposed rules’ provisions concerning governance, strategy, and risk management, a registrant may also disclose information concerning any identified climate-related opportunities.

2. Presentation of the Proposed Disclosures

The proposed rules would require a registrant (both domestic and foreign private issuers¹³⁵):

- To provide the climate-related disclosure in its registration statements and Exchange Act annual reports;¹³⁶
- To provide the Regulation S-K mandated climate-related disclosure in a separate, appropriately captioned section of its registration statement or annual report, or alternatively to incorporate that information in the separate, appropriately captioned

¹³³ See *infra* Section II.G.1.

¹³⁴ See *infra* Section III.

¹³⁵ As defined by Commission rules, a foreign private issuer is any foreign issuer other than a foreign government except an issuer meeting the following conditions as of the last business day of its most recently completed second fiscal quarter: more than 50% of the outstanding voting securities of such issuer are directly or indirectly owned of record by residents of the United States; and either the majority of its executive officers or directors are United States citizens or residents, more than 50% of the assets of the issuer are located in the United States, or the business of the issuer is administered principally in the United States. See 17 CFR 230.405 and 17 CFR 240.3b-4.

¹³⁶ See *infra* Section II.A.2.

section by reference from another section, such as Risk Factors, Description of Business, or Management’s Discussion and Analysis (“MD&A”);¹³⁷

- To provide the Regulation S-X mandated climate-related financial statement metrics and related disclosure in a note to the registrant’s audited financial statements;¹³⁸
- To electronically tag both narrative and quantitative climate-related disclosures in Inline XBRL;¹³⁹ and
- To file rather than furnish the climate-related disclosure.¹⁴⁰

3. Attestation for Scope 1 and Scope 2 Emissions Disclosure

The proposed rules would require an accelerated filer or a large accelerated filer to include, in the relevant filing, an attestation report covering, at a minimum, the disclosure of its Scope 1 and Scope 2 emissions and to provide certain related disclosures about the service provider.¹⁴¹ As proposed, both accelerated filers and large accelerated filers would have time to transition to the minimum attestation requirements. The proposed transition periods would provide existing accelerated filers and large accelerated filers one fiscal year to transition to providing limited assurance and two additional fiscal years to transition to providing reasonable assurance, starting with the respective compliance dates for Scopes 1 and 2 disclosure described below.¹⁴² The proposed rules would provide minimum attestation report requirements, minimum standards for acceptable attestation frameworks, and would require an attestation service

¹³⁷ *See id.*

¹³⁸ *See infra* Section II.F.

¹³⁹ *See infra* Section II.K.

¹⁴⁰ *See infra* Section II.L.

¹⁴¹ *See infra* Section II.H.

¹⁴² *See infra* Section II.H.1 (providing further details on the proposed timing of the minimum attestation requirements).

provider to meet certain minimum qualifications. The proposed rules would not require an attestation service provider to be a registered public accounting firm.

4. Phase-In Periods and Accommodations for the Proposed Disclosures

The proposed rules would include:

- A phase-in for all registrants, with the compliance date dependent on the registrant’s filer status;
- An additional phase-in period for Scope 3 emissions disclosure;
- A safe harbor for Scope 3 emissions disclosure;
- An exemption from the Scope 3 emissions disclosure requirement for a registrant meeting the definition of a smaller reporting company (“SRC”);¹⁴³ and
- A provision permitting a registrant, if actual reported data is not reasonably available, to use a reasonable estimate of its GHG emissions for its fourth fiscal quarter, together with actual, determined GHG emissions data for the first three fiscal quarters, as long as the registrant promptly discloses in a subsequent filing any material difference between the estimate used and the actual, determined GHG emissions data for the fourth fiscal quarter.

The proposed rules would be phased in for all registrants, with the compliance date dependent upon the status of the registrant as a large accelerated filer, accelerated or non-accelerated filer, or SRC, and the content of the item of disclosure. For example, assuming that the effective date of the proposed rules occurs in December 2022 and that the registrant has a

¹⁴³ See *infra* Section II.G.3. The Commission’s rules define a smaller reporting company to mean an issuer that is not an investment company, an asset-backed issuer, or a majority-owned subsidiary of a parent that is not a smaller reporting company and that: (1) had a public float of less than \$250 million; or (2) had annual revenues of less than \$100 million and either: (i) no public float; or (ii) a public float of less than \$700 million. See 17 CFR 229.10(f)(1), 230.405, and 17 CFR 240.12b-2.

December 31st fiscal year-end, the compliance date for the proposed disclosures in annual reports, other than the Scope 3 disclosure, would be:

- For large accelerated filers, fiscal year 2023 (filed in 2024);
- For accelerated and non-accelerated filers, fiscal year 2024 (filed in 2025); and
- For SRCs, fiscal year 2025 (filed in 2026).¹⁴⁴

Registrants subject to the proposed Scope 3 disclosure requirements would have one additional year to comply with those disclosure requirements.

We welcome feedback and encourage interested parties to submit comments on any or all aspects of the proposed rules. When commenting, it would be most helpful if you include the reasoning behind your position or recommendation.

II. DISCUSSION

A. Overview of the Climate-Related Disclosure Framework

1. Proposed TCFD-Based Disclosure Framework

We have modeled the proposed disclosure rules in part on the TCFD disclosure framework. Building on the TCFD framework should enable companies to leverage the framework with which many investors and issuers are already familiar, which should help to mitigate both the compliance burden for issuers and any burdens faced by investors in analyzing and comparing the new proposed disclosures.

Many commenters that supported climate disclosure rules recommended that we consider the TCFD framework in developing those rules. Numerous commenters stated that the Commission should base its climate-related disclosure rules on the TCFD framework either as a

¹⁴⁴ See *infra* Section II.M.

standalone framework,¹⁴⁵ or in conjunction with industry-specific metrics drawn from the SASB¹⁴⁶ or other third-party frameworks.¹⁴⁷ A broad range of commenters, including both

¹⁴⁵ See, e.g., letters from Alphabet Inc., Amazon.com Inc., Autodesk, Inc., eBay Inc., Facebook, Inc., Intel Corporation, and Salesforce.com, Inc. (June 11, 2021) (“Alphabet Inc. *et al.*); the Aluminum Association (June 11, 2021); Amalgamated Bank; Apple, Inc.; Bank of Finland; BNP Paribas; Boston Common Asset Management; Ceres and other signatories representing NGOs, academics, and investors (Ceres *et al.*) (June 11, 2021); Certified B Corporations (June 11, 2021); Chevron; Clean Yield Asset Management; Climate Advisers (June 13, 2021); Climate Governance Initiative (June 12, 2021); Committee on Financial and Capital Markets (Keidenren) (June 13, 2021); Commonwealth Climate and Law Initiative; Crowe LLP (June 11, 2021); E2 (June 14, 2021); ERM CVS; Eumedion (June 11, 2021); Fossil Fuel Divest Harvard (June 14, 2021); Impact Investors, Inc.; Impax Asset Management; Information Technology Industry Council (June 11, 2021); Institutional Limited Partners Association (June 11, 2021); Japanese Bankers Association (June 11, 2021); Keramida (June 11, 2021); Carolyn Kohoot (June 11, 2021); Legal and General Investment Management America (June 11, 2021); Christopher Lish (June 12, 2021); Manifest Climate (June 13, 2021); Mercy Investment Services, Inc.; Miller/Howard Investments; Mirova US LLC (June 14, 2021); M.J. Bradley & Associates, on behalf of Energy Strategy Coalition (June 13, 2021); Morningstar, Inc. (June 9, 2021); MSCI, Inc.; Natural Resources Defense Council (June 11, 2021); Persefoni (June 14, 2021); PRI; S&P Global; Maria Stoica (June 11, 2021); Trillium Asset Management; United Nations Environment Programme (UNEP) (June 9, 2021); Walmart, Inc. (June 11, 2021); and World Business Council for Development (June 11, 2021) (WBCSD).

¹⁴⁶ See, e.g., letters from Adobe Inc. (June 11, 2021); Alberta Investment Management Corporation (June 11, 2021); AllianceBernstein; American Chemistry Council (June 11, 2021); American Society of Adaptation Professionals (June 11, 2021); Baillie Gifford (June 11, 2021); Bank Policy Institute (June 9, 2021); BlackRock; Bloomberg, LP (June 3, 2021); bp; BSR (June 11, 2021); Canadian Bankers Association (June 11, 2021); Canadian Coalition of Good Governance; Capital Group (June 11, 2021); Catavento Consultancy (Apr. 30, 2021); Center for Climate and Energy Solutions; Confluence Philanthropy (June 14, 2021); ConocoPhillips, Inc. (June 11, 2021); CPP Investments (June 11, 2021); Enbridge, Inc. (June 11, 2021); Energy Workforce and Technology Council (June 11, 2021); Entelligent, Inc. (June 14, 2021); Ethic Inc.; Emmanuelle Haack (Apr. 27, 2021); Harvard Management Company (June 11, 2021); Hermes Equity Ownership Services Limited (June 14, 2021); Douglas Hileman Consulting (June 7, 2021); HP, Inc. (June 14, 2021); Virginia Harper Ho (June 12, 2021); IHS Markit (June 13, 2021); Institute of International Bankers; Institute of International Finance (June 13, 2021); Institute of Management Accountants (June 12, 2021); Invesco (June 10, 2021); Investment Company Institute; Investment Consultants Sustainability Working Group (June 11, 2021); Richard Love (May 20, 2021); Manulife Investment Management (June 11, 2021); NEI Investments (June 11, 2021); Neuberger Berman (June 11, 2021); New York State Society of Certified Public Accountants; Nordea Asset Management (June 11, 2021); Norges Bank Investment Management (June 13, 2021); NY State Comptroller; Paradise Investment Management (June 11, 2021); Parametric Portfolio Associates; PayPal Holdings, Inc. (June 12, 2021); PGIM (June 13, 2021); Reinsurance Association of America (June 9, 2021); Salesforce.com (June 11, 2021); San Francisco Employees Retirement System (June 12, 2021); State Street Global Advisors; Summit Strategy Group (June 11, 2021); Teachers Insurance and Annuity Association of America (June 11, 2021); T Rowe Price (June 11, 2021); Value Reporting Foundation (June 11, 2021); Wellington Management Co. (June 11, 2021); and Westpath Benefits and Assessments (June 11, 2021).

¹⁴⁷ See, e.g., letters from Gabrielle F. Preiser (Mar. 31, 2021) and Worldbenchmarking Alliance (June 11, 2021) (recommending the Global Reporting Initiative (GRI) standards); letter from Mathew Roling and Samantha Tirakian (June 11, 2021) (recommending the CDSB standards); and Pricewaterhouse Coopers and Grant Thornton (June 11, 2021) (recommending the Sustainability Standards Board (SSB) standards once the SSB is established by the IFRS Foundation and others as a global standard-setter and once it promulgates standards).

issuers¹⁴⁸ and investors,¹⁴⁹ supported basing new climate-related disclosure rules on the TCFD framework.

Commenters provided several reasons for their support of the TCFD framework. First, commenters indicated that, because of the widespread adoption of the framework, issuers and investors have experience making and using TCFD disclosures. As a result, according to commenters, aligning SEC rules with the TCFD could reduce the burden on issuers and increase the consistency and comparability of climate disclosures.¹⁵⁰ Second, commenters stated that the information that the TCFD disclosures elicit is useful for investors to understand companies' exposure to and management of climate-related risks.¹⁵¹ Third, various jurisdictions around the world have announced their intention to align their domestic disclosure rules with the TCFD.¹⁵² Commenters stated that by aligning with the TCFD framework, the Commission could potentially facilitate higher levels of consistency and comparability of disclosures globally.¹⁵³

The consistency and breadth of these comments comport with our understanding that the TCFD framework has been widely accepted by issuers, investors, and other market participants and reinforce our view that the framework would provide an appropriate foundation for the

¹⁴⁸ See, e.g., letters from Adobe; Alphabet Inc. *et al.*; BNP Paribas; bp; Chevron; ConocoPhillips; and Walmart.

¹⁴⁹ See, e.g., letters from Alberta Investment Management Corporation; BlackRock; CalPERS; CALSTRS; Impact Investors, Inc.; and San Francisco Employees Retirement System.

¹⁵⁰ See, e.g., letters from BNP Paribas; Deutsche Bank (June 11, 2021); and Institute of International Bankers.

¹⁵¹ See, e.g., letters from AllianceBernstein; CALSTRS; Investment Company Institute; and NY State Comptroller.

¹⁵² See *supra* note 95 and accompanying text.

¹⁵³ See, e.g., letters from BNP Paribas; bp; and Chevron.

proposed amendments.¹⁵⁴ Basing the Commission’s climate-related disclosure rules on a globally recognized framework should help elicit climate-related disclosures that are consistent, comparable, and reliable while also limiting the compliance burden for registrants that are already providing climate-related disclosures based on this framework.

Similar to the TCFD framework, the proposed climate-related provisions under Regulation S-K would require disclosure of a registrant’s: governance of climate-related risks;¹⁵⁵ any material climate-related impacts on its strategy, business model, and outlook;¹⁵⁶ climate-related risk management;¹⁵⁷ GHG emissions metrics;¹⁵⁸ and climate-related targets and goals, if any.¹⁵⁹

The proposed climate-related provisions under Regulation S-X would require a registrant to disclose in a note to its financial statements certain disaggregated climate-related financial statement metrics that are mainly derived from existing financial statement line items.¹⁶⁰ The proposed rules would require disclosure falling under the following three categories of

¹⁵⁴ Proponents of the TCFD framework include academics (*see, e.g.*, letters from Jill Fisch *et al.*, J. Robert Gibson (May 26, 2021), and Gina-Gail S Fletcher (June 14, 2021)); accounting and audit firms (*see, e.g.*, letters from AICPA (June 11, 2021), Center for Audit Quality (“CAQ”) (June 11, 2021), and KPMG LLP (June 12, 2021)); foreign firms (*see, e.g.*, letters from Bank of Finland, BNP Paribas, bp, and Deutsche Bank); industry groups (*see, e.g.*, letters from American Chemistry Council, Association of American Railroads (June 11, 2021), and Information Technology Industry Council (June 11, 2021)); investor groups (*see, e.g.*, letters from CalPERS; CALSTRS; and San Francisco Employees Retirement System); individuals (*see, e.g.*, letters from Emmanuelle Haack, Christopher Lish, and Maria Stoica); issuers (*see, e.g.*, letters from Adobe, Alphabet Inc. *et al.*, Apple, and Chevron); NGOs (*see, e.g.*, letters from Ceres *et al.*, Climate Governance Initiative, Natural Resources Defense Council, and UNEP); professional climate advisors (*see, e.g.*, letters from Catavento Consultancy, Douglas Hileman Consulting, ERM CVS, and Ethic Inc.); and professional investment advisors/investment management companies (*see, e.g.*, letters from AllianceBernstein, Impact Investors, Miller/Howard Investments, and Neuberger Berman).

¹⁵⁵ *See* proposed 17 CFR 229.1501.

¹⁵⁶ *See* proposed 17 CFR 229.1502.

¹⁵⁷ *See* proposed 17 CFR 229.1503.

¹⁵⁸ *See* proposed 17 CFR 229.1504.

¹⁵⁹ *See* proposed 17 CFR 229.1506.

¹⁶⁰ *See* proposed 17 CFR 210.14-01 and 14-02.

information: financial impact metrics;¹⁶¹ expenditure metrics;¹⁶² and financial estimates and assumptions.¹⁶³ Similar to the TCFD’s recommendation regarding financial impacts, the proposed financial statement metrics have the objective of increasing transparency about how climate-related risks impact a registrant’s financial statements.¹⁶⁴ The TCFD framework identifies two broad categories of actual and potential financial impacts driven by climate-related risks and opportunities: financial performance (income statement focused) and financial position (balance sheet focused), and includes suggested metrics such as the amount of capital expenditure deployed toward climate-related risks and opportunities, which is similar to our proposed financial statement metrics.¹⁶⁵

2. Location of the Climate-Related Disclosure

Many commenters stated that the Commission should amend Regulation S-K or Regulation S-X to include climate-related disclosure requirements.¹⁶⁶ Other commenters

¹⁶¹ See proposed 17 CFR 210.14-02(c) and (d).

¹⁶² See proposed 17 CFR 210.14-02(e) and (f).

¹⁶³ See proposed 17 CFR 210.14-02(g) and (h).

¹⁶⁴ See TCFD, *Recommendations of the Task Force on Climate-related Financial Disclosures* (June 2017), Section B.3 (Financial Impacts).

¹⁶⁵ See TCFD, *Guidance on Metrics, Targets, and Transition Plans* (Oct. 2021), Section F (Financial Impacts), available at https://assets.bbhub.io/company/sites/60/2021/07/2021-Metrics_Targets_Guidance-1.pdf. For avoidance of doubt, disclosure of climate-related opportunities is optional, not required, under our proposal.

¹⁶⁶ See, e.g., letters from AllianceBernstein; American Society of Adaptation Professionals; Seema Arora (June 22, 2021); Associated General Contractors of America (June 11, 2021); Baillie Gifford; CalPERS; Cardano Risk Management Ltd. (Apr. 19, 2021); Center for American Progress; Ceres *et al.*; Eni SpA; Jill Fisch (June 3, 2021); George S. Georgiev (June 22, 2021); Hannon Armstrong (June 15, 2021); Henry Schein, Inc.; Hermes Equity Ownership Services Limited; Virginia Harper Ho; Institute for Governance and Sustainable Development (June 9, 2021); Institute for Market Transformation (June 12, 2021); Interfaith Center on Corporate Responsibility; International Corporate Governance Network (June 11, 2021); Japanese Bankers Association; Morrison & Foerster LLP; National Investor Relations Institute (June 11, 2021); Natural Resources Defense Council; Newmont Corporation (June 13, 2021); New York State Society of Certified Public Accountants; NY State Comptroller; PayPal Holdings, Inc.; PRI (Consultation Response); PricewaterhouseCoopers LLP; Maria Stoica; Sunrise Bay Area (June 14, 2021); Teachers Insurance and Annuity Association of America; Vert Asset Management LLC (June 14, 2021); WBCSD; and Wespeth Benefits and Investments (June 11, 2021).

recommended that the Commission adopt a new stand-alone regulation for climate-related disclosure.¹⁶⁷ We are proposing to include the climate-related disclosure rules in Regulation S-K and Regulation S-X because the required disclosure is fundamental to investors' understanding the nature of a registrant's business and its operating prospects and financial performance, and therefore, should be presented together with other disclosure about the registrant's business and its financial condition.

Specifically, we are proposing to require a registrant to include climate-related disclosure in Securities Act or Exchange Act registration statements and Exchange Act annual reports in a separately captioned "Climate-Related Disclosure" section and in the financial statements.¹⁶⁸ Requiring climate-related disclosure to be presented in this manner would facilitate review of the climate-related disclosure by investors alongside other relevant company financial and non-financial information.

A registrant would be able to incorporate by reference disclosure from other parts of the registration statement or annual report (*e.g.*, Risk Factors, MD&A, or the financial statements) or, in most cases, from other filed or submitted reports into the Climate-Related Disclosure item if it is responsive to the topics specified in Items 1500-1506 of Regulation S-K and if the registrant satisfies the incorporation by reference requirements under the Commission's rules and forms.¹⁶⁹ Allowing incorporation by reference for the Regulation S-K climate-related disclosure

¹⁶⁷ See letters from Bank Policy Institute; Andrew Behar (As You Sow) (June 14, 2021); Entelligent Inc. (June 14, 2021); Impax Asset Management; Information Technology Industry Council; Majedie Asset Management (May 25, 2021); David Marriage (June 15, 2021); and XBRL US (June 15, 2021).

¹⁶⁸ See *infra* Section II.J for a discussion of the registrants and forms to which the proposed rules would apply.

¹⁶⁹ See 17 CFR 230.411; 17 CFR 240.12b-23; and the applicable forms.

would be consistent with the treatment of other types of business disclosure under our rules and would provide some flexibility for registrants while reducing redundancy in disclosure.¹⁷⁰

Many commenters stated that the Commission should require registrants to discuss and analyze their quantitative climate data in a manner similar to that required for MD&A.¹⁷¹ These commenters stressed the importance of placing climate-related metrics in the context of other company financial and non-financial information to enable investors to see how those metrics intersect with business operations and industrial processes.¹⁷² Other commenters supported a requirement to discuss and analyze the climate-related metrics, but stated that such discussion should be part of the existing MD&A disclosures.¹⁷³ We agree with the commenters supporting a narrative discussion and analysis of the climate-related metrics as means to present these disclosures in context and explain how they relate to the registrant’s strategy and management of its climate-related risks. In this way, such a discussion will serve a similar function to the MD&A but will focus on climate-related risk specifically. Our proposed approach, which

¹⁷⁰ A registrant that elects to incorporate by reference any of the metrics or narrative disclosure that is subject to XBRL tagging must comply with the electronic tagging requirement in the section of the registration statement or report where the metrics or narrative disclosure appears in full. We discuss the XBRL tagging requirement in Section II.K.

¹⁷¹ *See, e.g.*, letters from Acadian Asset Management LLC (June 14, 2021); Actual Systems, Inc. (June 11, 2021); Baillie Gifford; Biotechnology Innovation Organization; CDP; ClientEarth US (June 14, 2021); FAIRR Initiative (June 15, 2021); Jill Fisch (June 3, 2021); Hermes Equity Ownership Services Limited; International Corporate Governance Network; Japanese Bankers Association; Majedie Asset Management; Morningstar, Inc.; NEI Investments; NY State Comptroller; Paradise Investment Management; Pre-Distribution Initiative (June 14, 2021); PricewaterhouseCoopers LLP; Matthew Roling and Samantha Tirakian (June 11, 2021); Terra Alpha Investments; Vert Asset Management; and WBCSD.

¹⁷² *See, e.g.*, letters from Pricewaterhouse Coopers Ltd.; Vert Asset Management; and WBCSD.

¹⁷³ *See, e.g.*, letters from Canadian Coalition for Good Governance; Clean Production Action and Environmental Health Network (June 11, 2021); Decatur Capital Management; Dimensional Fund Advisors (June 11, 2021); Environmental Industry Group (June 9, 2021); Institute for Governance and Sustainable Development; PRI (Consultation Response); Kenya Rothstein (May 3, 2021); and Maria Stoica. *But see* letter from Sarah Ladin (June 14, 2021) (doubting that a “sustainability discussion and analysis” requirement would achieve the desired results and stating that it would be difficult to enforce); and David Marriage (indicating that a discussion and analysis requirement for climate-related data would make the data difficult for the market to absorb).

requires the climate-related disclosure to be included in a specific section but allows registrants to incorporate from disclosure elsewhere (consistent with applicable incorporation by reference requirements), provides some flexibility to the proposed climate-related disclosure scheme while ensuring the disclosure is consistent and comparable across registrants.

Request for Comment

1. Should we add a new subpart to Regulation S-K and a new article to Regulation S-X that would require a registrant to disclose certain climate-related information, as proposed? Would including the climate-related disclosure in Regulation S-K and Regulation S-X facilitate the presentation of climate information as part of a registrant's regular business reporting? Should we instead place the climate-related disclosure requirements in a new regulation or report? Are there certain proposed provisions, such as GHG emissions disclosure requirements, that would be more appropriate under Regulation S-X than Regulation S-K?

2. If adopted, how will investors utilize the disclosures contemplated in this release to assess climate-related risks? How will investors use the information to assess the physical effects and related financial impacts from climate-related events? How will investors use the information to assess risks associated with a transition to a lower carbon economy?

3. Should we model the Commission's climate-related disclosure framework in part on the framework recommended by the TCFD, as proposed? Would alignment with the TCFD help elicit climate-related disclosures that are consistent, comparable, and reliable for investors? Would alignment with the TCFD framework help mitigate the reporting burden for issuers and facilitate understanding of climate-related information by investors because the framework is widely used by companies in the United States and around the world? Are there aspects of the TCFD framework that we should not adopt? Should we instead adopt rules that are based on a

different third-party framework? If so, which framework? Should we base the rules on something other than an existing third-party framework?

4. Do our current reporting requirements yield adequate and sufficient information regarding climate-related risks to allow investors to make informed decisions? In lieu of, or in addition to the proposed amendments, should we provide updated guidance on how our existing rules may elicit better disclosure about climate-related risks?

5. Should we require a registrant to present the climate-related disclosure in an appropriately captioned, separate part of the registration statement or annual report, as proposed? Should this disclosure instead be presented as part of the registrant's MD&A?

6. Should we permit a registrant to incorporate by reference some of the climate-related disclosure from other parts of the registration statement or annual report, as proposed? Should we permit a registrant to incorporate by reference climate-related disclosure that appears in a sustainability report if the registrant includes the incorporated by referenced disclosure as an exhibit to the registration statement or annual report? Are there some climate-related disclosure items, such as GHG emissions data, that we should not permit a registrant to incorporate by reference? Would requiring a registrant to include all of the proposed climate-related disclosures in a separate, appropriately captioned section, while precluding a registrant from incorporating by reference some or all of the climate-related disclosures, promote comparability and ease of use of the climate-related information for investors?

7. Should we permit a registrant to provide certain of the proposed climate-related disclosures in Commission filings other than the annual report or registration statement? For example, should we permit a registrant to provide information about board and management oversight of climate-related risks in its proxy statement?

B. Disclosure of Climate-Related Risks

As many commenters have noted when seeking more detailed climate-related disclosures,¹⁷⁴ climate events and contingencies can pose financial risks to issuers across industrial sectors.¹⁷⁵ Physical risks may include harm to businesses and their assets arising from acute climate-related disasters such as wildfires, hurricanes, tornadoes, floods, and heatwaves. Companies and their investors may also face chronic risks and more gradual impacts from long-term temperature increases, drought, and sea level rise.

In addition to the physical risks associated with the climate, issuers and investors may also face risks associated with a potential transition to a less carbon intensive economy. These risks may arise from potential adoption of climate-related regulatory policies including those that may be necessary to achieve the national climate goals that may be or have been adopted in the United States and other countries;¹⁷⁶ climate-related litigation; changing consumer, investor, and employee behavior and choices; changing demands of business partners; long-term shifts in market prices; technological challenges and opportunities, and other transitional impacts.

¹⁷⁴ See *supra* note 40.

¹⁷⁵ The 2020 CFTC Advisory Subcommittee Report found that climate change currently impacts or is expected to affect every part of the U.S. economy, including agriculture, real estate, infrastructure, and the financial sectors. See *infra* note 361.

¹⁷⁶ A National Climate Taskforce created by the president established commitments to reduce economy-wide net greenhouse gas emissions by 50-52% by 2030 as compared to 2005 levels, and to reach net zero emissions by 2050. See The White House, FACT SHEET: *President Biden Sets 2030 Greenhouse Gas Pollution Reduction Target Aimed at Creating Good-Paying Union Jobs and Securing U.S. Leadership on Clean Energy Technologies* (Apr. 22, 2021). An Executive Order also directs the Federal government to achieve net-zero emissions from overall Federal operations by 2050, and a 65% emissions reduction by 2030. See The White House, FACT SHEET: *President Biden Signs Executive Order Catalyzing America's Clean Energy Economy Through Federal Sustainability* (Dec. 8, 2021), at <https://www.whitehouse.gov/briefing-room/statements-releases/2021/12/08/fact-sheet-president-biden-signs-executive-order-catalyzing-americas-clean-energy-economy-through-federal-sustainability/>. A growing number of governments and companies have made net zero commitments or announced similar carbon-reduction goals or targets. See United Nations Climate Change, *Commitments to Net Zero Double in Less Than a Year* (Sept. 21, 2020), available at <https://unfccc.int/news/commitments-to-net-zero-double-in-less-than-a-year>.

Disclosure about a registrant’s exposure to transition risks, as well as how the registrant is assessing and managing those risks, would help investors assess and plan for how the registrant would be financially impacted by a transition to a lower-carbon economy.

1. Definitions of Climate-Related Risks and Climate-Related Opportunities

A central focus of the Commission’s proposed rules is the identification and disclosure of a registrant’s material climate-related risks. The proposed rules would require a registrant to disclose any climate-related risks reasonably likely to have a material impact on the registrant’s business or consolidated financial statements.¹⁷⁷ A registrant may also disclose, as applicable, the actual and potential impacts of any climate-related opportunities it is pursuing.¹⁷⁸ The proposed definitions are substantially similar to the TCFD’s definitions of climate-related risks and climate-related opportunities.¹⁷⁹ We have based our definitions on the TCFD’s definitions because they provide a common terminology that allows registrants to disclose climate-related risks and opportunities in a consistent and comparable way. Grounding our definitions in a framework that is already widely accepted also could help limit the burden on issuers to identify and describe climate-related risks and improve the comparability and usefulness of the disclosures for investors.

As proposed, “climate-related risks” means the actual or potential negative impacts of climate-related conditions and events on a registrant’s consolidated financial statements,

¹⁷⁷ See proposed 17 CFR 229.1502(a).

¹⁷⁸ See *id.*

¹⁷⁹ See TCFD, [Recommendations of the Task Force on Climate-related Financial Disclosures](#), Appendix 5.

business operations, or value chains, as a whole.¹⁸⁰ “Value chain” would mean the upstream and downstream activities related to a registrant’s operations.¹⁸¹ Under the proposed definition, upstream activities include activities by a party other than the registrant that relate to the initial stages of a registrant’s production of a good or service (*e.g.*, materials sourcing, materials processing, and supplier activities). Downstream activities would be defined to include activities by a party other than the registrant that relate to processing materials into a finished product and delivering it or providing a service to the end user (*e.g.*, transportation and distribution, processing of sold products, use of sold products, end of life treatment of sold products, and investments).¹⁸² We have proposed including a registrant’s value chain within the definition of climate-related risks to capture the full extent of a registrant’s potential exposure to climate-related risks, which can extend beyond its own operations to those of its suppliers, distributors, and others engaged in upstream or downstream activities.¹⁸³

Climate-related conditions and events can present risks related to the physical impacts of the climate (“physical risks”) and risks related to a potential transition to a lower carbon economy (“transition risks”). As proposed, “physical risks” is defined to include both acute and chronic risks to a registrant’s business operations or the operations of those with whom it does business.¹⁸⁴ “Acute risks” is defined as event-driven risks related to shorter-term extreme

¹⁸⁰ See proposed 17 CFR 229.1500(c). The reference to ‘negative’ impact is intended to refer to the actual or potential impact on the registrant’s consolidated financial statements, business operations, or value chains as a whole, rather than the mathematical impacts on a specific financial statement line item. See *infra* Section II.F.2 (discussing the proposed financial impact metrics, which focus on the line items in a registrant’s consolidated financial statements).

¹⁸¹ See proposed 17 CFR 229.1500(t).

¹⁸² See *id.*

¹⁸³ See, *e.g.*, *infra* Section II.G.1.

¹⁸⁴ See proposed 17 CFR 229.1500(c)(1).

weather events, such as hurricanes, floods, and tornadoes.¹⁸⁵ “Chronic risks” is defined as those risks that the business may face as a result of longer term weather patterns and related effects, such as sustained higher temperatures, sea level rise, drought, and increased wildfires, as well as related effects such as decreased arability of farmland, decreased habitability of land, and decreased availability of fresh water.¹⁸⁶ Many of these physical risks have already impacted and may continue to impact registrants across a wide range of economic sectors.¹⁸⁷

The proposed rules would define transition risks to mean the actual or potential negative impacts on a registrant’s consolidated financial statements, business operations, or value chains attributable to regulatory, technological, and market changes to address the mitigation of, or adaptation to, climate-related risks.¹⁸⁸ Transition risks would include, but are not limited to, increased costs attributable to climate-related changes in law or policy, reduced market demand for carbon-intensive products leading to decreased sales, prices, or profits for such products, the devaluation or abandonment of assets, risk of legal liability and litigation defense costs, competitive pressures associated with the adoption of new technologies, reputational impacts (including those stemming from a registrant’s customers or business counterparties) that might trigger changes to market behavior, changes in consumer preferences or behavior, or changes in a registrant’s behavior. A registrant that has significant operations in a jurisdiction that has made

¹⁸⁵ See proposed 17 CFR 229.1500(c)(2).

¹⁸⁶ See proposed 17 CFR 229.1500(c)(3). The physical risks described are examples, but registrants may be exposed to many other types of physical risks from climate change depending on their specific facts and circumstances. As such, any reference to certain types of risks should be considered as non-exhaustive examples.

¹⁸⁷ The IPCC’s Sixth Assessment Report noted drought, heatwaves, hurricanes, and heavy precipitation. See IPCC, [Climate Change 2021, The Physical Science Basis Summary for Policymakers](#).

¹⁸⁸ See proposed 17 CFR 229.1500(c)(4).

a GHG emissions reduction commitment would likely be exposed to transition risks related to the implementation of the commitment.¹⁸⁹

The proposed rules would require a registrant to specify whether an identified climate-related risk is a physical or transition risk so that investors can better understand the nature of the risk¹⁹⁰ and the registrant's actions or plan to mitigate or adapt to the risk.¹⁹¹ If a physical risk, the proposed rules would require a registrant to describe the nature of the risk, including whether it may be categorized as an acute or chronic risk.¹⁹²

The proposed rules would require a registrant to include in its description of an identified physical risk the location of the properties, processes, or operations subject to the physical risk.¹⁹³ The proposed location disclosure would only be required for a physical risk that a registrant has determined has had or is likely to have a material impact on its business or consolidated financial statements. In such instances, a registrant would be required to provide the ZIP code for the location or, if the location is in a jurisdiction that does not use ZIP codes, a similar subnational postal zone or geographic location.¹⁹⁴ Because physical risks can be concentrated in particular geographic areas, the proposed disclosure would allow investors to better assess the risk exposure of one or more registrants with properties or operations in a particular area. One commenter cited location information as a key component of how it, as an

¹⁸⁹ See proposed 17 CFR 229.1502(a)(1)(ii).

¹⁹⁰ See proposed 17 CFR 229.1502(a)(1).

¹⁹¹ See, e.g., proposed 17 CFR 229.1502(b)(1) and 229.1503(c)(1) and (2).

¹⁹² See proposed 17 CFR 229.1502(a)(1)(i). In some instances, chronic risks might give rise to acute risks. For example, drought (a chronic risk) that increases acute risks, such as wildfires, or increased temperatures (a chronic risk) that increases acute risks, such as severe storms. In such instances, a registrant should provide a clear and consistent description of the nature of the risk and how it may affect a related risk.

¹⁹³ See *id.*

¹⁹⁴ See proposed 17 CFR 229.1500(k).

investor, assesses the climate risk facing a company, particularly for companies with fixed assets that may be disproportionately exposed to climate-related physical risks.¹⁹⁵ Several other commenters recommended that we require the disclosure of certain climate data to be disaggregated by location using a point source's zip code for risk assessment.¹⁹⁶ Disclosing the zip codes of its identified material climate-related risks, rather than a broader location designation, could help investors more accurately assess a registrant's specific risk exposure.

Some registrants might be exposed to water-related acute physical risks, such as flooding, which could impair a registrant's operations or devalue its property. If flooding presents a material physical risk, the proposed rules would require a registrant to disclose the percentage of buildings, plants, or properties (square meters or acres) that are located in flood hazard areas in addition to their location.¹⁹⁷ This information could help investors evaluate the magnitude of a registrant's exposure to flooding, which, for example, could cause a registrant in the real estate sector to lose revenues from the rental or sale of coastal property or incur higher costs or a diminished ability to obtain property insurance, or a manufacturing registrant to incur increased expenses due to the need to replace water-damaged equipment or move an entire plant.

Additional disclosure would be required if a material risk concerns the location of assets in regions of high or extremely high water stress.¹⁹⁸ For example, some registrants might be impacted by water-related chronic physical risks, such as increased temperatures and changes in weather patterns that result in water scarcity. Registrants that are heavily reliant on water for

¹⁹⁵ See letter from Wellington Management Co.

¹⁹⁶ See letters from Action Center on Race and Economy (June 14, 2021); Americans for Financial Reform Education Fund; Confluence Philanthropy; Domini Impact Investments; William and Flora Hewlett Foundation; Public Citizen; and Revolving Door Project.

¹⁹⁷ See proposed 17 CFR 229.1502(a)(1)(i)(A).

¹⁹⁸ See proposed 1502(a)(1)(i)(B).

their operations, such as registrants in the energy sector, materials and buildings sector, or agriculture sector,¹⁹⁹ could face regulatory restrictions on water use, increased expenses related to the acquisition and purchase of alternative sources of water, or curtailment of its operations due to a reduced water supply that diminishes its earning capacity. If the location of assets in regions of high or extremely high water stress presents a material risk, the proposed rules would require a registrant to disclose the amount of assets (*e.g.*, book value and as a percentage of total assets) located in such regions in addition to their location. The registrant would also be required to disclose the percentage of its total water usage from water withdrawn in those regions.²⁰⁰ These disclosures could help investors understand the magnitude of a registrant’s material water-stress risks with a degree of specificity that might not be elicited under our current risk factor disclosure standards.

Any increased temperatures could also materially impact a registrant in other ways. For example, a registrant in the construction industry might be required to disclose the physical risk of increased heat waves that affect the ability of its personnel to safely work outdoors, which could result in a cessation or delay of operations, and a reduction in its current or future earnings.²⁰¹ A registrant operating in wildfire-prone areas could be exposed to potential disruption of operations, destruction of property, and relocation of personnel in the event of heat-

¹⁹⁹ Registrants in these industry sectors could be particularly susceptible to water-stress risks because operations in these sectors require large amounts of water. *See* TCFD, *Implementing the Recommendations of the Task Force on Climate-Related Financial Disclosures*, Section E (Oct. 2021), available at https://assets.bbhub.io/company/sites/60/2021/07/2021-TCFD-Implementing_Guidance.pdf (discussing the listed events and other risks).

²⁰⁰ *See* proposed 17 CFR 229.1502(a)(1)(i)(B).

²⁰¹ *See, e.g.* [How Seasonal Temperature Changes Affect the Construction Industry \(constructconnect.com\)](https://www.constructconnect.com/blog/seasonal-temperature-changes-affect-construction-industry) (Aug. 15, 2018), available at <https://www.constructconnect.com/blog/seasonal-temperature-changes-affect-construction-industry>.

induced wildfires.²⁰² A registrant in the real estate sector might similarly be required to disclose the likelihood that sea levels could rise faster than expected and reduce the value of its coastal properties.²⁰³

The proposed rules would require a registrant to describe the nature of transition risks, including whether they relate to regulatory, technological, market (including changing consumer, business counterparty, and investor preferences), liability, reputational, or other transition-related factors, and how those factors impact the registrant.²⁰⁴ For example, an automobile manufacturer might describe how market factors, such as changing consumer and investor preferences for low-emission vehicles, have impacted or will likely impact its production choices, operational capabilities, and future expenditures. An energy producer might describe how regulatory and reputational factors have impacted or are likely to impact its operational activities, reserve valuations, and investments in renewable energy. An industrial manufacturer might describe how investments in innovative technologies, such as carbon capture and storage, have impacted or are likely to impact its consolidated financial statements, such as by increasing its capital expenditures.

Climate related conditions and any transition to a lower carbon economy may also present opportunities for companies and investors. The proposed rules would define “climate-related opportunities” to mean the actual or potential positive impacts of climate-related conditions and events on a registrant’s consolidated financial statements, business operations, or

²⁰² See, e.g., [The Impact of Wildfires on Business is Enormous | Are You Ready? \(alertmedia.com\)](https://www.alertmedia.com/blog/the-impact-of-wildfires-on-business/) (Aug. 27, 2020), available at <https://www.alertmedia.com/blog/the-impact-of-wildfires-on-business/>.

²⁰³ See, e.g., [Climate change and the coming coastal real estate crash - Curbed](https://archive.curbed.com/2018/10/16/17981244/real-estate-climate-change-infrastructure) (Oct. 16, 2018), available at <https://archive.curbed.com/2018/10/16/17981244/real-estate-climate-change-infrastructure>.

²⁰⁴ See proposed 17 CFR 229.1502(a)(1)(ii).

value chains, as a whole.²⁰⁵ Efforts to mitigate or adapt to the effects of climate-related conditions and events can produce opportunities, such as cost savings associated with the increased use of renewable energy, increased resource efficiency, the development of new products, services, and methods, access to new markets caused by the transition to a lower carbon economy, and increased resilience along a registrant’s supply or distribution network related to potential climate-related regulatory or market constraints. A registrant, at its option, may disclose information about any climate-related opportunities it may be pursuing when responding to the proposed disclosure requirements concerning governance, strategy, and risk management in connection with climate-related risks. We are proposing to treat this disclosure as optional to allay any anti-competitive concerns that might arise from a requirement to disclose a particular business opportunity.²⁰⁶ By defining “climate-related opportunities,” the proposed rules would promote consistency when such opportunities are disclosed, even if such disclosure is not required.

2. Proposed Time Horizons and the Materiality Determination

The proposed rules would require a registrant to disclose whether any climate-related risk is reasonably likely to have a material impact on a registrant, including its business or consolidated financial statements, which may manifest over the short, medium, and long term.²⁰⁷

Several commenters made a similar recommendation, stating that disclosure of climate-related

²⁰⁵ See proposed 17 CFR 229.1500(b). The reference to ‘positive’ impact is intended to refer to the actual or potential impact on the registrant’s consolidated financial statements, business operations, or value chains as a whole, rather than the mathematical impacts on a specific financial statement line item. See *infra* Section II.F.2 (discussing the proposed financial impact metrics, which focus on the line items in a registrant’s consolidated financial statements).

²⁰⁶ Some commenters expressed concern about potential anti-competitive effects of the Commission’s possible climate disclosure rules. See, e.g., letters from Association of General Contractors of America (June 11, 2021); and Healthy Markets Association (June 14, 2021).

²⁰⁷ See proposed Item 1502(a) of Regulation S-K.

risks and impacts across short, medium, and long-term time horizons is necessary to fully understand a registrant’s susceptibility to material climate-related risks.²⁰⁸

As proposed, a registrant would be required to describe how it defines short-, medium-, and long-term time horizons, including how it takes into account or reassesses the expected useful life of the registrant’s assets and the time horizons for the registrant’s planning processes and goals. We have not proposed a specific range of years to define short-, medium-, and long-term time horizons in order to allow flexibility for a registrant to select the time horizons that are most appropriate to its particular circumstances.

As defined by the Commission and consistent with Supreme Court precedent, a matter is material if there is a substantial likelihood that a reasonable investor would consider it important when determining whether to buy or sell securities or how to vote.²⁰⁹ As the Commission has previously indicated, the materiality determination is largely fact specific and one that requires both quantitative and qualitative considerations.²¹⁰ Moreover, as the Supreme Court has articulated, the materiality determination with regard to potential future events requires an

²⁰⁸ See, e.g., letters from Boston Common Asset Management; Christian Brothers Investment Services (June 11, 2021); Clean Yield Asset Management; and Miller/Howard Investments; see also American Institute of CPAs (AICPA) (June 11, 2021).

²⁰⁹ See 17 CFR 240.12b-2 (definition of “material”). See also *Basic Inc. v. Levinson*, 485 U.S. 224, 231, 232, and 240 (1988) (holding that information is material if there is a substantial likelihood that a reasonable investor would consider the information important in deciding how to vote or make an investment decision; and quoting *TSC Industries, Inc. v. Northway, Inc.*, 426 U. S. 438, 449 (1977) to further explain that an omitted fact is material if there is “a substantial likelihood that the disclosure of the omitted fact would have been viewed by the reasonable investor as having significantly altered the ‘total mix’ of information made available.”).

²¹⁰ See Release No. 33-10064, *Business and Financial Disclosure Required by Regulation S-K* (Apr. 13, 2016), [81 FR 23915 (Apr. 22, 2016)] (discussing materiality in the context of, among other matters, restating financial statements). See also [Staff Accounting Bulletin No. 99](https://www.sec.gov/interps/account/sab99.htm) (Aug. 12, 1999), available at <https://www.sec.gov/interps/account/sab99.htm> (emphasizing that a registrant or an auditor may not substitute a percentage threshold for a materiality determination that is required by applicable accounting principles). Staff accounting bulletins are not rules or interpretations of the Commission, nor are they published as bearing the Commission's official approval. They represent interpretations and practices followed by the Division of Corporation Finance and the Office of the Chief Accountant in administering the disclosure requirements of the Federal securities laws.

assessment of both the probability of the event occurring and its potential magnitude, or significance to the registrant.²¹¹

The materiality determination that a registrant would be required to make regarding climate-related risks under the proposed rules is similar to what is required when preparing the MD&A section in a registration statement or annual report. The Commission's rules require a registrant to disclose material events and uncertainties known to management that are reasonably likely to cause reported financial information not to be necessarily indicative of future operating results or of future financial condition.²¹² As the Commission has stated, MD&A should include descriptions and amounts of matters that have had a material impact on reported operations as well as matters that are reasonably likely to have a material impact on future operations.²¹³

The proposed rule serves to emphasize that, when assessing the materiality of a particular risk, management should consider its magnitude and probability over the short, medium, and long term. In the context of climate, the magnitude and probability of such risks vary and can be significant over such time periods. For example, wildfires in California, which recently have become more frequent and more intense, may be a material risk for wineries, farmers, and other property owners.²¹⁴ Some insurance companies have withdrawn from certain wildfire prone

²¹¹ See *Basic, Inc. v. Levinson*, 485 U.S. 224, 238 (1988). When considering the materiality of different climate-related risks, a registrant might, for example, determine that certain transition risks and chronic physical risks are material when balancing their likelihood and impact. It also might determine that certain acute physical risks are material even if they are less likely to occur if the magnitude of their impact would be high.

²¹² See 17 CFR 229.303(a).

²¹³ See Release No. 33-10890, *Management's Discussion and Analysis, Selected Financial Data, and Supplementary Financial Information* (Nov. 19, 2020), [86 FR 2080, 2089 (Jan. 11, 2021)].

²¹⁴ See, e.g., Daoping Wang, Dabo Guan, Shupeng Zhu, *et al.*, *Economic footprint of California wildfires in 2018*, Nature Sustainability (Dec. 2020) (stating that the frequency and size of wildfires in the western United States

areas after concluding the risk is no longer insurable.²¹⁵ For many investors, the availability of insurance and the potential exposure to damage, loss, and legal liability from wildfires may be a determining factor in their investment decision-making. Moreover, registrants must bear in mind that the materiality determination is made with regard to the information that a reasonable investor considers important to an investment or voting decision.

To help ensure that management considers the dynamic nature of climate-related risks, we are proposing to require a registrant to discuss its assessment of the materiality of climate-related risks over the short, medium, and long term. We recognize that determining the likely future impacts on a registrant's business may be difficult for some registrants. Commenters have noted that the science of climate modelling has progressed in recent years and enabled the development of various software tools and that climate consulting firms are available to assist registrants in making this determination.²¹⁶ We also note that, under our existing rules, registrants long have had to disclose forward-looking information, including pursuant to MD&A requirements. To the extent that the proposed climate-related disclosures constitute forward-looking statements, as discussed below,²¹⁷ the forward-looking statement safe harbors pursuant

has been increasing for several decades, driven by decreases in precipitation and related changes in the moisture in vegetation, which, together with land use and fire management practices, has dramatically increased wildfire risks, culminating in a series of enormously damaging fires in California in 2017, 2018 and 2020); Andrew Freedman, *California wildfires prompt new warnings amid record heat, erratic winds*, the Washington Post (Oct. 1, 2020) (reporting that the "Glass Fire" forced about 80,000 to evacuate from Napa and Sonoma Counties and took a heavy toll on the wine industry).

²¹⁵ See Shelby Vittek, *California Farmers Struggle to Secure Wildfire Insurance Coverage*, Modern Farmer (Aug. 2, 2021), available at <https://modernfarmer.com/2021/08/california-farmers-struggle-to-secure-wildfire-insurance-coverage/>

²¹⁶ See, e.g., letters from AIR Worldwide (June 11, 2021); Coastal Risk Consulting (May 3, 2021); CoreLogic (June 12, 2021); Datamaran (June 14, 2021); Dynamhex, Inc. (June 15, 2021); EC-Map (June 12, 2021); FutureProof Technologies, Inc. (June 7, 2021); and right.based on science GmbH (June 12, 2021).

²¹⁷ See, e.g., *infra* Sections II.C.4 and II.I.

to the Private Securities Litigation Reform Act (“PSLRA”)²¹⁸ would apply, assuming the conditions specified in those safe harbor provisions are met.²¹⁹ We note, however, that there are important limitations to the PSLRA safe harbor. For example, we are proposing that climate-related disclosures would be required in registration statements, including those for initial public offerings, and forward-looking statements made in connection with an initial public offering are excluded from the protections afforded by the PSLRA. In addition, the PSLRA does not limit the Commission’s ability to bring enforcement actions.

Request for Comment

8. Should we require a registrant to disclose any climate-related risks that are reasonably likely to have a material impact on the registrant, including on its business or consolidated financial statements, which may manifest over the short, medium, and long term, as proposed? If so, should we specify a particular time period, or minimum or maximum range of years, for “short,” “medium,” and “long term?” For example, should we define short term as 1 year, 1-3 years, or 1-5 years? Should we define medium term as 5-10 years, 5-15 years, or 5-20 years? Should we define long-term as 10-20 years, 20-30 years, or 30-50 years? Are there other possible years or ranges of years that we should consider as the definitions of short, medium, and long term? What, if any, are the benefits to leaving those terms undefined? What, if any, are the

²¹⁸ Pub. Law 104-67, 109 Stat. 737.

²¹⁹ See Securities Act Section 27A and Exchange Act Section 21E. The statutory safe harbors by their terms do not apply to forward-looking statements included in financial statements prepared in accordance with generally accepted accounting principles (“GAAP”). The statutory safe harbors also would not apply to forward-looking statements made: (i) in connection with an initial public offering; a tender offer; an offering by, or relating to the operations of, a partnership, limited liability company, or a direct participation investment program, an offering of securities by a blank check company; a roll-up transaction; or a going private transaction; or (ii) by an issuer of penny stock. See Section 27A(b) of the Securities Act and Section 21E(b) of the Exchange Act. Also, the statutory safe harbors do not, absent a rule, regulation, or Commission order, apply to forward-looking statements by certain “bad actor” issuers under Section 27A(b)(1)(A) of the Securities Act and Section 21E(b)(1)(A) of the Exchange Act.

concerns to leaving those terms undefined? Would the proposed provision requiring a registrant to specify what it means by the short, medium, and long term mitigate any such concerns?

9. Should we define “climate-related risks” to mean the actual or potential negative impacts of climate-related conditions and events on a registrant’s consolidated financial statements, business operations, or value chains, as proposed? Should we define climate-related risks to include both physical and transition risks, as proposed? Should we define physical risks to include both acute and chronic risks and define each of those risks, as proposed? Should we define transition risks, as proposed? Are there any aspects of the definitions of climate-related risks, physical risks, acute risks, chronic risks, and transition risks that we should revise? Are there other distinctions among types of climate-related risks that we should use in our definitions? Are there any risks that we should add to the definition of transition risk? How should we address risks that may involve both physical and transition risks?

10. We define transition risks to include legal liability, litigation, or reputational risks. Should we provide more examples about these types of risks? Should we require more specific disclosures about how a registrant assesses and manages material legal liability, litigation, or reputational risks that may arise from a registrant’s business operations, climate mitigation efforts, or transition activities?

11. Some chronic risks might give rise to acute risks, *e.g.*, drought (a chronic risk) that increases acute risks, such as wildfires, or increased temperatures (a chronic risk) that increases acute risks, such as severe storms. Should we require a registrant to discuss how the acute and chronic risks they face may affect one another?

12. For the location of its business operations, properties or processes subject to an identified material physical risk, should we require a registrant to provide the ZIP code of the location or, if

located in a jurisdiction that does not use ZIP codes, a similar subnational postal zone or geographic location, as proposed? Is there another location identifier that we should use for all registrants, such as the county, province, municipality or other subnational jurisdiction? Would requiring granular location information, such as ZIP codes, present concerns about competitive harm or the physical security of assets? If so, how can we mitigate those concerns? Are there exceptions or exemptions to a granular location disclosure requirement that we should consider?

13. If a registrant determines that the flooding of its buildings, plants, or properties is a material risk, should we require it to disclose the percentage of those assets that are in flood hazard areas in addition to their location, as proposed? Would such disclosure help investors evaluate the registrant's exposure to physical risks related to floods? Should we require this disclosure from all registrants, including those that do not currently consider exposure to flooding to be a material physical risk? Should we require this disclosure from all registrants operating in certain industrial sectors and, if so, which sectors? Should we define "flood hazard area" or provide examples of such areas? If we should define the term, should we define it similar to a related definition by the Federal Emergency Management Agency ("FEMA") as an area having flood, mudflow or flood-related erosion hazards, as depicted on a flood hazard boundary map or a flood insurance rate map? Should we require a registrant to disclose how it has defined "flood hazard area" or whether it has used particular maps or software tools when determining whether its buildings, plants, or properties are located in flood hazard areas? Should we recommend that certain maps be used to promote comparability? Should we require disclosure of whether a registrant's assets are located in zones that are subject to other physical risks, such as in locations subject to wildfire risk?

14. If a material risk concerns the location of assets in regions of high or extremely high water stress, should we require a registrant to quantify the assets (*e.g.*, book value and as a percentage of total assets) in those regions in addition to their location, as proposed? Should we also require such a registrant to disclose the percentage of its total water usage from water withdrawn in high or extremely high water stressed regions, as proposed? If so, should we include a definition of a “high water stressed region” similar to the definition provided by the World Resource Institute as a region where 40-80 percent of the water available to agricultural, domestic, and industrial users is withdrawn annually? Should we similarly define an “extremely high water stressed area” as a region where more than 80 percent of the water available to agricultural, domestic, and industrial users is withdrawn annually? Are there other definitions of high or extremely high water stressed areas we should use for purposes of this disclosure? Would these items of information help investors assess a registrant’s exposure to climate-related risks impacting water availability? Should we require the disclosure of these items of information from all registrants, including those that do not currently consider having assets in high water-stressed areas a material physical risk? Should we require these disclosures from all registrants operating in certain industrial sectors and, if so, which sectors?

15. Are there other specific metrics that would provide investors with a better understanding of the physical and transition risks facing registrants? How would investors benefit from the disclosure of any additional metrics that would not necessarily be disclosed or disclosed in a consistent manner by the proposed climate risk disclosures? What, if any, additional burdens would registrants face if they were required to disclose additional climate risk metrics?

16. Are there other areas that should be included as examples in the definitions of acute or chronic risks? If so, for each example, please explain how the particular climate-related risk could materially impact a registrant's operations or financial condition.

17. Should we include the negative impacts on a registrant's value chain in the definition of climate-related risks, as proposed? Should we define "value chain" to mean the upstream and downstream activities related to a registrant's operations, as proposed? Are there any upstream or downstream activities included in the proposed definition of value chain that we should exclude or revise? Are there any upstream or downstream activities that we should add to the definition of value chain? Are there any upstream or downstream activities currently proposed that should not be included?

18. Should we define climate-related opportunities as proposed? Should we permit a registrant, at its option, to disclose information about any climate-related opportunities that it is pursuing, such as the actual or potential impacts of those opportunities on the registrant, including its business or consolidated financial statements, as proposed? Should we specifically require a registrant to provide disclosure about any climate-related opportunities that have materially impacted or are reasonably likely to impact materially the registrant, including its business or consolidated financial statements? Is there a risk that the disclosure of climate-related opportunities could be misleading and lead to "greenwashing"? If so, how should this risk be addressed?

C. Disclosure Regarding Climate-Related Impacts on Strategy, Business Model, and Outlook

1. Disclosure of Material Impacts

Once a registrant has described the climate-related risks reasonably likely to have a material impact on the registrant's business or consolidated financial statements as manifested over the short, medium, and long term as required by proposed Item 1502(a), proposed Item 1502(b) would require the registrant to describe the actual and potential impacts of those risks on its strategy, business model, and outlook.²²⁰ Several commenters stated that many registrants have included largely boilerplate discussions about climate-related risks and failed to provide a meaningful analysis of the impacts of those risks on their businesses.²²¹ The TCFD's most recent assessment of public companies' voluntary climate reports also noted that a minority of companies disclosed the impacts of climate-related risks and opportunities on their businesses in alignment with the TCFD framework.²²² Because information about how climate-related risks have impacted or are likely to impact a registrant's strategy, business model, and outlook can be important for purposes of making an investment or voting decision about the registrant, we are proposing the provisions below to elicit robust and company-specific disclosure on this topic.

As proposed, a registrant would be required to disclose impacts on its:

- Business operations, including the types and locations of its operations;

²²⁰ See proposed 17 CFR 229.1502(b).

²²¹ See, e.g., letters from CALSTRS; Cardano Risk Management Ltd.; Climate Risk Disclosure Lab (June 14, 2021); and Colorado PERA (June 11, 2021).

²²² See TCFD, *2021 Status Report*, Section B (Oct. 2021) (stating that, based on a review of reports of 1,651 public companies from 2018-2020, while 38-52% of companies surveyed described climate-related risks and opportunities during 2018-2020, only 26-39% disclosed the impacts of those risks and opportunities during this period).

- Products or services;
- Suppliers and other parties in its value chain;
- Activities to mitigate or adapt to climate-related risks, including adoption of new technologies or processes;
- Expenditure for research and development; and
- Any other significant changes or impacts.²²³

A registrant would also be required to disclose the time horizon for each described impact (*i.e.*, as manifested in the short, medium, or long term, as defined by the registrant when determining its material climate-related risks).²²⁴

The proposed rules would require a registrant to discuss how it has considered the identified impacts as part of its business strategy, financial planning, and capital allocation.²²⁵ A registrant would be required to provide both current and forward-looking disclosures²²⁶ that facilitate an understanding of whether the implications of the identified climate-related risks have been integrated into the registrant’s business model or strategy, including how resources are being used to mitigate climate-related risks.²²⁷ The discussion must also include how any of the metrics referenced in proposed Rule 14-02 of Regulation S-X and Item 1504 of Regulation S-K or any of the targets referenced in proposed Item 1506 relate to the registrant’s business model or business strategy.²²⁸

²²³ See proposed 17 CFR 229.1502(b)(1).

²²⁴ See proposed 17 CFR 229.1502(b)(2).

²²⁵ See proposed 17 CFR 229.1502(c).

²²⁶ See *infra* Sections II.C.3 and 4, II.E, II.G.1, and II.I regarding the application to forward-looking climate disclosures of the PSLRA safe harbor for forward-looking statements.

²²⁷ See *id.*

²²⁸ See *infra* Sections II.F and II.G for a discussion of the proposed metrics and targets.

For example, a registrant that operates in a jurisdiction that has imposed or is likely to impose limits on GHG emissions in support of the Paris Agreement might set a long-term target of net zero GHG emissions from its operations in 2050, a medium-term target of reducing its emissions by 30 percent by 2030, and a short-term target of maintaining its emissions at its 2020 rate through 2023. This registrant could face material transition risks due to the estimated costs of the operational changes expected to be implemented to achieve these targets. The registrant would be required to disclose these transition risks and their impacts on its strategy, business model, and outlook.

Some of the described impacts would likely be common across industries and may involve reducing a registrant's Scopes 1 and 2 GHG emissions²²⁹ and incurring increased expenses in the short term related to, for example, acquiring new technology to curb its operational emissions and increasing the amount of electricity purchased from renewable sources. Other described impacts of material transition risks, however, would likely vary by industry. For example, an oil company might determine that a likely change in demand for fossil fuel-based products would require it to modify its business model or alter its product mix to emphasize advanced diesel gas and biofuels in order to maintain or increase its earning capacity, thereby requiring disclosure under the proposed rules. An electric utilities company might disclose an increase in the amount of electricity generated from less carbon-intensive sources, such as wind turbines, nuclear, hydroelectric, or solar power to meet current or likely regulatory constraints.

²²⁹ See *supra* Section I.D.2 and *infra* Section II.G for a discussion of Scopes 1 and 2 emissions.

A registrant would also be required to disclose the material impacts of physical risks on its strategy, business model, and outlook. For example, an agricultural producer or distributor might disclose the likely impacts of drought on its own product mix or that of its suppliers, including increased expenses for additional water or due to the procurement of alternative product sources. Similarly, a mining company that operates in areas susceptible to extreme rise in temperatures might disclose the likely impacts that this temperature rise has on its workforce and on its production schedule, including a reduction in output and future earning capacity. A real estate company that owns coastal property might disclose the likely impacts of rising sea levels on such property, including the potential diminution in value of, and a potential change in its strategy and outlook regarding, such properties.

The proposed rules would require a registrant to provide a narrative discussion of whether and how any of its identified climate-related risks described in response to proposed Item 1502(a) have affected or are reasonably likely to affect the registrant's consolidated financial statements.²³⁰ The discussion should include any of the financial statement metrics disclosed pursuant to proposed Regulation S-X Rule 14-02.²³¹ As previously noted, many commenters recommended that we require registrants to discuss and analyze their quantitative climate data in a manner similar to that required for MD&A.²³² Proposed 17 CFR 229.1502(d) (Item 1502(d) of Regulation S-K) is intended to provide climate-related disclosure that is similar

²³⁰ See proposed 17 CFR 229.1502(d). To the extent that the proposed narrative discussion is provided in its MD&A, a registrant could incorporate by reference that part of the MD&A into the Climate-Related Disclosure section of the registration statement or report. See *supra* Section II.A.2.

²³¹ See *infra* Section II.F.

²³² See *supra* note 171.

to MD&A, although, as previously noted, a registrant may provide such disclosure as part of its MD&A.

For example, an automobile manufacturer might discuss an increase in operating costs or capital expenditures due to the need to revamp its assembly lines to build lower emission vehicles to comply with new regulatory guidelines or to meet changing consumer demand. An oil company might discuss a change in the valuation of its proven reserves because of an anticipated reduced demand for fossil fuels. A freight company might discuss impairment charges or early write-offs for older equipment it might need to replace due to anticipated changes in regulation or policy favoring lower emissions equipment. While a registrant may currently have an obligation to make some of these disclosures pursuant to Regulation S-X, the disclosed impacts in the financial statements may not be in disaggregated form and may lack explanation. Proposed Item 1502(d) would require the disclosure in the form of a narrative analysis akin to MD&A that would be more easily accessible for investors.

Moreover, it is likely that any disclosed impacts in the financial statements would be assessed for the fiscal years presented in the financial statements with a focus on near short-term impacts. Because proposed Item 1502 would require a registrant to identify material climate-related impacts that may manifest in the short, medium, and long term, a registrant's narrative discussion of the likely climate-related impacts on its consolidated financial statements should cover more than just short-term impacts. For example, if a registrant has a transition plan²³³ that includes the development of lower carbon products and processes, that registrant might disclose that it expects to incur higher initial capital costs to implement its strategy, but anticipates

²³³ See *infra* Section II.E for proposed disclosure requirements regarding the use of a transition plan.

increased revenues or reduced expenses over the longer term. An automobile manufacturer that transitions from the production of internal combustion engine vehicles to the production of electric vehicles might disclose that it expects to incur costs in the short term to change its manufacturing processes, but over the longer term, it expects to realize increased sales, protect its market share against transition risks, including reputational risks, and potentially avoid regulatory fines or other costs as consumer and regulatory demands change.

2. Disclosure of Carbon Offsets or Renewable Energy Credits If Used

If, as part of its net emissions reduction strategy, a registrant uses carbon offsets or renewable energy credits or certificates (“RECs”), the proposed rules would require it to disclose the role that carbon offsets or RECs play in the registrant’s climate-related business strategy.²³⁴ Under the proposed rules, carbon offsets represent an emissions reduction or removal of greenhouse gases in a manner calculated and traced for the purpose of offsetting an entity’s GHG emissions.²³⁵ We are proposing to define a REC, consistent with the EPA’s commonly used definition, to mean a credit or certificate representing each purchased megawatt-hour (1 MWh or 1000 kilowatt-hours) of renewable electricity generated and delivered to a registrant’s power grid.²³⁶ While both carbon offsets and RECs represent commonly used GHG emissions mitigation options for companies, they are used for somewhat different purposes.²³⁷

²³⁴ See proposed 17 CFR 229.1502(c).

²³⁵ See proposed 17 CFR 229.1500(a).

²³⁶ See proposed 17 CFR 229.1500(n). See, e.g., EPA, *Offsets and RECs: What's the Difference?*, available at https://www.epa.gov/sites/default/files/2018-03/documents/gpp_guide_recs_offsets.pdf.

²³⁷ A company may purchase carbon offsets to address its direct and indirect GHG emissions (*i.e.*, its Scopes 1, 2, and 3 emissions) by verifying global emissions reductions at additional, external projects. The reduction in

Some registrants might plan to use carbon offsets or RECs as their primary means of meeting their GHG reduction goals, including those formulated in response to government law or policy or customer or investor demands. Other registrants, including those that set Science Based Targets pursuant to the Science Based Targets Initiative,²³⁸ might develop strategies to reduce their emissions to the extent possible through operational changes—such as modifications to their product offerings or the development of solar or other renewable energy sources. They then might plan to use carbon offsets or RECs to offset the remainder of their emissions that they cannot reduce through operational changes or to meet their GHG reduction goals while they transition to lower carbon operations.

Understanding the role that carbon offsets or RECs play in a registrant’s climate-related business strategy can help investors gain useful information about the registrant’s strategy, including the potential risks and financial impacts. A registrant that relies on carbon offsets or RECs to meet its goals might incur lower expenses in the short term but could expect to continue to incur the expense of purchasing offsets or RECs over the long term. It also could bear the risk

GHG emissions from one place (“offset project”) can be used to “offset” the emissions taking place somewhere else (at the company’s operations). *See, e.g., EPA, Offsets and RECs: What's the Difference?*, available at https://www.epa.gov/sites/default/files/2018-03/documents/gpp_guide_recs_offsets.pdf. In contrast, a company may purchase a REC in renewable electricity markets solely to address its indirect GHG emissions associated with purchased electricity (*i.e.*, Scope 2 emissions) by verifying the use of zero- or low-emissions renewable sources of electricity. Each REC provides its owner exclusive rights to the attributes of one megawatt-hour of renewable electricity whether that renewable electricity has been installed on the company’s facilities or produced elsewhere. *See id.*

²³⁸ Science Based Targets Initiative (“SBTi”) is a partnership between CDP, the United Nations Global Compact, World Resources Institute (WRI) and the World Wide Fund for Nature (WWF), which defines and promotes best practice in emissions reductions and net-zero targets in line with climate science. SBTi provides technical assistance and its expertise to companies who voluntarily set science-based targets in line with the latest climate science. *See SBTi, Who We Are/What We Do*, available at <https://sciencebasedtargets.org/about-us#who-we-are>. The SBTi does not permit offsets to be counted toward a company’s emission reduction targets to meet its science-based targets but does permit offsets by companies that wish to finance additional emission reductions beyond their science-based targets. *See SBTi Criteria and Recommendations* (Apr. 2020), available at <https://sciencebasedtargets.org/resources/legacy/2019/03/SBTi-criteria.pdf>.

of increased costs of offsets or RECs if increased demand for offsets or RECs creates scarcity and higher costs to acquire them over time. Alternatively, the value of an offset may decrease substantially and suddenly if, for example, the offset represents protected forest land that burns in a wildfire and no longer represents a reduction in GHG emissions. In that case, the registrant may need to write off the offset and purchase a replacement. In other cases, increased demand for, or scarcity of, offsets and RECs may benefit a registrant that produces or generates offsets or RECs to the extent their prices increase. Accordingly, under the proposed rules, a registrant that purchases offsets or RECs to meet its goals as it makes the transition to lower carbon products would need to reflect this additional set of short and long-term costs and risks in its Item 1502 disclosure, including the risk that the availability or value of offsets or RECs might be curtailed by regulation or changes in the market.

3. Disclosure of a Maintained Internal Carbon Price

Some registrants may use an internal carbon price when assessing climate-related factors. Under the proposed definition, an internal carbon price is an estimated cost of carbon emissions used internally within an organization.²³⁹ Internal carbon pricing may be used by a registrant, among other purposes, as a planning tool to help identify climate-related risks and opportunities, as an incentive to drive energy efficiencies to reduce costs, to quantify the potential costs the company would incur should a carbon price be put into effect, and to guide capital investment decisions. If a registrant uses an internal carbon price, the proposed rules would require it to disclose:

²³⁹ See proposed 17 CFR 229.1500(j).

- The price in units of the registrant’s reporting currency per metric ton of carbon dioxide equivalent (“CO₂e”);²⁴⁰
- The total price, including how the total price is estimated to change over time, if applicable;
- The boundaries for measurement of overall CO₂e on which the total price is based (if different from the GHG emission organizational boundary required pursuant to 17 CFR 229.1504(e)(2);²⁴¹ and
- The rationale for selecting the internal carbon price applied.²⁴²

These proposed items of disclosure would help investors understand the rationale and underlying assumptions for a registrant’s internal carbon price and help them assess whether the registrant’s use of an internal carbon price as a planning tool is reasonable and effective.

A registrant would also be required to describe how it uses its disclosed internal carbon price to evaluate and manage climate-related risks.²⁴³ If a registrant uses more than one internal carbon price, the proposed rules would require it to provide disclosures for each internal carbon price, and to disclose its reasons for using different prices.²⁴⁴ For example, a registrant might disclose that it uses different internal carbon prices when considering different climate-related

²⁴⁰ See *infra* Section II.G for a discussion of our proposal to use CO₂e as a unit of measurement in the proposed requirements.

²⁴¹ See *infra* Section II.G.2 for a discussion of the proposed requirements for determining the GHG emission organizational boundary.

²⁴² See proposed 17 CFR 229.1502(e)(1).

²⁴³ See proposed 17 CFR 229.1502(e)(2).

²⁴⁴ See proposed 17 CFR 229.1502(e)(3).

scenarios to help it develop an appropriate business strategy over the short-, medium-, and long-term.²⁴⁵

Commenters that addressed the topic of carbon price generally supported requiring its disclosure in some form, such as: (i) establishing a broad-based carbon price; (ii) requiring companies to maintain and disclose an internal carbon price; (iii) requiring disclosure of any internal carbon price already used by a company; or (iv) requiring disclosure of carbon prices used in the context of scenario analysis.²⁴⁶ One commenter referred to disclosure of a company's use of internal carbon pricing as one of several "foundational climate disclosures" that should be required in any Commission rule.²⁴⁷ Another commenter also underscored the importance of this information, stating that "the thorough quantification of climate risk has been hampered by the lack of carbon pricing."²⁴⁸ We agree with commenters that supported the disclosure of carbon pricing as a key data point for evaluating how a registrant is planning for and managing climate-related risks. However, the proposed rules would not require registrants to maintain an internal carbon price or to mandate a particular carbon pricing methodology. We are aware that many registrants may not currently track this information and recognize that a robust carbon market on which to base such a price may not exist in many contexts.²⁴⁹ Accordingly, the proposed

²⁴⁵ See *infra* Section II.C.4 for the proposed disclosure required if a registrant uses scenario analysis.

²⁴⁶ See, e.g., letters from Rob Bonta, California Attorney General, on behalf of several state attorney generals (June 14, 2021); Catavento; Center for Climate and Energy Solutions; Ceres; Climate Risk Disclosure Lab; Hermes Equity Ownership Services Limited; Majedie Asset Management; Managed Funds Association; Norges Bank Investment Management; Open Source Climate; PRI (Consultation Response); Regenerative Crisis Response Committee; Total Energies (June 13, 2021); and Trillium Asset Management. *But see* Edison Electric Institute (stating that a "robust carbon market" does not exist today" and disclosures based on that market would be "fraught with risk").

²⁴⁷ Letter from Ceres.

²⁴⁸ Letter from PRI.

²⁴⁹ See Edison Electric Institute.

disclosures would be required only if the registrant otherwise maintains an internal carbon price. For similar reasons, we have not proposed requiring a specific methodology for setting an internal carbon price.

Registrants may choose to use an internal carbon price when quantifying, analyzing, and assessing the financial impacts of climate-related risks and climate-related opportunities. For example, an internal carbon price helps monetize emissions by converting emissions data from CO₂e into a value in the registrant's reporting currency. A registrant may determine that monetization is useful when assessing the costs and benefits of its possible climate-related strategies, as it effectively puts a price on the emission impacts. Disclosure of an internal carbon price, when used by a registrant, would provide investors with material information regarding how the registrant developed a particular business strategy to mitigate or adapt to identified climate-related risks and would help quantify for investors at least part of the transition risks faced by a registrant. We believe that this proposed disclosure requirement would help investors assess whether a registrant's internal carbon pricing practice is reasonable and whether its overall evaluation and planning regarding climate-related factors is sound.²⁵⁰

A registrant's disclosure of any internal carbon price necessarily would include assumptions about future events. The carbon price applied should not be viewed as a promise or guarantee with regard to the future costs to the registrant of GHG emissions. Moreover, to the extent that certain information regarding a registrant's internal carbon pricing would constitute

²⁵⁰ We also note, based on current voluntary reporting, an increasing trend among public companies to use internal carbon pricing. See CDP, *Putting a Price on Carbon* (2021), available at https://cdn.cdp.net/cdp-production/cms/reports/documents/000/005/651/original/CDP_Global_Carbon_Price_report_2021.pdf?1618938446.

forward-looking statements, the PSLRA safe harbors would apply to such statements, assuming all other statutory requirements for those safe harbors are satisfied.

4. Disclosure of Scenario Analysis, if Used

We are proposing to require a registrant to describe the resilience of its business strategy in light of potential future changes in climate-related risks. A registrant also would be required to describe any analytical tools, such as scenario analysis, that the registrant uses to assess the impact of climate-related risks on its business and consolidated financial statements, or to support the resilience of its strategy and business model in light of foreseeable climate-related risks.²⁵¹ Scenario analysis is a process for identifying and assessing a potential range of outcomes of future events under conditions of uncertainty.²⁵² The proposed definition of scenario analysis both states that (i) when applied to climate-related assessments, scenario analysis is a tool used to consider how, under various possible future climate scenarios, climate-related risks may impact a registrant’s operations, business strategy, and consolidated financial statements over time; and that (ii) registrants might use scenario analysis to test the resilience of their strategies under future climate scenarios, including scenarios that assume different global temperature increases, such as, for example, 3 °C, 2 °C, and 1.5 °C above pre-industrial levels.²⁵³

²⁵¹ See proposed 17 CFR 229.1502(f).

²⁵² See, e.g., the definition of “scenario analysis” in TCFD, [Recommendations of the Task Force on Climate-related Financial Disclosures](#).

²⁵³ See proposed 17 CFR 229.1500(o).

Many commenters recommended that we require a registrant to conduct scenario analysis and disclose the results of such analysis.²⁵⁴ One commenter stated that scenario analysis was useful because it allows companies to test their business strategy against a spectrum of hypothetical future climate scenarios and develop a better informed view of implications for their enterprise value and value chains. The same commenter further indicated that disclosure of the scenarios used by a company was necessary to inform investors about the reliability, reasonableness, and resiliency of the company’s plans to address climate-related risks and opportunities.²⁵⁵

Another commenter stated that the Commission should require disclosure of a registrant’s climate scenario analysis by no later than 2025, and recommended that companies engage in scenario analysis involving a base case, worse case, better case, and “Black Swan” scenarios related to possible climate transition pathways.²⁵⁶ Alternatively, the commenter suggested that a company take into account three scenarios: a smooth economic transition to +1.5 °C, which would form the basis of the company’s net-zero strategy; a disorderly and, therefore, more costly and disruptive transition to +1.5 °C; and a higher temperature scenario outcome of +3 °C of warming, which would be associated with extreme physical effects and unprecedented economic costs and disruption. This commenter further stated that robust disclosure of a company’s

²⁵⁴ See, e.g., letters from AllianceBernstein; Americans for Financial Reform Education Fund; R. Ted Atwood (June 23, 2021); BlackRock; Bloomberg, LP; Boston Common Asset Management; Cardano Risk Management Ltd.; Certified B Corporations; Climate Governance Initiative; Climate Risk Disclosure Law and Policy Lab (June 14, 2021); Consumer Federation of America; CPP Investments; E2; ERM CVS; FAIRR Initiative; Forum for Sustainable and Responsible Investment (June 11, 2021); Friends of the Earth *et al.*; George Georgiev; Global Equity Strategy (June 14, 2021); Impax Asset Management; Invesco; Christopher Lish; NY State Comptroller; PRI (Consultation Response); Revolving Door Project; RMI; Trillium Asset Management; UNEP; and Sens. Elizabeth Warren and Rep. Sean Casten (June 11, 2021).

²⁵⁵ See letter from Bloomberg.

²⁵⁶ See letter from Climate Governance Initiative.

scenario analysis was necessary so that investors can understand how longer-term “climate drivers” have been incorporated into its corporate strategy and financial disclosures.²⁵⁷

Another commenter expressed the view that, although many companies purport to use scenario analysis in the climate context, their reporting regarding such use has been generally deficient. That commenter stated that the assumptions underlying the selected scenarios often are undisclosed and that the analysis tends to be limited and not usefully comparable.²⁵⁸ The TCFD’s most recent assessment of public companies’ voluntary climate reporting similarly found that only a small percentage of the surveyed companies disclosed the resilience of their strategies using scenario analysis as recommended by the TCFD.²⁵⁹

Some commenters recommended providing certain accommodations in connection with a scenario analysis requirement, such as creating a safe harbor for scenario analysis disclosure²⁶⁰ or permitting scenario analysis to be furnished in a separate report that would not be subject to the same liability as Commission filings.²⁶¹ Other commenters stated that they opposed a scenario analysis requirement because of the lack of a common methodology for scenario analysis;²⁶² a belief that the underlying methodology would be too difficult for investors to

²⁵⁷ *See id.*

²⁵⁸ *See* letter from Ceres. The CDP similarly reported that, although 54% of the 9600+ companies that responded to their questionnaires in 2020 reported engaging in scenario analysis, 14% of the companies only considered one scenario with many others considering only slight variations of one scenario. *See* CDP, *3 common pitfalls of using scenario analysis – and how to avoid them* (Mar. 10, 2021), available at <https://www.cdp.net/en/articles/companies/3-common-pitfalls-companies-make-when-using-scenario-analysis-and-how-to-avoid-them>.

²⁵⁹ *See* TCFD, 2021 Status Report, Section B (indicating that, during 2018-2020, only 5-13% of the surveyed companies disclosed the resilience of their strategies using scenario analysis).

²⁶⁰ *See* letter from J. Robert Gibson.

²⁶¹ *See* letter from NEI Investments.

²⁶² *See* letter from Information Technology Industry Council.

understand;²⁶³ the need for further development of scenario analysis as a discipline;²⁶⁴ or a belief that the focus of climate-related disclosure should be on historical data, and not on forward-looking information.²⁶⁵

We agree with those commenters who stated that information concerning scenario analysis could help investors evaluate the resilience of the registrant's business strategy in the face of various climate scenarios that could impose potentially different climate-related risks. We are not, however, proposing to mandate that registrants conduct scenario analysis. We recognize that not every registrant conducts scenario analysis and that, in certain instances, it may be costly or difficult for some registrants to conduct such scenario analysis. Instead, the proposed rules would require that if a registrant uses scenario analysis or any analytical tools to assess the impact of climate-related risks on its business and consolidated financial statements, and to support the resilience of its strategy and business model, the registrant must disclose certain information about such analysis.²⁶⁶ We believe this approach strikes an appropriate balance between the various positions expressed by commenters by requiring registrants to share any scenario analysis that they are otherwise conducting for their business operations while avoiding imposing a potentially difficult or burdensome requirement on those registrants that have not yet undertaken to conduct such analysis.

If a registrant uses scenario analysis, the proposed amendments would require disclosure of the scenarios considered (*e.g.*, an increase of no greater than 3 °, 2 °, or 1.5 °C above pre-

²⁶³ See letter from Dimensional Fund Advisors.

²⁶⁴ See letter from bp.

²⁶⁵ See letter from Nareit (June 11, 2021).

²⁶⁶ See proposed 17 CFR 229.1502(f). One commenter recommended requiring the disclosure of the results of scenario analysis if a registrant has engaged in such analysis. See letter from E3G.

industrial levels), including parameters, assumptions, and analytical choices, and the projected principal financial impacts on the registrant’s business strategy under each scenario. The disclosure should include both quantitative and qualitative information. Disclosure of the parameters, assumptions, and analytical choices involved in the described scenarios would help investors better understand the various considered scenarios and help them evaluate whether the registrant has a plan to manage the climate-related risks posed by each scenario.

Because a registrant’s scenario analysis disclosure would necessarily include predictions and other forward-looking statements based on assumptions concerning future events, we believe that the PSLRA forward-looking safe harbors would apply to much of the disclosure concerning scenario analysis provided the other statutory conditions for application of the safe harbor are met.

We note that there are a number of publicly-available climate-related scenarios that could form the basis of a registrant’s scenario analysis. The TCFD has categorized these scenarios as transition scenarios and physical climate scenarios.²⁶⁷ If a registrant uses scenario analysis to assess the resilience of its business strategy to climate-related risks, investors may benefit from the use of scientifically based, widely accepted scenarios, such as those developed by the IPCC, International Energy Agency (“IEA”),²⁶⁸ or Network of Central Banks and Supervisors for Greening the Financial System (“NGFS”).²⁶⁹ Investors may also benefit by the use of more than

²⁶⁷ See TCFD, Technical Supplement, *The Use of Scenario Analysis in Disclosure of Climate-Related Risks and Opportunities* (June 2017), available at <https://assets.bbhub.io/company/sites/60/2020/09/2020-TCFD-Guidance-Scenario-Analysis-Guidance.pdf>.

²⁶⁸ The TCFD has summarized a number of publicly available scenario analysis models, with particular emphasis on the transition scenarios developed by the IEA and the physical risk scenarios developed by the IPCC. See *id.* at Appendix 1: IEA and IPCC Climate Scenarios.

²⁶⁹ See NGFS, *Scenarios Portal*, available at <https://www.ngfs.net/ngfs-scenarios-portal/>.

one climate scenario, including one that assumes a disorderly transition (*i.e.*, one that assumes that climate policies are delayed or divergent across countries and industrial sectors, resulting in higher transition risks to companies). These could enhance the reliability and usefulness of the scenario analysis for investors.

Request for Comment

19. Should we require a registrant to describe the actual and potential impacts of its material climate-related risks on its strategy, business model, and outlook, as proposed? Should we require a registrant to disclose impacts from climate-related risks on, or any resulting significant changes made to, its business operations, including the types and locations of its operations, as proposed?

20. Should we require a registrant to disclose climate-related impacts on, or any resulting significant changes made to, its products or services, supply chain or value chain, activities to mitigate or adapt to climate-related risks, including adoption of new technologies or processes, expenditure for research and development, and any other significant changes or impacts, as proposed? Are there any other aspects of a registrant's business operations, strategy, or business model that we should specify as being subject to this disclosure requirement to the extent they may be impacted by climate-related factors?

21. Should we require a registrant to specify the time horizon applied when assessing its climate-related impacts (*i.e.*, in the short, medium, or long term), as proposed?

22. Should we require a registrant to discuss whether and how it considers any of the described impacts as part of its business strategy, financial planning, and capital allocation, as proposed? Should we require a registrant to provide both current and forward-looking disclosures to facilitate an understanding of whether the implications of the identified climate-

related risks have been integrated into the registrant's business model or strategy, as proposed? Would any of the proposed disclosures present competitive concerns for registrants? If so, how can we mitigate such concerns?

23. Should we require the disclosures to include how the registrant is using resources to mitigate climate-related risks, as proposed? Should the required discussion also include how any of the metrics or targets referenced in the proposed climate-related disclosure subpart of Regulation S-K or Article 14 of Regulation S-X relate to the registrant's business model or business strategy, as proposed? Should we require additional disclosures if a registrant leverages climate-related financing instruments, such as green bonds or other forms of "sustainable finance" such as "sustainability-linked bonds," "transition bonds," or other financial instruments linked to climate change as part of its strategy to address climate-related risks and opportunities? For example, should we require disclosure of the climate-related projects that the registrant plans to use the green bond proceeds to fund? Should we require disclosure of key performance metrics tied to such financing instruments?

24. If a registrant has used carbon offsets or RECs, should we require the registrant to disclose the role that the offsets or RECs play in its overall strategy to reduce its net carbon emissions, as proposed? Should the proposed definitions of carbon offsets and RECs be clarified or expanded in any way? Are there specific considerations about the use of carbon offsets or RECs that we should require to be disclosed in a registrant's discussion regarding how climate-related factors have impacted its strategy, business model, and outlook?

25. Should we require a registrant to provide a narrative discussion of whether and how any of its identified climate-related risks have affected or are reasonably likely to affect its consolidated financial statements, as proposed? Should the discussion include any of the

financial statement metrics in proposed 17 CFR 210.14-02 (14-02 of Regulation S-X) that demonstrate that the identified climate-related risks have had a material impact on reported operations, as proposed? Should the discussion include a tabular representation of such metrics?

26. Should we require registrants to disclose information about an internal carbon price if they maintain one, as proposed? If so, should we require that the registrant disclose:

- The price in units of the registrant's reporting currency per metric ton of CO₂e;
- The total price;
- The boundaries for measurement of overall CO₂e on which the total price is based if different from the GHG emission organizational boundary required pursuant to 17 CFR 210.14-03(d)(4); and
- The rationale for selecting the internal or shadow carbon price applied, as proposed?

Should we also require registrants to describe the methodology used to calculate its internal carbon price?

27. Should we also require a registrant to disclose how it uses the described internal carbon price to evaluate and manage climate-related risks, as proposed? Should we further require a registrant that uses more than one internal carbon price to provide the above disclosures for each internal carbon price, and disclose its reasons for using different prices, as proposed? Are there other aspects regarding the use of an internal carbon price that we should require to be disclosed? Would disclosure regarding any internal carbon price maintained by a registrant elicit important or material information for investors? Would requiring the disclosure of the registrant's use of an internal carbon price raise competitive harm concerns that would act as a disincentive from the use of an internal carbon price? If so, should the Commission provide an accommodation

that would mitigate those concerns? For example, are there exceptions or exemptions to an internal carbon price disclosure requirement that we should consider?

28. To the extent that disclosure that incorporates or is based on an internal carbon price constitutes forward-looking information, the PSLRA safe harbors would apply. Should we adopt a separate safe harbor for internal carbon price disclosure? If so, what disclosures should such a safe harbor cover and what should the conditions be for such a safe harbor?

29. Should we require all registrants to disclose an internal carbon price and prescribe a methodology for determining that price? If so, what corresponding disclosure requirements should we include in connection with such mandated carbon price? What methodology, if any, should we prescribe for calculating a mandatory internal or shadow carbon price? Would a different metric better elicit disclosure that would monetize emissions?

30. Should we require a registrant to disclose analytical tools, such as scenario analysis, that it uses to assess the impact of climate-related risks on its business and consolidated financial statements, and to support the resilience of its strategy and business model, as proposed? What other analytical tools do registrants use for these purposes, and should we require disclosure of these other tools? Are there other situations in which some registrants should be required to conduct and provide disclosure of scenario analysis? Alternatively, should we require all registrants to provide scenario analysis disclosure? If a registrant does provide scenario analysis disclosure, should we require it to follow certain publicly available scenario models, such as those published by the IPCC, the IEA, or NGFS and, if so, which scenarios? Should we require a registrant providing scenario analysis disclosure to include the scenarios considered (*e.g.*, an increase of global temperature of no greater than 3 °, 2 °, or 1.5 °C above pre-industrial levels), the parameters, assumptions, and analytical choices, and the projected principal financial impacts

on the registrant's business strategy under each scenario, as proposed? Are there any other aspects of scenario analysis that we should require registrants to disclose? For example, should we require a registrant using scenario analysis to consider a scenario that assumes a disorderly transition? Is there a need for us to provide additional guidance regarding scenario analysis? Are there any aspects of scenario analysis in our proposed required disclosure that we should exclude? Should we also require a registrant that does not use scenario analysis to disclose that it has not used this analytical tool? Should we also require a registrant to disclose its reasons for not using scenario analysis? Will requiring disclosure of scenario analysis if and when a registrant performs scenario analysis discourage registrants from conducting scenario analysis? If so, and to the extent scenario analysis is a useful tool for building strategic resilience, how could our regulations prevent such consequences?

31. Would the PSLRA forward-looking statement safe harbors provide adequate protection for the proposed scenario analysis disclosure? Should we instead adopt a separate safe harbor for scenario analysis disclosure? If so, what disclosures should such a safe harbor cover that would not be covered by the PSLRA safe harbors and what should the conditions be for such a safe harbor?

32. Should we adopt a provision similar to 17 CFR 229.305(d) that would apply the PSLRA forward-looking statement safe harbor to forward-looking statements made in response to specified climate-related disclosure items, such as proposed Item 1502 and Item 1505 (concerning targets and goals) of Regulation S-K? If so, which proposed items should we specifically include in the safe harbor?

33. As proposed, a registrant may provide disclosure regarding any climate-related opportunities when responding to any of the provisions under proposed 17 CFR 229.1502 (Item

1502). Should we require disclosure of climate-related opportunities under any or all of the proposed Item 1502 provisions?

D. Governance Disclosure

Similar to the TCFD framework, the proposed rules would require a registrant to disclose, as applicable, certain information concerning the board's oversight of climate-related risks, and management's role in assessing and managing those risks.²⁷⁰ Many commenters asserted that climate-related issues should be subject to the same level of board oversight as other financially material matters.²⁷¹ Most of these commenters supported robust disclosure of a board's and management's governance of climate-related risks and opportunities, consistent with the TCFD framework.²⁷²

Our proposed disclosure requirements are based on specific recommendations of the TCFD. We agree with commenters that a comprehensive understanding of a board's oversight, and management's governance, of climate-related risks is necessary to aid investors in evaluating

²⁷⁰ See proposed 17 CFR 229.1501.

²⁷¹ See, e.g., letters from Americans for Financial Reform Education Fund; Baillie Gifford; Andrew Behar; Bloomberg, LP; Canadian Coalition for Good Governance; Cardano Risk Management Ltd.; CDP NA (June 11, 2021); Center for American Progress; CAQ; Ceres *et al.*; Climate Disclosure Standards Board (June 14, 2021); Climate Governance Initiative; Climate Risk Disclosure Lab; Eni SpA; ERM CVS; Friends of the Earth, Amazon Watch, and Rainforest Action Network (June 11, 2021); Regenerative Crisis Response Committee; Hermes Equity Ownership Limited; William and Flora Hewlett Foundation (June 9, 2021); Impax Asset Management; Institute of Internal Auditors (May 23, 2021); Institutional Shareholder Services (June 14, 2021); Interfaith Center on Corporate Responsibility; International Corporate Governance Network; Morningstar, Inc.; International Organization for Standardization (June 11, 2021); Natural Resources Defense Council; NEI Investments; NY City Comptroller (June 14, 2021); NY State Comptroller; NY State Department of Financial Services (June 14, 2021); Oregon State Treasury (June 4, 2021); PRI (Consultation Response); Pricewaterhouse Coopers; Revolving Door Project (June 11, 2021); George Serafeim (June 9, 2021); Maria Stoica; TotalEnergies (June 13, 2021); Value Balancing Alliance; WBCSD; and World Benchmarking Alliance.

²⁷² See, e.g., letters from Baillie Gifford; Bloomberg, LP; Ceres *et al.*; Climate Disclosure Standards Board; Climate Governance Initiative; Climate Risk Disclosure Lab; Eni SpA; William and Flora Hewlett Foundation; Impax Asset Management; Institute for Governance and Sustainable Development; International Corporate Governance Network; Richard Love; Morningstar, Inc.; Natural Resources Defense Council; NEI Investments; NY State Comptroller; Maria Stoica; TotalEnergies; and WBCSD. *But see* letter from Amanda Rose (stating that federalizing aspects of corporate governance could inhibit the ability of states to compete for corporate charters).

the extent to which a registrant is adequately addressing the material climate-related risks it faces, and whether those risks could reasonably affect the value of their investment.²⁷³ We also note that, despite the importance of governance disclosure, according to the TCFD, only a small percentage of issuers that voluntarily provided climate-related information presented governance disclosure aligned with the TCFD's recommendations.²⁷⁴ While the proposed rules are intended to provide investors with additional insight into a board's and management's governance of climate-related risks, they are similar to the Commission's existing rules under Regulation S-K that call for disclosure about corporate governance in that they are intended to provide investors with relevant information about a registrant's board, management, and principal committees.²⁷⁵

1. Board Oversight

The proposed rules would require a registrant to disclose a number of board governance items, as applicable. The first item would require a registrant to identify any board members or board committees responsible for the oversight of climate-related risks.²⁷⁶ The responsible board committee might be an existing committee, such as the audit committee or risk committee, or a separate committee established to focus on climate-related risks. The next proposed item would require disclosure of whether any member of a registrant's board of directors has expertise in climate-related risks, with disclosure required in sufficient detail to fully describe the nature of the expertise.²⁷⁷

²⁷³ See, e.g., letters from Bloomberg, LP; and Natural Resources Defense Council.

²⁷⁴ See TCFD, *2021 Status Report* (Oct. 2021) (finding that 9% of surveyed companies provided TCFD-recommended board disclosure in 2018, which increased to 25% in 2020; and 9% provided TCFD-recommended management disclosure in 2018, which increased to 18% in 2020).

²⁷⁵ See, e.g., 17 CFR 229.401 and 229.407.

²⁷⁶ See proposed 17 CFR 229.1501(a)(1)(i).

²⁷⁷ See proposed 17 CFR 229.1501(a)(1)(ii).

Another proposed item would require a description of the processes and frequency by which the board or board committee discusses climate-related risks.²⁷⁸ The registrant would have to disclose how the board is informed about climate-related risks, and how frequently the board considers such risks. These proposed disclosure items could provide investors with insight into how a registrant's board considers climate-related risks and any relevant qualifications of board members.²⁷⁹

The proposed rule also would require disclosure about whether and how the board or board committee considers climate-related risks as part of its business strategy, risk management, and financial oversight.²⁸⁰ This disclosure could enable an investor to understand whether and how the board or board committee considers climate-related risks when reviewing and guiding business strategy and major plans of action, when setting and monitoring implementation of risk management policies and performance objectives, when reviewing and approving annual budgets, and when overseeing major expenditures, acquisitions, and divestitures. In this way, the proposed disclosure requirement could help investors assess the degree to which a board's consideration of climate-related risks has been integrated into a registrant's strategic business and financial planning and its overall level of preparation to maintain its shareholder value.

Finally, the proposed rule would require disclosure about whether and how the board sets climate-related targets or goals and how it oversees progress against those targets or goals, including the establishment of any interim targets or goals.²⁸¹ Such a target might be, for

²⁷⁸ See proposed 17 CFR 229.1501(a)(1)(iii).

²⁷⁹ See, e.g., letters from Bloomberg, LP; NY State Comptroller; and Vanguard Group, Inc.

²⁸⁰ See proposed 17 CFR 229.1501(a)(1)(iv).

²⁸¹ See proposed 17 CFR 229.1501(a)(1)(v).

example, to achieve net-zero carbon emissions for all or a large percentage of its operations by 2050 or to reduce the carbon intensity of its products by a certain percentage by 2030 in order to mitigate transition risk. This proposed requirement would help investors evaluate whether and how a board is preparing to mitigate or adapt to any material transition risks, and whether it is providing oversight for the registrant's potential transition to a lower carbon economy. If applicable, a registrant can elect also to discuss the board's oversight of climate-related opportunities.

2. Management Oversight

Similar to the proposed required disclosures on board oversight, the proposed rules would require a registrant to disclose a number of items, as applicable, about management's role in assessing and managing any climate-related risks. For example, a registrant would be required to disclose, as applicable, whether certain management positions or committees are responsible for assessing and managing climate-related risks and, if so, to identify such positions or committees and disclose the relevant expertise of the position holders or members in such detail as necessary to fully describe the nature of the expertise.²⁸² This proposed requirement would give investors additional information to assess the extent to which management addresses climate-related risks, which could help them to make better informed investment or voting decisions.

Similar to the proposed board oversight provision described above, another proposed item would require disclosure about the processes by which the responsible managers or management committees are informed about and monitor climate-related risks.²⁸³ Such a discussion might include, for example, whether there are specific positions or committees

²⁸² See proposed 17 CFR 229.1501(b)(1)(i).

²⁸³ See proposed 17 CFR 229.1501(b)(1)(ii).

responsible for monitoring and assessing specific climate-related risks, the extent to which management relies on in-house staff with the relevant expertise to evaluate climate-related risks and implement related plans of action, and the extent to which management relies on third-party climate consultants for these same purposes.

The final proposed management governance item would require disclosure about whether the responsible positions or committees report to the board or board committee on climate-related risks and how frequently this occurs.²⁸⁴ These proposed disclosure items could help investors evaluate whether management has adequately implemented processes to identify, assess, and manage climate-related risks. If applicable, a registrant may elect also to describe management's role in assessing and managing climate-related opportunities.

Several commenters recommended that we require a registrant to disclose whether it has connected a portion of its executive remuneration with the achievement of climate-related targets or goals.²⁸⁵ Other commenters expressed the view that such a requirement is unnecessary, because a registrant could implement other measures to motivate progress towards climate-related targets²⁸⁶ or connect executive remuneration with climate-related achievements as a discretionary matter for the registrant.²⁸⁷ We are not proposing a compensation-related disclosure requirement at this time, because we believe that our existing rules requiring a compensation discussion and analysis should already provide a framework for disclosure of any

²⁸⁴ See proposed 17 CFR 229.1501(b)(1)(iii).

²⁸⁵ See, e.g., letters from Baillie Gifford; Andrew Behar; CDP; Climate Governance Initiative; E3G (June 14, 2021); Interfaith Center on Corporate Responsibility; Majedie Asset Management; NEI Investments; NY State Comptroller; PRI (Consultation Response); RMI (June 11, 2021); Maria Stoica; and Value Balancing Alliance.

²⁸⁶ See letter from Richard Love.

²⁸⁷ See letter from Western Energy Alliance (June 12, 2021).

connection between executive remuneration and achieving progress in addressing climate-related risks.²⁸⁸

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34. Should we require a registrant to describe, as applicable, the board's oversight of climate-related risks, as proposed? Should the required disclosure include whether any board member has expertise in climate-related risks and, if so, a description of the nature of the expertise, as proposed? Should we also require a registrant to identify the board members or board committee responsible for the oversight of climate-related risks, as proposed? Do our current rules, which require a registrant to provide the business experience of its board members, elicit adequate disclosure about a board member's or executive officer's expertise relevant to the oversight of climate-related risks?

35. Should we require a registrant to disclose the processes and frequency by which the board or board committee discusses climate-related risks, as proposed?

36. Should we require a registrant to disclose whether and how the board or board committee considers climate-related risks as part of its business strategy, risk management, and financial oversight, as proposed? Would the proposed disclosure raise competitive harm concerns? If so, how could we address those concerns while requiring additional information for investors about how a registrant's board oversees climate-related risks?

²⁸⁸ See 17 CFR 229.402(b) (requiring disclosure of all material elements of a registrant's executive compensation, including the objectives of the registrant's compensation programs and what each compensation program is designed to reward). Further, the Commission recently decided to reopen the comment period on rules to implement section 953(a) of the Dodd-Frank Act, which requires disclosure of the relationship between executive compensation and the performance of the issuer. See Release No. 34-94074, *Reopening of Comment Period for Pay Versus Performance* (Jan. 27, 2021).

37. Should we require a registrant to disclose whether and how the board sets climate-related targets or goals, as proposed? Should the required disclosure include how the board oversees progress against those targets or goals, including whether it establishes any interim targets or goals, as proposed? Would the proposed disclosure raise competitive harm concerns? If so, how could we address those concerns while requiring additional information for investors about how a registrant's board oversees the setting of any climate-related targets or goals?

38. Should we require a registrant to describe, as applicable, management's role in assessing and managing climate-related risks, as proposed? Should the required disclosure include whether certain management positions or committees are responsible for assessing and managing climate-related risks and, if so, the identity of such positions or committees, and the relevant expertise of the position holders or members in such detail as necessary to fully describe the nature of the expertise, as proposed? Should we require a registrant to identify the executive officer(s) occupying such position(s)? Or do our current rules, which require a registrant to provide the business experience of its executive officers, elicit adequate disclosure about management's expertise relevant to the oversight of climate-related risks?

39. Should we require a registrant to describe the processes by which the management positions or committees responsible for climate-related risks are informed about and monitor climate-related risks, as proposed? Should we also require a registrant to disclose whether and how frequently such positions or committees report to the board or a committee of the board on climate-related risks, as proposed?

40. Should we specifically require a registrant to disclose any connection between executive remuneration and the achievement of climate-related targets and goals? Is there a need for such

a requirement in addition to the executive compensation disclosure required by 17 CFR 229.402(b)?

41. As proposed, a registrant may disclose the board’s oversight of, and management’s role in assessing and managing, climate-related opportunities. Should we require a registrant to disclose these items?

E. Risk Management Disclosure

1. Disclosure of Processes for Identifying, Assessing, and Managing Climate-Related Risks

The proposed rules would require a registrant to describe any processes the registrant has for identifying, assessing, and managing climate-related risks.²⁸⁹ Risk disclosure is a long-standing disclosure concept under our regulations.²⁹⁰ Several commenters recommended that we adopt decision-useful disclosure requirements concerning a registrant’s climate-related risk management practices.²⁹¹ More granular information regarding any climate-related risk management could allow investors to better understand how a registrant identifies, evaluates, and addresses climate-related risks that may materially impact its business. Such information could also permit investors to ascertain whether a registrant has made the assessment of climate-related

²⁸⁹ See proposed 17 CFR 229.1503(a).

²⁹⁰ Risk factor disclosure has been part of the Commission’s Securities Act disclosure requirements since prior to and from adoption of its integrated disclosure system. See Release No. 33-6383, *Adoption of Integrated Disclosure System* (Mar. 3, 1982). The Commission added risk factor disclosure to its Exchange Act registration and annual reporting requirements in 2005. See Release No. 33-8591, *Securities Offering Reform* (July 19, 2005) [70 FR 44722 (Aug. 3, 2005)].

²⁹¹ See, e.g., letters from Rob Bonta, California Attorney General *et al.*; Boston Common Asset Management; Carbon Tracker Initiative; Confluence Philanthropy; Hermes Equity Ownership Services Ltd.; The Institute for Policy Integrity (“Policy Integrity”) at New York University School of Law, Environmental Defense Fund (“EDF”), the Initiative on Climate Risk and Resilience Law (“ICRRL”), and Professors Madison Condon, Jim Rossi, and Michael Vandenberg (June 14, 2021) (“Institute for Policy Integrity, Environmental Defense Fund, Initiative on Climate Risk & Resilience Law”); and Total Energies.

risks part of its regular risk management processes. Despite the importance of climate-related risk management information, only a minority of registrants currently include such information in their voluntary climate reports.²⁹²

When describing the processes for identifying and assessing climate-related risks, the registrant would be required to disclose, as applicable:

- How it determines the relative significance of climate-related risks compared to other risks;
- How it considers existing or likely regulatory requirements or policies, such as GHG emissions limits, when identifying climate-related risks;
- How it considers shifts in customer or counterparty preferences, technological changes, or changes in market prices in assessing potential transition risks; and
- How it determines the materiality of climate-related risks, including how it assesses the potential size and scope of any identified climate-related risk.²⁹³

When describing any processes for managing climate-related risks, a registrant would be required to disclose, as applicable:

- How it decides whether to mitigate, accept, or adapt to a particular risk;
- How it prioritizes addressing climate-related risks; and
- How it determines how to mitigate a high priority risk.²⁹⁴

²⁹² See TCFD, *2021 Status Report*, Section B (indicating that, during 2018-2020, 16-30% of surveyed public companies disclosed their climate risk identification and assessment processes, 14-29% disclosed their risk management processes, and 10-27% disclosed whether their climate risk management processes were integrated into their overall risk management).

²⁹³ See proposed 17 CFR 229.1503(a)(1).

²⁹⁴ See proposed 17 CFR 229.1503(a)(2).

Together, these proposed disclosures would help investors evaluate whether a registrant has implemented adequate processes for identifying, assessing, and managing climate-related risks so that they may make better informed investment or voting decisions. As part of this risk management description, if a registrant uses insurance or other financial products to manage its exposure to climate-related risks, it may need to describe its use of these products.²⁹⁵

The proposed rules would also require a registrant to disclose whether and how climate-related risks are integrated into the registrant's overall risk management system or processes.²⁹⁶ If a separate board or management committee is responsible for assessing and managing climate-related risks, a registrant would be required to disclose how that committee interacts with the registrant's board or management committee governing risks.²⁹⁷ These proposed disclosures would help investors assess whether the registrant has centralized the processes for managing climate-related risks, which may indicate to investors how the board and management may respond to such risks as they unfold.

2. Transition Plan Disclosure

Adoption of a transition plan to mitigate or adapt to climate-related risks may be an important part of a registrant's climate-related risk management strategy, particularly if it operates in a jurisdiction that has made commitments under the Paris Agreement to reduce its GHG emissions. Many commenters recommended that we require disclosure regarding a registrant's transition plan, stating that such disclosure would help investors evaluate whether a

²⁹⁵ To the extent loss of insurance coverage or increases in premiums is reasonably likely to have a material impact on the registrant, the registrant would be required to disclose that risk pursuant to proposed Item 1502(a).

²⁹⁶ See proposed 17 CFR 229.1503(b).

²⁹⁷ See *id.*

registrant has an effective strategy to achieve its short-, medium-, or long-term climate-related targets or goals.²⁹⁸

The proposed rules would define a “transition plan” to mean a registrant’s strategy and implementation plan to reduce climate-related risks.²⁹⁹ A transition plan may include a plan to reduce its GHG emissions in line with a registrant’s commitments or commitments of jurisdictions within which it has significant operations.³⁰⁰ Transition plans may also be important to registrants and their shareholders to the extent transition risk arises from changes in customer or business counterparty preferences, technological change, or changes in market prices. If a registrant has adopted a transition plan, the proposed rules would require it to describe its plan, including the relevant metrics and targets used to identify and manage physical and transition risks.³⁰¹ This information could help investors understand how a registrant intends to address identified climate-related risks and any transition to a lower carbon economy while managing and assessing its business operations and financial condition. Because transition planning inherently requires judgments and predictions about the future, forward-looking statements made as part of a registrant’s discussion of its transition plan would be eligible for the PSLRA forward-looking statement safe harbors provided all applicable conditions are met.³⁰²

If a registrant has adopted a transition plan as part of its climate-related risk management strategy, the proposed rules would require the registrant to discuss, as applicable, how it plans to

²⁹⁸ See, e.g., letters from As You Sow; BlackRock; Clean Yield Asset Management; Climate Advisers; Climate Governance Initiative; Fiends of the Earth *et al*; Institute for Governance and Sustainable Development; Miller/Howard Investments; Trillium Asset Management; and World Benchmarking Alliance.

²⁹⁹ See proposed 17 CFR 229.1500(s).

³⁰⁰ See *id.*

³⁰¹ See proposed 17 CFR 229.1503(c)(1).

³⁰² See *supra* note 219.

mitigate or adapt to any physical risks identified in the filing, including but not limited to those concerning exposure to sea level rise, extreme weather events, wildfires, drought, and severe heat.³⁰³ For example, a company with significant operations in areas vulnerable to sea level rise might plan to relocate its vulnerable operations as part of any transition plan. A company operating in areas subject to severe storms might have a transition plan that includes reinforcing its physical facilities to better withstand such weather events, or a plan to relocate those facilities. An agricultural producer that operates in areas subject to increasing water stress might discuss its plans to adjust its business strategy or operations, for example by developing or switching to drought-resistant crops, developing technologies to optimize the use of available water, or acquiring land in other areas.³⁰⁴

The proposed rules would also require a registrant that has adopted a transition plan as part of its climate-related risk management strategy to discuss, as applicable, how it plans to mitigate or adapt to any identified transition risks, including the following:

- Laws, regulations, or policies that:
 - Restrict GHG emissions or products with high GHG footprints, including emissions caps,³⁰⁵ or
 - Require the protection of high conservation value land or natural assets;³⁰⁶

³⁰³ See proposed 17 CFR 229.1503(c)(2)(i).

³⁰⁴ A registrant would be required to disclose the expected impact of any potential reduction on its results of operations or financial condition pursuant to proposed 17 CFR 229.1502 to the extent it believes the likely impact would be material. Such quantified disclosure may be eligible for the PSLRA safe harbors if the conditions of the safe harbors are met.

³⁰⁵ See proposed 17 CFR 229.1503(c)(2)(ii)(A)(1).

³⁰⁶ See proposed 17 CFR 229.1503(c)(2)(ii)(A)(2).

- Imposition of a carbon price;³⁰⁷ and
- Changing demands or preferences of consumers, investors, employees, and business counterparties.³⁰⁸

While each of these transition risks may not be applicable to each registrant and its particular transition plan, the above examples are intended to guide registrants in providing meaningful disclosure about its risk management strategies that is not generic or boilerplate. In this regard, it is important for investors to understand how a registrant plans to mitigate or adapt to any identified transition risks in its transition plan given the potential associated costs and burdens and their impact on the registrant's business.

The proposed rules would require a registrant that has adopted a transition plan as part of its climate-related management strategy to update its disclosure about its transition plan each fiscal year by describing the actions taken during the year to achieve the plan's targets or goals.³⁰⁹ This is intended to provide investors with information that can help them better understand the registrant's effectiveness in implementing any transition plan and the potential risks and costs associated with what it still needs to accomplish.

A registrant that has adopted a transition plan as part of its climate-related risk management strategy may also describe how it plans to achieve any identified climate-related opportunities, such as:

- The production of products that facilitate the transition to a lower carbon economy, such as low emission modes of transportation and supporting infrastructure;

³⁰⁷ See proposed 17 CFR 229.1503(c)(2)(ii)(B).

³⁰⁸ See proposed 17 CFR 229.1503(c)(2)(ii)(C).

³⁰⁹ See proposed 17 CFR 229.1503(c)(1).

- The generation or use of renewable power;
- The production or use of low waste, recycled, or other consumer products that require less carbon intensive production methods;
- The setting of conservation goals and targets that would help reduce GHG emissions; and
- The provision of goods or services related to any transition to a lower carbon economy.³¹⁰

For example, an energy company might discuss how, due to actual or potential regulatory constraints, it intends to take advantage of climate-related opportunities by increasing the amount of electricity purchased that is produced using renewable energy sources, reducing its medium and long-range fossil fuel exploration and production, increasing the percentage of its products consisting of biofuels and other lower emissions fuels, or investing in carbon capture and storage technologies. A transportation company might discuss how, to mitigate reputational risk, it plans to realize any climate-related opportunities presented by switching its existing fleet to one composed of low- or no-emission vehicles by a certain date.³¹¹

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42. Should we require a registrant to describe its processes for identifying, assessing, and managing climate-related risks, as proposed?

43. When describing the processes for identifying and assessing climate-related risks, should we require a registrant to disclose, as applicable, as proposed:

- How the registrant determines the relative significance of climate-related risks compared to other risks?

³¹⁰ See proposed 17 CFR 229.1503(c)(3)(i) through (v).

³¹¹ A registrant would be required to disclose the expected impact of any transition opportunity on its results of operations or financial condition, *e.g.*, increased costs or expenditures, pursuant to proposed 17 CFR 229.1502 to the extent it believes they would be reasonably likely to have a material impact.

- How it considers existing or likely regulatory requirements or policies, such as emissions limits, when identifying climate-related risks?
- How it considers shifts in customer or counterparty preferences, technological changes, or changes in market prices in assessing potential transition risks?
- How the registrant determines the materiality of climate-related risks, including how it assesses the potential size and scope of an identified climate-related risk?

Are there other items relevant to a registrant's identification and assessment of climate-related risks that we should require it to disclose instead of or in addition to the proposed disclosure items?

44. When describing the processes for managing climate-related risks, should we require a registrant to disclose, as applicable, as proposed:

- How it decides whether to mitigate, accept, or adapt to a particular risk?
- How it prioritizes climate-related risks?
- How it determines to mitigate a high priority risk?

Are there other items relevant to a registrant's management of climate-related risks that we should require it to disclose instead of or in addition to the proposed disclosure items?

45. Should we require a registrant to disclose whether and how the processes described in response to proposed 17 CFR 229.1503(a) are integrated into the registrant's overall risk management system or processes, as proposed? Should we specify any particular aspect of this arrangement that a registrant should disclose, such as any interaction between, and corresponding roles of, the board or any management committee responsible for assessing climate-related risks, if there is a separate and distinct committee of the board or management, and the registrant's committee in charge, generally, of risk assessment and management?

46. If a registrant has adopted a transition plan, should we require the registrant to describe the plan, including the relevant metrics and targets used to identify and manage physical and transition risks, as proposed? Would this proposed disclosure requirement raise any competitive harm concerns and, if so, how can we mitigate such concerns? Would any of the proposed disclosure requirements for a registrant's transition plan act as a disincentive to the adoption of such a plan by the registrant?

47. If a registrant has adopted a transition plan, should we require it, when describing the plan, to disclose, as applicable, how the registrant plans to mitigate or adapt to any identified physical risks, including but not limited to those concerning energy, land, or water use and management, as proposed? Are there any other aspects or considerations related to the mitigation or adaptation to physical risks that we should specifically require to be disclosed in the description of a registrant's transition plan?

48. If a registrant has adopted a transition plan, should we require it to disclose, if applicable, how it plans to mitigate or adapt to any identified transition risks, including the following, as proposed:

- Laws, regulations, or policies that:
 - Restrict GHG emissions or products with high GHG footprints, including emissions caps; or
 - Require the protection of high conservation value land or natural assets?
- Imposition of a carbon price?
- Changing demands or preferences of consumers, investors, employees, and business counterparts?

Are there any other transition risks that we should specifically identify for disclosure, if applicable, in the transition plan description? Are there any identified transition risks that we should exclude from the plan description?

49. If a registrant has adopted a transition plan, when describing the plan, should we permit the registrant also to discuss how it plans to achieve any identified climate-related opportunities, including, as proposed:

- The production of products that facilitate the transition to a lower carbon economy, such as low emission modes of transportation and supporting infrastructure?
- The generation or use of renewable power?
- The production or use of low waste, recycled, or environmentally friendly consumer products that require less carbon intensive production methods?
- The setting of conservation goals and targets that would help reduce GHG emissions?
- The provision of services related to any transition to a lower carbon economy?

Should we require a registrant to discuss how it plans to achieve any of the above, or any other, climate-related opportunities when describing its transition plan?

50. If a registrant has disclosed its transition plan in a Commission filing, should we require it to update its transition plan disclosure each fiscal year by describing the actions taken during the year to achieve the plan's targets or goals, as proposed? Should we require a registrant to provide such an update more frequently, and if so, how frequently? Would the proposed updating requirement act as a disincentive to the adoption of a transition plan by the registrant?

51. To the extent that disclosure about a registrant's transition plan constitutes forward-looking information, the PSLRA safe harbors would apply. Should we adopt a separate safe

harbor for transition plan disclosure? If so, what disclosures should such a safe harbor cover and what should the conditions be for such a safe harbor?

F. Financial Statement Metrics

1. Overview

If a registrant is required to file the disclosure required by subpart 229.1500 in a form that also requires audited financial statements,³¹² under our proposal it would be required to disclose in a note to its financial statements certain disaggregated climate-related financial statement metrics that are mainly derived from existing financial statement line items.³¹³ In particular, the proposed rules would require disclosure falling under the following three categories of information:

- Financial Impact Metrics;
- Expenditure Metrics; and
- Financial Estimates and Assumptions.

The proposed financial statement metrics disclosures would involve estimation uncertainties that are driven by the application of judgments and assumptions, similar to other financial statement disclosures (*e.g.*, estimated loss contingencies, fair value measurement of certain assets, etc.). Accordingly, for each type of financial statement metric, the proposed rules would require the registrant to disclose contextual information to enable a reader to understand

³¹² For example, the climate-related note to the financial statements would not be required in a Form 10-Q filing. *See* proposed 17 CFR 210.14-01(a). *See infra* note 690 and accompanying text, which discusses the applicability of the proposed rules to foreign private issuers.

³¹³ *See* FASB Concepts Statement No. 8, Chapter 8, par. D8 (“[T]he primary purpose of notes to financial statements is to supplement or further explain the information on the face of financial statements by providing financial information relevant to existing and potential investors, lenders, and other creditors for making decisions about providing resources to an entity.”).

how it derived the metric, including a description of significant inputs and assumptions used, and if applicable, policy decisions made by the registrant to calculate the specified metrics.³¹⁴

A number of existing accounting standards could elicit climate-related disclosure in the financial statements, as highlighted by the FASB in a Staff Educational Paper and by the IFRS in a similar document.³¹⁵ Nevertheless, we believe the proposed rules would benefit registrants by specifying when to provide such disclosures. Furthermore, the proposed rules may increase the consistency and comparability of such disclosures by prescribing accounting principles for preparing the proposed climate-related financial statement metrics disclosures, including, among other things, provisions that would specify the basis of calculation for such metrics and their presentation.³¹⁶

To avoid potential confusion, maintain consistency with the rest of the financial statements, and aid comparability, registrants would be required to calculate the proposed

³¹⁴ See proposed 17 CFR 210.14-02(a). Inputs and assumptions may include the estimation methodology used to disaggregate the amount of impact on the financial statements between the climate-related events and activities and other factors. Policy decisions referenced herein may include a registrant’s election to disclose the impacts from climate-related opportunities. See also *infra* Section II.F.2 for an example of contextual information that would be required.

³¹⁵ See FASB Staff Educational Paper, *Intersection of Environmental, Social, and Governance Matters with Financial Accounting Standards* (Mar. 2021), available at https://fasb.org/jsp/FASB/Document_C/DocumentPage&cid=1176176379917. See also IFRS, *Effects of climate-related matters on financial statements* (Nov. 2020), available at <https://www.ifrs.org/content/dam/ifrs/supporting-implementation/documents/effects-of-climate-related-matters-on-financial-statements.pdf#:~:text=IFRS%20Standards%20do%20not%20refer%20explicitly%20to%20climate-related,significant%20judgements%20and%20estimates%20that%20management%20has%20made>.

³¹⁶ The Commission has broad authority to set accounting standards and principles. See, e.g., 15 U.S.C. 77s; 15 U.S.C. 7218(c); and *Policy Statement: Reaffirming the Status of the FASB as a Designated Private-Sector Standard Setter*, Release No. 33-8221 (Apr. 25, 2003) [68 FR 23333 (May 1, 2003)], at 23334 (“While the Commission consistently has looked to the private sector in the past to set accounting standards, the securities laws, including the Sarbanes-Oxley Act, clearly provide the Commission with authority to set accounting standards for public companies and other entities that file financial statements with the Commission.”). See also FASB Accounting Standards Codification (“FASB ASC”) Topic 105-10-10-1 (“Rules and interpretive releases of the Securities and Exchange Commission . . . are also sources of authoritative GAAP for SEC registrants.”).

financial statement metrics using financial information that is consistent with the scope of the rest of the registrant’s consolidated financial statements included in the filing.³¹⁷ Therefore, registrants would have to include in any such calculation financial information from consolidated subsidiaries.³¹⁸

For the avoidance of doubt, and to further promote consistency in the preparation of the financial statements, the proposed basis of calculation requirements would also specify that a registrant would be required to apply the same set of accounting principles that it is required to apply in preparation of the rest of its consolidated financial statements included in the filing, whenever applicable.³¹⁹ Although 17 CFR 210.4-01(a)(1) already states that financial statements filed with the Commission that are not prepared in accordance with GAAP will be presumed misleading or inaccurate unless the Commission has otherwise provided, clarifying the application of this concept in the proposed rules may be helpful, given the possible confusion that may arise between the current body of GAAP and the proposed requirements.³²⁰

The proposed rules would also require disclosure to be provided for the registrant’s most recently completed fiscal year and for the historical fiscal year(s) included in the registrant’s

³¹⁷ See proposed 17 CFR 210.14-01(c)(1).

³¹⁸ See, e.g., 17 CFR 210.3-01(a) (“There shall be filed, for the registrant and its subsidiaries consolidated, audited balance sheets as of the end of each of the two most recent fiscal years.”).

³¹⁹ See proposed 17 CFR 210.14-01(c)(2). Foreign private issuers that file consolidated financial statements under home country GAAP and reconcile to U.S. GAAP, would be required to use U.S. GAAP (including the provisions of the proposed rules) as the basis for calculating and disclosing the proposed climate-related financial statement metrics. Foreign private issuers that file consolidated financial statements under IFRS as issued by the IASB, would apply IFRS and the proposed rules as the basis for calculating and disclosing the proposed climate-related financial statement metrics. For simplicity, we do not refer to the corresponding IFRS in each instance where we refer to a FASB ASC. Accordingly, references in this release to a FASB ASC should be read to also refer to the corresponding IFRS for foreign private issuers applying those standards. See also *infra* note 690 which discusses proposed amendments to Form 20-F.

³²⁰ See also 17 CFR 210.4-01(a)(2) (discussing the application of U.S. GAAP, IFRS, and the use of other comprehensive sets of accounting principles (with reconciliation to U.S. GAAP)).

consolidated financial statements in the applicable filing.³²¹ For example, a registrant that is required to include balance sheets as of the end of its two most recent fiscal years and income statements and cash flow statements at the end of its three most recent fiscal years would be required to disclose two years of the climate-related financial statement metrics that correspond to balance sheet line items and three years of the climate-related financial statement metrics that correspond to income statement or cash flow statement line items. If the registrant is an emerging growth company (“EGC”)³²² or SRC, only two years would be required.³²³

A registrant, however, would not need to provide a corresponding historical metric for a fiscal year preceding its current reporting fiscal year if it is eligible to take advantage of the accommodation in 17 CFR 230.409 (“Rule 409”) or 17 CFR 240.12b-21 (“Rule 12b-21”). For example, if a registrant has not previously presented such metric for such fiscal year and the historical information necessary to calculate or estimate such metric is not reasonably available to the registrant without unreasonable effort or expense, the registrant may be able to rely on Rule 409 or Rule 12b-21 to exclude a corresponding historical metric. Requiring disclosure of current and, when known or reasonably available, historical periods, should allow investors to analyze trends in the climate-related impacts on the consolidated financial statements and to

³²¹ See proposed 17 CFR 210.14-01(d).

³²² An EGC is a registrant that had total annual gross revenues of less than \$1.07 billion during its most recently completed fiscal year and has not met the specified conditions for no longer being considered an EGC. See 17 CFR 230.405; 17 CFR 240.12b-2; 15 U.S.C. 77b(a)(19); 15 U.S.C. 78c(a)(80); and *Inflation Adjustments and Other Technical Amendments under Titles I and III of the JOBS Act*, Release No. 33-10332 (Mar. 31, 2017) [82 FR 17545 (Apr. 12, 2017)].

³²³ An EGC is only required to provide audited statements of comprehensive income and cash flows for each of the two fiscal years preceding the date of the most recent audited balance sheet (or such shorter period as the registrant has been in existence). See 17 CFR 210.3-02(a). A similar accommodation is provided to SRCs. See 17 CFR 210.8-02.

better evaluate the narrative trend disclosure provided pursuant to proposed Subpart 1500 of Regulation S-K.³²⁴

Request for Comment

52. Should we require a registrant to provide contextual information, including a description of significant inputs and assumptions used, and if applicable, policy decisions made by the registrant to calculate the specified metrics, as proposed? Should we revise the proposed requirement to provide contextual information to require specific information instead? We provide some examples of contextual information disclosure in Sections II.F.2 and II.F.3 below. Would providing additional examples or guidance assist registrants in preparing this disclosure?

53. The proposed rules would specify the basis of calculation for the climate-related financial statement metrics. Is it clear how to apply these accounting principles when calculating the proposed climate-related financial statement metrics, or should we provide additional guidance? Should we require a registrant to report these metrics with reference to its consolidated financial statements, as proposed? If not, how should registrants report these metrics? If we were to establish accounting principles (*e.g.*, the basis for reporting these metrics) in a manner that differs from the principles applicable to the rest of the consolidated financial statements, would the application of those principles to the proposed metrics make climate-related disclosures less clear, helpful, or comparable for investors?

54. Should we also require such metrics to be calculated at a reportable segment level when a registrant has more than one reportable segment (as defined by the FASB ASC Topic 280 *Segment Reporting*)? In addition, should we require such metrics to be presented by geographic

³²⁴ See *supra* Section II.C.

areas that are consistent with the registrant's reporting pursuant to FASB ASC Topic 280-10-50-41? How would investors use such information?

55. The proposed rules would require disclosure for the registrant's most recently completed fiscal year and for the corresponding historical fiscal years included in the registrant's consolidated financial statements in the filing. Should disclosure of the climate-related financial statement metrics be required for the fiscal years presented in the registrant's financial statements, as proposed? Instead, should we require the financial statement metrics to be calculated only for the most recently completed fiscal year presented in the relevant filing? Would requiring historical disclosure provide important or material information to investors, such as information allowing them to analyze trends? Are there other approaches we should consider?

56. Should information for all periods in the consolidated financial statements be required for registrants that are filing an initial registration statement or providing climate-related financial statement metrics disclosure for historical periods prior to the effective date or compliance date of the rules? Would the existing accommodation in Rules 409 and 12b-21 be sufficient to address any potential difficulties in providing the proposed disclosures in such situations?

57. Should we provide additional guidance as to when a registrant may exclude a historical metric for a fiscal year preceding the current fiscal year?

58. In several instances, the proposed rules specifically point to existing GAAP and, in this release, we provide guidance with respect to the application of existing GAAP. Are there other existing GAAP requirements that we should reference? Are there instances where it would be preferable to require an approach based on TCFD guidance or some other framework, rather than requiring the application of existing GAAP?

2. Financial Impact Metrics

As discussed above, proposed Item 1502(d) of Regulation S-K would require a registrant to provide a narrative discussion of whether and how any of its identified climate-related risks have affected or are reasonably likely to affect the registrant’s consolidated financial statements.³²⁵ The term “climate-related risks” would be defined, in part, as the actual or potential negative impacts of climate-related conditions and events on a registrant’s consolidated financial statements.³²⁶ “Climate-related risks” would also be defined to include physical risks, such as extreme weather events, and transition risks.³²⁷ To complement this proposed requirement in Regulation S-K to provide narrative disclosure about impacts on a registrant’s consolidated financial statements, we are proposing to amend Regulation S-X to require a registrant to include disaggregated information about the impact of climate-related conditions and events, and transition activities, on the consolidated financial statements included in the relevant filing,³²⁸ unless such impact is below a specified threshold.

We are proposing to require disclosure of the impacts from severe weather events and other natural conditions and transition activities, which should capture a broad spectrum of these two types of climate-related risks (physical risks and transition risks). In addition, the proposed rules would require disclosure of the impacts of any climate-related risks identified pursuant to proposed Item 1502(a)—both physical risks (“identified physical risks”) and transition risks

³²⁵ See proposed 17 CFR 229.1502(d).

³²⁶ See *supra* Section II.B.1 (discussing the definition of “climate-related risks”).

³²⁷ See proposed 17 CFR 229.1500(c) (defining “climate related risks” to include “physical risks” and “transition risks”).

³²⁸ For example, the impact on the income statement line items for the periods presented in the financial statements in a registrant’s Form 10-K.

(“identified transition risks”)—on any of the financial statement metrics.³²⁹ Among the examples of severe weather events and other natural conditions that we have highlighted in the proposed rule are those that the Commission identified more than a decade ago in the 2010 Guidance as potentially affecting a registrant’s operations and results.³³⁰ In addition, although not specifically mentioned in the 2010 Guidance, we are including wildfires as an example because it is well recognized as another type of natural event that can have significant impacts on a registrant’s financial statements.³³¹ Providing examples of severe weather events, other natural conditions, and transition activities in the proposed rule would aid in the comparability of the resulting disclosure while assisting issuers in making the disclosures.

Specifically, we are proposing that impacts on any relevant line item in the registrant’s consolidated financial statements during the fiscal years presented arising from severe weather events and natural conditions, and the identified physical risks (collectively, “climate-related events”), would trigger the proposed disclosure requirement discussed below. Specific examples of such severe weather events and natural conditions may include the following:

- Flooding;
- Drought;

³²⁹ See proposed 17 CFR 210.14-02(i).

³³⁰ See, e.g., 2010 Guidance, 26 (“Significant physical effects of climate change, such as effects on the severity of weather (for example, floods or hurricanes), [and] sea levels . . . have the potential to affect a registrant’s operations and results.”). Temperature extremes and drought are also discussed in the 2010 Guidance. See, e.g., *id.* at 6-7.

³³¹ See, e.g., Aurora A. Gutierrez et al., *Wildfire response to changing daily temperature extremes in California’s Sierra Nevada*, *Science Advances*, Vol. 7, Issue 47 (Nov. 17, 2021) (“Our work supports the conclusion that considerable potential exists for an increase in fire activity as a consequence of climate warming in the absence of changes in fire and ecosystem management.”); U.S. Geological Survey, *Will global warming produce more frequent and more intense wildfires?* (“[R]esearchers have found strong correlations between warm summer temperatures and large fire years, so there is general consensus that fire occurrence will increase with climate change.”), available at <https://www.usgs.gov/faqs/will-global-warming-produce-more-frequent-and-more-intense-wildfires>.

- Wildfires;
- Extreme temperatures; and
- Sea level rise.³³²

As discussed, above, there has been increased recognition of the current and potential effects, both positive and negative, of these events and the associated physical risks on a registrant's business as well as its financial performance and position. For example, as mentioned above, the 2010 Guidance discusses the potential impacts on a registrant's business and financial performance from climate-related events, including, for example, severe weather events, that could negatively impact a registrant's supply chain or distribution chain and lead to higher input costs or delayed product deliveries.³³³ The 2010 Guidance also points to credit risks for banks driven by borrowers with assets located in high risk coastal areas.³³⁴ More recently, the FSOC's Report on Climate-Related Financial Risk 2021 discusses significant costs from the types of events included in proposed Rule 14-02(c).³³⁵ The TCFD, in a recent publication, also discusses the potential financial impacts of such climate-related events.³³⁶ Furthermore, the TCFD provides examples of disclosures already being made by some companies (including

³³² See proposed 17 CFR 210.14-02(c).

³³³ See 2010 Guidance, 6.

³³⁴ See *id.*

³³⁵ See, e.g., 2021 FSOC Report, Chapter 1: *From Climate-related Physical Risks to Financial Risks* (discussing the listed events and other risks).

³³⁶ TCFD, *Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures* (Oct. 2021), Section A.4 *Assessing Financial Impacts of Climate-Related Risks and Opportunities*.

registrants) of the financial statement impact of the climate-related events discussed above in their standalone sustainability (or equivalent) reports.³³⁷

Generally, climate-related events such as severe weather events and other natural conditions, and climate-related risks more generally, are linked to negative impacts on a registrant's financial performance and position. There could be situations, however, where such events result in positive impacts. For example, if a registrant's business is to conduct post-disaster cleanup and reconstruction, the occurrence of such severe weather events would generate additional revenues for the registrant.

In addition to the physical risks associated with climate change, registrants and investors also face climate-related transition risks. As government leaders across the globe have made public commitments to transition to a lower carbon economy, investors have sought information about the impact such a transition may have on registrants.³³⁸ In addition to public commitments, these impacts may be prompted by regulatory, technological, market (including changing consumer, business counterparty, and investor preferences), liability, reputational, or other transition-related factors.³³⁹ For example, significant shifts in modes of production may occur in GHG intensive economic sectors, such as the transportation, electricity generation, and heavy manufacturing sectors.³⁴⁰ A registrant that is engaged in transition activities may experience business losses or, conversely, may benefit from such transition activities.³⁴¹ In

³³⁷ See, e.g., TCFD, *Guidance on Metrics, Targets, and Transition Plans* (Oct. 2021), 23 (Figure C6), Appendix 2, available at https://assets.bbhub.io/company/sites/60/2021/07/2021-Metrics_Targets_Guidance-1.pdf (providing examples, mostly from sustainability (or equivalent) reports, that illustrate the feasibility of some of the disclosures that would be required by the proposed rules).

³³⁸ See *supra* Section I.C.1.

³³⁹ See *supra* Section II.B.

³⁴⁰ See, e.g., 2021 FSOC Report, Chapter 1, *From Climate-related Transition Risks to Financial Risks*.

³⁴¹ See *id.*

response, some companies are already providing disclosure of the impact of transition-related activities on their financial statements and some have publicly made commitments related to this transition.³⁴² In light of these transition risks, the proposed rules would also require a registrant to disclose the financial impact of the impact of any identified transition risks and any efforts to reduce GHG emissions or otherwise mitigate exposure to transition risks (collectively, “transition activities”) on any relevant line items in the registrant’s consolidated financial statements during the fiscal years presented.³⁴³

A registrant may also disclose the impact of any opportunities arising from severe weather events and other natural conditions, any impact of efforts to pursue climate-related opportunities associated with transition activities, and the impact of any other climate-related opportunities, including those identified by the registrant pursuant to proposed Item 1502(a), on any of the financial statement metrics.³⁴⁴ If a registrant makes a policy decision to disclose the impact of a climate-related opportunity on the proposed financial statement metrics, it must do so consistently (*e.g.*, for each fiscal year presented in the consolidated financial statements, for each financial statement line item, for all relevant opportunities identified by the registrant) and must follow the same presentation and disclosure threshold requirements applicable to the required disclosures related to financial impact metrics and expenditure metrics, as discussed below.³⁴⁵

The financial impact metric disclosure requirements in proposed Rules 14-02(c), (d), and (i) would require a registrant to disclose the financial impacts of severe weather events, other

³⁴² See, *e.g.*, TCFD, Guidance on Metrics, Targets, and Transition Plans (Oct. 2021), Appendix 2.

³⁴³ See proposed 17 CFR 210.14-02(d).

³⁴⁴ See proposed 17 CFR 210.14-02(j).

³⁴⁵ See *id.*

natural conditions, transition activities, and identified climate-related risks on the consolidated financial statements included in the relevant filing unless the aggregated impact of the severe weather events, other natural conditions, transition activities, and identified climate-related risks is less than one percent of the total line item for the relevant fiscal year.³⁴⁶ The proposed threshold would provide a bright-line standard for registrants and should reduce the risk of underreporting such information. The proposed quantitative threshold could also promote comparability and consistency among a registrant's filings over time and among different registrants compared to a principles-based approach. The Commission has used similar one percent thresholds in other contexts.³⁴⁷ More generally, in addition to the approach in Article 5 of Regulation S-X discussed below, other rules such as 17 CFR 229.103 and 17 CFR 229.404 use quantitative disclosure thresholds to facilitate comparability, consistency, and clarity in determining when information must be disclosed.³⁴⁸

A registrant would be required to determine the impacts of the severe weather events, other natural conditions, transition activities, and identified climate-related risks described above on each consolidated financial statement line item.³⁴⁹ Within each category (*i.e.*, climate-related

³⁴⁶ See proposed 17 CFR 210.14-02(b). The registrant would be required to evaluate the impact on a line-by-line basis consistent with the line items presented in its consolidated financial statements. See proposed 17 CFR 210.14-02(c) and (d).

³⁴⁷ The Commission currently uses a 1% threshold in other contexts for disclosure of certain items within the financial statements and without. See, e.g., 17 CFR 210.5-03.1(a) (stating that if the total of sales and revenues reported under this caption includes excise taxes in an amount equal to 1% or more of such total, the amount of such excise taxes shall be shown on the face of the statement parenthetically or otherwise); 17 CFR 210.12-13 (requiring disclosure of open option contracts by management investment companies using a 1% of net asset value threshold, based on the notional amounts of the contracts); and 17 CFR 229.404(d) (requiring disclosure of transactions between a SRC and related persons in which the amount involved exceeds the lesser of \$120,000 or 1% of the average of the SRC's total assets at year-end for the last two completed fiscal years).

³⁴⁸ See 17 CFR 229.103(b)(2), (c)(3)(iii) and 17 CFR 229.404(a).

³⁴⁹ Examples of such line items include revenue, cost of revenue, selling, general and administrative expenses, sale of property, plant, and equipment (in statement of cash flows), inventories, intangible assets, long-term debt, or contingent liabilities.

events or transition activities), impacts would, at a minimum, be required to be disclosed on an aggregated, line-by-line basis for all negative impacts and, separately, on an aggregated, line-by-line basis for all positive impacts.³⁵⁰ However, for purposes of determining whether the disclosure threshold has been met, a registrant would be required to aggregate the absolute value of the positive and negative impacts on a line-by-line basis, which we believe would better reflect the significance of the impact of the climate-related events and transition activities on a registrant's financial performance and position.³⁵¹

For example, when evaluating the line-by-line impact, a registrant may determine that its cost of revenue is impacted by Events A, B, and C, and Transition Activity D in the following manner:

- Cost of revenue was impacted negatively by Events A and B by \$300,000, driven by increased input costs impacted by severe weather events that strained the registrant's main supplier;
- Cost of revenue was impacted positively by Event C by \$70,000, driven by technology that improved the registrant's ability to manage the impact of severe heat on certain raw materials, which resulted in more efficient production; and
- Cost of revenue was impacted positively by Transition Activity D, which reduced production costs for certain products by \$90,000 through advanced technology that improved energy efficiency during the production process.³⁵²

³⁵⁰ See proposed 17 CFR 210.14-02(c) and (d).

³⁵¹ See proposed 17 CFR 210.14-02(b).

³⁵² This example illustrates a situation where the registrant has elected to include impacts from transition opportunities.

For purposes of determining whether the impacts from the example above would trigger the disclosure threshold requirements, the registrant would perform the analysis illustrated in the following table:

F/S line-item	F/S balance (from consolidated financial statements)	Impact of Events A and B	Impact of Event C	Impact of Transition Activity D	Absolute value of impacts	Percentage impact
Cost of revenue	\$10,000,000	-\$300,000	+\$70,000	+\$90,000	\$460,000	4.6%

Although some of the impacts (*e.g.*, impact of Event C, impact of Transition Activity D) do not individually meet the one percent threshold, the absolute value of the aggregated impacts from the events and transition activities on the line item in the above example is \$460,000 and thus exceeds one percent of the corresponding line-item threshold; therefore, disclosure for that specific line item would be required. The registrant’s disclosure of such impacts may be provided, for example, as illustrated in the following table (excluding disclosure of contextual information):

Note X. Climate-related financial metrics:

F/S line-item	Total negative impact from climate-related events	Total positive impact from climate-related events	Total negative impact from climate-related transition activities	Total positive impact from climate-related transition activities and climate-related opportunities*
Cost of revenue	(Debit) \$300,000	(Credit) \$70,000	---	(Credit) \$90,000

* As discussed earlier, a registrant may elect to include the impact of climate-related opportunities when calculating its climate-related financial impact metrics. This example illustrates a situation where the registrant has elected to include impacts from transition opportunities.

In this example, contextual information may include disclosure such as the registrant’s election to include the impact from opportunities in its disclosure analysis and calculation, the specific events that were aggregated for purposes of determining the impact on the cost of revenue and, if applicable, a discussion of the estimation methodology used to disaggregate the

amount of impact on the cost of revenue between the climate-related events, transition activities, and other factors.

To provide additional clarity, the proposed rule would include the following examples of disclosures that may be required to reflect the impact of the severe weather events and other natural conditions on each line item of the registrant's consolidated financial statements (*e.g.*, line items of the consolidated income statement, balance sheet, or cash flow statement):³⁵³

- Changes to revenue or costs from disruptions to business operations or supply chains;
- Impairment charges and changes to the carrying amount of assets (such as inventory, intangibles, and property, plant and equipment) due to the assets being exposed to severe weather, flooding, drought, wildfires, extreme temperatures, and sea level rise;
- Changes to loss contingencies or reserves (such as environmental reserves or loan loss allowances) due to impact from severe weather events; and
- Changes to total expected insured losses due to flooding or wildfire patterns.³⁵⁴

With respect to the financial impacts of transition activities, the proposed rule would include the following examples of potential impacts:

- Changes to revenue or cost due to new emissions pricing or regulations resulting in the loss of a sales contract;
- Changes to operating, investing, or financing cash flow from changes in upstream costs, such as transportation of raw materials;

³⁵³ The examples below, like all of the examples in this release (including examples in the text of the proposed rules), are non-exclusive and should not be interpreted as a checklist for compliance with any proposed rule.

³⁵⁴ See proposed 17 CFR 210.14-02(c)(1) through (4).

- Changes to the carrying amount of assets (such as intangibles and property, plant, and equipment), for example, due to a reduction of the asset’s useful life or a change in the asset’s salvage value by being exposed to transition activities; and
- Changes to interest expense driven by financing instruments such as climate-linked bonds issued where the interest rate increases if certain climate-related targets are not met.³⁵⁵

Many commenters stated that climate-related financial disclosure is material and should be reflected separately in the financial statements.³⁵⁶ For example, one commenter stated that it is critical to investors and others in assessing a company’s risk profile, estimating its risk-adjusted returns, and completing other relevant financial analyses to include information on how climate-related risks and climate-related opportunities may affect companies’ income statements, cash flow statements, and balance sheets.³⁵⁷

Other commenters, however, generally expressed the view that if such disclosures are material, they would already be required by existing financial statement disclosure requirements.³⁵⁸ For example, some of these commenters stated that they opposed new climate-specific disclosure rules because, in their view, the traditional concept of materiality already

³⁵⁵ See proposed 17 CFR 210.14-02(d)(1) through (4).

³⁵⁶ See, e.g., letters from Americans for Financial Reform Education Fund *et al.*; BlackRock; CalPERS; Ceres; Climate Accounting Project; Climate Governance Initiative; Eni SpA; Friends of the Earth, Amazon Watch and RainForest Coalition; Initiative on Climate Risk and Resilience Law; International Corporate Governance Network; Investment Company Institute; Natural Resources Defense Council; Policy Working Group; Sens. Brian Schatz and Sheldon Whitehouse (June 10, 2021); Ted Atwood; The Forum for Sustainable and Responsible Investment; The Revolving Door Project; The Washington State Investment Board; UNEP – FI; Union of Concerned Scientists; and WBCSD.

³⁵⁷ See letter from Bloomberg.

³⁵⁸ See, e.g., letters from the American Fuel Petrochemical Manufacturers (June 13, 2021); Environmental Bankers Association; Heritage Foundation; National Mining Association (June 11, 2021); Society for Mining, Metallurgy, & Exploration (June 13, 2021); and The Associated General Contractors of America.

requires the disclosure of climate-related impacts that materially affect the issuer's financial condition and results of operations.³⁵⁹

Although we agree that registrants are currently required to disclose material financial impacts on the financial statements, the proposed climate-related financial statement metrics should provide additional transparency into the impact of climate-related events on information reported in the financial statements that would be relevant to investors when making investment or voting decisions.³⁶⁰ Such disclosure would also provide investors with additional insights into the nature of a registrant's business, the implementation of the registrant's targets and goals, and material trends in climate-related impacts. Furthermore, separately stating the financial statement impacts from the climate-related events and transition activities could improve comparability across both the registrant's year-to-year disclosures and the disclosures of different registrants.

We further note that the proposed requirement to separately disclose the financial impacts of the climate-related events and transition activities may be necessary not only because climate-related risks may have significant impacts on individual registrants, but also because the risks presented by the climate-related events and transition activities may be correlated across

³⁵⁹ See letters from American Fuel Petrochemical Manufacturers; Environmental Bankers Association; and The Associated General Contractors of America.

³⁶⁰ Certain commenters, in response to FASB's 2021 Agenda Consultation, were also supportive of more disaggregated disclosures within the financial statements. See, e.g., letters from CalPERS (Sept. 22, 2021); CFA Institute (Oct. 7, 2021); and CII (Sept. 16, 2021). Comment letters in response to FASB's invitation to comment are available at https://www.fasb.org/jsp/FASB/CommentLetter_C/CommentLetterPage&cid=1218220137090&project_id=2021-004&page_number=1.

different, similarly situated registrants.³⁶¹ Climate-related risks present the potential for a high correlation and therefore concentration of risk within a portfolio. Separate disclosure of climate-related risks could help to provide investors with information to help them more effectively evaluate their portfolio risk. In this regard, we note that an analogous approach to disaggregated, or separately stated, disclosure has been taken in other contexts within the financial statements and elsewhere.³⁶² For example, in segment reporting, a registrant must present within its consolidated financial statements a separate presentation of certain financial statement line items for each segment.³⁶³ The Commission has noted the importance of disaggregated disclosure in

³⁶¹ See, e.g., Madison Condon, *Market Myopia's Climate Bubble*, 2022 UTAH L. REV. 63 (2021). See also 2020 CFTC Advisory Subcommittee Report (“Climate change is expected to affect multiple sectors, geographies, and assets in the United States, sometimes simultaneously and within a relatively short timeframe. As mentioned earlier, transition and physical risks—as well as climate and non-climate-related risks—could interact with each other, amplifying shocks and stresses. This raises the prospect of spillovers that could disrupt multiple parts of the financial system simultaneously.”).

³⁶² The analogies presented are not intended to imply that FASB ASC Topic 280, IFRS 8 or other concepts would have to be applied when accounting for and disclosing the climate-related financial statement metrics. The analogies are also not intended to imply that the determination of when disclosure may be required and how that determination is made is the same across all of these concepts. See, e.g., *infra* note 363 (discussing management’s evaluation under FASB ASC Topic 280 *Segment Reporting* and IFRS 8 *Operating Segments*) and the discussion below of FASB ASC Topic 606, IFRS 15, and Article 5 of Regulation S-X.

³⁶³ See FASB ASC Topic 280 *Segment Reporting* and IFRS 8 *Operating Segments* (requiring segment reporting disclosures to be included in the audited financial statements). FASB ASC 280-10-10-1 states that the objective of segment reporting is to provide information about the different types of business activities in which a registrant engages and the different economic environments in which it operates to help users of financial statements: (i) better understand the public entity’s performance; (ii) better assess its prospects for future net cash flows; and (iii) make more informed judgments about the public entity as a whole. FASB ASC Topic 280 and IFRS 8 focus on the chief operating decision maker’s view when evaluating the registrant and prescribes certain qualitative and quantitative considerations when determining what constitutes an operating segment. Similarly, the proposed rule would require an initial determination by the registrant of the relevant climate-related events and transition activities, and their impact on the registrant’s financial statements.

the segment reporting context, stating that it “has long been aware of the importance of meaningful segment information to reasoned investment decision-making.”³⁶⁴

The importance of disaggregated disclosure in a registrant’s financial statements is also supported by the concepts set forth in FASB ASC Topic 606 *Revenue from Contracts with Customers* and IFRS 15 *Revenue from Contracts with Customers*, which require, among other things, disclosure of disaggregated revenue recognized from contracts with customers into categories that depict how the nature, amount, timing, and uncertainty of revenue and cash flows are affected by economic factors. As noted earlier, the Commission also requires disaggregation of certain financial statement line items in Article 5 of Regulation S-X. Specifically, Article 5 requires separate disclosures of specific balance sheet and income statement line items when practicable or when certain percentage thresholds are met, depending on the nature of the information.³⁶⁵ Those conditions on when separate disclosure is required are analogous to the proposed condition that financial impacts result from the climate-related events and transition activities.

Request for Comment

59. Should we require registrants to disclose the financial impact metrics, as proposed?

Would presenting climate-specific financial information on a separate basis based on climate-related events (severe weather events and other natural conditions and identified physical risks)

³⁶⁴ See *Industry and Homogenous Geographic Segment Reporting*, Release No. 33-6514 (Feb. 15, 1984) [49 FR 6737-01 (Feb. 23, 1984)], at 6738. Robust segment reporting disclosures are important as they can provide crucial transparency to investors that are reviewing financial statements. See also Gary Buesser, *For the Investor: Segment Reporting*, FASB OUTLOOK (Apr. 2019) (“[I]nvestors normally model a company at the segment level rather than at the consolidated level. More segments and greater information about an operating segment improve an analyst’s ability to forecast a company’s revenue, margins and assets – which serves as the basis for valuing a company.”).

³⁶⁵ See *supra* note 347 for examples of the Commission’s use of a 1% threshold in other contexts.

and transition activities (including identified transition risks) elicit decision-useful or material information for investors? Are there different metrics that would result in disclosure of more useful information about the impact of climate-related risks and climate-related opportunities on the registrant's financial performance and position?

60. Would the impact from climate-related events and transition activities yield decision-useful information for investors? Would the climate-related events (including the examples provided) and transition activities result in impacts that are easier to quantify or disaggregate than climate-related risks more generally? Would a registrant be able to quantify and provide the proposed disclosure when the impact may be the result of a mixture of factors (*e.g.*, a factory shutdown due to an employee strike that occurs simultaneously with a severe weather event)? If there are situations where disaggregation would not be practicable, should we require a registrant to disclose that it was unable to make the required determination and why, or to make a reasonable estimate and provide disclosure about the assumptions and information that resulted in the estimate?

61. Alternatively, should we not require disclosure of the impacts of identified climate-related risks and only require disclosure of impacts from severe weather events and other natural conditions? Should we require a registrant to disclose the impact on its consolidated financial statements of only certain examples of severe weather events and other natural conditions? If so, should we specify which severe weather events and other natural conditions the registrant must include? Would requiring disclosure of the impact of a smaller subset of climate-related risks be easier for a registrant to quantify without sacrificing information that would be material to investors?

62. Should impact from climate-related opportunities be required, instead of optional, as proposed? We are proposing to require a registrant that elects to disclose the impact of an opportunity to do so consistently (*e.g.*, for each fiscal year presented in the consolidated financial statements, for each financial statement line item, and for all relevant opportunities identified by the registrant). Are there any other requirements that we should include to enhance consistency? Should we only require consistency between the first fiscal period in which opportunities were disclosed and subsequent periods?

63. Is it clear which climate-related events would be covered by “severe weather events and other natural conditions”? If not, should we provide additional guidance or examples about what events would be covered? Should we clarify that what is considered “severe weather” in one region may differ from another region? For example, high levels of rainfall may be considered “severe weather” in a typically arid region.

64. Are the proposed requirements for calculating and presenting the financial impact metrics clear? Should the analysis be performed and disclosed in a manner other than on a line-by-line basis referring to the line items of the registrant’s consolidated financial statements?

65. We are proposing to allow a registrant to aggregate the absolute value of negative and positive impacts of all climate-related events and, separately, transition activities on a financial statement line item. Should we instead require separate quantitative disclosure of the impact of each climate-related event or transition activity? Should we require separate disclosure of the impact of climate-related opportunities that a registrant chooses to disclose?

66. The proposed financial impact metrics would not require disclosure if the absolute value of the total impact is less than one percent of the total line item for the relevant fiscal year. Is the proposed threshold appropriate? Should we use a different percentage threshold (*e.g.*, three

percent, five percent) or use a dollar threshold (*e.g.*, less than or greater than \$1 million)?

Should we use a combination of a percentage threshold and a dollar threshold? Should we only require disclosure when the financial impact exceeds the threshold, as proposed, or should we also require a determination of whether an impact that falls below the proposed quantitative threshold would be material and should be disclosed?

67. For purposes of determining whether the disclosure threshold has been met, should impacts on a line item from climate-related events and transition activities be permitted to offset (netting of positive and negative impacts), instead of aggregating on an absolute value basis as proposed? Should we prescribe how to analyze positive and negative impacts on a line item resulting from the same climate-related event or the same transition activity (*e.g.*, whether or not netting is permitted at an event or activity level)? Should we permit registrants to determine whether or not to offset as a policy decision (netting of the positive and negative impact within an event or activity) and provide relevant contextual information? Should we require the disclosure threshold to be calculated separately for the climate-related events and transition activities, rather than requiring all of the impacts to be aggregated as proposed?

68. Instead of including a quantitative threshold, as proposed, should we require disaggregated disclosure of *any* impact of climate-related risks on a particular line item of the registrant's consolidated financial statements? Alternatively, should we just use a materiality standard?

69. Should we require a registrant to disclose changes to the cost of capital resulting from the climate-related events? If so, should we require a registrant to disclose its weighted average cost of capital or any internal cost of capital metrics? Would such disclosure elicit decision-useful or material information for investors?

70. We have not proposed defining the term “upstream costs” as used in the proposed examples for the financial impact metrics and elsewhere. Should we define that term or any others? If so, how should we define them?

71. Are the proposed examples in the financial impact metrics helpful for understanding the types of disclosure that would be required? Should we provide different or additional examples or guidance?

3. Expenditure Metrics

The proposed expenditure metrics would refer to the positive and negative impacts associated with the same climate-related events, transition activities, and identified climate-related risks as the proposed financial impact metrics.³⁶⁶ As proposed, the expenditure metrics would require a registrant to separately aggregate amounts of (i) expenditure expensed and (ii) capitalized costs incurred during the fiscal years presented.³⁶⁷ For each of those categories, a registrant would be required to disclose separately the amount incurred during the fiscal years presented (i) toward positive and negative impacts associated with the climate-related events (*i.e.*, severe weather events and other natural conditions and identified physical risks) and (ii) toward transition activities, specifically, to reduce GHG emissions or otherwise mitigate exposure to transition risks (including identified transition risks).³⁶⁸ The registrant may also choose to disclose the impact of efforts to pursue climate-related opportunities associated with transition activities.³⁶⁹ As discussed above, if a registrant elects to disclose the impact of an

³⁶⁶ See proposed 17 CFR 210.14-02(e), (f), and (i).

³⁶⁷ See *id.* These metrics are focused on expenditures (spending) incurred in each reported fiscal year(s). We therefore believe the number of periods of the expenditure metrics should correspond to the number of years of income statement or cash flow statement presented in the consolidated financial statements.

³⁶⁸ See *id.*

³⁶⁹ See proposed 17 CFR 210.14-02(j).

opportunity, it must do so consistently and must follow the same presentation and disclosure threshold requirements applicable to the required disclosures of expenditure metrics associated with transition risks. The amount of expenditure disclosed pursuant to the proposed metrics would be a portion, if not all, of the registrant's total recorded expenditure (expensed or capitalized), as calculated pursuant to the accounting principles applicable to the registrant's financial statements.³⁷⁰

The proposed expenditure metrics would be subject to the same disclosure threshold as the financial impact metrics, which we believe would promote comparability, consistency, and clarity in determining when information must be disclosed. For purposes of calculating the disclosure threshold for the expenditure metrics, a registrant would be permitted to separately determine the amount of expenditure expensed and the amount of expenditure capitalized; however, a registrant would be required to aggregate expenditure related to climate-related events and transition activities within the categories of expenditure (*i.e.*, amount capitalized and amount expensed). This approach should better reflect the significance of climate-related expenditure compared to a calculation approach that would allow for a disclosure threshold to be measured at the individual event or activity level, which may result in more limited disclosures.

For example, assume a registrant capitalized \$200,000 of expenditure incurred related to Event D and capitalized another \$100,000 of expenditure incurred related to Activity E. The registrant also expensed \$25,000 of expenditure incurred related to Event F (which is an identified transition risk disclosed by the registrant). The registrant would determine whether the

³⁷⁰ See 17 CFR 210.4-01(a)(1) and (2).

impacts would trigger the disclosure requirements based on the proposed thresholds, as illustrated below:

Expenditure category	Current fiscal year balances (from consolidated financial statements)*	Event D	Activity E	Event F	Percentage impact
Capitalized costs (total expenditure incurred during the year that was capitalized)	\$8,000,000	\$200,000	\$100,000		3.85% **
Expense (total expenditure incurred during the year that was expensed)	\$3,000,000			\$25,000	0.8%

*As expenditures capitalized and expensed are recorded in various financial statement line items, we expect the “total” to be used for disclosure threshold calculation purposes for each category to represent the aggregated expenditures capitalized during the fiscal year and aggregated expenditures expensed during the fiscal year. See below for additional discussion regarding associated contextual information that may be required.

**Calculated based on total impact on capitalized costs from Event D (\$200,000), Activity E (\$100,000), and Event F (\$0): $\$300,000/\$8,000,000$.

In the above example, the expenditure incurred toward Event D was \$200,000 (capitalized) and the expenditure incurred toward Activity E and Event F were \$100,000 (capitalized) and \$25,000 (expensed). The amount of capitalized costs equaled the proposed one percent threshold, and thus the disclosure would be required for that category of expenditure. No disclosure would be required for the expenditure incurred that was expensed (related to Event F in this example), because it was below the one percent threshold. The registrant’s resulting disclosure of such expenditure (capitalized or expensed) may be provided, for example, as illustrated in the following table (excluding disclosure of contextual information):

Note X. Climate-related financial metrics:

	Expenditure incurred for climate-related events	Expenditure incurred for climate-related transition activities
Capitalized costs	\$200,000	\$100,000

In this example, contextual information may include disclosure such as the specific climate-related events and transition activities that were aggregated for purposes of determining the impacts on the capitalized or expensed expenditure amounts and, if applicable, policy decisions made by a registrant to determine the amount of climate-related events or transition activities that are categorized as expenditure capitalized versus expenditure expensed or whether impact from pursuing any climate-related opportunities are included in the analysis. Contextual information may also include a discussion of the composition of the total expenditure expensed and total expenditure capitalized, which were used to calculate whether the disclosure threshold was met, and, if applicable, a discussion of the estimation methodology used to disaggregate the amount of impact between the climate-related events, transition activities, and other factors, including if an event or an activity impacted both capitalized and expensed costs.

The proposed rules would clarify that a registrant may be required to disclose the amount of expenditure expensed or capitalized costs, as applicable, incurred for the climate-related events to increase the resilience of assets or operations, retire or shorten the estimated useful lives of impacted assets, relocate assets or operations at risk, or otherwise reduce the future impact of severe weather events and other natural conditions on business operations.³⁷¹ The proposed rules would also clarify that a registrant may be required to disclose the amount of expenditure expensed or capitalized costs, as applicable, incurred for climate-related transition activities related to research and development of new technologies, purchase of assets, infrastructure, or products that are intended to reduce GHG emissions, increase energy efficiency, offset emissions (purchase of energy credits), or improve other resource efficiency.³⁷²

³⁷¹ See proposed 17 CFR 210.14-02(e).

³⁷² See proposed 17 CFR 210.14-02(f).

Several commenters recommended taking a similar approach, stating that we should require disclosure of climate-related capital expenditure (*i.e.*, capitalized assets),³⁷³ or both climate-related expenses and capitalized assets.³⁷⁴ Consistent with these comments, and for similar reasons to those stated above with respect to the financial impact metrics, separate disclosure of total expense and total capitalized costs incurred toward the climate-related events and transition activities should provide important information to help investors make better informed investment or voting decisions. Moreover, the financial impacts of expenditure typically appear in different places within the financial statements (*e.g.*, in an asset line item(s) on the balance sheet or in an expense line item(s) in the income statement). The proposed approach is intended to address this dispersed presentation by requiring registrants to first identify the relevant climate-related expenditures and then compile those impacts in one location. Similar to the proposed financial impact metrics, such an approach should provide insight into, and context for understanding, the nature of a registrant’s business, including any disclosed strategy for addressing and managing the specified risks—particularly in the context of transition planning.³⁷⁵

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72. Should we require registrants to disclose the expenditure metrics, as proposed? Would presenting the expenditure metrics separately in one location provide decision-useful information

³⁷³ *See, e.g.*, letters from Amalgamated Bank; Interfaith Center on Corporate Responsibility; and Natural Resources Defense Council.

³⁷⁴ *See, e.g.*, letters from Calvert; Climate Risk Disclosure Lab; and World Benchmarking Alliance.

³⁷⁵ *See supra* Section II.C, which discusses our proposals to require the registrant to describe the actual and potential impacts of the identified climate-related risks (and climate-related opportunities if the registrant elects to do so) on its strategy, business model, and outlook. Further, such disclosure could also provide additional context to other narrative disclosures such as the discussion of risk factors required by 17 CFR 229.105.

to investors? Is there a different type of metric that would result in more useful disclosure of the expense or capitalized costs incurred toward climate-related events and transition activities or toward climate-related risks more generally?

73. Would the disclosure required by the expenditure metrics overlap with the disclosure required by the financial impact metrics? If so, should we require the disclosure to be provided pursuant to only one of these types of metrics?

74. Should the same climate-related events (including severe weather events and other natural conditions and identified physical risks) and transition activities (including identified transition risks) that we are proposing to use for the financial impact metrics apply to the expenditure metrics, as proposed? Alternatively, should we not require a registrant to disclose expenditure incurred towards identified climate-related risks and only require disclosure of expenditure relating to severe weather events and other natural conditions? Should we require a registrant to disclose the expenditure incurred toward only certain examples of severe weather events and other natural conditions? If so, should we specify which severe weather events and other natural conditions the registrant must include? Would requiring disclosure of the expenditure relating to a smaller subset of climate-related risks be easier for a registrant to quantify without sacrificing information that would be material to investors?

75. Should the proposed rules instead require a registrant to disclose the aggregate amounts of expensed and capitalized costs incurred toward *any* climate-related risks? Should expenditures incurred towards climate-related opportunities be optional based on a registrant's election to disclose such opportunities, as proposed?

76. Should we apply the same disclosure threshold to the expenditure metrics and the financial impact metrics? Is the proposed threshold for expenditure metrics appropriate? Should

we use a different percentage threshold (*e.g.*, three percent, five percent) or use a dollar threshold (*e.g.*, less than or greater than \$1 million)? Should we use a combination of a percentage threshold and a dollar threshold? Should we only require disclosure when the amount of climate-related expenditure exceeds the threshold, as proposed, or should we also require a determination of whether an amount of expenditure that falls below the proposed quantitative threshold would be material and should be disclosed? Should we require separate aggregation of the amount of expense and capitalized costs for purposes of the threshold, as proposed? Should we require separate aggregation of expenditure relating to the climate-related events and transition activities, as proposed?

77. Instead of including a quantitative threshold, as proposed, should we require disaggregated disclosure of *any* amount of expense and capitalized costs incurred toward the climate-related events and transition activities, during the periods presented? Alternatively, should we just use a materiality standard?

78. Are the proposed requirements for calculating and presenting the expenditure metrics clear? Should the analysis be performed and disclosed in a different manner, other than separately based on capitalized costs and amount of expenditure expensed and separately based on the climate-related events and transition activities? Should disclosure of expenditure incurred be required for both the amount of capitalized costs and the amount of expenditure expensed if only one of the two types of expenditure meets the disclosure threshold? Should we require separate disclosure of expenditure incurred toward each climate-related event and transition activity?

79. The proposed rule does not specifically address expensed or capitalized costs that are *partially* incurred towards the climate-related events and transition activities (*e.g.*, the

expenditure relates to research and development expenses that are meant to address both the risks associated with the climate-related events and other risks). Should we prescribe a particular approach to disclosure in such situations? Should we require a registrant to provide a reasonable estimate of the amount of expense or capitalized costs incurred toward the climate-related events and transition activities and to provide disclosure about the assumptions and information that resulted in the estimate?

80. Are the proposed terms and examples used in the expenditure metrics helpful for understanding the types of disclosures that would be required? Should we provide different or additional examples?

4. Financial Estimates and Assumptions

The proposed rules would require a registrant to disclose whether the estimates and assumptions used to produce the consolidated financial statements were impacted by exposures to risks and uncertainties associated with, or known impacts from, climate-related events (including identified physical risks and severe weather events and other natural conditions), such as flooding, drought, wildfires, extreme temperatures, sea level rise.³⁷⁶ If so, the registrant would be required to provide a qualitative description of how such events have impacted the development of the estimates and assumptions used by the registrant in the preparation of such financial statements. Similar to the other proposed financial statement metrics, the proposed rules would include a provision that would require separate disclosure focused on transition activities (including identified transition risks).³⁷⁷ Further, if a registrant elects to disclose the impact of an opportunity on its financial estimates and assumptions, it must do so consistently

³⁷⁶ See proposed 17 CFR 210.14-02(g) and (i).

³⁷⁷ See proposed 17 CFR 210.14-02(h) and (i).

and must follow the same presentation and disclosure requirements applicable to the required disclosures herein.³⁷⁸

If the estimates and assumptions a registrant used to produce the consolidated financial statements were impacted by risks and uncertainties associated with, or known impacts from, a potential transition to a lower carbon economy or any climate-related targets it has disclosed, the registrant would be required to provide a qualitative description of how the development of the estimates and assumptions were impacted by such a potential transition or the registrant's disclosed climate-related targets.

Estimates and assumptions are currently required for accounting and financial reporting purposes (*e.g.*, projected financial information used in impairment calculations, estimated loss contingencies, estimated credit risks, commodity price assumptions, etc.). The proposed disclosures could provide decision-useful information and transparency to investors about the impact of the climate-related events and transition activities, including disclosed targets and goals,³⁷⁹ on such estimates and assumptions. Moreover, in addition to providing insight into impacts on the registrant's financial statements, such disclosure could allow investors to evaluate the reasonableness of the registrant's estimates and assumptions, which are used to prepare the registrant's financial statements. Although current accounting standards require registrants to consider how climate-related matters may intersect with and affect the financial statements,

³⁷⁸ See proposed 17 CFR 210.14-02(j).

³⁷⁹ See proposed 17 CFR 229.1506.

including their impact on estimates and assumptions,³⁸⁰ the nature of the climate-related events and transition activities discussed in the proposed rules, which may manifest over a longer time horizon, necessitate targeted disclosure requirements to elicit decision-useful information for investors in a consistent manner. We also note that some registrants have already provided disclosure along the lines of the proposed requirements, which lends support to the feasibility of making such disclosures.³⁸¹

By way of example, the proposed climate-related events and impacts relating to a transition away from greenhouse gas producing products and activities could affect a registrant's asset values and may result in asset impairments. The effect on asset values and the resulting impairments could, in turn, affect a registrant's assumptions when calculating depreciation expenses or asset retirement obligations associated with the retirement of tangible, long-lived assets. Providing related disclosure could help an investor understand if a registrant would be responsible for removing equipment or cleaning up hazardous materials sooner than originally planned due to a severe weather event. Similarly, a registrant's climate-related targets and related commitments, such as a commitment to achieve net-zero emissions by 2040, may impact certain accounting estimates and assumptions. For example, if a registrant announced a

³⁸⁰ See FASB Staff Educational Paper, Intersection of Environmental, Social and Governance Matters with Financial Accounting Standards (Mar. 2021), available at https://fasb.org/jsp/FASB/Document_C/DocumentPage&cid=1176176379917. See also IFRS, Effects of climate-related matters on financial statements (Nov. 2020), available at <https://www.ifrs.org/content/dam/ifrs/supporting-implementation/documents/effects-of-climate-related-matters-on-financial-statements.pdf#:~:text=IFRS%20Standards%20do%20not%20refer%20explicitly%20to%20climate-related,significant%20judgements%20and%20estimates%20that%20management%20has%20made>. We also remind registrants of the requirements under FASB ASC Topic 250-10-50-4 for disclosures of changes in accounting estimates, including the requirement that if a change in estimate does not have a material effect in the period of change, but is reasonably certain to have a material effect in later periods, a description of that change in estimate must be disclosed whenever the financial statements of the period of change are presented.

³⁸¹ See letter from Carbon Tracker (stating that some companies in the European Union and United Kingdom (several of which are registrants) are already providing this information and providing examples).

commitment that would require decommissioning an asset by a target year, then the registrant’s depreciation expense should reflect alignment with that commitment. If the registrant believes it can execute a strategy that would allow it to meet the commitment and continue to operate the asset past the target date, then the proposed disclosure requirement could facilitate an investor’s understanding and own assessment of the feasibility of that strategy. Other financial statement estimates and assumptions that may require disclosure pursuant to the proposed rules may include those related to the estimated salvage value of certain assets, estimated useful life of certain assets, projected financial information used in impairment calculations, estimated loss contingencies, estimated reserves (such as environmental reserve or loan loss allowances), estimated credit risks, fair value measurement of certain assets, and commodity price assumptions.

Several commenters stated that it was important to provide investors with an understanding of how climate-related events and activities are considered when a registrant develops the assumptions and estimates used to prepare its financial statements.³⁸² In particular, one commenter stated that investors may face “substantial risk” if disclosure on the impact of “decarbonization” on the estimates and assumptions underlying asset valuations is not disclosed.³⁸³ Another commenter stated that “current corporate disclosure is not sufficient, is not readily available in existing financial disclosures, and does not allow investors to make comparable assessments of how companies are evaluating and responding to climate-related risks and opportunities.”³⁸⁴

³⁸² See, e.g., letters from Carbon Tracker; Climate Accounting Project; ICCR; and Institute for Policy Integrity, Environmental Defense Fund, Initiative on Climate Risk & Resilience Law.

³⁸³ See letter from Carbon Tracker.

³⁸⁴ See letter from ICCR.

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81. Should we require disclosure of financial estimates and assumptions impacted by the climate-related events and transition activities (including disclosed targets), as proposed? How would investors use this information?

82. Should we instead require disclosure of only significant or material estimates and assumptions that were impacted by the climate-related events and transition activities? Alternatively, should we require disclosure of only estimates and assumptions that were materially impacted by the climate-related events and transition activities?

83. Should we instead require disclosure of financial estimates and assumptions impacts by a subset of climate-related events and transition activities, such as not requiring disclosure related to identified climate-related risks or only requiring disclosure with respect to a subset of severe weather events and natural conditions? If so, how should the subset be defined?

84. Should we instead utilize terminology and thresholds consistent with the critical accounting estimate disclosure requirement in 17 CFR 229.303(b)(3), such as “estimates made in accordance with generally accepted accounting principles that involve a significant level of estimation uncertainty and have had or are reasonably likely to have a material impact on the financial condition or results of operations of the registrant”? If so, should we only require disclosures of whether and how the climate-related events and transition activities impacted such critical accounting estimates? Should we require only a qualitative description of how the estimates and assumptions were impacted by the climate-related events and transition activities, as proposed? Should we require quantitative disclosures as well? If so, should we require such disclosure only if practicable or subject to another qualifier?

85. Should the disclosure of financial estimates and assumptions impacted by climate-related opportunities be optional, as proposed?

86. For the proposed financial statement metrics, should we require a registrant to disclose material changes in estimates, assumptions, or methodology among fiscal years and the reasons for those changes? If so, should we require the material changes disclosure to occur on a quarterly, or some other, basis? Should we require disclosure beyond a discussion of the material changes in assumptions or methodology and the reasons for those changes? Do existing required disclosures already elicit such information? What other approaches should we consider?

5. Inclusion of Climate-Related Metrics in the Financial Statements

The proposed financial statement metrics would be required in the financial statements, and therefore would be (i) included in the scope of any required audit of the financial statements in the relevant disclosure filing, (ii) subject to audit by an independent registered public accounting firm, and (iii) within the scope of the registrant's ICFR.

As discussed above, the proposed disclosures share many characteristics with other complex financial statement disclosures. The financial statement metrics present financial data that is derived from the registrant's consolidated balance sheets, income statements, and statements of cash flows, and would be presented in a similar way to existing financial statement disclosures.³⁸⁵ Requiring certain climate-related information to be included in a note to the financial statements, and therefore subject to audit and within the scope of ICFR, should enhance the reliability of the proposed financial statement metrics.

³⁸⁵ See *supra* Section II.F.2 for additional discussion of shared characteristics that the financial statement metrics have with existing financial statement disclosures and commenters' views.

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87. We are proposing to require the financial statement metrics to be disclosed in a note to the registrant's audited financial statements. Should we require or permit the proposed financial statement metrics to be disclosed in a schedule to the financial statements? If so, should the metrics be disclosed in a schedule to the financial statements, similar to the schedules required under Article 12 of Regulation S-X, which would subject the disclosure to audit and ICFR requirements? Should we instead require the metrics to be disclosed as supplemental financial information, similar to the disclosure requirements under FASB ASC Topic 932-235-50-2 for registrants that have significant oil- and gas-producing activities? If so, should such supplemental schedule be subject to assurance or ICFR requirements?

88. Instead of requiring the financial statement metrics to be disclosed in a note to the registrant's audited financial statements, should we require a new financial statement for such metrics? For example, should a "consolidated climate statement" be created in addition to the consolidated balance sheets, statements of comprehensive income, cash flows, and other traditional financial statements? Would including the proposed metrics in a new financial statement provide more clarity to investors given that the metrics are intended to follow the structure of the existing financial statements (including the line items)? What complications or unintended consequences may arise in practice if such a climate statement is created?

89. Should we require the disclosure to be provided outside of the financial statements? Should we require all of the disclosure to be provided in the proposed separately captioned item in the specified forms?

90. Should we require any additional metrics or disclosure to be included in the financial statements and subject to the auditing and ICFR requirements as described above? For example,

should any of the disclosures we are proposing to require outside of the financial statements (such as GHG emissions metrics) be included in the financial statements? If so, should such metrics be disclosed in a note or a schedule to the financial statements? If in a schedule, should such schedule be similar to the schedules required under Article 12 of Regulation S-X and subject to audit and ICFR requirements? Should we instead require the metrics to be disclosed as supplemental financial information in a supplemental schedule? If so, should such supplemental schedule be subject to assurance or ICFR requirements?

91. Under the proposed rules, PCAOB auditing standards would be applicable to the financial statement metrics that are included in the audited financial statements, consistent with the rest of the audited financial statements. What, if any, additional guidance or revisions to such standards would be needed in order to apply PCAOB auditing standards to the proposed financial statement metrics? For example, would guidance on how to apply existing requirements, such as materiality, risk assessment, or reporting, be needed? Would revisions to the auditing standards be necessary? What additional guidance or revisions would be helpful to auditors, preparers, audit committee members, investors, and other relevant participants in the audit and financial reporting process?

92. Would it be clear that the climate-related financial statement metrics would be included in the scope of the audit when the registrant files financial statements prepared in accordance with IFRS as issued by the IASB? Would it be clear that the proposed rules would not alter the basis of presentation of the financial statements as referred to in an auditor's report? Should we amend Form 20-F, other forms, or our rules to clarify the scope of the audit or the basis of presentation in this context? For example, should we amend Form 20-F to state specifically that the scope of the audit must include any notes prepared pursuant to Article 14 of Regulation S-X?

What are the costs for accounting firms to provide assurance with respect to the financial statement metrics? Would those costs decrease over time?

G. GHG Emissions Metrics Disclosure

1. GHG Emissions Disclosure Requirement

a. Overview

In addition to the other proposed climate-related disclosures, the proposed rules would require a registrant to disclose its GHG emissions for its most recently completed fiscal year.³⁸⁶ As institutional investors and other commenters have indicated, GHG emissions information is important to investment decisions for various reasons, including because GHG emissions data is quantifiable and comparable across industries and can be particularly useful in conducting a transition risk analysis;³⁸⁷ it can be used to evaluate the progress in meeting net-zero commitments and assessing any associated risks;³⁸⁸ and it may be relevant to investment or voting decisions because GHG emissions could impact the company's access to financing, as well as its ability to reduce its carbon footprint in the face of regulatory, policy, and market constraints.³⁸⁹ Thus, while the justifications for the proposed GHG emissions disclosures overlap in some respects with the justifications for the other proposed climate-related disclosure rules, the GHG emissions requirements are intended to address separate challenges and are supported by the particular justifications discussed in detail in the following sections.

³⁸⁶ See proposed 17 CFR 229.1504(a). As discussed below, the proposed rules would also require a registrant to disclose its GHG emissions for the historical fiscal years included in its consolidated financial statements.

³⁸⁷ See, e.g., *infra* note 432 and accompanying text.

³⁸⁸ See, e.g., *infra*, note 433 and accompanying text.

³⁸⁹ See, e.g., *infra* note 455 and accompanying text.

The proposed rules would establish certain requirements regarding the measurement and reporting of GHG emissions that would promote the comparability of such disclosure. We have based the proposed GHG emissions disclosure rules on the concept of scopes, which are themselves based on the concepts of direct and indirect emissions, developed by the GHG Protocol. We also have proposed definitions of Scope 1, Scope 2, and Scope 3 emissions that are substantially similar to the corresponding definitions provided by the GHG Protocol. Commenters indicated that the GHG Protocol has become the leading accounting and reporting standard for GHG emissions.³⁹⁰ By sharing certain basic concepts and a common vocabulary with the GHG Protocol, the proposed rules should help limit the compliance burden for those registrants that are already disclosing their GHG emissions pursuant to the GHG Protocol.³⁹¹ Similarly, to the extent that registrants elect to follow GHG Protocol standards and methodologies, investors already familiar with the GHG Protocol may also benefit.

The proposed rules would define “greenhouse gases” as carbon dioxide (“CO₂”); methane (“CH₄”); nitrous oxide (“N₂O”); nitrogen trifluoride (“NF₃”); hydrofluorocarbons (“HFCs”); perfluorocarbons (“PFCs”); and sulfur hexafluoride (“SF₆”).³⁹² The greenhouse gases included in the proposed definition reflect the gases that are currently commonly referenced by international, scientific, and regulatory authorities as having significant climate impacts. In

³⁹⁰ See *supra* note 112 and accompanying text.

³⁹¹ In addition, as discussed in Section II.G.2.d, the proposed rules would permit a registrant, if actual reported data is not reasonably available, to use a reasonable estimate of its GHG emissions for its fourth fiscal quarter, together with actual, determined GHG emissions data for the first three fiscal quarters, as long as the registrant promptly discloses in a subsequent filing any material difference between the estimate used and the actual, determined GHG emissions data for the fourth fiscal quarter. See proposed 17 CFR 229.1504(e)(4)(i). This proposed provision should also help mitigate the GHG emissions compliance burden for registrants.

³⁹² See proposed 17 CFR 229.1500(g).

addition to being consistent with the GHG Protocol,³⁹³ the list of constituent greenhouse gases would be consistent with the gases identified by widely used frameworks, such as the Kyoto Protocol, the UN Framework Convention on Climate Change, the U.S. Energy Information Administration, and the EPA.³⁹⁴

The proposed rules would define GHG emissions to mean direct and indirect emissions of greenhouse gases.³⁹⁵ Pursuant to the proposed definition of GHG emissions, direct emissions are GHG emissions from sources that are owned or controlled by a registrant,³⁹⁶ whereas indirect emissions are GHG emissions that result from the activities of the registrant, but occur at sources not owned or controlled by the registrant.³⁹⁷ Similar to the GHG Protocol, the proposed rules would define:³⁹⁸

³⁹³ In Feb. 2013 the GHG Protocol amended the required greenhouse gas inventory list to align with the seven gases required by the Kyoto Protocol (consistent with the proposed definition of greenhouse gases). See GHG Protocol, *Required Greenhouse Gases in Inventories: Accounting and Reporting Standard Amendment* (Feb. 2013), available at https://www.ghgprotocol.org/sites/default/files/ghgp/NF3-Amendment_052213.pdf. Nevertheless, the GHG Protocol's Corporate Accounting and Reporting Standard, which was updated in 2015, continues to refer to only six greenhouse gases. We believe the common understanding of the GHG Protocol's Corporate Accounting and Reporting Standard is that the earlier amendment (reflecting seven gases) applies despite the subsequent 2015 update to the standard.

³⁹⁴ See UN Framework Convention on Climate Change ("UNFCCC") – *Reporting requirements* (last visited Nov. 4, 2021), available at <https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/reporting-requirements>. The Kyoto Protocol is the international agreement linked to the UNFCCC. See also U.S. Energy Information Administration – *Where greenhouse gases come from* (last updated May 21, 2021), available at <https://www.eia.gov/energyexplained/energy-and-the-environment/where-greenhouse-gases-come-from.php>; and EPA – *Overview of Greenhouse Gases* (last visited Nov. 4, 2021), available at <https://www.epa.gov/ghgemissions/overview-greenhouse-gases>.

³⁹⁵ See proposed 17 CFR 229.1500(h).

³⁹⁶ See proposed 17 CFR 229.1500(h)(1).

³⁹⁷ See proposed 17 CFR 229.1500(h)(2).

³⁹⁸ Sources of emissions can include transportation, electricity production, industrial processes, commercial and residential use, agriculture, and land use changes (including deforestation). See, e.g., EPA, *Sources of Greenhouse Gas Emissions*, available at <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>.

- Scope 1 emissions as direct GHG emissions from operations that are owned or controlled by a registrant;³⁹⁹
- Scope 2 emissions as indirect GHG emissions from the generation of purchased or acquired electricity, steam, heat, or cooling that is consumed by operations owned or controlled by a registrant;⁴⁰⁰ and
- Scope 3 emissions as all indirect GHG emissions not otherwise included in a registrant’s Scope 2 emissions, which occur in the upstream and downstream activities of a registrant’s value chain.⁴⁰¹ Upstream emissions include emissions attributable to goods and services that the registrant acquires, the transportation of goods (for example, to the registrant), and employee business travel and commuting. Downstream emissions include the use of the registrant’s products, transportation of products (for example, to the registrant’s customers), end of life treatment of sold products, and investments made by the registrant.

As previously noted, the EPA uses the concept of scopes, and refers to the GHG Protocol, when providing guidance to companies regarding their GHG emissions inventories.⁴⁰² Because GHG emissions data compiled for the EPA’s own GHG emissions reporting program would be consistent with the GHG Protocol’s standards, and thus with the proposed rules, a registrant may use that data in partial fulfillment of its GHG emissions disclosure obligations pursuant to the proposed rules.

³⁹⁹ See proposed 17 CFR 229.1500(p).

⁴⁰⁰ See proposed 17 CFR 229.1500(q).

⁴⁰¹ See proposed 17 CFR 229.1500(r).

⁴⁰² See *supra* note 113. The EPA requires the disclosure of direct GHG emissions primarily from large industrial sources as well as emissions from fuel and industrial gas suppliers and CO₂ injection sites in the United States. See EPA, *Greenhouse Gas Reporting Program*, available at <https://www.epa.gov/ghgreporting>.

The proposed rules would require a registrant to disclose its total Scope 1 emissions separately from its total Scope 2 emissions after calculating them from all sources that are included in the registrant’s organizational and operational boundaries.⁴⁰³ A registrant would also be required to disclose separately its total Scope 3 emissions for the fiscal year if those emissions are material, or if it has set a GHG emissions reduction target or goal that includes its Scope 3 emissions.⁴⁰⁴ For each of its Scopes 1, 2, and 3 emissions, the proposed rules would require a registrant to disclose the emissions both disaggregated by each constituent greenhouse gas (*e.g.*, by carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), nitrogen trifluoride (NF₃), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆)) and in the aggregate.⁴⁰⁵ By requiring the disclosure of GHG emissions both disaggregated by the constituent greenhouse gases and in the aggregate, investors could gain decision-useful information regarding the relative risks to the registrant posed by each constituent greenhouse gas in addition to the risks posed by its total GHG emissions by scope. For example, if a government targets reduction of a specific greenhouse gas, knowing that a registrant has significant emissions of such gas would provide insight into potential impacts on the registrant’s business.⁴⁰⁶ Because measuring the constituent greenhouse gases is a necessary step in

⁴⁰³ See proposed 17 CFR 229.1504(b)(1). We discuss the setting of a registrant’s organizational and operational boundaries in Section II.G.2. below.

⁴⁰⁴ See proposed 17 CFR 229.1504(c)(1). As discussed in greater detail below, for many companies, these emissions may be material for assessing the companies’ exposure to climate-related risks, particularly transition risks, and their strategy to reduce their carbon footprint in the face of regulatory, policy, and market constraints. See *infra* Section II.G.1.b.

⁴⁰⁵ See proposed 17 CFR 229.1504(a)(1).

⁴⁰⁶ For example, the White House has recently launched an initiative to reduce methane emissions in the United States. See the White House Office of Domestic Climate Policy, *U.S. Methane Emissions Reductions Action Plan* (Nov. 2021), available at <https://www.whitehouse.gov/wp-content/uploads/2021/11/US-Methane-Emissions-Reduction-Action-Plan-1.pdf>.

calculating a registrant’s total GHG emissions per scope, the proposed disaggregation by each constituent greenhouse gas should not create significant additional burdens.

Consistent with the GHG Protocol, the proposed rules would require a registrant to express each scope of its GHG emissions in terms of carbon dioxide equivalent (“CO₂e”).⁴⁰⁷ CO₂e is the common unit of measurement used by the GHG Protocol to indicate the global warming potential (“GWP”)⁴⁰⁸ of each greenhouse gas, expressed in terms of the GWP of one unit of carbon dioxide (CO₂).⁴⁰⁹ Requiring a standard unit of measurement for GHG emissions, rather than different units of measurement for the different greenhouse gases, should simplify the disclosure for investors and enhance its comparability across registrants with different types of GHG emissions.

For all scopes of GHG emissions, the proposed rules would require a registrant to disclose GHG emissions data in gross terms, excluding any use of purchased or generated offsets.⁴¹⁰ Because the value of offsets can vary depending on restrictions that are or may be imposed by regulation or market conditions, disclosing GHG emissions data in this manner would allow investors to assess the full magnitude of climate-related risk posed by a registrant’s GHG emissions and the registrant’s plans for managing such risk. This proposed approach also is consistent with the approach taken by the GHG Protocol.⁴¹¹

⁴⁰⁷ *See id.*

⁴⁰⁸ The proposed rules would define global warming potential to mean a factor describing the global warming impacts of different greenhouse gases. It is a measure of how much energy will be absorbed in the atmosphere over a specified period of time as a result of the emission of one ton of a greenhouse gas, relative to the emissions of one ton of carbon dioxide (CO₂). *See* proposed 17 CFR 229.1500(f).

⁴⁰⁹ *See* proposed 17 CFR 229.1500(d).

⁴¹⁰ *See* proposed 17 CFR 229.1504(a)(2). The proposed rules would define carbon offsets to represent an emissions reduction or removal of greenhouse gases in a manner calculated and traced for the purpose of offsetting an entity’s GHG emissions. *See* proposed 17 CFR 229.1500(a).

⁴¹¹ *See* GHG Protocol, *Corporate Accounting and Reporting Standard*, Chapter 9.

Commenters generally supported requiring disclosure of a registrant’s Scope 1 and Scope 2 emissions, with many also supporting disclosure of Scope 3 emissions.⁴¹² A common reason asserted by commenters for requiring GHG emissions disclosure is that quantitative data, such as GHG emissions data, is useful for assessing a registrant’s exposure to climate-related risks and accordingly its ability to transition to a lower carbon economy.⁴¹³ Investors that are currently

⁴¹² See, e.g., letters from Actual Systems, Inc.; Adobe Inc.; AICPA; Curt Albright (June 13, 2021); AllianceBernstein; Alphabet *et al.*; Amalgamated Bank; Americans for Financial Reform Education Fund; Andrew Behar; Apple; Ted Atwood; Baillie Gifford; Bank of America Corporation; BlackRock; Bloomberg, LP; Blueprint Financial; BNP Paribas; Rob Bonta, California Attorney General *et al.*; Boston Common Asset Management; BSR; CalPERS; CALSTRS; Calvert Research and Management; Carbon4 Finance (June 14, 2021); Carbon180 (June 13, 2021); Carbon Tracker Initiative; Cardano Risk Management Ltd.; Carolyn Kohoot; CDP NA; Center for American Progress; Center for Climate and Energy Solutions; Center for Law and Social Policy and a New Deal for Youth (June 15, 2021); Ceres *et al.*; Certified B Corporations; Chevron; Christopher Lish; Clean Yield Asset Management; Climate Advisers; Climate Governance Initiative Climate Risk Disclosure Law and Policy Lab; Climate Policy Ocean Conservancy (June 14, 2021); Coalition on Material Emissions Transparency (COMET) (June 10, 2021); Confluence Philanthropy; Consumer Federation of America; Crake Asset Management (June 4, 2021); Credit Suisse (June 11, 2021); Daniel Cain; Katherine DiMatteo; Domini Impact Investments LLC; Douglas Hileman Consulting, LLC; Dow (June 4, 2021); Dynamhex Inc.; Energy Infrastructure Council (June 14, 2014); Environmental Bankers Association; E2; E3G; ERM CVS; Etsy, Inc.; FAIRR Initiative; First Affirmative Financial Network; Regenerative Crisis Response Committee; the Forum for Sustainable and Responsible Investment; Friends of the Earth, Amazon Watch, and RainForest Action Network; Generation Investment Management LLP (June 14, 2021); Georgetown Climate Center (June 14, 2021); George S. Georgiev; Emmanuelle Haack; Hannon Armstrong; Hermes Equity Ownership Services Limited; HP, Inc.; IHS Markit; Impact Investors, Inc.; Impax Asset Management; Institute for Governance and Sustainable Development; Institute for Market Transformation; Interfaith Center on Corporate Responsibility; International Corporate Governance Network; Invesco; Investment Consultants Sustainability Working Group-U.S.; Investor Advocates for Social Justice (June 14, 2021); Janice Shade (June 22, 2021); Japanese Bankers Association; Keramida *et al.*; Majedie Asset Management; Manifest Climate; Mercy Investment Services, Inc.; Microsoft Corporation; Miller/Howard Investments; Mirova US LLC; Morningstar, Inc.; MSCI Inc.; Natural Resources Defense Council; NEI Investments; Newground Social Investment (June 14, 2021); New York City Comptroller; New York State Society of Certified Public Accountants; Nia Impact Capital (June 14, 2021); Norges Bank Investment; NY State Comptroller; Oxfam America (June 13, 2021); Paradise Investment Management; PayPal Holdings, Inc.; Pension Investment Association of Canada (June 14, 2021); Michael S. Pieciak, Vermont Commissioner of Financial Regulation (June 14, 2021); PRI (Consultation Response); Private Equity Stakeholder Project (June 14, 2021); Public Citizen and 57 other signatories (June 14, 2021); Publish What you Pay (US) (June 13, 2021); Revolving Door Project; RMI; Salesforce.com, Inc.; SASB; Schroder Investment Management North America (June 14, 2021); Seventh Generation Interfaith, Inc.; State Street Global Advisors; Maria Stoica; Stray Dog Capital; Sunrise Bay Area; Sustainable Inclusive Solutions (June 13, 2021); Terra Alpha Investor Group; the organization Green America and 14,600 Individual Americans (June 14, 2021); TotalEnergies; Trillium Asset Management; Union of Concerned Scientists (June 14, 2021); Unovis Asset Management (June 11, 2021); Value Balancing Alliance; Vert Asset Management LLC; Wellington Management Co.; Wespath Benefits and Investments; William and Flora Hewlett Foundation; W.K. Associates, Inc. (June 14, 2021); World Benchmarking Alliance; and WBCSD.

⁴¹³ See, e.g., letters from Calvert Research and Management; Ceres *et al.*; NY State Comptroller; and SASB.

using GHG emissions data do so because the data provides insight into a registrant’s exposure to climate-related risks, and transition risks in particular—risks that have implications for a registrant’s financial condition and results of operations.⁴¹⁴ An increasing number of investors have identified GHG emissions as material to their investment decision-making and are either purchasing this information from third-party providers or engaging with companies to obtain the information directly. In each situation, there is a lack of consistency, comparability, and reliability in those data that our proposal seeks to address.⁴¹⁵

Some of these commenters supported requiring disclosure of Scope 1 emissions at the individual greenhouse gas level.⁴¹⁶ Although commenters noted an increase in the voluntary reporting of climate-related disclosure, several also stated that significant gaps remain in the

⁴¹⁴ *See, e.g.*, letters from Bloomberg, LP (stating that GHG emissions are critical components of any climate-related financial disclosure scheme, and that understanding the emissions contributions of a company is an important factor for understanding how financially vulnerable they may be to shifts in regulation, technology, and markets during any transition to a lower-carbon economy); CalPers (indicating the use of GHG emissions data by asset managers to evaluate potential transition risks); and Credit Suisse (supporting mandatory disclosure of Scopes 1, 2, and 3 emissions for key industries as such information is critical for financial market participants to have a better understanding of their total climate-related exposure to the highest emitting sectors).

⁴¹⁵ *See, e.g.*, letters from CALSTRS (indicating the use by asset managers of third-party derived climate data, the expense and lack of consistency regarding such data, and the need for publicly available climate data so that the commenter may more efficiently and cost-effectively allocate capital to lower climate risk assets in line with its investment objectives); Credit Suisse (stating that the lack of consistent and reliable climate-related data has created significant challenges in the ability of financial market participants to adequately assess and compare the performance of reporting companies, as well as efficiently allocate capital towards low-carbon solutions); and Norges Bank Investment Management (indicating their reliance on companies’ climate-related data to assess their exposure to the effects of climate and how they manage climate-related risks and opportunities, and stating that the scope and quality of companies’ climate-related disclosures varies significantly and that their climate-related data is often incomplete and/or not comparable).

⁴¹⁶ *See, e.g.*, letters from Amazon Watch and Rainforest Action Network; Dimensional; Friends of the Earth; and ICCR.

disclosure, particularly regarding Scope 3 emissions, which, for certain industries, can comprise a majority of GHG emissions.⁴¹⁷

Many commenters recommended basing any GHG emissions disclosure requirement on the GHG Protocol.⁴¹⁸ Several of these commenters stated that the GHG Protocol’s framework for reporting GHG emissions, delineated as Scopes 1, 2, and 3 emissions, has become the globally-accepted standard used by numerous companies for reporting their GHG emissions.⁴¹⁹ Commenters also indicated that a mandatory standard for reporting GHG emissions based on the GHG Protocol would help in producing consistent, comparable, and reliable climate-related information for investors.⁴²⁰ Some commenters also stated that mandating GHG emissions pursuant to a standardized approach, such as the GHG Protocol, would help mitigate instances of greenwashing.⁴²¹

⁴¹⁷ *See, e.g.*, letters from Ceres (“In land-intensive sectors, deforestation, forest degradation, and land-use change are important financial risks associated with climate change. In these sectors—for example food and forest management—currently Scope 3 GHG emissions are not regularly disclosed, despite comprising upwards of 90% of emissions from companies.”); *see also* letters from Apple (stating that Scope 3 emissions “represent the overwhelming majority of most companies’ carbon footprint and are therefore critical to include”); Natural Resources Defense Council; NY State Comptroller; and Teachers Insurance and Annuity Association of America.

⁴¹⁸ *See, e.g.*, letters from Apple; bp; Carbon Tracker Initiative; Consumer Federation of America; ERM CVS; Ethic Inc.; First Affirmative Financial Network; Regenerative Crisis Response Committee; MSCI, Inc.; Natural Resources Defense Council; New York State Society of Certified Public Accountants; Paradise Investment Management; Stray Dog Capital; and Huw Thomas.

⁴¹⁹ *See, e.g.*, letters from ERM CVS; and Natural Resources Defense Council.

⁴²⁰ *See, e.g.*, letters from BNP Paribas; Natural Resources Defense Council; and New York State Society of Certified Public Accountants.

⁴²¹ *See, e.g.*, letters from BNP Paribas; Center for Law and Social Policy (June 15, 2021); and Dimensional Fund Advisors. *See also* Section IV.C below for further discussion of the practice of greenwashing.

Some commenters indicated that the Commission should mandate disclosure of only Scopes 1 and 2 emissions.⁴²² Other commenters suggested limiting the mandatory disclosure of Scope 3 emissions to registrants in certain industries,⁴²³ larger registrants, or when a registrant's Scope 3 emissions comprise 40 percent of its total emissions.⁴²⁴ These commenters pointed to difficulties in obtaining the necessary data from third parties and methodological uncertainties as reasons for limiting or not requiring disclosure of Scope 3 emissions. Other commenters and research support a requirement for disclosure of Scope 3 emissions that is independent of an individual company's materiality assessment.⁴²⁵

A few commenters stated that the Commission should require the disclosure of only Scope 1 emissions.⁴²⁶ One commenter stated that this approach would be consistent with the Greenhouse Gas Reporting Program overseen by the EPA, which they stated requires the tracking of facility-level Scope 1 emissions from "large greenhouse gas emitters."⁴²⁷ Another

⁴²² *See, e.g.*, letters from Acadian Asset Management LLC; American Bankers Association; American Exploration Production Council (June 11, 2021); Seema Arora; Bank Policy Institute; Biotechnology Innovation Organization; Business Roundtable (June 11, 2021); Cisco (June 11, 2021); Conning (June 11, 2021); CPP Investments; Decatur Capital Management; Dimensional Fund Advisors; Ethic Inc.; Freeport-McMoran (June 11, 2021); Harvard Management Company; Information Technology Industry Council; Institute of International Bankers; Investment Adviser Association; Manulife Investment Management; PGIM; PIMCO; Real Estate Roundtable (June 9, 2021); Matthew Roling and Samantha Tirakian; SIFMA Asset Management Group; the Vanguard Group, Inc.; and Walmart, Inc.

⁴²³ *See, e.g.*, letters from Teachers Insurance and Annuity Association of America (recommending requiring Scope 3 disclosure from issuers in the financial, energy, transportation, materials and buildings, and agriculture, food, and forest products sectors; and Sens. Schatz and Whitehouse (recommending requiring Scope 3 disclosure for financed emissions).

⁴²⁴ *See* letter from Catavento Consultancy.

⁴²⁵ *See, e.g.*, letters from Uber Technologies (Apr. 27, 2021); and Americans for Financial Reform Education Fund. *See also* TCFD, *Guidance on Metrics, Targets, and Transition Plans* (stating that 47% of respondents surveyed supported disclosure of Scope 3 GHG emissions independent of a materiality assessment).

⁴²⁶ *See* letters from American Petroleum Institute; Virginia Harper Ho; and David Marriage.

⁴²⁷ *See* letter from American Petroleum Institute.

commenter opposed a requirement to disclose any GHG emissions, asserting that GHG emissions do not serve as adequate indicators for the actual risks faced by a registrant.⁴²⁸

We agree with the many commenters that indicated that GHG emissions disclosure could provide important information for investors to help them evaluate the climate-related risks faced by registrants and to understand better how registrants are planning to mitigate or adapt to those risks.⁴²⁹ The proposed GHG emissions disclosures could be important to an investor's understanding of other disclosures that would be required by the proposed rules, such as disclosure of the likely impacts of climate-related risks as well as any targets and goals disclosure.⁴³⁰

We propose requiring disclosure of registrants' Scopes 1 and 2 emissions because, as several institutional investor commenters stated, investors need and many investors currently use this information to make investment or voting decisions.⁴³¹ One of those commenters stated that GHG emissions information serves as the starting point for transition risk analysis because it is quantifiable and comparable across companies and industries.⁴³² The commenter, an institutional investor, indicated that it uses GHG emissions data to rank companies within industries based on their GHG emissions intensity to better assess transition risk exposure of companies in its portfolio and make informed investment decisions. This commenter also

⁴²⁸ See letter from Richard Love.

⁴²⁹ See *supra* notes 412 and 413.

⁴³⁰ See *supra* Section II.C and *infra* Section II.I.

⁴³¹ See, e.g., letters from PIMCO; State Street Global Advisors; Trillium Asset Management; and Wellington Management Co.

⁴³² See Wellington Management Co.

indicated that Scopes 1 and 2 emissions information is more broadly available than Scope 3 emissions data because of the challenges of collecting the latter data.

As previously mentioned, several large institutional investors and financial institutions, which collectively have trillions of dollars in assets under management, have formed initiatives and made commitments to achieve a net-zero economy by 2050, with interim targets set for 2030.⁴³³ These initiatives further support the notion that investors currently need and use GHG emissions data to make informed investment decisions. These investors and financial institutions are working to reduce the GHG emissions of companies in their portfolios or of their counterparties and need GHG emissions data to evaluate the progress made regarding their net-zero commitments and to assess any associated potential asset devaluation or loan default risks.⁴³⁴ A company's GHG emissions footprint also may be relevant to investment or voting decisions because it could impact the company's access to financing or signal potential changes in its financial planning as governments, financial institutions, and other investors make demands to reduce GHG emissions.

We also agree with commenters that basing the Commission's proposed GHG emissions disclosure rules on concepts used in the GHG Protocol could help provide investors with consistent, comparable, and reliable information about a registrant's GHG emissions.⁴³⁵ In this regard, we note that several studies have found that GHG emissions data prepared pursuant to the

⁴³³ See *supra* Section I.C.1 (discussing, in particular, Climate Action 100+ and GFANZ).

⁴³⁴ See, e.g., Climate Action 100+, *The Three Asks*.

⁴³⁵ See *supra* note 420.

GHG Protocol have become the most commonly referenced measurements of a company's exposure to climate-related risks.⁴³⁶

However, we are not proposing to adopt all of the features of the GHG Protocol into the Commission's proposed climate-related disclosure rules. As explained in greater detail below, in one significant respect the proposed rules differ from the approach taken by the GHG Protocol regarding the methodology that a registrant would be required to use when calculating its GHG emissions. This difference better suits the U.S. financial reporting regime and the needs of investors.⁴³⁷ We recognize that the methodologies pertaining to the measurement of GHG emissions, particularly Scope 3 emissions, are evolving. While we expect that many registrants would choose to follow the standards and guidance provided by the GHG Protocol when calculating their GHG emissions, the proposed rules would not require registrants to do so. Allowing for some flexibility in the choice of GHG emissions methodologies would permit registrants to adapt to new approaches, such as those pertaining to their specific industry, as they emerge.

b. The Treatment of Scopes 1 and 2 Emissions Compared to Scope 3 Emissions

We are proposing to require all registrants to disclose their Scopes 1 and 2 emissions. Those types of emissions result directly or indirectly from facilities owned or activities controlled by a registrant. The relevant data for calculating Scopes 1 and 2 emissions should be

⁴³⁶ See, e.g., Kauffmann, C., C. Tébar Less and D. Teichmann (2012), *Corporate Greenhouse Gas Emission Reporting: A Stocktaking of Government Schemes*, OECD Working Papers on International Investment, 2012/01, OECD Publishing, at 8, available at <http://dx.doi.org/10.1787/5k97g3x674lq-en> ("For example, the use of scope 1, 2, 3 to classify emissions as defined by the GHG Protocol has become common language and practice today.").

⁴³⁷ See *infra* Section II.G.2 (discussing the proposed treatment for determining ownership or control for the purpose of setting a registrant's organizational boundaries when measuring its Scopes 1 and 2 emissions).

reasonably available to registrants, and the relevant methodologies are fairly well-developed. Registrants with large stationary sources of emissions already report Scope 1 emissions data to the EPA, and the EPA provides detailed methodologies for a range of industries with significant Scope 1 emissions.⁴³⁸ The EPA also provides detailed guidance for the calculation of Scope 2 emissions, which, although classified as “indirect emissions,” are generated by direct activities of the registrant in using purchased energy.⁴³⁹

Unlike Scopes 1 and 2 emissions, Scope 3 emissions typically result from the activities of third parties in a registrant’s value chain⁴⁴⁰ and thus collecting the appropriate data and calculating these emissions would potentially be more difficult than for Scopes 1 and 2 emissions. At the same time, in many cases Scope 3 emissions disclosure may be necessary to present investors a complete picture of the climate-related risks—particularly transition risks—that a registrant faces and how GHG emissions from sources in its value chain, which are not included in its Scopes 1 and 2 emissions, may materially impact a registrant’s business operations and associated financial performance. Scope 3 emissions can augment the information provided in Scopes 1 and 2 emissions and help to reflect the total emissions associated with a registrant’s operations, including inputs from upstream activities, such as those

⁴³⁸ See EPA, *Direct Emissions from Stationary Combustion Sources* (Dec. 2020), available at <https://www.epa.gov/sites/default/files/2020-12/documents/stationaryemissions.pdf>.

⁴³⁹ See EPA, *Indirect Emissions from Purchased Electricity* (Dec. 2020), available at <https://www.epa.gov/sites/default/files/2020-12/documents/electricityemissions.pdf>.

⁴⁴⁰ As previously mentioned, the proposed rules would define a registrant’s value chain to mean the upstream and downstream activities related to a registrant’s operations. Upstream activities include activities that relate to the initial stages of producing a good or service (e.g., materials sourcing, materials processing, and supplier activities). Downstream activities include activities that relate to processing materials into a finished product and delivering it or providing a service to the end user (e.g., transportation and distribution, processing of sold products, use of sold products, end of life treatment of sold products, and investments). See proposed 17 CFR 229.1500(t).

of its suppliers, and outputs from downstream activities, such as those involving the distribution, use, and disposal of a registrant's products or services.⁴⁴¹

Scope 3 emissions are indirect, but registrants can and do take steps to limit Scope 3 emissions and the attendant risks. Although a registrant may not own or control the operational activities in its value chain that produce Scope 3 emissions, it nevertheless may influence those activities, for example, by working with its suppliers and downstream distributors to take steps to reduce those entities' Scopes 1 and 2 emissions (and thus help reduce the registrant's Scope 3 emissions) and any attendant risks. As such, a registrant may be able to mitigate the challenges of collecting the data required for Scope 3 disclosure.⁴⁴² Such data may reveal changes in a registrant's Scope 3 emissions over time that could be informative for investors in discerning how the registrant is managing transition risks. For example, a registrant could seek to reduce the potential impacts on its business of its upstream emissions by choosing to purchase from more GHG emission-efficient suppliers or by working with existing suppliers to reduce emissions. A registrant could also seek to reduce the potential impacts on its business of downstream emissions by producing products that are more energy efficient or involve less GHG emissions when consumers use them, or by contracting with distributors that use shorter transportation routes. Being able to compare Scope 3 emissions over time could thus be a valuable tool for investors in tracking a registrant's progress in mitigating transition and other climate-related risks.

⁴⁴¹ See, e.g., letter from Wellington Management Co.

⁴⁴² See, e.g., letter from Apple (referencing its *2021 Environmental Progress Report*, available at https://www.apple.com/environment/pdf/Apple_Environmental_Progress_Report_2021.pdf, which states that 109 suppliers across 24 countries have committed to manufacturing Apple products with 100 percent renewable energy, and indicating Apple's development of detailed life cycle assessment models, which help the company identify its top product component contributors of carbon emissions and facilitate its providing a comprehensive account of its relevant Scope 3 emissions).

To balance the importance of Scope 3 emissions with the potential relative difficulty in data collection and measurement, the proposed rules would require disclosure of Scope 3 emissions only if those emissions are material, or if the registrant has set a GHG emissions reduction target or goal that includes its Scope 3 emissions.⁴⁴³ As explained in greater detail below, this latter proposed disclosure requirement could assist investors in tracking the progress of the registrant toward reaching the target or goal so that investors can better understand potential associated costs.⁴⁴⁴

Consistent with the Commission’s definition of “material” and Supreme Court precedent, a registrant would be required to disclose its Scope 3 emissions if there is a substantial likelihood that a reasonable investor would consider them important when making an investment or voting decision.⁴⁴⁵ In articulating this materiality standard, the Supreme Court recognized that “[d]oubts as to the critical nature” of the relevant information “will be commonplace.” But “particularly in view of the prophylactic purpose” of the securities laws,” and “the fact that the content” of the disclosure “is within management’s control, it is appropriate that these doubts be resolved in favor of those the statute is designed to protect,” namely investors.⁴⁴⁶

When recommending that the Commission require the disclosure of Scope 3 emissions, some commenters indicated that Scope 3 emissions represent the relatively large source of overall GHG emissions for many companies.⁴⁴⁷ Given their relative magnitude, we agree that,

⁴⁴³ See proposed 17 CFR 229.1504(c)(1). As explained below, we are also proposing a safe harbor for Scope 3 disclosures. See *infra* Section II.G.3.

⁴⁴⁴ See *infra* note 461 and accompanying text.

⁴⁴⁵ See *supra* note 209.

⁴⁴⁶ *TSC Industries, Inc. v Northway*, 426 U.S. at 448.

⁴⁴⁷ See, e.g., letters from Apple; and WK Associates.

for many registrants, Scope 3 emissions may be material to help investors assess the registrants' exposure to climate-related risks, particularly transition risks,⁴⁴⁸ and whether they have developed a strategy to reduce their carbon footprint in the face of regulatory, policy, and market constraints.⁴⁴⁹

Scope 3 emissions information may be material in a number of situations to help investors gain a more complete picture of the transition risks to which a registrant may be exposed. In certain industries, a transition to lower-emission products or processes may already be underway, triggered by existing laws or regulations, changes in weather, policy initiatives, a shift in consumer preferences, technological changes, or other market forces, such that financial risks are reasonably foreseeable for registrants in those industries based on the emissions in their value chain. For example, some registrants may need to allocate capital to invest in lower emissions equipment. Investors thus need and use information about the full GHG emissions footprint and intensity of a registrant to determine and compare how exposed a registrant is to the financial risks associated with any transition to lower-emission products.

For example, in the automobile industry, the vast majority of car manufacturers' GHG emissions footprint comes from tailpipe emissions of cars driven by customers, as compared to

⁴⁴⁸ See, e.g., letter from Wellington Management Co.

⁴⁴⁹ See Eric Rosenbaum, *Climate experts are worried about the toughest carbon emissions for companies to capture* (Aug. 18, 2021) ("Scope 3 carbon emissions, or those not part of operations or under direct control, represent the majority of the carbon footprint for most companies, in some cases as high as 85% to 95%"), available at <https://www.cnbc.com/2021/08/18/apple-amazon-exxon-and-the-toughest-carbon-emissions-to-capture.html#:~:text=Scope%203%20carbon%20emissions%2C%20or,as%2085%25%20to%2095%25>. See also MSCI, *Emissions: Seeing the Full Picture* (Sept. 17, 2020) ("For some companies and industries, Scope 3 emissions dominate the overall carbon footprint. For example, the Scope 3 emissions of the integrated oil and gas industry . . . are more than six times the level of its Scope 1 and 2 emissions."), available at <https://www.msci.com/www/blog-posts/scope-3-carbon-emissions-seeing/02092372761>; letter from WK Associates, Inc. (June 14, 2021) (stating that Scope 3 emissions account for approximately 70-90% of lifecycle emissions from oil products and 60-85% of those from natural gas, according to the International Energy Agency).

the emissions from manufacturing the cars.⁴⁵⁰ There is already a transition underway to reduce tailpipe emissions through the adoption of stricter fuel efficiency regulations⁴⁵¹ and by governmental initiatives that encourage the manufacture and demand for electric vehicles.⁴⁵² Demand for electric vehicles is increasing in the United States and globally,⁴⁵³ and leading automobile manufacturers have announced plans to increase the manufacture of electric vehicles, with many setting commitments to manufacture all-electric fleets or achieve net-zero emissions.⁴⁵⁴ This transition raises financial risks for automobile manufacturers, which can be gauged, in part, by their Scope 3 emissions. Investors can use Scope 3 emissions data concerning a car manufacturer's suppliers and the use of its sold products to assess whether a

⁴⁵⁰ See, e.g., TCFD, *Guidance on Metrics, Targets, and Transition Plans* (Oct. 2021), Appendix 1, Figure A1-1 (*Importance of Scope 3 GHG Emissions in Certain Sectors*) (showing that, for the automobiles and components sector, the majority of GHG emissions result from downstream product use), available at https://assets.bbhub.io/company/sites/60/2021/07/2021-Metrics_Targets_Guidance-1.pdf.

⁴⁵¹ See, e.g., Coral Davenport, *E.P.A. Announces Tightest-Ever Auto Pollution Rules*, N.Y. Times, Dec. 20, 2021, available at <https://www.nytimes.com/2021/12/20/climate/tailpipe-rules-climate-biden.html?searchResultPosition=25> (reporting that the EPA announced strengthened limits on pollution from automobile tailpipes). In addition, more than a dozen states have adopted low emission vehicle standards. See California Air Resources Board, *States that have Adopted California's Vehicle Standards under Section 177 of the Federal Clean Air Act*, available at <https://ww2.arb.ca.gov/resources/documents/states-have-adopted-californias-vehicle-standards-under-section-177-federal>.

⁴⁵² See, e.g., Catherine Lucey and Andrew Duehren, *Biden Touts Build Back Better in Meeting With CEOs*, Wall Street Journal, Jan. 26, 2022, available at https://www.wsj.com/articles/biden-touts-build-back-better-in-meeting-with-ceos-11643227677?mod=Searchresults_pos1&page= (reporting efforts to obtain Federal tax incentives to promote the use of electric and hydrogen-power vehicles).

⁴⁵³ See Jack Ewing, *Sales of Electric Vehicles Surpass Diesel in Europe, a First*, N.Y. Times, Jan. 17, 2022 (stating that sales of battery-powered cars soared in Europe, the United States, and China in 2021), available at <https://www.nytimes.com/2022/01/17/business/electric-vehicles-europe.html?searchResultPosition=1>.

⁴⁵⁴ See, e.g., Tom Krisher and Aamer Madhani, *US automakers pledge huge increase in electric vehicles*, AP News, Aug. 5, 2021, available at <https://apnews.com/article/technology-joe-biden-business-environment-and-nature-economy-88fe6ca8e333f3d00f6d2e98c6652cea> (reporting that General Motors aspires to sell only electric passenger vehicles by 2035 and Ford and Stellantis (formerly Fiat Chrysler) each expect that 40% of global sales to be electric vehicles by 2030); see also <https://www.caranddriver.com/news/g35562831/ev-plans-automakers-timeline/>; and Jim Motavalli, *Every Automaker's EV Plans Through 2035 And Beyond*, Forbes, Oct. 4, 2021, available at <https://www.forbes.com/wheels/news/automaker-ev-plans/>.

particular manufacturer is taking steps to mitigate or adapt to the risks posed by a transition to lower emission vehicles.

Changes in requirements by financial institutions and institutional investors can present similar financial risks for companies. As many financial institutions and investors begin to set their own GHG emissions reduction goals, they may consider the total GHG emissions footprint of companies that they finance or invest in to build portfolios to meet their goals.⁴⁵⁵ Financial institutions and investors may focus on Scopes 1 and 2 emissions for companies in some industries, particularly for industries in which Scopes 1 and 2 represent the majority of companies' total GHG emissions footprint. For other industries, however, Scope 3 emissions represent a relatively significant portion of companies' total GHG footprint, and therefore may reflect a more complete picture of companies' exposure to transition risks than Scopes 1 and 2 emissions alone. For oil and gas product manufacturers, for example, Scope 3 emissions are likely to be material and thus necessary to an understanding of a registrant's climate-related risks.

When assessing the materiality of Scope 3 emissions, registrants should consider whether Scope 3 emissions make up a relatively significant portion of their overall GHG emissions. While we are not proposing a quantitative threshold for determining materiality, we note that some companies rely on, or support reliance on, a quantitative threshold such as 40 percent when assessing the materiality of Scope 3 emissions.⁴⁵⁶ However, even when Scope 3 emissions do not represent a relatively significant portion of overall GHG emissions, a quantitative analysis

⁴⁵⁵ See *supra* Section I.C.1.

⁴⁵⁶ See, e.g., letter from Uber Technologies; see also TCFD, *Guidance on Metrics, Targets, and Transition Plans*, at note 40, citing SBTi, *SBTi Criteria and Recommendations* (Oct. 2021), available at <https://sciencebasedtargets.org/resources/files/SBTi-criteria.pdf>.

alone would not suffice for purposes of determining whether Scope 3 emissions are material. Consistent with the concept of materiality in the securities laws, this determination would ultimately need to take into account the total mix of information available to investors, including an assessment of qualitative factors. Accordingly, Scope 3 emissions may make up a relatively small portion of a registrant’s overall GHG emissions but still be material where Scope 3 represents a significant risk, is subject to significant regulatory focus, or “if there is a substantial likelihood that a reasonable [investor] would consider it important.”⁴⁵⁷ Moreover, if a materiality analysis requires a determination of future impacts, *i.e.*, a transition risk yet to be realized, then both the probability of an event occurring and its magnitude should be considered. Even if the probability of an adverse consequence is relatively low, if the magnitude of loss or liability is high, then the information in question may still be material.

If a registrant determines that its Scope 3 emissions are not material, and therefore not subject to disclosure, it may be useful to investors to understand the basis for that determination. Further, if a registrant determines that certain categories of Scope 3 emissions are material, registrants should consider disclosing why other categories are not material. If, however, Scope 3 emissions are material, then understanding the extent of a registrant’s exposure to Scope 3 emissions, and the choices it makes regarding them, would be important for investors when making investment or voting decisions.

Several commenters stated that disclosure of a registrant’s Scope 3 emissions is essential to making an informed investment decision because Scope 3 emissions can indicate a registrant’s

⁴⁵⁷ *TSC Industries v. Northway*, 426 U.S. at 449.

exposure to climate-related transition risks.⁴⁵⁸ For example, if policy changes lead to mandatory emissions reductions or carbon pricing, a registrant with high Scope 3 emissions could experience higher costs in sourcing key inputs. Similarly, if consumer preferences change to favor products that are less carbon intensive, a registrant could see a significant change in demand for its products. Registrants that do not account for these risks, or make suboptimal choices regarding them, could become less profitable in the future than registrants that acknowledge these risks and successfully mitigate them.⁴⁵⁹ Thus, Scope 3 emissions disclosure could help convey to investors the potential financial risks facing a company related to any transition to a lower carbon economy. With Scope 3 information disclosed, investors would be able to assess, in conjunction with reported financial information, how GHG emissions impact the registrant's operations as well as its overall business strategy so that they can make more informed investment or voting decisions.⁴⁶⁰

Disclosure of Scope 3 emissions could also highlight instances where a registrant attempts to reduce its total Scopes 1 and 2 emissions by outsourcing carbon intensive activities. For example, a registrant could contract out certain high-emissions production activities so that its own Scope 1 or 2 emissions are lower than a similar company that has retained direct ownership and control over more of its production activities. Thus, Scope 3 emissions reporting

⁴⁵⁸ *See, e.g.*, letters from Confluence Philanthropy; Forum for Sustainable and Responsible Investment; Mirova US LLC; NY City Comptroller; and Wellington Management Co.

⁴⁵⁹ *See id.*

⁴⁶⁰ For example, registrants that choose to mitigate climate-related risks by undertaking research and development activities to source inputs involving less GHG emissions might incur expenses in the short-term but could achieve potential long-term cost savings by implementing more energy-efficient production processes and avoiding potential penalties imposed by regulation.

could provide greater transparency and help preclude any efforts by registrants to obscure for investors the full magnitude of the climate-related risks associated with their GHG emissions.

The proposed rules would also require a registrant to disclose its Scope 3 emissions if it has set a GHG emissions reduction target or goal that includes Scope 3 emissions.⁴⁶¹ This disclosure requirement would enable investors to understand the scale and scope of actions the registrant may need to take to fulfill its commitment to reduce its Scope 3 emissions and the potential financial impact of that commitment on the registrant. It would also enable an investor to assess the registrant's strategy for meeting its Scope 3 emissions target or goal and its progress towards that target or goal, which may affect the registrant's business.

Scope 3 emissions disclosures would help investors to understand and assess the registrant's strategy. For example, Scope 3 emissions disclosures would allow an investor to better understand how feasible it would be for the registrant to achieve its targets through its current strategy, to track the registrant's progress over time, and to understand changes the registrant may make to its strategy, targets, or goals. Scope 3 emissions disclosures would thus be important to evaluating the financial effects of the registrant's target or goal. In addition, this disclosure could help prevent instances of greenwashing or other misleading claims concerning the potential impact of Scope 3 emissions on a registrant's business because investors, and the market would have access to a quantifiable, trackable metric.

A registrant's Scope 3 emissions disclosure, together with the proposed financial statement metrics, would also enable an investor to assess the efficiency and efficacy of the registrant's actions to achieve its target or goal (*e.g.*, by comparing the registrant's expenditures

⁴⁶¹ See proposed 17 CFR 229.1504(c)(1).

or other investments in lower carbon transition activities from year to year with any corresponding reduction in its Scope 3 emissions). If a registrant has a relatively ambitious Scope 3 emissions target, but discloses little investment in transition activities in its financial statements and little or no reduction in Scope 3 emissions from year to year, these disclosures could indicate to investors that the registrant may need to make a large expenditure or significant change to its business operations as it gets closer to its target date, or risk missing its target. Both potential outcomes could have financial ramifications for the registrant and, accordingly, investors.

The proposed disclosure requirement should also give investors the ability to evaluate whether a registrant's target or goal and its plan for achieving that target or goal could have an adverse impact on the registrant. For example, an investor might conclude that the financial costs of a registrant's plan would outweigh any benefits to the business, and factor that into how the registrant's securities fit into the investor's own investment portfolio given the investor's risk tolerance and other investment goals. Thus, the objective of this disclosure is not to drive targets, goals, plans, or conduct, but to provide investors with the tools to assess the implications of any targets, goals, or plans on the registrant in making investment or voting decisions.

This disclosure requirement could also enable investors to better compare firms. For example, two registrants may have the same total GHG emissions and have made the same commitments to reduce total GHG emissions from Scopes 1, 2, and 3 emissions combined. However, if the registrants have different proportions of emissions from Scope 1 and 2 versus Scope 3, investors might determine that there would be different costs and effects for these registrants from their disclosed plans to reduce their overall emissions.

Scope 3 emissions disclosures could also enable investors to better compare registrants' plans to achieve their Scope 3 emissions targets or goals. For example, registrants in the retail industry may have a relatively large portion of their Scope 3 emissions derived from customer travel to the registrant's stores and shipping products or goods to customers or stores. If a registrant in this industry has set Scope 3 emissions targets or goals, in order to meet those targets or goals it may choose to relocate its stores to be closer to public transportation. Another similarly situated registrant may elect to switch to using electric vehicles for shipping. A third similarly situated registrant might elect to take neither action, but instead assume Scope 3 emissions reductions based on customers' change in behavior. Investors could assess the likelihood of each of these three registrants meeting their Scope 3 emissions target or goal—as well as the likely financial and operational impact—which could depend on the amount and type of their Scope 3 emissions. Investors could also compare the potential impacts of these plans on the three different registrants. Without disclosures of the amount and type of Scope 3 emissions, investors would face difficulty assessing the likely impacts of a target or goal that includes Scope 3 emissions on registrants and comparing the relative impacts across registrants.

If required to disclose Scope 3 emissions, a registrant would be required to identify the categories of upstream and downstream activities that have been included in the calculation of its Scope 3 emissions. Consistent with the GHG Protocol,⁴⁶² the proposed rules identify several categories of activities that can give rise to Scope 3 emissions. Upstream activities from which Scope 3 emissions might result include:

- A registrant's purchased goods and services;

⁴⁶² See WBCSD and World Resources Institute, Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard (Sept. 2011).

- A registrant’s capital goods;
- A registrant’s fuel and energy related activities not included in Scope 1 or Scope 2 emissions;
- Transportation and distribution of purchased goods, raw materials, and other inputs;
- Waste generated in a registrant’s operations;
- Business travel by a registrant’s employees;
- Employee commuting by a registrant’s employees; and
- A registrant’s leased assets related principally to purchased or acquired goods or services.⁴⁶³

Downstream activities from which Scope 3 emissions might result include:

- Transportation and distribution of a registrant’s sold products, goods or other outputs;
- Processing by a third party of a registrant’s sold products;
- Use by a third party of a registrant’s sold products;
- End-of-life treatment by a third party of a registrant’s sold products;
- A registrant’s leased assets related principally to the sale or disposition of goods or services;
- A registrant’s franchises; and
- Investments by a registrant.⁴⁶⁴

The list of upstream and downstream activities set forth in proposed Item 1500(r) is non-exclusive. If any upstream or downstream activities were significant to the registrant when

⁴⁶³ See proposed 17 CFR 229.1500(r).

⁴⁶⁴ See *id.* The “investments” category would capture what are commonly referred to as “financed emissions.”

calculating its Scope 3 emissions, the proposed rules would require it to identify such categories and separately disclose Scope 3 emissions data for each of those categories together with a total of all Scope 3 emissions.⁴⁶⁵ For example, an energy company that produces oil and gas products may find that a significant category of activity resulting in Scope 3 emissions relates to the end use of its sold products. A manufacturer might find that a significant category of activities resulting in Scope 3 emissions relate to the emissions of its suppliers in the production of purchased goods or services, the processing of its sold products, or by the fuel consumed by its third-party transporters and distributors of those goods and services and of its sold products. In some cases, the category in which an emissions source belongs may be unclear, or the source might fit within more than one category. In those cases, registrants would need to use their best judgment as to the description of the emissions source and provide sufficient transparency as to the reasoning and methodology to facilitate investor understanding of the emissions category and source.

If required to disclose Scope 3 emissions, a registrant would also be required to describe the data sources used to calculate those emissions, including the use of any of the following:

- Emissions reported by parties in the registrant’s value chain, and whether such reports were verified by the registrant or a third party, or unverified;
- Data concerning specific activities,⁴⁶⁶ as reported by parties in the registrant’s value chain; and

⁴⁶⁵ See proposed 17 CFR 229.1504(c)(1).

⁴⁶⁶ Activity data refers to a quantitative measure of a level of activity that results in GHG emissions. Depending on the activity, such data could be expressed, for example, as: liters of fuel consumed; kilowatt-hours of electricity consumed; kilograms of material consumed; kilometers of distance traveled; hours of time operated; square meters of area occupied; kilograms of waste generated; kilograms of product sold; or quantity of money spent. See GHG Protocol, *Corporate Value Chain (Scope 3) Accounting and Reporting Standard*, Chapter 7.

- Data derived from economic studies, published databases, government statistics, industry associations, or other third-party sources outside of a registrant’s value chain, including industry averages of emissions, activities, or economic data.⁴⁶⁷

This information is intended to assist investors in assessing the reliability and accuracy of the registrant’s Scope 3 emissions disclosure. For example, an investor might find emissions data related to the downstream transportation and distribution of a registrant’s sold products more reliable if based on specific distances traveled by the registrant’s transportation and distribution partners and company-specific emissions factors rather than estimates of distances traveled based on industry-average data and using national average emission factors. Although we recognize that a registrant may sometimes need to use industry- and national-average data when calculating its Scope 3 emissions, information about the data sources for its Scope 3 emissions would help investors better understand the risk exposure posed by the registrant’s value chain in comparison with other registrants and make more informed investment decisions.

We acknowledge that a registrant’s material Scope 3 emissions is a relatively new type of metric, based largely on third-party data, that we have not previously required. We are proposing the disclosure of this metric because we believe capital markets have begun to assign financial value to this type of metric, such that it can be material information for investors about financial risks facing a company. Scope 3 emissions disclosure is an integral part of both the TCFD⁴⁶⁸ framework and the GHG Protocol,⁴⁶⁹ which are widely accepted. It also has been widely recognized that, for some companies, disclosure of just Scopes 1 and 2 emissions could

⁴⁶⁷ See proposed 17 CFR 229.1504(c)(2).

⁴⁶⁸ See, e.g., TCFD, *Guidance on Metrics, Targets, and Transition Plans* (Oct. 2021), Appendix 1.

⁴⁶⁹ See, e.g., GHG Protocol, *Corporate Value Chain (Scope 3) Accounting and Reporting Standard*.

convey an incomplete, and potentially misleading, picture.⁴⁷⁰ We have attempted to calibrate our proposal to balance investors' demand for this information with the current limitations of the Scope 3 emissions data.

We also recognize, as discussed below, that the reporting of Scope 3 emissions may present more challenges than the reporting of Scopes 1 and 2 emissions. But in light of the fact that a GHG emissions reporting regime may be incomplete without the reporting of Scope 3 emissions, we are proposing to include them, with an appropriate transition period and safe harbor, at the outset. Although we have not proposed to exclude specific upstream or downstream activities from the scope of the proposed Scope 3 disclosure requirement, we have limited the proposed disclosure requirement to those value chain emissions that overall are material. We also have not proposed a bright-line quantitative threshold for the materiality determination as suggested by some commenters⁴⁷¹ because whether Scope 3 emissions are material would depend on the particular facts and circumstances, making it difficult to establish a "one size fits all" standard.

Request for Comment

93. How would investors use GHG emissions disclosures to inform their investment and voting decisions? How would such disclosures provide insight into a registrant's financial condition, changes in financial condition, and results of operations? How would such disclosures help investors evaluate an issuer's climate risk-related exposure? Would such

⁴⁷⁰ See, e.g., TCFD, *Guidance on Metrics, Targets, and Transition Plans* (Oct. 2021), Appendix 1; and letters from Apple; NY City Comptroller; and Wellington Investment Co.

⁴⁷¹ See, e.g., letter from Catavento Consultancy (stating that Scope 3 emissions disclosure should be mandatory for larger companies and for those in which Scope 3 emissions account for more than 40% of total emissions).

disclosures enable investors to better assess physical risks associated with climate-related events, transition risks, or both types of risks?

94. Should we require a registrant to disclose its GHG emissions both in the aggregate, per scope, and on a disaggregated basis for each type of greenhouse gas that is included in the Commission's proposed definition of "greenhouse gases," as proposed? Should we instead require that a registrant disclose on a disaggregated basis only certain greenhouse gases, such as methane (CH₄) or hydrofluorocarbons (HFCs), or only those greenhouse gases that are the most significant to the registrant? Should we require disaggregated disclosure of one or more constituent greenhouse gases only if a registrant is obligated to separately report the individual gases pursuant to another reporting regime, such as the EPA's greenhouse gas reporting regime or any foreign reporting regime? If so, should we specify the reporting regime that would trigger this disclosure?

95. We have proposed defining "greenhouse gases" as a list of specific gases that aligns with the GHG Protocol and the list used by the EPA and other organizations. Should other gases be included in the definition? Should we expand the definition to include any other gases to the extent scientific data establishes a similar impact on climate change with reasonable certainty? Should we require a different standard to be met for other greenhouse gases to be included in the definition?

96. Should we require a registrant to express its emissions data in CO₂e, as proposed? If not, is there another common unit of measurement that we should use? Is it important to designate a common unit of measurement for GHG emissions data, as proposed, or should we permit registrants to select and disclose their own unit of measurement?

97. Should we require a registrant to disclose its total Scope 1 emissions and total Scope 2 emissions separately for its most recently completed fiscal year, as proposed? Are there other approaches that we should consider?

98. Should we require a registrant to disclose its Scope 3 emissions for the fiscal year if material, as proposed? Should we instead require the disclosure of Scope 3 emissions for all registrants, regardless of materiality? Should we use a quantitative threshold, such as a percentage of total GHG emissions (*e.g.*, 25%, 40%, 50%) to require the disclosure of Scope 3 emissions? If so, is there any data supporting the use of a particular percentage threshold? Should we require registrants in particular industries, for which Scope 3 emissions are a high percentage of total GHG emissions, to disclose Scope 3 emissions?

99. Should we require a registrant that has made a GHG emissions reduction commitment that includes Scope 3 emissions to disclose its Scope 3 emissions, as proposed? Should we instead require registrants that have made any GHG emissions reduction commitments, even if those commitments do not extend to Scope 3, to disclose their Scope 3 emissions? Should we only require Scope 3 emissions disclosure if a registrant has made a GHG emissions reduction commitment that includes Scope 3 emissions?

100. Should Scope 3 emissions disclosure be voluntary? Should we require Scope 3 emissions disclosure in stages, *e.g.*, requiring qualitative disclosure of a registrant's significant categories of upstream and downstream activities that generate Scope 3 emissions upon effectiveness of the proposed rules, and requiring quantitative disclosure of a registrant's Scope 3 emissions at a later date? If so, when should we require quantitative disclosure of a registrant's Scope 3 emissions?

101. Should we require a registrant to exclude any use of purchased or generated offsets when disclosing its Scope 1, Scope 2, and Scope 3 emissions, as proposed? Should we require a registrant to disclose both a total amount with, and a total amount without, the use of offsets for each scope of emissions?

102. Should we require a registrant to disclose its Scope 3 emissions for each separate significant category of upstream and downstream emissions as well as a total amount of Scope 3 emissions for the fiscal year, as proposed? Should we only require the disclosure of the total amount of Scope 3 emissions for the fiscal year? Should we require the separate disclosure of Scope 3 emissions only for certain categories of emissions and, if so, for which categories?

103. Should the proposed rules include a different standard for requiring identification of the categories of upstream and downstream emissions, such as if those categories of emissions are significant to total GHG emissions or total Scope 3 emissions? Are there any other categories of, or ways to categorize, upstream or downstream emissions that a registrant should consider as a source of Scope 3 emissions? For example, should we require a registrant to disclose Scope 3 emissions only for categories of upstream or downstream activities over which it has influence or indirect control, or for which it can quantify emissions with reasonable reliability? Are there any proposed categories of upstream or downstream emissions that we should exclude as sources of Scope 3 emissions?

104. Should we, as proposed, allow a registrant to provide their own categories of upstream or downstream activities? Are there additional categories, other than the examples we have identified, that may be significant to a registrant's Scope 3 emissions and that should be listed in the proposed rule? Are there any categories that we should preclude, *e.g.*, because of lack of accepted methodologies or availability of data? Would it be useful to allow registrants to add

categories that are particularly significant to them or their industry, such as Scope 3 emissions from land use change, which is not currently included in the Greenhouse Gas Protocol's Scope 3 categories? Should we specifically add an upstream emissions disclosure category for land use?

105. Should we require the calculation of a registrant's Scope 1, Scope 2, and/or Scope 3 emissions to be as of its fiscal year end, as proposed? Should we instead allow a registrant to provide its GHG emissions disclosures according to a different timeline than the timeline for its Exchange Act annual report? If so, what should that timeline be? For example, should we allow a registrant to calculate its Scope 1, Scope 2, and/or Scope 3 emissions for a 12-month period ending on the latest practicable date in its fiscal year that is no earlier than three months or, alternatively, six months prior to the end of its fiscal year? Would allowing for an earlier calculation date alleviate burdens on a registrant without compromising the value of the disclosure? Should we allow such an earlier calculation date only for a registrant's Scope 3 emissions? Would the fiscal year end calculations required for a registrant to determine if Scope 3 emissions are material eliminate the benefits of an earlier calculation date? Should we instead require a registrant to provide its GHG emissions disclosures for its most recently completed fiscal year one, two, or three months after the due date for its Exchange Act annual report in an amendment to that report?

106. Should we require a registrant that is required to disclose its Scope 3 emissions to describe the data sources used to calculate the Scope 3 emissions, as proposed? Should we require the proposed description to include the use of: (i) emissions reported by parties in the registrant's value chain, and whether such reports were verified or unverified; (ii) data concerning specific activities, as reported by parties in the registrant's value chain; and (iii) data derived from economic studies, published databases, government statistics, industry associations,

or other third-party sources outside of a registrant's value chain, including industry averages of emissions, activities, or economic data, as proposed? Are there other sources of data for Scope 3 emissions the use of which we should specifically require to be disclosed? For purposes of our disclosure requirement, should we exclude or prohibit the use of any of the proposed specified data sources when calculating Scope 3 emissions and, if so, which ones?

107. Should we require a registrant to provide location data for its disclosed sources of Scope 1, Scope 2, and Scope 3 emissions if feasible? If so, should the feasibility of providing location data depend on whether it is known or reasonably available pursuant to the Commission's existing rules (Securities Act Rule 409 and Exchange Act Rule 12b-21)? Would requiring location data, to the extent feasible, assist investors in understanding climate-related risks, and in particular, likely physical risks, associated with a registrant's emissions' sources? Would a requirement to disclose such location data be duplicative of any of the other disclosure requirements that we are proposing?

108. If we require a registrant to provide location data for its GHG emissions, how should that data be presented? Should the emissions data be grouped by zip code separately for each scope? Should the disclosure be presented in a cartographic data display, such as what is commonly known as a "heat map"? If we require a registrant to provide location data for its GHG emissions, should we also require additional disclosure about the source of the emissions?

c. GHG Intensity

In addition to requiring the disclosure of its GHG emissions in gross terms, the proposed rules would also require a registrant to disclose the sum of its Scopes 1 and 2 emissions in terms

of GHG intensity.⁴⁷² If required to disclose Scope 3 emissions, a registrant would also be required to separately disclose its Scope 3 emissions in terms of GHG intensity.⁴⁷³ GHG intensity disclosure should provide context to a registrant’s emissions in relation to its business scale (*e.g.*, emissions per economic output). For example, car manufacturer A may generate more emissions in terms of CO₂e than car manufacturer B; however, when analyzing an intensity metric (emissions per unit of production), it becomes apparent that car manufacturer A actually has a lower emission rate per car produced than car manufacturer B, which indicates a registrant’s emission efficiency. Because emission efficiency can be a potential indicator of the likelihood of the registrant being impacted by transition risks, such GHG intensity disclosure could provide decision-useful information to investors. In addition, the proposed GHG intensity disclosure would provide a standardized method for presenting such measure of efficiency across registrants, which should facilitate comparability of the registrant’s emissions efficiency over time.

The proposed rules would define “GHG intensity” (or “carbon intensity”) to mean a ratio that expresses the impact of GHG emissions per unit of economic value (*e.g.*, metric tons of CO₂e per unit of total revenues, using the registrant’s reporting currency) or per unit of production (*e.g.*, metric tons of CO₂e per unit of product produced).⁴⁷⁴ For purposes of standardizing the disclosure and facilitating its comparability, we are proposing to require the disclosure of GHG intensity in terms of metric tons of CO₂e per unit of total revenue and per unit

⁴⁷² See proposed 17 CFR 229.1504(d)(1).

⁴⁷³ See proposed 17 CFR 229.1504(d)(2). The proposed safe harbor for Scope 3 emissions disclosure would apply to this proposed GHG intensity metric for Scope 3 emissions. See *infra* Section II.C.3.

⁴⁷⁴ See proposed 17 CFR 229.1500(i). We derived this proposed definition from the GHG Protocol. See GHG Protocol, *A Corporate Accounting and Reporting Standard*, Chapter 9.

of production for the fiscal year.⁴⁷⁵ Total revenue is one of the most commonly used and understood financial metrics when investors analyze a registrant's financial results and applies to most registrants (depending on the nature and maturity of the business) and therefore would be a good common denominator for the intensity calculation. The selected unit of production should be relevant to the registrant's industry to facilitate investor comparison of the GHG intensity of companies within an industry without regard to registrant size. Investors may find such a comparison to be useful to making informed investment decisions to the extent that a registrant within a particular industry that has a lower GHG intensity relative to its peers that face fewer climate-related risks.

If the registrant has no revenue for a fiscal year, it would be required to calculate its GHG intensity with another financial measure (*e.g.*, total assets), with an explanation of why the particular measure was used. Similarly, if the registrant does not have a unit of production, it would be required to calculate its GHG intensity with another measure of economic output, depending on the nature of its business (*e.g.*, data processing capacity, volume of products sold, or number of occupied rooms) with an explanation of why the particular measure was used.⁴⁷⁶

A registrant could also voluntarily disclose other additional measures of GHG intensity, including non-financial measures such as economic output, provided it includes an explanation of the reasons why those particular GHG intensity measures were used and why the registrant believes such measures provide useful information to investors.⁴⁷⁷ In all cases, the registrant

⁴⁷⁵ See proposed 17 CFR 229.1504(d)(1).

⁴⁷⁶ See proposed 17 CFR 229.1504(d)(3).

⁴⁷⁷ See proposed 17 CFR 229.1504(d)(4).

would be required to disclose the methodology and other information required pursuant to the proposed GHG emissions metrics instructions.⁴⁷⁸

Request for Comment

109. Should we require a registrant to disclose the intensity of its GHG emissions for the fiscal year, with separate calculations for (i) the sum of Scope 1 and Scope 2 emissions and, if applicable (ii) its Scope 3 emissions (separately from Scopes 1 and 2), as proposed? Should we define GHG intensity, as proposed? Is there a different definition we should use for this purpose?

110. Should we require the disclosed GHG intensity to be expressed in terms of metric tons of CO₂e per unit of total revenue, as proposed? Should we require a different financial measure of GHG intensity and, if so, which measure? For example, should GHG intensity be expressed in terms of metric tons of CO₂e per unit of total assets?

111. Should we require the disclosed GHG intensity to be expressed in terms of metric tons of CO₂e per unit of production, as proposed? Would such a requirement facilitate the comparability of the disclosure? Should we require a different economic output measure of GHG intensity and, if so, which measure? For example, should GHG intensity be expressed in terms of metric tons of CO₂e per number of employees? Should we require the GHG intensity to be expressed per unit of production relevant to the registrant's business (rather than its industry)? Is further guidance needed on how to comply with the proposed requirement? Would requiring GHG intensity to be expressed in terms of metrics tons of CO₂e per unit of production require disclosure of commercially sensitive or competitively harmful information?

⁴⁷⁸ See proposed 17 CFR 229.1504(e)(1) and *infra* Section II.G.2 for the proposed disclosure requirements pertaining to GHG emissions methodology.

112. Should we require a registrant with no revenue or unit of production for a fiscal year to disclose its GHG intensity based on, respectively, another financial measure or measure of economic output, as proposed? Should we require such a registrant to use a particular financial measure, such as total assets, or a particular measure of economic output, such as total number of employees? For registrants who may have minimal revenue, would the proposed calculation result in intensity disclosure that is confusing or not material? Should additional guidance be provided with respect to such instances?

113. Should we permit a registrant to disclose other measures of GHG intensity, in addition to the required measures, as long as the registrant explains why it uses the particular measure of GHG intensity and discloses the corresponding calculation methodology used, as proposed?

d. GHG Emissions Data for Historical Periods

The proposed rules would require disclosure to be provided for the registrant's most recently completed fiscal year and for the historical fiscal years included in the registrant's consolidated financial statements in the applicable filing, to the extent such historical GHG emissions data is reasonably available.⁴⁷⁹ Requiring historical GHG emissions data, to the extent available, would provide useful information for investors by enabling investors to track over time the registrant's exposure to climate-related impacts represented by the yearly emissions data, and to assess how it is managing the climate-related risks associated with those impacts. Requiring GHG emissions disclosure for current and, when reasonably available, historical periods should enable investors to analyze trends in the impacts of material climate-related risks and to evaluate the narrative disclosure provided pursuant to proposed Item 1502.⁴⁸⁰ Historical GHG emissions

⁴⁷⁹ See proposed 17 CFR 229.1504(a).

⁴⁸⁰ See *supra* Section II.C for a discussion of proposed 17 CFR 229.1502.

data also could be particularly useful when a registrant has announced a target or goal for reducing GHG emissions by a certain date by helping investors assess its progress in meeting that target or goal and the related impacts on the registrant.

Linking the required number of years of historical GHG emissions data to the historical periods required in the consolidated financial statements should benefit investors by requiring emissions data that is consistent with the financial statement metrics in the filing. This should help investors connect GHG emissions with the financial performance of a registrant in the same period, including the proposed financial statement metrics. Moreover, although we are not proposing to require the GHG emissions data to be included in the registrant's consolidated financial statements, we nevertheless believe that the GHG emissions data is relevant to, and would be read in conjunction with, information included in the consolidated financial statements. Just as data about a registrant's revenues and expenses on its income statement reflect its activities in financial terms for a given year, a registrant's emissions data reflect its carbon footprint activities for that year. For this reason, we have proposed requiring a registrant to provide its GHG emissions data for the same number of years as it is required to provide data on its income statement and cash flow statement, to the extent such emissions data is reasonably available. For example, a registrant that is required to include income statements and cash flow statements at the end of its three most recent fiscal years would be required to disclose three years of its Scope 1, Scope 2 and, if material to the registrant or if it has set a GHG emissions target or goal that includes its Scope 3 emissions, its Scope 3 emissions, expressed both in

absolute terms and in terms of intensity.⁴⁸¹ If the registrant is a SRC, only two years of Scopes 1 and 2 emissions metrics would be required.⁴⁸²

A registrant, however, would not otherwise be required to provide a corresponding GHG emissions metric for a fiscal year preceding its current reporting fiscal year if, for example, it was not required to and has not previously presented such metric for such fiscal year and the historical information necessary to calculate or estimate such metric is not reasonably available to the registrant without unreasonable effort or expense.⁴⁸³

Request for Comment

114. Should we require GHG emissions disclosure for the registrant's most recently completed fiscal year and for the appropriate, corresponding historical fiscal years included in the registrant's consolidated financial statements in the filing, to the extent such historical GHG emissions data is reasonably available, as proposed? Should we instead only require GHG emissions metrics for the most recently completed fiscal year presented in the relevant filing? Would requiring historical GHG emissions metrics provide important or material information to investors, such as information allowing them to analyze trends?

2. GHG Emissions Methodology and Related Instructions

The proposed rules would require a registrant to describe the methodology, significant inputs, and significant assumptions used to calculate its GHG emissions metrics.⁴⁸⁴ As proposed, the description of the registrant's methodology must include the registrant's organizational

⁴⁸¹ Alternatively, if a registrant has no revenue, and it decides to calculate GHG intensity using total assets, we believe it would be appropriate for that registrant to provide its GHG intensity for the same number of years as are required on its balance sheets (*i.e.*, two years if not a SRC).

⁴⁸² We are proposing to exempt SRCs from Scope 3 disclosures. *See infra* Section II.G.3.

⁴⁸³ *See* Securities Act Rule 409 and Exchange Act Rule 12b-21.

⁴⁸⁴ *See* proposed 17 CFR 229.1504(e)(1).

boundaries, operational boundaries, calculation approach, and any calculation tools used to calculate the registrant's GHG emissions.⁴⁸⁵ Organizational boundaries would be defined to mean the boundaries that determine the operations owned or controlled by a registrant for the purpose of calculating its GHG emissions.⁴⁸⁶ Operational boundaries would be defined to mean the boundaries that determine the direct and indirect emissions associated with the business operations owned or controlled by a registrant.⁴⁸⁷ This information should help investors understand the scope of a registrant's operations included in its GHG emissions metrics and how those metrics were measured. With this information, investors could more knowledgeably compare a registrant's GHG emissions metrics with the GHG emissions metrics of other registrants and make more informed investment decisions.

a. The Setting and Disclosure of Organizational Boundaries

The proposed rules would require a registrant to disclose its Scope 1 emissions and its Scope 2 emissions separately after calculating them from all sources that are included in the registrant's organizational and operational boundaries.⁴⁸⁸ An initial step for many registrants may be to set their organizational boundaries.⁴⁸⁹ Those boundaries determine the business operations owned or controlled by a registrant to be included in the calculation of its GHG emissions.⁴⁹⁰ Because both Scope 1 and Scope 2 emissions relate to the operations owned or

⁴⁸⁵ *See id.*

⁴⁸⁶ *See* proposed 17 CFR 229.1500(m).

⁴⁸⁷ *See* proposed 17 CFR 229.1500(l).

⁴⁸⁸ *See* proposed 17 CFR 229.1504(b)(1).

⁴⁸⁹ *See* GHG Protocol, Corporate Accounting and Reporting Standard, Chapter 3.

⁴⁹⁰ *See* proposed 17 CFR 229.1500(m).

controlled by a registrant, setting a registrant's organizational boundaries is an important part of determining its Scopes 1 and 2 emissions.

Several commenters stated that the GHG Protocol's standards and guidance would provide an appropriate framework for reporting GHG emissions if the Commission required disclosure of GHG emissions.⁴⁹¹ A company following the GHG Protocol would base its organizational boundaries on either an equity share approach or a control approach.⁴⁹² Our proposed approach, however, would require a registrant to set the organizational boundaries for its GHG emissions disclosure using the same scope of entities, operations, assets, and other holdings within its business organization as those included in, and based upon the same set of accounting principles applicable to, its consolidated financial statements.⁴⁹³

For similar reasons to those noted above regarding the proposed time periods required for GHG emissions disclosure, we propose requiring the scope of consolidation and reporting to be consistent for financial data and GHG emissions data. This would be accomplished by applying existing GAAP.⁴⁹⁴ Requiring a consistent approach should help avoid potential investor confusion about the reporting scope used in determining a registrant's GHG emissions and the reporting scope used for the financial statement metrics, which are included in the financial statements. Applying existing GAAP could help limit the compliance burden for registrants as

⁴⁹¹ See *supra* note 111.

⁴⁹² Under the GHG Protocol's equity share approach, a company accounts for GHG emissions from operations according to its share of equity in the operation. Under the GHG Protocol's control approach, a company accounts for 100% of the GHG emissions from operations over which it has control. A company can choose to define control either in financial or operational terms. See *GHG Protocol, Corporate Accounting and Reporting Standard*, Chapter 3.

⁴⁹³ See proposed 17 CFR 229.1504(e)(2).

⁴⁹⁴ Foreign private issuers that file consolidated financial statements under IFRS as issued by the IASB would apply IFRS under the proposed rules as the basis for setting its organizational boundaries for the purpose of providing the proposed GHG emissions disclosure.

they would be able to use familiar concepts from financial reporting when preparing their required GHG emissions disclosures. Requiring registrants to follow the scope of reporting used in their financial statements should also enhance comparability across registrants when compared with the multiple options available under the GHG Protocol.

Thus, as proposed, the scope of reporting for a registrant's GHG emissions metrics would be consistent with the scope of reporting for the proposed financial statement metrics and other financial data included in its consolidated financial statements in order to provide investors a consistent view of the registrant's business across its financial and GHG emissions disclosures. For example, a registrant that prepares its financial statements pursuant to U.S. GAAP would apply relevant guidance from U.S. GAAP (e.g., FASB ASC Topic 810 *Consolidation* and FASB ASC Topic 323 *Investments –Equity Method and Joint Ventures*) when determining which entities would be subject to consolidation or which investments qualify for equity method accounting or proportionate consolidation.⁴⁹⁵ Therefore, under the proposed rules a registrant would be required to include all of the emissions from an entity that it consolidates.⁴⁹⁶ For an equity method investee or an operation that is proportionally consolidated, the registrant would be required to include its share of emissions based on its percentage ownership of such investee or operation.⁴⁹⁷ For a registrant that applies the equity method to an investee, the percentage of ownership interest used to record its share of earnings or losses in the investee must be the same

⁴⁹⁵ Issuers that are permitted to, and do, apply IFRS issued by the International Accounting Standards Board would apply the IASB's equivalent standards. *See, e.g.,* IFRS 10 *Consolidated Financial Statements*, IFRS 11 *Joint Arrangements* and International Accounting Standards ("IAS") 28 *Investments in Associates and Joint Ventures*. *See supra* note 319, which states that foreign private issuers that file consolidated financial statements under home country GAAP and reconcile to U.S. GAAP, would be required to use U.S. GAAP as the basis for calculating and disclosing the proposed climate-related financial statement metrics. The same requirement would apply for the purpose of determining the proposed GHG emissions metrics.

⁴⁹⁶ *See* proposed 17 CFR 229.1504(e)(2).

⁴⁹⁷ *See id.*

for measuring its share of GHG emissions by the equity method investee.⁴⁹⁸ The proposed rules would permit a registrant to exclude emissions from investments that are not consolidated, are not proportionately consolidated, or that do not qualify for the equity method of accounting in the registrant's consolidated financial statements.⁴⁹⁹

For example, a registrant might own or control several plants but have only a minority ownership in another plant over which it has no control. For the plants that are owned or controlled by the registrant, all of those plants' direct and indirect emissions should be included in its Scopes 1 and 2 emissions disclosure (regardless of ownership percentage that resulted in consolidation for financial statement purposes).⁵⁰⁰ If the registrant's proportional interest in the latter plant is reflected in its consolidated financial statements (*e.g.*, the investment qualifies for the equity method or a proportionate consolidation approach), when calculating its Scopes 1 and 2 emissions the registrant should include such proportional share (based on ownership interest) of that plant's emissions in the total of each of its Scopes 1 and 2 emissions.⁵⁰¹

A related provision under the proposed rules would require a registrant to use the same organizational boundaries when calculating its Scope 1 emissions and Scope 2 emissions⁵⁰² since both sets of emissions relate to operations that a registrant owns or controls. If required to disclose its Scope 3 emissions, a registrant would also be required to apply the same organizational boundaries used when determining its Scopes 1 and 2 emissions as an initial step

⁴⁹⁸ *See id.*

⁴⁹⁹ *See* proposed 17 CFR 229.1504(b)(2).

⁵⁰⁰ *See* proposed 17 CFR 229.1500(m) (defining organizational boundaries as the boundaries that determine the operations owned or controlled by a registrant) and 17 CFR 229.1504(b)(1) (requiring the disclosure of Scopes 1 and 2 emissions separately after calculating them from all sources included in a registrant's organizational and operational boundaries).

⁵⁰¹ *See* proposed 17 CFR 229.1504(e)(2).

⁵⁰² *See* proposed 17 CFR 229.1504(e)(3).

in identifying the sources of indirect emissions from activities in its value chain over which it lacks ownership and control and which must be included in the calculation of its Scope 3 emissions.⁵⁰³ Requiring a registrant to use the same organizational boundaries when calculating its Scopes 1, 2 and 3 emissions should help limit investor confusion over those operations or activities over which it has ownership or control (sources of its Scopes 1 and 2 emissions) and those activities in its value chain over which it lacks ownership or control (sources of its Scope 3 emissions). The proposed provision also would provide that, once a registrant has determined its organizational (and operational) boundaries, it must consistently use those boundaries when calculating its GHG emissions.⁵⁰⁴ This proposed provision should help investors track and compare a registrant's GHG emissions over time.

b. The Setting and Disclosure of Operational Boundaries

When describing the methodology, significant inputs, and significant assumptions used to calculate its GHG emissions metrics, a registrant is required to describe its operational boundaries.⁵⁰⁵ This would involve identifying emissions sources within its plants, offices, and other operational facilities that fall within its organizational boundaries, and then categorizing the emissions as either direct or indirect emissions. For example, a registrant might have direct emissions from one or more of the following sources that it owns or controls:

- Stationary equipment (from the combustion of fuels in boilers, furnaces, burners, turbines, heaters, and incinerators);

⁵⁰³ *See id.*

⁵⁰⁴ *See id.*

⁵⁰⁵ *See* proposed Item 1504(e)(1).

- Transportation (from the combustion of fuels in automobiles, trucks, buses, trains, airplanes, boats, ships, and other vessels);
- Manufacturing processes (from physical or chemical processes, such as CO₂ from the calcination process in cement manufacturing or from catalytic cracking in petrochemical processing, and PFC emissions from aluminum smelting); and
- Fugitive emission sources (equipment leaks from joints, seals, packing, gaskets, coal piles, wastewater treatment, pits, cooling towers, and gas processing facilities, and other unintentional releases).⁵⁰⁶

Most registrants would likely have emission sources from stationary equipment and transportation devices. Registrants in certain industrial sectors, such as cement, aluminum, and other manufacturers, or oil and gas production and refining, are likely also to produce emissions from physical or chemical processes. Some registrants would likely have emissions from all four types of sources, particularly if they have their own power generation or waste treatment facilities.⁵⁰⁷

The proposed rules would require a registrant to include its approach to categorizing its emissions and emissions sources when describing its methodology to determine its operational boundaries.⁵⁰⁸ A registrant could use the above non-exclusive list of emissions sources or other categories of emissions sources as long as it describes how it determined the emissions to include as direct emissions, for the purpose of calculating its Scope 1 emissions, and indirect emissions,

⁵⁰⁶ This non-exclusive list of possible emissions sources is based on categories of emissions sources provided in the GHG Protocol. *See* GHG Protocol, *Corporate Accounting and Reporting Standard*, Chapter 6.

⁵⁰⁷ *See id.*

⁵⁰⁸ *See* proposed 17 CFR 229.1504(e)(1).

for the purpose of calculating its Scope 2 emissions.⁵⁰⁹ For most registrants, purchased electricity would likely constitute a large percentage of their Scope 2 emissions. Although Scope 2 emissions are generated from a source external to a registrant, the electricity (or steam, heat, or cooling) is consumed by the registrant's operations that it owns or controls.

c. The Selection and Disclosure of a GHG Emissions Calculation Approach, including Emission Factors

In addition to setting its organizational and operational boundaries, a registrant would need to select a GHG emissions calculation approach. While the direct measurement of GHG emissions from a source by monitoring concentration and flow rate is likely to yield the most accurate calculations, due to the expense of the direct monitoring of emissions, an acceptable and common method for calculating emissions involves the application of published emission factors to the total amount of purchased fuel consumed by a particular source.⁵¹⁰ The proposed rules would define “emission factor” as a multiplication factor allowing actual GHG emissions to be calculated from available activity data or, if no activity data is available, economic data, to derive absolute GHG emissions.⁵¹¹ Emission factors are ratios that typically relate GHG emissions to a proxy measure of activity at an emissions source. Examples of activity data reflected in emission factors include kilowatt-hours of electricity used, quantity of fuel used, output of a process, hours of operation of equipment, distance travelled, and floor area of a building.⁵¹² If no activity data is available, a registrant may use an emission factor based on economic data.⁵¹³ For example,

⁵⁰⁹ *See id.*

⁵¹⁰ *See, e.g.,* GHG Protocol, Corporate Accounting and Reporting Standard, Chapter 6.

⁵¹¹ *See* proposed 17 CFR 229.1500(e).

⁵¹² *See id.*

⁵¹³ *See id.*

when calculating Scope 3 emissions from purchased goods or services, a registrant could determine the economic value of the goods or services purchased and multiply it by an industry average emission factor (expressed as average emissions per monetary value of goods or services).⁵¹⁴

The EPA has published a set of emission factors based on the particular type of source (e.g., stationary combustion, mobile combustion, refrigerants, and electrical grid, among others) and type of fuel consumed (e.g., natural gas, coal or coke, crude oil, and kerosene, among many others).⁵¹⁵ The GHG Protocol’s own set of GHG emission calculation tools are based in part on the EPA’s emission factors.⁵¹⁶ Whatever set of emission factors a registrant chooses to use, it must identify the emission factors and its source.⁵¹⁷

After a registrant has selected a calculation approach (i.e., direct measurement or application of emissions factors), the registrant would determine what data must be collected and how to conduct the relevant calculations, including whether to use any publicly-available calculation tools. In this regard, we note that there are a number of publicly-available calculation

⁵¹⁴ See, e.g., Greenhouse Gas Protocol, *Corporate Value Chain (Scope 3) Accounting and Reporting Standard, Supplement to the GHG Protocol Corporate Accounting and Reporting Standard*, Chapter 1 (describing the “spend-based method” for calculating emissions from purchased goods or services).

⁵¹⁵ See EPA, [Emission Factors for Greenhouse Gas Inventories](https://www.epa.gov/sites/default/files/2021-04/documents/emission-factors_apr2021.pdf) (Apr. 2021), available at https://www.epa.gov/sites/default/files/2021-04/documents/emission-factors_apr2021.pdf.

⁵¹⁶ See, e.g., The Greenhouse Gas Protocol, *GHG Emission Calculation Tool* (Mar. 2021), available at <https://ghgprotocol.org/calculation-tools>.

⁵¹⁷ See proposed 17 CFR 229.1504(e)(1).

tools a registrant may elect to utilize in determining its GHG emissions.⁵¹⁸ Finally, a registrant would gather and report GHG emissions up to the corporate level.

For example, when determining its Scope 1 emissions for a particular plant, a registrant might add up the amount of natural gas consumed by furnaces and other stationary equipment during its most recently completed fiscal year and then apply the CO₂ emission factor for natural gas to that total amount to derive the amount of GHG emissions expressed in CO₂e. The registrant would repeat this process for each type of fuel consumed and for each type of source. If a registrant owns a fleet of trucks, it might total the amount of diesel fuel or other type of gasoline consumed for the fiscal year and apply the appropriate CO₂ emission factor for that vehicle and type of fuel. A registrant that uses refrigerants also might apply the appropriate emission factor for the particular type of refrigerant to the total amount of that refrigerant used during the fiscal year. As part of the roll-up process for a registrant with multiple entities and emission sources, once it has determined the amount of CO₂e for each type of direct emissions source and for each facility within its organizational and operational boundaries, the registrant would then add them together to derive the total amount of Scope 1 emissions for the fiscal year.⁵¹⁹

⁵¹⁸ See, e.g., GHG Protocol, *Corporate Accounting and Reporting Standard, Chapter 6* (providing an overview of calculation tools by type of source (e.g., for stationary combustion, mobile combustion, and air conditioning and refrigeration use) and by sector (e.g., for aluminum production, iron and steel production, cement manufacturing, and pulp and paper production), which are available on the GHG Protocol website at <https://ghgprotocol.org/>). The EPA also has published a Simplified GHG Emissions Calculator that is designed as a simplified calculation tool to help small businesses and low emitter organizations estimate and inventory their annual GHG emissions. See EPA, *Simplified GHG Emissions Calculator (2021)*, available at <https://www.epa.gov/climateleadership/simplified-ghg-emissions-calculator>.

⁵¹⁹ As noted earlier, a registrant that is required to report its direct emissions to the EPA may be able to use the EPA-provided data, together with data for any direct emissions not reported to the EPA, to help fulfill the Commission's proposed Scope 1 emission disclosure requirement.

A registrant would undergo a similar process when calculating its Scope 2 emissions for its most recently completed fiscal year. There are two common methods for calculating Scope 2 emissions for purchased electricity: the market-based method and the location-based method.⁵²⁰ Pursuant to the market-based method, a registrant would calculate its Scope 2 emissions based on emission factors and other data provided by the generator of electricity from which the registrant has contracted to purchase the electricity and which are included in the contractual instruments. Pursuant to the location-based method, a registrant would calculate its Scope 2 emissions based on average energy generation emission factors for grids located in defined geographic locations, including local, subnational, or national boundaries.⁵²¹ A registrant could use either of these methods, both methods, a combination, or another method as long as it identifies the method used and its source.⁵²² For example, if using the location-based method, the registrant would apply an appropriate emission factor for the electricity grid in its region to the total amount of electricity purchased from that grid during its fiscal year.⁵²³ The registrant would then calculate the amount of CO₂e from purchased steam/heat, if any, by applying the appropriate emission factor for that type of energy source to the total amount consumed.⁵²⁴ The

⁵²⁰ See World Resources Institute, *GHG Protocol Scope 2 Guidance* (2015), Chapter 4, available at https://ghgprotocol.org/sites/default/files/standards/Scope%202%20Guidance_Final_Sept26.pdf.

⁵²¹ See *id.*

⁵²² We note that, pursuant to the GHG Protocol, and as referenced by the EPA, a company that determines its Scope 2 emissions using a market-based approach would also calculate those emissions using the location-based method to provide a more complete picture of the company's Scope 2 emissions. See World Resources Institute, *GHG Protocol Scope 2 Guidance*, Chapter 7; and EPA Center for Corporate Climate Leadership, *Scope 1 and Scope 2 Inventory Guidance*.

⁵²³ See, e.g., EPA, *Emission Factors for Greenhouse Gas Inventories*, Table 6, which provides emission factors for regional electrical grids.

⁵²⁴ See, e.g., EPA, *Emission Factors for Greenhouse Gas Inventories*, Table 7, which provides emission factors for steam and heat.

registrant would report the sum of its CO₂e from purchased electricity and steam/heat as its total Scope 2 emissions for the fiscal year.

As noted above, in all instances a registrant would be required to describe its methodology, including its organizational and operational boundaries, calculation approach (including any emission factors used and the source of the emission factors), and any calculation tools used to calculate the GHG emissions.⁵²⁵ Requiring a registrant to describe its methodology for determining its GHG emissions should provide investors with important information to assist them in evaluating the registrant's GHG emissions disclosure as part of its overall business and financial disclosure. Such disclosure should enable investors to evaluate the reasonableness and accuracy of the emission disclosures, and should promote consistency and comparability over time. For example, an investor would be able to evaluate both if the registrant's selection of an emission factor is reasonable given the registrant's industry sector and whether changes in reported emissions reflect changes in actual emissions in accordance with its strategy or simply a change in calculation methodology.

Like registrants in other sectors, registrants in the financial sector would be required to disclose their Scope 3 emissions if those emissions are material and to describe the methodology used to calculate those emissions. A financial registrant's Scope 3 emissions disclosures would likely include the emissions from companies that the registrant provides debt or equity financing to ("financed emissions"). While financial registrants may use any appropriate methodology to calculate its Scope 3 emissions, the Partnership for Carbon Accounting Financials' Global GHG Accounting & Reporting Standard (the "PCAF Standard") provides one methodology that

⁵²⁵ See proposed 17 CFR 229.1504(e)(1).

complements the GHG Protocol and assists financial institutions in calculating their financed emissions.⁵²⁶ The PCAF Standard was developed to work with the calculation of Scope 3 emissions for the “investment” category of downstream emissions and was endorsed by the drafters of the GHG Protocol.⁵²⁷ The PCAF Standard covers six asset classes: listed equity and corporate bonds; business loans and unlisted equity; project finance; commercial real estate; mortgages; and motor vehicle loans.⁵²⁸

At this time, we are not proposing to require a particular methodology for the financial sector in order to provide a financial sector registrant the flexibility to choose the methodology that best suits its particular portfolio and financing activities. We believe the proposed requirement to disclose the methodology used (*e.g.*, the PCAF Standard or another standard) would provide sufficient information to an investor.

d. Additional Rules Related to Methodology Disclosure

We are proposing additional rules related to the methodology for calculating GHG emissions. Some of these rules would apply generally to the determination of GHG emissions while some would apply specifically to the calculation of Scope 3 emissions. For example, one proposed rule would provide that a registrant may use reasonable estimates when disclosing its GHG emissions as long as it also describes the assumptions underlying, and its reasons for using,

⁵²⁶ See PCAF, *Global GHG Accounting & Reporting Standard for the Financial Industry* (2020), available at <https://carbonaccountingfinancials.com/files/downloads/PCAF-Global-GHG-Standard.pdf>.

⁵²⁷ See *id.* See also GHG Protocol Press Release, *New Standard Developed to Help Financial Industry Measure and Report Emissions* (Mar. 2021), available at <https://ghgprotocol.org/blog/new-standard-developed-help-financial-industry-measure-and-report-emissions>.

⁵²⁸ While the guidance provided by the PCAF Standard for each asset class differs in certain respects, the PCAF Standard applies a common set of principles across the various asset classes. A key principle is that the GHG emissions from a client’s activities financed by loans or investments attributable to the reporting financial institution should be allocated to that institution based on its proportional share of lending or investment in the borrower or investee through the application of an “attribution factor.” See PCAF, *Global GHG Accounting & Reporting Standard for the Financial Industry* (2020), Sections 4.2 and 5.

the estimates.⁵²⁹ While we encourage registrants to provide as accurate a measurement of its GHG emissions as is reasonably possible, we recognize that, in many instances, direct measurement of GHG emissions at the source, which would provide the most accurate measurement, may not be possible.

Several commenters indicated that a registrant may find it difficult to complete its GHG emissions calculations for its most recently completed fiscal year in time to meet its disclosure obligations for that year's Exchange Act annual report.⁵³⁰ The proposed rules would permit a registrant to use a reasonable estimate of its GHG emissions for its fourth fiscal quarter if no actual reported data is reasonably available, together with actual, determined GHG emissions data for its first three fiscal quarters when disclosing its GHG emissions for its most recently completed fiscal year, as long as the registrant promptly discloses in a subsequent filing any material difference between the estimate used and the actual, determined GHG emissions data for the fourth fiscal quarter.⁵³¹ We believe that this proposed provision would help address the concerns of commenters about the timely completion of both the work required to disclose a registrant's GHG emissions as of its fiscal year-end and to meet its other Exchange Act annual reporting obligations.⁵³²

Another proposed provision would require a registrant to disclose, to the extent material and as applicable, any use of third-party data when calculating its GHG emissions, regardless of

⁵²⁹ See proposed 17 CFR 229.1504(e)(4).

⁵³⁰ See, e.g., letters from Cisco; Dow; Energy Infrastructure Council; National Mining Association; Newmont Corporation; and United Airlines Holdings, Inc.

⁵³¹ See proposed 17 CFR 229.1504(e)(4)(i). One commenter made a similar recommendation when stating that a registrant should be required to follow the same timeline for disclosure of its GHG emissions as for its Exchange Act annual reporting obligations. See letter from Pricewaterhouse Coopers.

⁵³² See *supra* note 530.

the particular scope of emissions.⁵³³ While this proposed provision would be most relevant to the disclosure of Scope 3 emissions, where the use of third-party data is common, it would apply in other instances when third-party data is material to the GHG emissions determination, such as when determining Scope 2 emissions using contractual, supplier-provided emission factors for purchased electricity. When disclosing the use of third-party data, a registrant would be required to identify the source of the data and the process the registrant undertook to obtain and assess such data.⁵³⁴ This information would help investors better understand the basis for, and assess the reasonableness of, the GHG emissions determinations and, accordingly, evaluate the GHG disclosures as part of a registrant's business and financial information.

One proposed provision would require a registrant to disclose any material change to the methodology or assumptions underlying its GHG emissions disclosure from the previous fiscal year.⁵³⁵ For example, if a registrant uses a different set of emission factors, or develops a more direct method of measuring GHG emissions, which results in a material change to the GHG emissions produced from the previous year under (or assuming) the same organizational and operational boundaries, it would be required to report that change. This should help investors more knowledgeably compare the emissions data from year to year and better understand the nature and significance of a material change in emissions (*i.e.*, was the change primarily due to an implementation of strategy or a change in methodology).

⁵³³ See proposed 17 CFR 229.1504(e)(5).

⁵³⁴ See *id.*

⁵³⁵ See proposed 17 CFR 229.1504(e)(6).

Another proposed provision would require a registrant to disclose, to the extent material and as applicable, any gaps in the data required to calculate its GHG emissions.⁵³⁶ This proposed provision would be particularly relevant to a registrant's Scope 3 emissions. While a registrant's GHG emissions disclosure should provide investors with a reasonably complete understanding of the registrant's GHG emissions in each scope of emissions, as previously noted, we recognize that a registrant may encounter data gaps, particularly when calculating its Scope 3 emissions. The proposed provision would require the registrant to disclose the data gaps and discuss whether it used proxy data or another method to address such gaps. A registrant would also be required to discuss how its accounting for any data gaps has affected the accuracy or completeness of its GHG emissions disclosure.⁵³⁷ This information should help investors understand certain underlying uncertainties and limitations, and evaluate the corresponding reliability, of a registrant's GHG emissions disclosure, particularly for its Scope 3 emissions, as part of their assessment of the registrant's business and financial information.

One proposed provision would provide that, when determining whether its Scope 3 emissions are material, and when disclosing those emissions, in addition to emissions from activities in its value chain, a registrant must include GHG emissions from outsourced activities that it previously conducted as part of its own operations, as reflected in the financial statements for the periods covered in the filing.⁵³⁸ This proposed approach, which is consistent with the GHG Protocol,⁵³⁹ would help ensure that investors receive a complete picture of a registrant's

⁵³⁶ See proposed 17 CFR 229.1504(e)(7).

⁵³⁷ See *id.*

⁵³⁸ See proposed 17 CFR 229.1504(e)(8).

⁵³⁹ See Greenhouse Gas Protocol, [*Corporate Value Chain \(Scope 3\) Accounting and Reporting Standard, Supplement to the GHG Protocol Corporate Accounting and Reporting Standard*](#), Chapter 6.

carbon footprint by precluding the registrant from excluding emissions from activities that are typically conducted as part of operations over which it has ownership or control but that are outsourced in order to reduce its Scopes 1 or 2 emissions.

Another proposed provision would provide that, if a registrant is required to disclose Scope 3 emissions, and if there was any significant overlap in the categories of activities producing the Scope 3 emissions, the registrant must describe the overlap, how it accounted for the overlap, and its disclosed total Scope 3 emissions.⁵⁴⁰ For example, a mining registrant may mine and process iron ore for conversion into steel products. Because the processing of iron ore and steelmaking both require the use of coal, GHG emissions would arise both from the downstream activities involving the processing of sold products and the use of sold products (*i.e.*, the use of iron ore in the production of steel). If the registrant has allocated GHG emissions to both categories (*i.e.*, processing of sold products and use of sold products), it would be required to describe the overlap in emissions between the two categories of downstream activities, how it accounted for the overlap, and the effect on its disclosed total Scope 3 emissions. For example, if the total reported Scope 3 emissions involved some double-counting because of the overlap, a registrant would be required to report this effect. This information could help investors better understand the true extent of a registrant's disclosed Scope 3 emissions and, thus, the climate-related risks faced by the registrant.

Finally, a proposed provision would provide that a registrant may present its estimated Scope 3 emissions in terms of a range as long as it discloses its reasons for using the range and the underlying assumptions.⁵⁴¹ This proposed provision reflects our understanding that, because

⁵⁴⁰ See proposed 17 CFR 229.1504(e)(9).

⁵⁴¹ See proposed 17 CFR 229.1504(e)(4)(ii).

a registrant may encounter more difficulties obtaining all of the data required for determining its Scope 3 emissions compared to determining its Scopes 1 and 2 emissions, presenting its Scope 3 emissions in terms of a range may be a reasonable means of estimating these emissions when faced with such gaps in the data.

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115. Should we require a registrant to disclose the methodology, significant inputs, and significant assumptions used to calculate its GHG emissions metrics, as proposed? Should we require a registrant to use a particular methodology for determining its GHG emission metrics? If so, should the required methodology be pursuant to the GHG Protocol's Corporate Accounting and Reporting Standard and related standards and guidance? Is there another methodology that we should require a registrant to follow when determining its GHG emissions? Should we base our climate disclosure rules on certain concepts developed by the GHG Protocol without requiring a registrant to follow the GHG Protocol in all respects, as proposed? Would this provide flexibility for registrants to choose certain methods and approaches in connection with GHG emissions determination that meet the particular circumstances of their industry or business or that emerge along with developments in GHG emissions methodology as long as they are transparent about the methods and underlying assumptions used? Are there adjustments that should be made to the proposed methodology disclosure requirements that would provide flexibility for registrants while providing sufficient comparability for investors?

116. Should we require a registrant to disclose the organizational boundaries used to calculate its GHG emissions, as proposed? Should we require a registrant to determine its organizational boundaries using the same scope of entities, operations, assets, and other holdings within its business organization as that used in its consolidated financial statements, as proposed?

Would prescribing this method of determining organizational boundaries avoid potential investor confusion about the reporting scope used in determining a registrant's GHG emissions and the reporting scope used for the financial statement metrics, which are included in the financial statements? Would prescribing this method of determining organizational boundaries result in more robust guidance for registrants and enhanced comparability for investors? If, as proposed, the organizational boundaries must be consistent with the scope of the registrant's consolidated financial statements, would requiring separate disclosure of the organizational boundaries be redundant or otherwise unnecessary?

117. Except for calculating Scope 3 emissions, the proposed rules would not require a registrant to disclose the emissions from investments that are not consolidated, proportionately consolidated, or that do not qualify for the equity method of accounting. Should we require such disclosures for Scopes 1 and 2 emissions, and if so, how?

118. Could situations arise where it is impracticable for a registrant to align the scope of its organizational boundaries for GHG emission data with the scope of the consolidation for the rest of its financial statements? If so, should we allow a registrant to take a different approach to determining the organizational boundaries of its GHG emissions and provide related disclosure, including an estimation of the resulting difference in emissions disclosure (in addition to disclosure about methodology and other matters that would be required by the proposed GHG emissions disclosure rules)?

119. Alternatively, should we require registrants to use the organizational boundary approaches recommended by the GHG Protocol (*e.g.*, financial control, operational control, or equity share)? Do those approaches provide a clear enough framework for complying with the proposed rules? Would such an approach cause confusion when analyzing information in the

context of the consolidated financial statements or diminish comparability? If we permit a registrant to choose one of the three organizational boundary approaches recommended by the GHG Protocol, should we require a reconciliation with the scope of the rest of the registrant's financial reporting to make the disclosure more comparable?

120. Should we require a registrant to disclose its operational boundaries, as proposed? Should we require a registrant to discuss its approach towards the categorization of emissions (*e.g.*, as direct or indirect emissions) and emissions sources (*e.g.*, stationary or mobile) when describing its operational boundaries, as proposed?

121. The proposed operational boundaries disclosure is based largely on concepts developed by the GHG Protocol. Would requiring a registrant to determine its organizational boundaries pursuant to the GAAP applicable to the financial statement metrics included in the financial statements but its operational boundaries largely pursuant to concepts developed by the GHG Protocol cause confusion? Should we require a registrant to apply the GAAP applicable to its financial statements when determining whether it "controls" a particular source pursuant to the definition of Scope 1 emissions, or particular operations pursuant to the definition of Scope 2 emissions, as proposed? If not, how should "control" be determined and would applying a definition of control that differs from applicable GAAP result in confusion for investors?

122. Should we require a registrant to use the same organizational boundaries when calculating its Scopes 1 and 2 emissions, as proposed? Are there any circumstances when a registrant's organizational boundaries for determining its Scope 2 emissions should differ from those required for determining its Scope 1 emissions? Should we also require a registrant to apply the same organizational boundaries used when determining its Scopes 1 and 2 emissions as an initial step in identifying the sources of indirect emissions from activities in its value chain

over which it lacks ownership and control and which must be included in the calculation of its Scope 3 emissions, as proposed? Are there any circumstances where using a different organizational boundary for purposes of Scope 3 emissions disclosure would be appropriate?

123. Should we require a registrant to be consistent in its use of its organizational and operational boundaries once it has set those boundaries, as proposed? Would the proposed requirement help investors to track and compare the registrant's GHG emissions over time?

124. Should we require a registrant to disclose the methodology for calculating the GHG emissions, including any emission factors used and the source of the emission factors, as proposed? Should we require a registrant to use a particular set of emission factors, such as those provided by the EPA or the GHG Protocol?

125. Should we permit a registrant to use reasonable estimates when disclosing its GHG emissions as long as it also describes the assumptions underlying, and its reasons for using, the estimates, as proposed? Should we permit the use of estimates for only certain GHG emissions, such as Scope 3 emissions? Should we permit a registrant to use a reasonable estimate of its GHG emissions for its fourth fiscal quarter if no actual reported data is reasonably available, together with actual, determined GHG emissions data for its first three fiscal quarters when disclosing its GHG emissions for its most recently completed fiscal year, as long as the registrant promptly discloses in a subsequent filing any material difference between the estimate used and the actual, determined GHG emissions data for the fourth fiscal quarter, as proposed? If so, should we require a registrant to report any such material difference in its next Form 10-Q if domestic, or in a Form 6-K, if a foreign private issuer? Should we permit a domestic registrant to report any such material difference in a Form 8-K if such form is filed (rather than furnished)

with the Commission? Should any such reasonable estimate be subject to conditions to help ensure accuracy and comparability? If so, what conditions should apply?

126. Should we require a registrant to disclose, to the extent material, any use of third-party data when calculating its GHG emissions, regardless of the particular scope of emissions, as proposed? Should we require the disclosure of the use of third-party data only for certain GHG emissions, such as Scope 3 emissions? Should we require the disclosure of the use of third-party data for Scope 3 emissions, regardless of its materiality to the determination of those emissions? If a registrant discloses the use of third-party data, should it also be required to identify the source of such data and the process the registrant undertook to obtain and assess the data, as proposed?

127. Should we require a registrant to disclose any material change to the methodology or assumptions underlying its GHG emissions disclosure from the previous year, as proposed? If so, should we require a registrant to restate its GHG emissions data for the previous year, or for the number of years for which GHG emissions data has been provided in the filing, using the changed methodology or assumptions? If a registrant's organizational or operational boundaries, in addition to methodology or assumptions, change, to what extent should we require such disclosures of the material change, restatements or reconciliations? In these cases, should we require a registrant to apply certain accounting standards or principles, such as FASB ASC Topic 250, as guidance regarding when retrospective disclosure should be required?

128. Should we require a registrant to disclose, to the extent material, any gaps in the data required to calculate its GHG emissions, as proposed? Should we require the disclosure of data gaps only for certain GHG emissions, such as Scope 3 emissions? If a registrant discloses any data gaps encountered when calculating its Scope 3 emissions or other type of GHG emissions,

should it be required to discuss whether it used proxy data or another method to address such gaps, and how its management of any data gaps has affected the accuracy or completeness of its GHG emissions disclosure, as proposed? Are there other disclosure requirements or conditions we should adopt to help investors obtain a reasonably complete understanding of a registrant's exposure to the GHG emissions sourced by each scope of emissions?

129. When determining the materiality of its Scope 3 emissions, or when disclosing those emissions, should a registrant be required to include GHG emissions from outsourced activities that it previously conducted as part of its own operations, as reflected in the financial statements for the periods covered in the filing, in addition to emissions from activities in its value chain, as proposed? Would this requirement help ensure that investors receive a complete picture of a registrant's carbon footprint by precluding the registrant from excluding emissions from activities that are typically conducted as part of operations over which it has ownership or control but that are outsourced in order to reduce its Scopes 1 or 2 emissions? Should a requirement to include outsourced activities be subject to certain conditions or exceptions and, if so, what conditions or exceptions?

130. Should we require a registrant that must disclose its Scope 3 emissions to discuss whether there was any significant overlap in the categories of activities that produced the Scope 3 emissions? If so, should a registrant be required to describe any overlap, how it accounted for the overlap, and its effect on the total Scope 3 emissions, as proposed? Would this requirement help investors assess the accuracy and reliability of the Scope 3 emissions disclosure?

131. Should we permit a registrant to present its Scope 3 emissions in terms of a range as long as it discloses its reasons for using the range and the underlying assumptions, as proposed? Should we place limits or other parameters regarding the use of a range and, if so, what should

those limits or parameters be? For example, should we require a range to be no larger than a certain size? What other conditions or guidance should we provide to help ensure that a range, if used, is not overly broad and is otherwise reasonable?

132. Should we require a registrant to follow a certain set of published standards for calculating Scope 3 emissions that have been developed for a registrant's industry or that are otherwise broadly accepted? For example, should we require a registrant in the financial industry to follow PCAF's Global GHG Accounting & Reporting Standard for the Financial Industry when calculating its financed emissions within the "Investments" category of Scope 3 emissions? Are there other industry-specific standards that we should require for Scope 3 emissions disclosure? Should we require a registrant to follow the GHG Protocol's Corporate Value Chain (Scope 3) Accounting and Reporting Standard if an industry-specific standard is not available for Scope 3 emissions disclosure? If we should require the use of a third-party standard for Scope 3 emissions reporting, or any other scope of emissions, how should we implement this requirement?

3. The Scope 3 Emissions Disclosure Safe Harbor and Other Accommodations

We recognize that the calculation and disclosure of Scope 3 emissions may pose difficulties compared to Scopes 1 and 2 emissions, which has caused concern for some commenters.⁵⁴² It may be difficult to obtain activity data from suppliers and other third parties in a registrant's value chain, or to verify the accuracy of that information. It may also be necessary to rely heavily on estimates and assumptions to generate Scope 3 emissions data. For example,

⁵⁴² See, e.g., letter from Dimensional Fund Advisors; see also *supra* note 422.

registrants may need to rely on assumptions about how customers will use their products in order to calculate Scope 3 emissions from the use of sold products.

Depending on the size and complexity of a company and its value chain, the task of calculating Scope 3 emissions could be challenging.⁵⁴³ We expect that some of these challenges may recede over time. For example, as more companies make their Scope 1 and 2 emissions data publicly available, these data can serve as the input for other companies' Scope 3 calculations. In addition, large companies that are voluntarily disclosing Scope 3 emissions information currently are also working with suppliers to increase access to emissions data and improve its reliability,⁵⁴⁴ which could have positive spillover effects for other companies that use the same suppliers. Furthermore, within certain industries, there is work underway to improve methodologies and share best practices to make Scope 3 calculations less burdensome and more reliable.⁵⁴⁵ Notwithstanding these anticipated developments, calculating and disclosing Scope 3

⁵⁴³ While there may be less challenging approaches, such as using industry averages or proxies for activity data (such as economic data), the result may be less accurate and could obscure the impact of choices that companies may make to reduce their Scope 3 emissions. For example, if a company uses industry averages to calculate Scope 3 emissions from shipping its products, it may have difficulty communicating to investors how its selection of a shipping company that runs on lower emissions fuel or picks more efficient routes has lowered its Scope 3 emissions.

⁵⁴⁴ See, e.g., Apple, *Environmental Social Governance Report* (2021), available at https://s2.q4cdn.com/470004039/files/doc_downloads/2021/08/2021_Apple_ESG_Report.pdf (stating that Apple works with its suppliers to help address Apple's environmental commitments, such as becoming carbon neutral by 2030 across its entire product footprint).

⁵⁴⁵ See, e.g., PCAF, *The Global GHG Accounting and Reporting Standard for the Financial Industry*. In addition, the American Petroleum Institute has developed an overview of Scope 3 methodologies to inform oil and gas companies about Scope 3 estimation approaches. See API and IPIECA, *Estimating petroleum industry value chain (Scope 3) greenhouse gas emissions*, available at <https://www.api.org/~media/Files/EHS/climate-change/Scope-3-emissions-reporting-guidance-2016.pdf>. Finally, an initiative launched by food and beverage companies, Danone and Mars, together with the Science Based Targets Initiative, aims to provide Scope 3 guidance to companies in difference industries, starting with the food and beverage industry. See SB, *Serious About Scope 3: Pioneering Companies Embracing Complexity, Reaping the Benefits*, available at <https://sustainablebrands.com/read/supply-chain/serious-about-scope-3-pioneering-companies-embracing-complexity-reaping-the-benefits>.

emissions could represent a challenge for certain registrants, in particular those that do not currently report such information on a voluntary basis.

To balance concerns about reporting Scope 3 emissions with the need for decision-useful emissions disclosure, we are proposing the following accommodations for Scope 3 emissions disclosure:

- A safe harbor for Scope 3 emissions disclosure from certain forms of liability under the Federal securities laws;⁵⁴⁶
- An exemption for smaller reporting companies (“SRCs”) from the Scope 3 emissions disclosure provision;⁵⁴⁷ and
- A delayed compliance date for Scope 3 emissions disclosure.⁵⁴⁸

We are proposing a safe harbor for Scope 3 emissions disclosure to alleviate concerns that registrants may have about liability for information that would be derived largely from third parties in a registrant’s value chain. Many commenters recommended that the Commission adopt a safe harbor for climate-related disclosures.⁵⁴⁹ These commenters asserted that a safe harbor would encourage registrants to provide meaningful, quantitative metrics and analysis. Other commenters focused their recommendation for a safe harbor on certain types of climate-

⁵⁴⁶ See 17 CFR 229.1504(f).

⁵⁴⁷ See proposed 17 CFR 229.1504(c)(3).

⁵⁴⁸ See *infra* Section II.M.

⁵⁴⁹ See, e.g., letters from ACCO Brands Corp.; American Bankers Association; American Petroleum Institute; American Property Casualty Insurance Association; Associated General Contractors of America; Bank of America Corporation; Biotechnology Innovation Organization; ConocoPhillips; Delta Airlines, Inc. (June 16, 2021); Deutsches Bank AG; Dow; Enbridge Inc.; Energy Infrastructure Council; Etsy, Inc.; Freeport-McMoran; KPMG LLP; Managed Funds Association; Nacco Industries; National Investor Relations Institute; National Ocean Industries Association; Neuberger Berman; NIRI Los Angeles; Oshkosh Corporation; Salesforce.com; SASB; SIFMA (June 10, 2021); Society for Corporate Governance; United Airlines Holdings, Inc. (June 11, 2021); and Wachtell Rosen Lipton & Katz.

related disclosures, such as those pertaining to scenario analysis, third-party derived data (such as Scope 3 emissions),⁵⁵⁰ or forward-looking statements generally.⁵⁵¹ With respect to Scope 3 emissions specifically, commenters recommended that the Commission provide a safe harbor due to the reliance on estimates and data needed for Scope 3 emissions reporting that are outside of the registrant’s control.⁵⁵²

While we are not proposing a broad safe harbor for all climate-related disclosures, many of which are similar to other business and financial information required by Commission rules, we are proposing a targeted safe harbor for Scope 3 emissions data in light of the unique challenges associated with this information. The proposed safe harbor would provide that disclosure of Scope 3 emissions by or on behalf of the registrant would be deemed not to be a fraudulent statement unless it is shown that such statement was made or reaffirmed without a reasonable basis or was disclosed other than in good faith.⁵⁵³ The safe harbor would extend to any statement regarding Scope 3 emissions that is disclosed pursuant to proposed subpart 1500 of Regulation S-K and made in a document filed with the Commission.⁵⁵⁴ For purposes of the proposed safe harbor, the term “fraudulent statement” would be defined to mean a statement that is an untrue statement of material fact, a statement false or misleading with respect to any material fact, an omission to state a material fact necessary to make a statement not misleading,

⁵⁵⁰ *See, e.g.*, letters from Business Council for Sustainable Energy; Dimensional Fund Advisors; and Independent Community Bankers of America.

⁵⁵¹ *See, e.g.*, letters from AICPA; BlackRock; Center for Climate and Energy Solutions; Crowe LLP; Energy Strategy Coalition; Institute of Management Accountants; Japanese Bankers Association; Nareit; National Mining Association; and Newmont Corporation.

⁵⁵² *See, e.g.*, letters from Dimensional Fund Advisors; and International Capital Markets Association (June 15, 2021).

⁵⁵³ *See* proposed 17 CFR 229.1504(f)(1).

⁵⁵⁴ *See* proposed 17 CFR 229.1504(f)(2).

or that constitutes the employment of a manipulative, deceptive, or fraudulent device, contrivance, scheme, transaction, act, practice, course of business, or an artifice to defraud as those terms are used in the Securities Act or the Exchange Act or the rules or regulations promulgated thereunder.⁵⁵⁵ The proposed safe harbor is intended to mitigate potential liability concerns associated with providing emissions disclosure based on third-party information by making clear that registrants would only be liable for such disclosure if it was made without a reasonable basis or was disclosed other than in good faith. It also may encourage more robust Scope 3 emissions information, to the extent registrants feel reassured about relying on actual third-party data as opposed to national or industry averages for their emissions estimates.

Several commenters expressed concern that the Commission would impose a “one size fits all” approach, which could disproportionately impact smaller registrants, when adopting climate-related disclosure rules.⁵⁵⁶ Several commenters recommended that the Commission phase-in or scale down the climate-related disclosure requirements for smaller registrants.⁵⁵⁷

Although we are not proposing to exempt SRCs from the full scope of the proposed climate-related disclosure rules, we are proposing to exempt SRCs from the proposed Scope 3 emissions disclosure requirement.⁵⁵⁸ We believe that exempting SRCs from the proposed Scope

⁵⁵⁵ See proposed 17 CFR 229.1504(f)(3). This definition is based on the definition of fraudulent statement in 17 CFR 230.175.

⁵⁵⁶ See, e.g., letters from Elisha Doerr (May 24, 2021); Freedomworks Foundation (June 14, 2021); Roger Hawkins (May 24, 2021); and Jonathan Skee (May 26, 2021).

⁵⁵⁷ See, e.g., letters from American Bankers Association (June 11, 2021); Biotechnology Innovation Organization (June 15, 2021); BNP Paribas; Cardano Risk Management Ltd.; Catavento Consultancy; Chamber of Commerce (June 11, 2021); Credit Roundtable (June 11, 2021); Douglas Hileman Consulting; Environmental Bankers Association (June 9, 2021); Grant Thornton; Virginia Harper Ho; Manulife Investment Management; Mirova US; Morrison & Foerster; NEI Investments (June 11, 2021); New York State Society of Certified Public Accountants; PIMCO; and SIFMA.

⁵⁵⁸ See proposed 17 CFR 229.1504(c)(3). We also are proposing a later compliance date for SRCs. See *infra* Section II.M.

3 emissions disclosure requirement would be appropriate in light of the proportionately higher costs they could incur, compared to non-SRCs, to engage in the data gathering, verification, and other actions associated with Scope 3 emissions reporting, many of which may have fixed cost components.

To further ease the burden of complying with the proposed Scope 3 disclosure requirement, we are also proposing a delayed compliance date for this requirement. As explained in greater detail below, all registrants, regardless of their size, would have an additional year to comply initially with the Scope 3 disclosure requirement beyond the compliance date for the other proposed rules. Moreover, because a registrant's Scope 3 emissions consist of the Scopes 1 and 2 emissions of its suppliers, distributors, and other third parties in the registrant's value chain, to the extent those parties become subject to the proposed rules, the increased availability of Scopes 1 and 2 emissions data following the rules' effectiveness should help ease the burden of complying with the Scope 3 emissions disclosure requirement.

Finally, we note that Securities Act Rule 409 and Exchange Act Rule 12b-21, which provide accommodations for information that is unknown and not reasonably available, would be available for the proposed Scope 3 emissions disclosures.⁵⁵⁹ These rules allow for the conditional omission of required information when such information is unknown and not reasonably available to the registrant, either because obtaining the information would involve

⁵⁵⁹ See 17 CFR 230.409 and 17 CFR 240.12b-21.

unreasonable effort or expense, or because the information rests peculiarly within the knowledge of another person not affiliated with the registrant.⁵⁶⁰

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133. Should we provide a safe harbor for Scope 3 emissions disclosure, as proposed? Is the scope of the proposed safe harbor clear and appropriate? For example, should the safe harbor apply to any registrant that provides Scope 3 disclosure pursuant to the proposed rules, as proposed? Should we limit the use of the safe harbor to certain classes of registrants or to registrants meeting certain conditions and, if so, which classes or conditions? For example, should we require the use of a particular methodology for calculating and reporting Scope 3 emissions, such as the PCAF Standard if the registrant is a financial institution, or the GHG Protocol Scope 3 Accounting and Reporting Standard for other types of registrants? Should we clarify the scope of persons covered by the language “by or on behalf of a registrant” by including language about outside reviewers retained by the registrant or others? Should we define a “fraudulent statement,” as proposed? Is the level of diligence required for the proposed safe harbor (*i.e.*, that the statement was made or reaffirmed with a reasonable basis and disclosed in good faith) the appropriate standard? Should the safe harbor apply to other climate-related disclosures, such as Scopes 1 and 2 emissions disclosures, any targets and goals disclosures in response to proposed Item 1505 (discussed below), or the financial statement metrics disclosures required pursuant to Proposed Article 14 of Regulation S-X? Should the safe harbor apply indefinitely, or should we include a sunset provision that would eliminate the safe harbor some number of years, (*e.g.*, five years) after the effective date or applicable compliance date of the

⁵⁶⁰ *See id.* We expect, however, that a registrant that requires emissions data from another registrant in its value chain would be able to obtain that data without unreasonable effort or expense because of the increased availability of Scopes 1 and 2 emissions data for registrants following the effectiveness of the proposed rules.

rules? Should the safe harbor sunset after certain conditions are satisfied? If so, what types of conditions should we consider? What other approaches should we consider?

134. Should we provide an exemption from Scope 3 emissions disclosure for SRCs, as proposed? Should the exemption not apply to a SRC that has set a target or goal or otherwise made a commitment to reduce its Scope 3 emissions? Are there other classes of registrants we should exempt from the Scope 3 emissions disclosure requirement? For example, should we exempt EGCs, foreign private issuers, or a registrant that is filing or has filed a registration statement for its initial public offering during its most recently completed fiscal year from the Scope 3 disclosure requirement? Instead of an exemption, should we provide a longer phase in for the Scope 3 disclosure requirements for SRCs than for other registrants?

H. Attestation of Scope 1 and Scope 2 Emissions Disclosure

1. Overview

The proposed rules would require a registrant, including a foreign private issuer, that is an accelerated filer or large accelerated filer to include in the relevant filing an attestation report covering the disclosure of its Scope 1 and Scope 2 emissions⁵⁶¹ and to provide certain related disclosures about the service provider.⁵⁶² As proposed, the attestation engagement must, at a

⁵⁶¹ See proposed 17 CFR 229.1505(a). In order to attest to the Scopes 1 and 2 emissions disclosure, we believe a GHG emissions attestation provider would need to include in its evaluation relevant contextual information. In particular, the attestation provider would be required to evaluate the registrant's compliance with (i) proposed Item 1504(a), which includes presentation requirements (*e.g.*, disaggregation by each constituent greenhouse gas), (ii) the calculation instructions included in proposed Item 1504(b), and (iii) the disclosure requirements in proposed Item 1504(e) regarding methodology, organizational boundary, and operational boundary. See *infra* Section II.H.3 for further discussion of the criteria against which the Scopes 1 and 2 emissions disclosure are measured or evaluated.

⁵⁶² See proposed 17 CFR 229.1505(d).

minimum, be at the following assurance level for the indicated fiscal year for the required GHG emissions disclosure:⁵⁶³

Limited Assurance	Reasonable Assurance
Fiscal Years 2 and 3 after Scopes 1 and 2 emissions disclosure compliance date	Fiscal Years 4 and beyond after Scopes 1 and 2 emissions disclosure compliance date

To provide additional clarity, the following table illustrates the application of the transition periods assuming that the proposed rules will be adopted with an effective date in December 2022 and that the accelerated filer or large accelerated filer has a December 31st fiscal year-end:

Filer Type	Scopes 1 and 2 GHG Disclosure Compliance Date *	Limited Assurance	Reasonable Assurance
Accelerated Filer	Fiscal year 2024 (filed in 2025)	Fiscal year 2025 (filed in 2026)	Fiscal year 2027 (filed in 2028)
Large Accelerated Filer	Fiscal year 2023 (filed in 2024)	Fiscal year 2024 (filed in 2025)	Fiscal year 2026 (filed in 2027)

* See *infra* Section II.M for a discussion of the proposed disclosure compliance dates for Scopes 1 and 2 GHG emissions disclosure. If the accelerated filer or the large accelerated filer has a non-calendar-year fiscal year-end date that results in its 2024 or 2023 fiscal year, respectively, commencing before the compliance dates of the rules, it would not be required to comply with proposed GHG emissions disclosure requirements until the following fiscal year (as discussed below in Section II.M). Accordingly, for such filers, the time period for compliance with the corresponding attestation requirements under proposed Item 1505 would be one year later than illustrated above.

During the transition period when limited assurance is required, the proposed rules would permit an accelerated filer or a large accelerated filer, at its option, to obtain reasonable assurance of its Scope 1 and 2 emissions disclosure.⁵⁶⁴ For example, an accelerated filer or a

⁵⁶³ See proposed 17 CFR 229.1505(a)(1).

⁵⁶⁴ Reasonable assurance is equivalent to the level of assurance provided in an audit of a registrant's consolidated financial statements included in a Form 10-K. Limited assurance is equivalent to the level of assurance (commonly referred to as a "review") provided over a registrant's interim financial statements included in a Form 10-Q.

large accelerated filer may choose to obtain reasonable assurance such that its GHG emissions disclosure receives the same level of assurance as its financial statements.⁵⁶⁵

At its option, an accelerated filer or a large accelerated filer would be able to obtain any level of assurance over its climate-related disclosures that are not required to be assured pursuant to proposed Item 1505(a). For example, an accelerated filer or a large accelerated filer could voluntarily include an attestation report at the limited assurance level for its GHG intensity metrics or its Scope 3 emissions disclosure. To avoid potential confusion, however, the voluntary assurance obtained by such filer would be required to follow the requirements of proposed Item 1505(b)–(d), including using the same attestation standard as the required assurance over Scope 1 and Scope 2.⁵⁶⁶ For filings made by accelerated filers and large accelerated filers after the compliance date for the GHG emissions disclosure requirements but before proposed Item 1505(a) requires limited assurance, the filer would only be required to provide the disclosure called for by proposed Item 1505(e). As discussed below in Section II.H.5, a registrant that is not an accelerated filer or a large accelerated filer that obtains voluntary assurance would be required to comply only with proposed Item 1505(e).

⁵⁶⁵ We refer to “assurance” broadly when describing the level and scope of assurance to which climate-related disclosures should be subject. Our proposed approach to assurance has been guided by “attestation” standards published by organizations including the PCAOB, AICPA, and the International Auditing and Assurance Standards Board (“IAASB”). Such attestation standards apply to engagements other than audit and review of historical financial statements and have been widely used in the current voluntary ESG and GHG assurance market for a number of years.

⁵⁶⁶ See proposed 17 CFR 229.1505(a)(2). If the accelerated filer or large accelerated filer was required to obtain reasonable assurance over its Scope 1 and Scope 2 emissions disclosures and the attestation provider chose to follow, for example, the AICPA attestation standards, the accelerated filer or large accelerated filer could voluntarily obtain limited assurance over its GHG intensity metric or Scope 3 emissions disclosures, and the attestation provider would be required to follow the AICPA’s attestation standard for providing limited assurance.

Many commenters recommended that we require climate-related disclosures to be subject to some level of assurance to enhance the reliability of the disclosures.⁵⁶⁷ Commenters noted that companies are increasingly seeking some type of third-party assurance or verification over ESG and climate-related disclosures. For example, according to one commenter, 80 percent of S&P 100 companies currently subject certain items of their ESG information, including climate-related disclosures such as greenhouse gas emissions, to some type of third-party assurance or verification.⁵⁶⁸ Several commenters recommended that we require climate-related disclosures to be subject to limited assurance,⁵⁶⁹ which provides a lower level of assurance than reasonable assurance, but is less costly, and is the most common form of assurance provided for ESG, including climate-related disclosures, in the current voluntary reporting landscape.⁵⁷⁰

One commenter recommended that, at a minimum, we require a registrant to obtain a limited assurance report for its Scopes 1 and 2 emissions disclosure while encouraging optional verification for other ESG metrics.⁵⁷¹ Another commenter indicated that a limited assurance requirement for climate-related disclosures would be similar to the EU's Corporate Sustainability

⁵⁶⁷ See, e.g., letters from AICPA; Americans for Financial Reform Education Fund *et al*; Andrew Behar; Baillie Gifford; Carbon Tracker Initiative; Cardano Risk Management Ltd.; CDP; Center for American Progress; Center for Audit Quality; Ceres *et al*.; Climate Disclosure Standards Board; Climate Governance Initiative; Emmanuelle Haack; Eni SpA; ERM CVS (recommending limited assurance); George Serafeim; Regenerative Crisis Response Committee; Friends of the Earth, Amazon Watch, and Rainforest Action Network; Hermes Equity Ownership Limited; Impax Asset Management; Institutional Shareholder Services; Interfaith Center on Corporate Responsibility (recommending reasonable assurance); International Corporate Governance Institute; International Organization for Standardization; Morningstar, Inc.; Natural Resources Defense Council; NY City Comptroller; NY State Comptroller; Oxfam America; PRI ; Pricewaterhouse Coopers; Revolving Door Project; TotalEnergies (recommending limited assurance); Value Balancing Alliance; WBCSD; William and Flora Hewlett Foundation; and World Benchmarking Alliance.

⁵⁶⁸ See letter from CAQ; see also CAQ, *S&P 500 and ESG Reporting* (Aug. 9, 2021), available at <https://www.thecaq.org/sp-500-and-esg-reporting/> (stating that more than half of S&P 500 companies had some form of assurance or verification over ESG metrics, including GHG emissions metrics).

⁵⁶⁹ See, e.g., letters from Credit Suisse; ERM CVS; PayPal Holdings, Inc.; TotalEnergies; and Walmart.

⁵⁷⁰ See letter from Energy Infrastructure Council; see also CAQ, *S&P 500 and ESG Reporting* (Aug. 9, 2021).

⁵⁷¹ See letter from PayPal Holdings, Inc.

Reporting Directive proposal that, if adopted, would initially require companies in the European Union to obtain limited assurance on reported sustainability information with an option to move towards reasonable assurance in the future.⁵⁷² One commenter stated the view that, while the professional capacity of audit firms might, at this point, be insufficient to provide reasonable assurance of ESG data, it supported a mandatory limited assurance requirement for climate risk reporting.⁵⁷³ Other commenters recommended that we require climate-related disclosures to be audited at the reasonable assurance level.⁵⁷⁴

Some commenters, however, opposed any third-party assurance requirement for climate-related disclosures because of the significant cost that these commenters asserted it could impose on public companies, and because, in their view, application of assurance standards to data that is different from traditional financial reporting disclosures, such as GHG emissions, would be a relatively new and evolving field.⁵⁷⁵ Some of these commenters indicated that, as a first step, registrants should develop their internal controls and disclosure controls and procedures (“DCP”) to include climate-related disclosures, and defer mandated third-party assurance requirements to a later time.⁵⁷⁶

We recognize that requiring GHG emissions disclosure in Commission filings should enhance the consistency, comparability, and reliability of such disclosures due to the application

⁵⁷² See letter from CAQ.

⁵⁷³ See letter from Credit Suisse.

⁵⁷⁴ See, e.g., letters from Ceres *et al.*; and Interfaith Center on Corporate Responsibility.

⁵⁷⁵ See, e.g., letters from American Petroleum Institute; Investment Company Institute; and National Association of Manufacturers.

⁵⁷⁶ See, e.g., letters from American Petroleum Institute; and Investment Company Institute. We agree that registrants should develop their DCP to include their GHG emissions disclosures. When the proposed GHG emissions disclosures are included in Form 10-K and Form 20-F annual reports, our rules governing DCP would apply to those disclosures. See 17 CFR 240.13a-15 and 240.15d-15.

of DCP and the proposed inclusion of certain prescriptive elements that may help improve standardization of GHG emissions calculations. Nevertheless, the evolving and unique nature of GHG emissions reporting involves and, in some cases, warrants varying methodologies, differing assumptions, and a substantial amount of estimation. Certain aspects of GHG emissions disclosure also involve reliance on third-party data. As such, requiring a third party's attestation over these disclosures would provide investors with an additional degree of reliability regarding not only the figures that are disclosed, but also the key assumptions, methodologies, and data sources the registrant used to arrive at those figures. In other contexts, such as mineral resources and oil and gas reserves, the Commission has recognized the value that third parties with specialized expertise in audit and engineering can bring to company disclosures of physical resources or risks.⁵⁷⁷

Our rules typically do not require registrants to obtain assurance over disclosure provided outside of the financial statements, including quantitative disclosure. We believe, however, that there are important distinctions between existing quantitative disclosure required to be provided outside of the financial statements and the proposed GHG emissions disclosure. In contrast to GHG emissions disclosure, quantitative disclosure outside of the financial statements typically is derived, at least in part, from the same books and records that are used to generate a registrant's audited financial statements and accompanying notes and that are subject to ICFR. Accordingly, such quantitative disclosure has been subject to audit procedures as part of the audit of the

⁵⁷⁷ See 17 CFR 229.1302 (requiring a registrant's disclosure of exploration results, mineral resources, or mineral reserves to be based on and accurately reflect information and supporting documentation prepared by a qualified person, which, pursuant to 17 CFR 229.1300, is defined to mean a mineral industry professional with at least five years of relevant experience in the type of mineralization and type of deposit under consideration who meets certain additional criteria); and 17 CFR 229.1202(a)(7) (requiring a registrant to disclose the qualifications of the technical person primarily responsible for overseeing the preparation of the oil and gas reserves estimates or reserves audit).

financial statements in the same filing. Further, the auditor's read and consider obligation requires an evaluation of this quantitative information based on the information obtained through the audit of the financial statements.⁵⁷⁸ Unlike other quantitative information that is provided outside of the financial statements, GHG emissions disclosure would generally not be developed from information that is included in the registrant's books and records and, therefore, would not be subjected to audit procedures.⁵⁷⁹ In addition, although not an assurance engagement, we have adopted rules requiring an expert to review and provide conclusions on other specialized, quantitative data that is provided outside of the financial statements.⁵⁸⁰ Accordingly, to enhance its reliability, we believe it is appropriate to require that GHG emissions disclosure be subject to third-party attestation.

For similar reasons, we also considered proposing to require that management assess and disclose the effectiveness of controls over GHG emissions disclosure (apart from the existing requirements with respect to the assessment and effectiveness of DCP). More specifically, in addition to the requirement to assess such controls, we considered whether to require management to include a statement in their annual report regarding their responsibility for the

⁵⁷⁸ See PCAOB AS 2710 *Other Information in Documents Containing Audited Financial Statements* (requiring an auditor to read the other information (included in an annual report with the audited financial statements) and consider whether such information, or the manner of its presentation, is materially inconsistent with information, or the manner of its presentation, appearing in the financial statements). For example, disclosure pursuant to 17 CFR 229.303 (Item 303 of Regulation S-K – MD&A) is derived in part from the same books and records that are subject to ICFR and used to generate a registrant's audited financial statements and accompanying notes (*e.g.*, the liquidity and capital resources disclosures are anchored to the audited cash flows information disclosed in the financial statements).

⁵⁷⁹ Although GHG emission disclosure would generally not be directly derived from the same books and records that are used to generate a registrant's audited financial statements and accompanying notes and that are subject to ICFR, GHG emission disclosure, as proposed, would be required to use the same organizational and operational boundaries as the registrant's financial statement disclosures. See proposed 17 CFR 229.1504(e)(2).

⁵⁸⁰ See *Modernization of Property Disclosures for Mining Registrants*, Release No. 33-10570 (Oct. 31, 2018), [83 FR 66344 (Dec. 26, 2018)].

design and evaluation of controls over GHG emissions disclosures, as well as to disclose their conclusion regarding the effectiveness of such controls. We also considered proposing to require a GHG emissions attestation provider’s attestation of the effectiveness of controls over GHG emissions disclosure in addition to the proposed attestation over the Scopes 1 and 2 GHG emissions disclosure. Although both such requirements could further enhance the reliability of the related Scopes 1 and 2 GHG emissions disclosure, we are not currently proposing them at this time. We are, however, continuing to consider these alternatives, including: (i) the need to develop guidance for management on conducting such an assessment and (ii) whether appropriate attestation standards exist. Accordingly, we request comment on these and related issues below.

The Commission has long recognized the important role played by an independent audit in contributing to the reliability of financial reporting.⁵⁸¹ Relatedly, studies suggest that investors have greater confidence in information that has been assured, particularly when it is assured at the reasonable assurance level.⁵⁸² Although a limited assurance engagement provides a lower level of assurance than a reasonable assurance engagement,⁵⁸³ studies of ESG-related assurance, which is typically provided at a limited assurance level, have found benefits such as

⁵⁸¹ See *Qualifications of Accountants*, Release No. 33-10876 (Oct. 16, 2020) [85 FR 80508 (Dec. 11, 2020)], at 80508. See also Statement of Paul Munter, Acting Chief Accountant, *The Importance of High Quality Independent Audits and Effective Audit Committee Oversight to High Quality Financial Reporting to Investors* (Oct. 26, 2021), available at <https://www.sec.gov/news/statement/munter-audit-2021-10-26>.

⁵⁸² See, e.g., Carol Callaway Dee, et al., *Client Stock Market Reaction to PCAOB Sanctions against a Big Four Auditor*, 28 CONTEMP. ACCT. RES. 263 (Spring 2011) (“Audits are valued by investors because they assure the reliability of and reduce the uncertainty associated with financial statements.”); Center for Audit Quality, *2019 Main Street Investor Survey* (“[I]nvestors continue to register high degrees of confidence in the ability of public company auditors to fulfill their investor-protection roles. Eighty-three percent of US retail investors view auditors as effective in their investor-protection role within the US capital markets, up from 81% in 2018); and CFA Institute, *CFA Institute Member Survey Report – Audit Value, Quality, and Priorities* (2018).

⁵⁸³ See *infra* note 604 for a discussion of the key differences between limited and reasonable assurance engagements.

credibility enhancement, lower cost of equity capital, and lower analyst forecast errors and dispersion.⁵⁸⁴ Therefore, proposing to require Scope 1 and Scope 2 emissions disclosure by accelerated filers and large accelerated filers be subject to limited assurance initially, with an eventual scaling up to reasonable assurance, could potentially improve both the actual reliability of disclosure and investor confidence in such disclosure.⁵⁸⁵

Increasing investor demand for consistent, comparable, and reliable climate-related financial information appears to have led a growing number of companies to voluntarily obtain third-party assurance over their climate-related disclosures both within the U.S. and globally. For example, according to one study, 53% of the S&P 500 companies had some form of assurance or verification over climate-related metrics, along with other metrics.⁵⁸⁶ Another survey of sustainability reporting trends from 5,200 companies across 52 countries (including the United States) stated that, of the top 100 companies (by revenue), 80% have reporting on ESG (including climate), with up to 61% of those companies also obtaining assurance.⁵⁸⁷ The

⁵⁸⁴ See, e.g., Ryan J. Casey, et al., *Understanding and Contributing to the Enigma of Corporate Social Responsibility (CSR) Assurance in the United States*, 34 AUDITING: A JOURNAL OF PRACTICE AND THEORY 97, 122 (Feb. 2015) (finding that corporate social responsibility (“CSR”) assurance results in lower cost-of-capital along with lower analyst forecast errors and dispersion, and that financial analysts find related CSR reports to be more credible when independently assured). See also *infra* note 592 for statistics illustrating that limited assurance is more commonly obtained voluntarily in the current market than reasonable assurance over ESG-related information.

⁵⁸⁵ See, e.g., letter from Institute for Policy Integrity, Environmental Defense Fund, Initiative on Climate Risk & Resilience Law (“Voluntary frameworks typically lack independent auditing requirements, which is one reason many investors perceive current disclosures to be unreliable or uneven.”). See also EVORA Global and SIERA, *Investor Survey 2021: Part 2 ESG Data Challenge* (2021), 7, available at <https://evoraglobal.com/wp-content/uploads/2021/12/ESG-Data-Challenge-Investor-Survey-Part-2.pdf> (“Investors are integrating ESG across the investment lifecycle, for the purposes of strategy, reporting, peer benchmarking, etc., however the majority (86%) are not sure of their ESG data quality. About 52% of the investors consider that their ESG data is partially investment-grade.”); State Street Global Advisors, *The ESG Data Challenge* (Mar. 2019), available at <https://www.ssga.com/investment-topics/environmental-social-governance/2019/03/esg-data-challenge.pdf>.

⁵⁸⁶ See CAQ, *S&P 500 and ESG Reporting* (Aug. 9, 2021).

⁵⁸⁷ See KPMG, *The KPMG Survey of Sustainability Reporting 2020*, available at <https://home.kpmg/xx/en/home/insights/2020/11/the-time-has-come-survey-of-sustainability-reporting.html>.

prevalence of major companies obtaining assurance in connection with their voluntary sustainability reports suggests that both the companies and their investors are focused on the reliability of such disclosures.

Although many registrants have voluntarily obtained some level of assurance for their climate-related disclosures, current voluntary ESG assurance practices have been varied with respect to the levels of assurance provided (*e.g.*, limited versus reasonable), the assurance standards used, the types of service providers, and the scope of disclosures covered by the assurance. This fragmentation has diminished the comparability of the assurance provided and may require investors to become familiar with many different assurance standards and the varying benefits of different levels of assurance. The consequences of such fragmentation has also been highlighted by certain international organizations,⁵⁸⁸ including IOSCO, which stated that the “perceived lack of clarity and consistency around the purpose and scope of [voluntary] assurance . . . potentially lead[s] to market confusion, including misleading investors and exacerbating the expectations gap.”⁵⁸⁹ For example, investors may see that a service provider has produced an assurance report for a registrant’s GHG emissions disclosure and have an expectation that such assurance will enhance the reliability of that disclosure without always understanding the service provider’s qualifications for producing the report, what level of assurance (*e.g.*, limited versus reasonable) is being provided, what scope of assurance (*e.g.*, the disclosures covered by the assurance) is being provided with respect to the registrant’s GHG

⁵⁸⁸ International Federation of Accountants, *The State of Play in Sustainability Assurance* (June 23, 2021), available at <https://www.ifac.org/knowledge-gateway/contributing-global-economy/discussion/state-play-sustainability-assurance>; Lawrence Heim, International Federation of Accountants, *IFAC: Poor ESG Assurance an “Emerging Financial Stability Risk”* (July 1, 2021), available at <https://practicalesg.com/2021/07/ifac-poor-esg-assurance-an-emerging-financial-stability-risk/>.

⁵⁸⁹ IOSCO, *Report on Sustainability-related Issuer Disclosures* (June 2021).

emissions disclosure, and the methodologies and procedures that the attestation provider used. While some experienced assurance providers may be proficient in applying attestation standards to GHG emissions disclosures, other assurance providers may lack GHG emissions expertise. Similarly, some service providers providing assurance may have expertise in GHG emissions but have minimal assurance experience. Moreover, some service providers may use standards that are developed by accreditation bodies with notice and public comment and other robust due process procedures⁵⁹⁰ for standard setting, while other service providers may use privately developed “verification” standards.⁵⁹¹

To improve accuracy, comparability, and consistency with respect to the proposed GHG emissions disclosure, we are proposing to require a minimum level of attestation services for accelerated filers and large accelerated filers including: (1) limited assurance for Scopes 1 and 2 emissions disclosure that scales up to reasonable assurance after a specified transition period; (2) minimum qualifications and independence requirements for the attestation service provider; and (3) minimum requirements for the accompanying attestation report. These proposed requirements would be minimum standards that the GHG emissions attestation provider engaged by accelerated filers and large accelerated filers must meet, but, as mentioned above, would not prevent a registrant from obtaining a heightened level of assurance over its climate-related disclosures (prior to the transition to reasonable assurance) or to obtain assurance over climate-related disclosures other than Scope 1 and Scope 2 emissions.

⁵⁹⁰ See *infra* Section II.H.3.

⁵⁹¹ See, e.g., CAQ, *S&P 500 and ESG Reporting* (Aug. 9, 2021) (pointing to the use of assurance methodologies developed by individual service providers, which in some cases were based on IAASB International Standard on Assurance Engagements (ISAE) 3000 with modifications).

By specifying minimum standards for the attestation provided with respect to GHG emissions disclosure by accelerated filers and large accelerated filers, the proposed rules should improve accuracy and consistency in the reporting of this information, while also providing investors with an enhanced level of reliability against which to evaluate the disclosure. In addition to the proposed minimum standards for attestation services, the proposed additional disclosure requirements for registrants, described below, should further assist investors in understanding the qualifications and suitability of the GHG emissions attestation provider selected by the registrant, particularly in light of the broad spectrum of attestation providers that would be permitted to provide attestation services under the proposed rules.

Although we are proposing certain minimum standards for attestation services, this proposal does not aim to create or adopt a specific attestation standard for assuring GHG emissions, just as this proposal does not define a single methodology for calculating GHG emissions. This is because both the reporting and attestation landscapes are currently evolving and it would be premature to adopt one approach and potentially curtail future innovations in these two areas. The evolving nature of GHG emissions calculations and attestation standards could suggest that it may also be premature to require assurance. We are soliciting comment on the feasibility of our proposal and will consider any public feedback received, but we have preliminarily determined that the phased-in approach that we are proposing, along with an extended period for disclosure compliance for accelerated filers, balances the benefits of third-party review with the costs of seeking assurance in this evolving space.

The proposed minimum standards for attestation services and the proposed additional disclosure requirements would not eliminate fragmentation with respect to assurance or obviate the need for investors to assess and compare multiple attestation standards. Nevertheless, we

believe some flexibility in our approach is warranted at this time given the unique and evolving nature of third-party assurance for climate-related disclosures. We believe the proposed minimum standards and additional disclosure requirements would enable investors to better understand the assurance that has been provided.

We are cognizant of the fact that the calculation and disclosure of GHG emissions would be new for many registrants, as would be the application of assurance standards to GHG emissions disclosure. For these reasons and the reasons discussed in greater detail below, we are proposing to require assurance (1) only for accelerated filers and large accelerated filers, (2) only with respect to Scope 1 and Scope 2 emissions, and (3) with an initial transition period for limited assurance and a subsequent transition period for reasonable assurance.

Although we have considered the challenges that mandatory assurance of GHG emissions disclosure could present, accelerated filers and large accelerated filers should have the necessary resources to devote to complying with such requirements over the proposed implementation timetable. For the many large accelerated filers that are already voluntarily obtaining some form of assurance over their GHG emissions, any cost increases associated with complying with the proposed rules would be mitigated.⁵⁹² Furthermore, larger issuers generally bear proportionately

⁵⁹² See, e.g., CAQ, *S&P 500 and ESG Reporting* (Aug. 9, 2021) (providing statistics on limited assurance versus reasonable assurance obtained voluntarily in the current market (e.g., at least 26 of 31 companies that obtained assurance from public company auditors obtained limited assurance; at least 174 of 235 companies that obtained assurance or verification from other service providers (non-public company auditors) obtained limited assurance)). For similar information on the S&P 100, see CAQ, *S&P 100 and ESG Reporting* (Apr. 29, 2021), available at <https://www.thecaq.org/sp-100-and-esg-reporting/>. Based on an analysis by Commission staff on Mar. 3, 2022, a substantial number of the S&P 500 companies (460+) are large accelerated filers and therefore would be subject to the proposed assurance requirements.

lower compliance costs than smaller issuers due to the fixed cost components of such compliance.⁵⁹³

The proposed transition periods would also provide existing accelerated filers and large accelerated filers one fiscal year to transition to limited assurance⁵⁹⁴ and two additional fiscal years to transition to reasonable assurance.⁵⁹⁵ For existing accelerated filers, this transition period would be in addition to the one additional year they will have to comply with the Scopes 1 and 2 emission disclosure requirements (compared to large accelerated filers). As such, these filers would have significant time to develop processes to support their GHG emissions disclosure requirements and the relevant DCP, as well as to adjust to the incremental costs and efforts associated with escalating levels of assurance. During this transition period, GHG emissions attestation providers would also have time to prepare themselves for providing such services in connection with Commission filings.

In addition to the challenges posed by the newness of calculating and disclosing GHG emissions, we believe that only requiring assurance over Scope 1 and Scope 2 emissions would be appropriate because the emissions result directly or indirectly from facilities owned or activities controlled by a registrant, which makes it relatively more accessible and easier to subject to the registrant's DCP compared to Scope 3 data. Further, as discussed earlier, many

⁵⁹³ See *infra* note 948 in Section IV.C of the Economic Analysis for further discussion on proportionate costs between different types of filers.

⁵⁹⁴ See *infra* note 604 for a discussion of the key differences between limited and reasonable assurance engagements.

⁵⁹⁵ By limiting the assurance requirements to accelerated filers and large accelerated filers, a new registrant would not be required to provide assurance until it has been subject to the requirements of Section 13(a) or 15(d) of the Exchange Act for a period of at least twelve calendar months and it has filed at least one annual report pursuant to Section 13(a) or 15(d) of the Exchange Act. See 17 CFR 240.12b-2. Therefore, no registrant would be required to provide assurance covering its GHG emissions disclosure during an initial public offering. However, any registrant that voluntarily includes an attestation report for GHG emissions disclosure would be required to comply with proposed Item 1505(e).

registrants already voluntarily seek assurance over their GHG emissions disclosure (predominately Scope 1 and Scope 2 disclosures),⁵⁹⁶ which further supports the feasibility and readiness of Scope 1 and Scope 2 emissions disclosure for mandatory assurance. In contrast, we are not proposing to require assurance of Scope 3 emissions disclosure at this time because the preparation of such disclosure presents unique challenges.⁵⁹⁷ Depending on the size and complexity of a company and its value chain, the task of calculating Scope 3 emissions could be relatively more burdensome and expensive than calculating Scope 1 and Scope 2 emissions. In particular, it may be difficult to obtain activity data from suppliers, customers, and other third parties in a registrant's value chain, or to verify the accuracy of that information compared to disclosures of Scope 1 and Scope 2 emissions data, which are more readily available to a registrant.

We are proposing to require accelerated filers and large accelerated filers to obtain limited assurance, with an eventual scaling up to reasonable assurance. The objective of a limited assurance engagement is for the service provider to express a conclusion about whether it

⁵⁹⁶ For specific examples, *see, e.g.*, Etsy, Inc. FY 2021 Form 10-K, available at https://s22.q4cdn.com/941741262/files/doc_financials/2021/q4/ETSY-12.31.2021-10K.pdf (external third-party attestation report available at https://s22.q4cdn.com/941741262/files/doc_financials/2021/q4/PwC-Limited-Assurance-Report-Assertion-Etsy-FY21-2.24.22-final-signed-final.pdf); Johnson Controls International plc 2021 Sustainability Report, available at <https://www.johnsoncontrols.com/2021sustainability> (external third-party verification report available at <https://www.johnsoncontrols.com/-/media/jci/corporate-sustainability/reporting-and-policies/gri/2020/ghg-jci-fy-2020-verification-statement.pdf>); Norfolk Southern Corporation 2021 GHG Emissions Report, available at <http://www.nscorp.com/content/dam/nscorp/get-to-know-ns/about-ns/environment/2020-GHG-Emissions-Report.pdf>; Koninklijke Philips NV (Royal Philips) Annual Report 2021, at 269, available at <https://www.results.philips.com/publications/ar21/downloads/pdf/en/Philips-FullAnnualReport2021-English.pdf?v=20220225104533>; Starbucks Coffee Company FY 2020 GHG emissions inventory assurance report, at 2, available at <https://stories.starbucks.com/uploads/2021/04/Starbucks-FY20-Third-Party-Independent-Verification-and-Assurance-Reports.pdf>; and Vornado Realty Trust FY 2020 ESG report, available at <https://books.vno.com/books/idpn/#p=1>. *See also supra* note 592 for S&P 100 and S&P 500 related statistics.

⁵⁹⁷ *See supra* Section II.G.3 for further discussion of the unique challenges presented by the disclosure of Scope 3 emissions.

is aware of any material modifications that should be made to the subject matter (*e.g.*, the Scopes 1 and 2 emissions disclosure) in order for it to be fairly stated or in accordance with the relevant criteria (*e.g.*, the methodology and other disclosure requirements specified in proposed 17 CFR 229.1504 (Item 1504 of Regulation S-K)).⁵⁹⁸ In such engagements, the conclusion is expressed in the form of negative assurance regarding whether any material misstatements have been identified.⁵⁹⁹ In contrast, the objective of a reasonable assurance engagement, which is the same level of assurance provided in an audit of a registrant's consolidated financial statements, is to express an opinion on whether the subject matter is in accordance with the relevant criteria, in all material respects. A reasonable assurance opinion provides positive assurance that the subject matter is free from material misstatement.⁶⁰⁰

Reasonable assurance is feasible whenever limited assurance can be provided on a subject,⁶⁰¹ and as noted above the voluntary attestation obtained by some registrants has been at the reasonable assurance level.⁶⁰² We understand, however, that a limited assurance engagement

⁵⁹⁸ See, *e.g.*, AICPA's Statement on Standards for Attestation Engagements (SSAE) No.22, AT-C Section 210.

⁵⁹⁹ See *infra* Section II.H.3 for further discussion of the attestation report requirements, including the difference between a conclusion and an opinion.

⁶⁰⁰ See, *e.g.*, AICPA SSAE No. 21, AT-C Sections 205 and 206.

⁶⁰¹ Under commonly used attestation standards, both a reasonable assurance engagement and a limited assurance engagement have the same requirement that the subject matter (*e.g.*, Scope 1 and Scope 2 emissions) of the engagement be appropriate as a precondition for providing assurance. Thus, if the subject matter is appropriate for a limited assurance engagement, it is also appropriate for a reasonable assurance engagement. See AICPA SSAE No. 18 (Apr. 2016); and IAASB ISAE 3000 (Revised) (Dec. 2013).

⁶⁰² For example, some registrants have voluntarily sought reasonable assurance over certain information, including Scopes 1, 2, and 3 emissions, for which others have voluntarily sought limited assurance. See, *e.g.*, Apple, Inc. Environmental Progress Report (Mar. 2021), at 88-90, available at https://www.apple.com/environment/pdf/Apple_Environmental_Progress_Report_2021.pdf; United Parcel Service, Inc. (UPS) FY 2020 GRI Content Index, at 72, available at https://about.ups.com/content/dam/upsstories/assets/reporting/sustainability-2021/2020_UPS_GRI_Content_Index_081921v2.pdf; and Guess?, Inc. FY2020-2021 Sustainability Report, at 91, available at <https://static1.squarespace.com/static/609c10ed49db5202181d673f/v6/0faf8af82418f5da4778f6f/1627060411937/GUESS+FY20-21+Sustainability+Report.pdf>.

is less extensive and is currently the level of assurance most commonly provided⁶⁰³ in the voluntary assurance market for climate-related disclosure.⁶⁰⁴ Therefore, prior to the transition to reasonable assurance, the additional compliance efforts required to comply with the proposed assurance requirement should be limited for the many registrants that—according to commenters and others—are already obtaining limited assurance for their climate-related disclosures.⁶⁰⁵ Furthermore, although reasonable assurance provides a significantly higher level of assurance than limited assurance, we believe limited assurance would benefit investors during the initial transition period by enhancing the reliability of a registrant’s Scopes 1 and 2 emissions disclosure, in light of the benefits that assurance provides, as discussed above. Moreover, under the proposed rules, accelerated filers and large accelerated filers would not be prevented from obtaining reasonable assurance for their climate disclosures earlier than required. After the transition to mandatory reasonable assurance, investors would have the benefits of a higher level of assurance with smaller incremental costs to accelerated filers and large accelerated filers than moving directly to a reasonable assurance requirement.

⁶⁰³ See *supra* note 592 (providing statistics on limited assurance obtained voluntarily in the current market).

⁶⁰⁴ The scope of work in a limited assurance engagement is substantially less than a reasonable assurance engagement. The primary difference between the two levels of assurance relates to the nature, timing, and extent of procedures required to obtain sufficient, appropriate evidence to support the limited assurance conclusion or reasonable assurance opinion. Limited assurance engagements primarily include procedures such as inquiries and analytical procedures and do not necessarily include a consideration of whether internal controls have been effectively designed, whereas reasonable assurance engagements require the assurance service provider to consider and obtain an understanding of internal controls. More extensive testing procedures beyond inquiries and analytical procedures, including recalculation and verification of data inputs, are also required in reasonable assurance engagements, such as inspecting source documents that support transactions selected on a sample basis. Driven by these differences, the cost of limited assurance is generally lower than that of reasonable assurance.

⁶⁰⁵ See letters from CAQ and Energy Infrastructure Council; *supra* note 592 (providing statistics on voluntary assurance obtained by S&P 100 and S&P 500 companies).

Request for Comment

135. Should we require accelerated filers and large accelerated filers to obtain an attestation report covering their Scope 1 and Scope 2 emissions disclosure, as proposed? Should we require accelerated filers and large accelerated filers to obtain an attestation report covering other aspects of their climate-related disclosures beyond Scope 1 and 2 emissions? For example, should we also require the attestation of GHG intensity metrics, or of Scope 3 emissions, if disclosed? Conversely, should we require accelerated filers and large accelerated filers to obtain assurance covering only Scope 1 emissions disclosure? Should any voluntary assurance obtained by these filers after limited assurance is required be required to follow the same attestation requirements of Item 1505(b)–(d), as proposed?

136. If we required accelerated filers and large accelerated filers to obtain an attestation report covering Scope 3 emissions disclosure, should the requirement be phased-in over time? If so, what time frame? Should we require all Scope 3 emissions disclosure to be subject to assurance or only certain categories of Scope 3 emissions? Would it be possible for accelerated filers and large accelerated filers to obtain an attestation report covering the process or methodology for calculating Scope 3 emissions rather than obtaining an attestation report covering the calculations of Scope 3 emissions? Alternatively, is there another form of verification over Scope 3 disclosure that would be more appropriate than obtaining an attestation report?

137. Should the attestation requirement be limited to accelerated filers and large accelerated filers, as proposed? Alternatively, should the attestation requirement be limited to a subset of accelerated filers and large accelerated filers? If so, what conditions should apply?

Should the attestation requirement only apply to well-known seasoned issuers?⁶⁰⁶ Should the attestation requirement also apply to other types of registrants? Should we create a new test for determining whether the attestation requirements apply to a registrant that would take into account the resources of the registrant and also apply to initial public offerings? For example, should we create a test similar to the SRC definition,⁶⁰⁷ which includes a separate determination for initial registration statements, but using higher public float and annual revenue amounts?

138. Instead of requiring only accelerated filers and large accelerated filers to include an attestation report for Scope 1 and Scope 2 emissions, should the proposed attestation requirements also apply to registrants other than accelerated filers and large accelerated filers? If so, should the requirement apply only after a specified transition period? Should such registrants be required to provide assurance at the same level as accelerated filers and large accelerated filers and over the same scope of GHG emissions disclosure, or should we impose lesser requirements (*e.g.*, only limited assurance and/or assurance over Scope 1 emissions disclosure only)?

139. Should we require accelerated filers and large accelerated filers to initially include attestation reports reflecting attestation engagements at a limited assurance level, eventually increasing to a reasonable assurance level, as proposed? What level of assurance should apply to the proposed GHG emissions disclosure, if any, and when should that level apply? Should we provide a one fiscal year transition period between the GHG emissions disclosure compliance date and when limited assurance would be required

⁶⁰⁶ See 17 CFR 230.405 (defining “well-known seasoned issuer”).

⁶⁰⁷ See, *e.g.*, 17 CFR 240.12b-2.

for accelerated filers and large accelerated filers, as proposed? Should we provide an additional two fiscal year transition period between when limited assurance is first required and when reasonable assurance is required for accelerated filers and large accelerated filers, as proposed?

140. Should we provide the same transition periods (from the Scopes 1 and 2 emissions disclosure compliance date) for accelerated filers and large accelerated filers, as proposed? Instead, should different transition periods apply to accelerated filers and large accelerated filers? Should we provide transition periods with different lengths than those proposed? Should we require the attestation to be at a reasonable assurance level without having a transition period where only limited assurance is required? Should we instead impose assurance requirements to coincide with reporting compliance periods?
141. Under prevailing attestation standards, “limited assurance” and “reasonable assurance” are defined terms that we believe are generally understood in the marketplace, both by those seeking and those engaged to provide such assurance. As a result, we have not proposed definitions of those terms. Should we define “limited assurance” and “reasonable assurance” and, if so, how should we define them? Would providing definitions in this context cause confusion in other attestation engagements not covered by the proposed rules? Are the differences between these types of attestation engagements sufficiently clear without providing definitions?
142. As proposed, there would be no requirement for a registrant to either provide a separate assessment and disclosure of the effectiveness of controls over GHG emissions disclosure by management or obtain an attestation report from a GHG emissions attestation provider specifically covering the effectiveness of controls over GHG emissions disclosure.

Should we require accelerated filers and large accelerated filers to provide a separate management assessment and disclosure of the effectiveness of controls over GHG emissions disclosure (separate from the existing requirements with respect to the assessment and effectiveness of DCP)? Should we require management to provide a statement in their annual report on their responsibility for the design and evaluation of controls over GHG emissions disclosure and to disclose their conclusion regarding the effectiveness of such controls? Instead of, or in addition to, such management assessment and statement, should we require the registrant to obtain an attestation report from a GHG emissions attestation provider that covers the effectiveness of such GHG emissions controls as of the date when the accelerated filer or large accelerated filer is required to comply with the reasonable assurance requirement under proposed Item 1505(a)? If so:

- (i) Would it be confusing to apply either such requirement in light of the existing DCP requirements that would apply to the proposed GHG emissions disclosure?
- (ii) Would a separate management assessment and statement on the effectiveness of controls over GHG emissions provide meaningful disclosure to investors beyond the existing requirement for DCP?
- (iii) Should we specify that the separate management assessment and statement must be provided by the accelerated filer's or large accelerated filer's principal executive and principal financial officers, or persons performing similar functions? Should we clarify which members of the accelerated filer or large accelerated filer's management should be involved in performing the underlying assessment?
- (iv) What controls framework(s) would the effectiveness of the registrant's controls over GHG emissions disclosure be evaluated against, if any?

- (v) For the GHG emissions attestation provider, what requirements should be applied to such GHG emissions disclosure controls attestation requirement? For example, what attestation standards should apply? Should other service provider(s) in addition to or in lieu of the GHG emissions attestation provider be permitted to provide such attestation over the effectiveness of the GHG controls?
- (vi) Should we limit such a requirement to accelerated filers and large accelerated filers only or should it apply to other registrants as well?
- (vii) What would be the potential benefits and costs of either approach?
- (viii) Should we require a certification on the design and evaluation of controls over GHG emissions disclosures by officers serving in the principal executive and principal financial officer roles or persons performing similar functions for an accelerated filer or large accelerated filer? Would a certification requirement have any additional benefits or impose any additional costs when compared to a requirement for management to assess and disclose in a statement in the annual report the effectiveness of controls over GHG emissions?

143. We considered whether to require registrants to include the GHG emissions metrics in the notes or a separate schedule to their financial statements, by amending Regulation S-X instead of Regulation S-K.

- (i) Would there be benefits to including this information in a registrant's financial statements? For example, would requiring the GHG emissions disclosure to be included in the financial statements improve the consistency, comparability, reliability, and decision-usefulness of the information for investors? Would it facilitate the integration of GHG metrics and targets into the registrant's financial analysis? Would

such placement cause registrants to incur significantly more expense in obtaining an audit of the disclosure? If so, please quantify those additional expenses where possible.

(ii) Should we require a registrant to include the GHG emissions disclosure in its audited financial statements so that the disclosure would be subject to the existing requirements for an independent audit and ICFR? If so, we seek comment on the following aspects of this alternative:

(a) If GHG emissions disclosure is subject to ICFR, or an internal control framework similar to ICFR, would GHG emissions disclosure be more reliable compared to what is currently proposed? What are the benefits or costs?

(b) Should the GHG emissions disclosure be included in a note to the registrant's financial statements (*e.g.*, in the note where the proposed financial statement metrics as discussed above in Section II.F would be included) or in a schedule, or somewhere else? If the GHG emissions disclosure was required in the financial statements, should it be subject to a reasonable assurance audit like the other information in the financial statements? If in a schedule, should the GHG emissions disclosure be disclosed in a schedule similar to those required under Article 12 of Regulation S-X, which would subject the disclosure to audit and ICFR requirements? Should we instead require the metrics to be disclosed as supplemental financial information, similar to the disclosure requirements under FASB ASC Topic 932-235-50-2 for registrants that have significant oil- and gas-producing activities? If so, should such supplemental schedule be subject to ICFR requirements? Instead of requiring the GHG emissions disclosure to be included

in a note to the registrant's audited financial statements, should we require a new financial statement for such metrics?

- (c) PCAOB auditing standards apply to the audit of a registrant's financial statements.

If GHG emissions disclosure is included in a supplemental schedule to the financial statements, should we allow other auditing standards to be applied? If so, which ones? What, if any, additional guidance or revisions to such standards would be needed in order to apply them to the audit of GHG emissions disclosure?

- (d) What are the costs and benefits of employing registered public accounting firms to perform audits of GHG emissions disclosure and related attestation of internal controls? Are there potential cost savings in employing registered public accountants that currently perform audits of financial statements and attestation of ICFR to review GHG emissions disclosure and any related internal controls? If we require GHG emissions disclosure to be presented in the financial statements, should we permit entities other than registered public accounting firms to provide assurance of this information, as proposed for the current attestation requirements under Regulation S-K? If not limited to registered public accounting firms, who should be permitted to provide assurance of GHG emissions disclosure? Should we permit environmental consultants, engineering firms, or other types of specialists to provide assurance? What are the costs and benefits of such approach? Would the reliability of the audits and therefore the information disclosed be affected if assurance providers other than registered public accounting firms are permitted to conduct these audits? Please provide supporting data where possible. If we should allow for assurance providers that are not registered public accounting firms, what

qualifications and oversight should they have, and what requirements should we impose on them? Should we direct the PCAOB to develop a separate registration process for service providers that are not otherwise registered? What expertise, independence and quality control standards should apply?

(e) What would be the other potential benefits and costs of such an approach?

2. GHG Emissions Attestation Provider Requirements

The proposed rules would require the GHG emissions attestation report required by proposed Item 1505(a) for accelerated filers and large accelerated filers to be prepared and signed by a GHG emissions attestation provider.⁶⁰⁸ The proposed rules would define a GHG emissions attestation provider to mean a person or a firm that has all of the following characteristics:

- Is an expert in GHG emissions by virtue of having significant experience in measuring, analyzing, reporting, or attesting to GHG emissions. Significant experience means having sufficient competence and capabilities necessary to:
 - perform engagements in accordance with professional standards and applicable legal and regulatory requirements; and
 - enable the service provider to issue reports that are appropriate under the circumstances.⁶⁰⁹

⁶⁰⁸ See proposed 17 CFR 229.1505(b).

⁶⁰⁹ See proposed 17 CFR 229.1505(b)(1).

- Is independent with respect to the registrant, and any of its affiliates,⁶¹⁰ for whom it is providing the attestation report, during the attestation and professional engagement period.⁶¹¹

The proposed expertise requirement is intended to help ensure that the service provider preparing the attestation report has sufficient competence and capabilities necessary to execute the attestation engagement. In this regard, if the service provider is a firm, we would expect that it have policies and procedures designed to provide it with reasonable assurance that the personnel selected to conduct the GHG emissions attestation engagement have significant experience with respect to both attestation engagements and GHG disclosure. This would mean that the service provider has the qualifications necessary for fulfillment of the responsibilities that it would be called on to assume, including the appropriate engagement of specialists, if needed.⁶¹² The proposed expertise requirement would apply to the person or the firm signing the GHG emissions attestation report.⁶¹³

⁶¹⁰ “Affiliates,” for purposes of proposed 17 CFR 229.1505 has the meaning provided in 17 CFR 210.2-01, except references to “audit” are deemed to be references to the attestation services provided pursuant to this section. See proposed 17 CFR 229.1505(b)(2)(iii).

⁶¹¹ See proposed 17 CFR 229.1505(b)(2) and 229.1505(b)(2)(iv) (defining the term “attestation and professional engagement period”).

⁶¹² Independent auditors and accountants are already required to comply with similar quality control and management standards when providing audit and attest services under the PCAOB, AICPA, or IAASB standards. See, e.g., PCAOB, Quality Control (QC) Standards Section 20 *System of Quality Control for a CPA Firm’s Accounting and Auditing Practice* and Section 40 *The Personnel Management Element of a Firm’s System of Quality Control – Competencies Required by a Practitioner-in-Charge of an Attest Engagement*, available at <https://pcaobus.org/oversight/standards/qc-standards>; AICPA, QC Section 10, *A Firm’s System of Quality Control*, available at <https://us.aicpa.org/content/dam/aicpa/research/standards/auditattest/downloadabledocuments/qc-00010.pdf>; and IAASB, International Standard on Quality Management 1, *Quality Management for Firms that Perform Audits or Reviews of Financial Statements, or Other Assurance or Related Services Engagements*, available at <https://www.ifac.org/system/files/publications/files/IAASB-Quality-Management-ISQM-1-Quality-Management-for-Firms.pdf>.

⁶¹³ We have adopted similar expertise requirements in the past to determine eligibility to prepare a mining technical report. Although also relating to technical, specialized disclosures, the mining technical report requirements differ in that such an engagement is not an assurance engagement. See *Modernization of Property Disclosures for Mining Registrants*, Release No. 33-10570 (Oct. 31, 2018), [83 FR 66344 (Dec. 26, 2018)].

The second proposed requirement is modeled on the Commission’s qualifications for accountants under 17 CFR 210.2-01 (Rule 2-01 of Regulation S-X), which are designed to ensure that auditors are independent of their audit clients. Similar to how assurance provided by independent public accountants improves the reliability of financial statements and disclosures and is a critical component of our capital markets, assurance of GHG emissions disclosure by independent service providers should also improve the reliability of such disclosure. Academic studies demonstrate that assurance provided by an independent auditor reduces the risk that an entity provides materially inaccurate information to external parties, including investors, by facilitating the dissemination of transparent and reliable financial information.⁶¹⁴ We expect that GHG emissions disclosure would similarly benefit if assured by an independent service provider. Moreover, the potential conflicts of interest, or even the appearance of such conflicts of interest, between the GHG emissions attestation provider and the registrant could raise doubts for investors about whether they can rely on the attestation service and its report.

Similar to Rule 2-01 of Regulation S-X,⁶¹⁵ the proposed rules would provide that a GHG emissions attestation provider is not independent if during the attestation and professional engagement period such attestation provider is not, or a reasonable investor with knowledge of all relevant facts and circumstances would conclude that such attestation provider is not, capable of exercising objective and impartial judgment on all issues encompassed within the attestation

⁶¹⁴ See Mark Defond & Jieying Zhang, *A Review of Archival Auditing Research*, 58 J. ACCT. & ECON., 275 (2014); *Qualifications of Accountants*, Release No. 33-10876 (Oct. 16, 2020) [85 FR 80508 (Dec. 11, 2020)], at 80508 (“The Commission has long recognized that an audit by an objective, impartial, and skilled professional contributes to both investor protection and investor confidence”). See also Statement of Paul Munter, Acting Chief Accountant, *The Importance of High Quality Independent Audits and Effective Audit Committee Oversight to High Quality Financial Reporting to Investors* (Oct. 26, 2021).

⁶¹⁵ See 17 CFR 210.2-01(b).

provider's engagement.⁶¹⁶ The proposed definition for the attestation and professional engagement period, which is modeled on Rule 2-01 of Regulation S-X, includes both (1) the period covered by the attestation report and (2) the period of the engagement to attest to the registrant's GHG emissions or to prepare a report filed with the Commission (the "professional engagement period"). Under the proposed rules, the professional engagement period would begin when the GHG attestation service provider either signs an initial engagement letter (or other agreement to attest to a registrant's GHG emissions) or begins attest procedures, whichever is earlier.⁶¹⁷

The proposed rules would further state that, in determining whether a GHG emissions attestation provider is independent, the Commission will consider:

- whether a relationship or the provision of a service creates a mutual or conflicting interest between the attestation provider and the registrant (or any of its affiliates), places the attestation provider in the position of attesting to such attestation provider's own work, results in the attestation provider acting as management or an employee of the registrant (or any of its affiliates), or places the attestation provider in a position of being an advocate for the registrant (or any of its affiliates);⁶¹⁸ and
- all relevant circumstances, including all financial or other relationships between the attestation provider and the registrant (or any of its affiliates), and not just those relating to reports filed with the Commission.⁶¹⁹

⁶¹⁶ See proposed 17 CFR 229.1505(b)(2)(i).

⁶¹⁷ See proposed 17 CFR 229.1505(b)(2)(iv).

⁶¹⁸ See proposed 17 CFR 229.1505(b)(2)(ii)(A).

⁶¹⁹ See proposed 17 CFR 229.1505(b)(2)(ii)(B).

These proposed provisions are modeled on the factors used by the Commission in determining whether an accountant is independent.⁶²⁰ Similar to Rule 2-01 of Regulation S-X, the proposed provisions should help protect investors by requiring the GHG emissions attestation provider to be independent both in fact and appearance from the registrant, including its affiliates.

Because the GHG emissions attestation provider would be a person whose profession gives authority to the statements made in the attestation report and who is named as having provided an attestation report that is part of the registration statement, the registrant would be required to obtain and include the written consent of the GHG emissions attestation provider pursuant to Securities Act Section 7,⁶²¹ the corresponding rule requiring the written consents of such experts,⁶²² and the Regulation S-K provision requiring the attachment of the written consent of an expert to a Securities Act registration statement or an Exchange Act report that incorporates by reference a written expert report attached to a previously filed Securities Act registration statement.⁶²³ The GHG emissions attestation provider would also be subject to liability under the federal securities laws for the attestation conclusion or, when applicable, opinion provided. Such liability should encourage the attestation service provider to exercise due diligence with respect to its obligations under a limited or reasonable assurance engagement.

⁶²⁰ See 17 CFR 210.2-01. For the avoidance of doubt, we note that if the independent accountant who audits the registrant's consolidated financial statements is also engaged to perform the GHG emissions attestation for the same filing, the fees associated with the GHG emissions attestation engagement would be considered "Audit-Related Fees" for purposes of Item 9(e) of 17 CFR 240.14a-101, Item 14 of Form 10-K, Item 16C of Form 20-F, or any similar requirements.

⁶²¹ 15 U.S.C. 77g.

⁶²² See 17 CFR 230.436.

⁶²³ See 17 CFR 229.601(b)(23).

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144. Should we require a registrant to obtain a GHG emissions attestation report that is provided by a GHG emissions attestation provider that meets specified requirements, as proposed? Should one of the requirements be that the attestation provider is an expert in GHG emissions, with significant experience in measuring, analyzing, reporting, or attesting to GHG emissions, as proposed? Should we specify that significant experience means having sufficient competence and capabilities necessary to: (a) perform engagements in accordance with professional standards and applicable legal and regulatory requirements and (b) enable the service provider to issue reports that are appropriate under the circumstances, as proposed? Should we instead require that the GHG emissions attestation provider have a specified number of years of the requisite type of experience, such as 1, 3, 5, or more years? Should we specify that a GHG emissions attestation provider meets the expertise requirements if it is a member in good standing of a specified accreditation body that provides oversight to service providers that apply attestation standards? If so, which accreditation body or bodies should we consider (*e.g.*, AICPA)? Are there any other requirements for the attestation provider that we should specify? Instead, should we require a GHG emissions attestation provider to be a PCAOB-registered audit firm?

145. Is additional guidance needed with respect to the proposed expertise requirement? Should we instead include prescriptive requirements related to the qualifications and characteristics of an expert under the proposed rules? For example, should we include a provision that requires a GHG emissions attestation provider that is a firm to have established policies and procedures designed to provide it with reasonable assurance that the personnel selected to provide the GHG attestation service have the qualifications necessary for fulfillment

of the responsibilities that the GHG emissions attestation provider will be called on to assume, including the appropriate engagement of specialists, if needed?

146. Should we require the GHG emissions attestation provider to be independent with respect to the registrant, and any of its affiliates, for whom it is providing the attestation report, as proposed? Should we specify that a GHG emissions attestation provider is not independent if such attestation provider is not, or a reasonable investor with knowledge of all relevant facts and circumstances would conclude that such attestation provider is not, capable of exercising objective and impartial judgment on all issues encompassed within the attestation provider's engagement, as proposed? The proposed provision is based on a similar provision regarding the qualification of an accountant to be an independent auditor under Rule 2-01 of Regulation S-X. Is Rule 2-01 an appropriate model for determining the independence of a GHG emissions attestation provider? Is being independent from a registrant and its affiliates an appropriate qualification for a GHG emissions attestation provider?

147. Should we specify that the factors the Commission would consider in determining whether a GHG emissions attestation provider is independent include whether a relationship or the provision of a service creates a mutual or conflicting interest between the attestation provider and the registrant, including its affiliates, places the attestation provider in the position of attesting to such attestation provider's own work, results in the attestation provider acting as management or an employee of the registrant, including its affiliates, or places the attestation provider in a position of being an advocate for the registrant and its affiliates, as proposed? Should we specify that the Commission also will consider all relevant circumstances, including all financial and other relationships between the attestation provider and the registrant, including its affiliates, and not just those relating to reports filed with the Commission, as proposed?

148. Should we adopt all of the proposed factors for determining the independence of a GHG emissions attestation provider, or are there factors we should omit? Are there any additional factors that we should specify that the Commission will consider when determining the independence of a GHG emissions attestation provider? For example, should we include any non-exclusive specifications of circumstances that would be inconsistent with the independence requirements, similar to those provided in 17 CFR 210.2-01(c) (Rule 2-01(c) of Regulation S-X)?

149. Should the definition of “affiliates” be modeled on Rule 2-01, as proposed, or should we use a different definition? Would defining the term differently than proposed cause confusion because the rest of the proposed independence requirement is modeled on Rule 2-01? Many accountants are likely familiar with the proposed definition given their required compliance with Rule 2-01, would non-accountants understand how to comply with and apply this concept?

150. Should the term “attestation and professional engagement period” be defined in the proposed manner? If not, how should “attestation and professional engagement period” be defined? Alternatively, should the Commission specify a different time period during which an attestation provider must meet the proposed independence requirements?

151. Should we include disclosure requirements when there is a change in, or disagreement with, the registrant’s GHG emissions attestation provider that are similar to the disclosure requirements in Item 4.01 of Form 8-K and 17 CFR 229.304 (Item 304 of Regulation S-K)?

152. Accountants are already required to comply with the relevant quality control and management standards when providing audit and attest services under the PCAOB, AICPA, or IAASB standards. These quality control and management standards would apply to accountants providing GHG attestation services pursuant to those standards as well. Should we require the

GHG emissions attestation provider to comply with additional minimum quality control requirements (*e.g.*, acceptance and continuance of engagements, engagement performance, professional code of conduct, and ethical requirements) to provide greater consistency over the quality of service provided by GHG emissions attestation providers who do not (or cannot) use the PCAOB, AICPA, or IAASB attestation standards? If so, what should the minimum requirements be?

153. As proposed, the GHG emissions attestation provider would be a person whose profession gives authority to statements made in the attestation report and who is named as having provided an attestation report that is part of the registration statement, and therefore the registrant would be required to obtain and include the written consent of the GHG emissions provider pursuant to Securities Act Section 7 and related Commission rules. This would subject the GHG emissions attestation provider to potential liability under Section 11 of the Securities Act. Would the possibility of Section 11 liability deter qualified persons from serving as GHG emissions attestation providers? Should we include a provision similar to 17 CFR 230.436(c), or amend that rule, to provide that a report on GHG emissions at the limited assurance level by a GHG emissions attestation provider that has reviewed such information is not considered part of a registration statement prepared or certified by a person whose profession gives authority to a statement made by him or a report prepared or certified by such person within the meaning of Section 7 and 11 of the Act?

3. GHG Emissions Attestation Engagement and Report Requirements

The proposed rules would require the attestation report required by proposed Item 1505(a) for accelerated filers and large accelerated filers to be included in the separately-captioned “Climate-Related Disclosure” section in the relevant filing and provided pursuant to

standards that are publicly available at no cost and are established by a body or group that has followed due process procedures, including the broad distribution of the framework for public comment.⁶²⁴ The requirement that the standards be established by a body or group that has followed due process procedures would be similar to the requirements for determining a suitable, recognized control framework for use in management’s evaluation of an issuer’s ICFR.⁶²⁵ In both cases, a specific framework is not prescribed but minimum requirements for what constitutes a suitable framework are provided. This approach would help to ensure that the standards upon which the attestation engagement and report are based are the result of a transparent, public, and reasoned process. This requirement should also help to protect investors who may rely on the attestation report by limiting the standards to those that have been sufficiently developed. Rather than prescribe a particular attestation standard, the proposed approach recognizes that more than one suitable attestation standard exists and that others may develop in the future.

⁶²⁴ See proposed 17 CFR 229.1505(a)(2) and (c).

⁶²⁵ See 17 CFR 240.13a-15(c) and 240.15d-15(c) (stating that the “framework on which management’s evaluation of the issuer’s internal control over financial reporting is based must be a suitable, recognized control framework that is established by a body or group that has followed due-process procedures, including the broad distribution of the framework for public comment”).

In our view, the attestation standards, for example, of the PCAOB,⁶²⁶ AICPA,⁶²⁷ and IAASB⁶²⁸ would meet this due process requirement. In addition, all of these attestation standards are publicly available at no cost to investors who desire to review them. We believe that open access is an important consideration when determining the suitability of attestation standards for application to GHG emissions disclosure because it would enable investors to evaluate the report against the requirements of the selected attestation standard. By highlighting these standards, we do not mean to imply that other standards currently used in voluntary reporting would not be suitable for use under the proposed rules. Our proposal intends to set minimum standards while acknowledging the current voluntary practices of registrants. As noted below, we seek comment on whether other standards currently used in the voluntary climate-related assurance market or that are otherwise under development would meet the proposed due process requirement and also be suitable for application to GHG emissions under the Commission's proposed rules.

The proposed rules would not include any requirement for a registrant to obtain an attestation report covering the effectiveness of internal control over GHG emissions disclosure,

⁶²⁶ See PCAOB AT Section 101, Attest Engagements, available at <https://pcaobus.org/oversight/standards/attestation-standards/details/AT101>.

⁶²⁷ See AICPA SSAE No. 18 (general attestation standard), available at <https://us.aicpa.org/content/dam/aicpa/research/standards/auditattest/downloadabledocuments/ssae-no-18.pdf>; SSAE No. 22, Review Engagements (limited assurance standard, effective for reports dated on or after June 15, 2022), available at <https://us.aicpa.org/content/dam/aicpa/research/standards/auditattest/downloadabledocuments/ssae-22.pdf>; and SSAE No. 21, Direct Examination Engagements (reasonable assurance standard, effective for reports dated on or after June 15, 2022 and will amend SSAE No. 18), available at <https://us.aicpa.org/content/dam/aicpa/research/standards/auditattest/downloadabledocuments/ssae-21.pdf>.

⁶²⁸ See IAASB ISAE 3000 (Revised), Assurance Engagements Other than Audits or Reviews of Historical Financial Information, available at <https://www.ifac.org/system/files/publications/files/ISAE%203000%20Revised%20-%20for%20IAASB.pdf>. See also IAASB ISAE 3410, Assurance Engagements on Greenhouse Gas Statements, available at https://www.ifac.org/system/files/publications/files/Basis%20for%20Conclusions%20-%20ISAE%203410%20Assurance%20Engagements%20on%20Greenhouse%20Gas%20Statements-final_0.pdf.

and therefore such a report would not be required even when the GHG emissions attestation engagement is performed at a reasonable assurance level. Given the current evolving state of GHG emissions reporting and assurance, we believe that existing DCP obligations, and the proposed requirement that accelerated filers and large accelerated filers initially obtain at least limited assurance of such disclosure, are appropriate first steps toward enhancing the reliability of GHG emissions disclosure. We also note that, under prevailing attestation standards for limited assurance engagements, the testing of and attestation over internal controls are not required.⁶²⁹ With respect to the eventual reasonable assurance engagements, while there are requirements under prevailing attestation standards to consider and obtain an understanding of internal controls, there is no required attestation of the effectiveness of internal controls such as that included in Section 404(b) of the Sarbanes-Oxley Act of 2002 (Sarbanes-Oxley Act).⁶³⁰

We recognize that the attestation standards that a GHG emissions attestation provider may use would have specific requirements for the form and content of attestation reports. The proposed rules would require a GHG emissions attestation provider to follow the specific requirements regarding form and content of the reports set forth by the attestation standard (or standards) used by such attestation provider.⁶³¹ Nevertheless, in order to provide some standardization and comparability of GHG emissions attestation reports, the proposed rules would impose minimum requirements for the GHG emissions attestation report.⁶³² In particular, such minimum report requirements would provide investors with consistent and comparable

⁶²⁹ See, e.g., AICPA SSAE No. 22, AT-C § 210.A16.

⁶³⁰ See 15 U.S.C. 7262(b) (requiring a registered public accounting firm that prepares or issues an audit report for certain issuers to attest to, and report on, the assessment made by the management of the issuer with respect to internal controls).

⁶³¹ See proposed 17 CFR 229.1505(c).

⁶³² See proposed 17 CFR 229.1505(c)(1) through (13).

information about the GHG emissions attestation engagement and report obtained by the registrant when the engagement is conducted by a GHG emissions attestation provider using an attestation standard that may be less widely used or that has less robust report requirements than more prevalent standards.

The proposed minimum attestation engagement and report requirements are primarily derived from the AICPA's attestation standards (*e.g.*, SSAE No. 18), which are commonly used by accountants who currently provide GHG attestation engagement services as well as other non-GHG-related attestation engagement services, and are largely similar to the report requirements under PCAOB AT-101 and IAASB ISAE 3410. Many of the following proposed minimum attestation report requirements are also elements of an accountant's report when attesting to internal control over financial reporting, of an accountant's report on audited financial statements (which is conducted at a reasonable assurance level), or of a review report on interim financial statements (which is conducted at a limited assurance level). We explain below each of the proposed minimum components of a GHG emissions attestation report. These are all common elements of current assurance reports and are also similar to elements of other expert reports and legal opinions provided in Commission filings and other transactions.

As proposed, the GHG emissions attestation report would be required to include an identification or description of the subject matter or assertion on which the attestation provider is reporting.⁶³³ For example, the attestation report would identify the subject matter as Scope 1 and Scope 2 emissions disclosure. If a registrant voluntarily sought attestation of additional items of disclosure, such as GHG intensity metrics or Scope 3 emissions, the attestation provider would

⁶³³ See proposed 17 CFR 229.1505(c)(1).

be required to identify those additional items as well in the attestation report. If a registrant has made an assertion about the measurement or evaluation of the subject matter to the attestation provider,⁶³⁴ the attestation report must include such assertion. For example, the attestation report might refer to the registrant's assertion that the Scope 1 and Scope 2 emissions disclosure included within the filing has been presented in accordance with Item 1504 of Regulation S-K. These proposed minimum requirements would elicit information that is fundamental to understanding the attestation report and would clarify the scope of the attestation report when the scope does not align with the scope of the registrant's GHG emissions disclosure (*e.g.*, when Scope 3 emissions disclosure is included in the filing but not covered by the attestation report).

The proposed rules would also require the GHG emissions attestation report to include the point in time or period of time to which the measurement or evaluation of the subject matter or assertion relates.⁶³⁵ Therefore, the attestation provider would be required to identify the time period to which the Scopes 1 and 2 emissions disclosure (or other additional disclosure) relates, which would be the registrant's most recently completed fiscal year or some other 12-month period if permitted under the applicable climate-related disclosure rules⁶³⁶ as well as any relevant historical period disclosure included within the filing. This proposed requirement seeks to avoid any confusion investors may have about which period or periods of the climate-related disclosures included within the filing are subject to the attestation.

⁶³⁴ *See, e.g.*, AICPA SSAE No. 22, AT-C §210.45(c); AICPA SSAE No. 21, AT-C §205.63(c).

⁶³⁵ *See* proposed 17 CFR 229.1505(c)(1).

⁶³⁶ As previously mentioned, we are soliciting comment regarding whether the GHG emissions should be reported as of fiscal year-end or some other 12-month period. *See supra* Section II.G.1.

The proposed rules would also require the attestation report to identify the criteria against which the subject matter was measured or evaluated.⁶³⁷ For an attestation report solely covering Scopes 1 and 2 emissions disclosure, the identified criteria would include the requirements in proposed Item 1504 of Regulation S-K and, in particular, Item 1504(a), which includes presentation requirements such as disaggregation by each constituent greenhouse gas. The identified criteria would also include Item 1504(b) and the applicable instructions in Item 1504(e) regarding methodology, organizational boundary, and operational boundary. In other words, this minimum requirement would require an attestation provider to refer to the requirements with which the registrant must comply when making the disclosure that is subject to the attestation. Without the frame of reference provided by the identified criteria, the conclusion or opinion included in the report may be open to individual interpretation and misunderstanding by investors.

Prevailing attestation standards require the criteria against which the subject matter is measured or evaluated to be “suitable.” In the context of the proposed rules, suitable criteria would, when followed, result in reasonably consistent measurement or evaluation of the registrant’s disclosure that is within the scope of the engagement. Characteristics of suitable criteria include relevance, objectivity, measurability, and completeness.⁶³⁸ We believe that proposed Item 1504 of Regulation S-K would satisfy the suitable criteria requirements of the prevailing attestation standards because the proposed requirements set forth relevant, objective

⁶³⁷ See proposed 17 CFR 229.1505(c)(2).

⁶³⁸ See, e.g., AICPA SSAE No. 18, AT-C §105.A16 and .A42; AICPA SSAE No. 21, AT-C §105.A16 and .A44. In addition to relevance and completeness, the characteristics of suitable criteria under ISAE 3000.A23 include reliability, neutrality and understandability. Despite the differences in the characteristics listed, the underlying concepts and objectives are consistent.

standards that call for measurable and complete disclosure of GHG emissions that would allow for a consistent evaluation of the registrant's disclosure.

The GHG emissions attestation report would further be required to include a statement that identifies the level of assurance provided and describes the nature of the attestation engagement.⁶³⁹ For example, under the proposed rule, an attestation report providing limited assurance would need to include not only a statement that limited assurance is the provided level of assurance, but also would need to describe the scope of work performed in a limited assurance engagement, which typically would indicate that the procedures performed vary in nature, timing, and extent compared to a reasonable assurance engagement. This proposed minimum requirement would help investors understand the level of assurance provided.

The proposed rules would require the attestation report to include a statement that identifies the attestation standard (or standards) used.⁶⁴⁰ As previously discussed, the standard used must be publicly available at no cost and have been established by a body or group that has followed due process procedures, including the broad distribution of the framework for public comment.⁶⁴¹ This minimum report requirement would allow investors to easily identify the attestation standard that the engagement is executed against, which is particularly important because the proposed rules do not prescribe a particular attestation standard. Understanding the attestation standard used would allow investors to better understand the attestation performed by evaluating the report against the attestation standard's requirements and would facilitate comparability across the attestation reports of different registrants.

⁶³⁹ See proposed 17 CFR 229.1505(c)(3).

⁶⁴⁰ See proposed 17 CFR 229.1505(c)(4).

⁶⁴¹ See proposed 17 CFR 229.1505(a)(2).

The attestation report would also be required to include a statement that describes the registrant's responsibility to report on the subject matter or assertion being reported on in order to make it clear to investors who is ultimately responsible for the disclosure.⁶⁴² At a minimum, this proposed provision would require a statement that the registrant is responsible for the subject matter, or its assertion on the subject matter. This proposed requirement, like all of the minimum requirements, has corollaries outside of the GHG emissions context. For example, an independent auditor's audit report on a registrant's financial statements is required to include a statement that the registrant's management is responsible for the financial statements that are being audited.⁶⁴³

The proposed rules would further require the attestation report to include a statement that describes the attestation provider's responsibilities in connection with the preparation of the attestation report.⁶⁴⁴ This is consistent with existing requirements in reports such as those issued by the independent auditor on the audited financial statements or a review report on the interim financial statements. For example, with respect to a limited assurance engagement, under prevailing attestation standards, the report would typically include a statement that the attestation provider's responsibilities include expressing a conclusion on the subject matter or the assertion based on the attestation provider's review.⁶⁴⁵ Similarly, for a reasonable assurance engagement, the report would typically include a statement that the attestation provider's responsibilities

⁶⁴² See proposed 17 CFR 229.1505(c)(5).

⁶⁴³ See, e.g., PCAOB AS 3101, par. 9(a).

⁶⁴⁴ See proposed 17 CFR 229.1505(c)(6).

⁶⁴⁵ See, e.g., AICPA SSAE No.22, AT-C sec. 210.45(f).

include expressing an opinion on the subject matter or assertion, based on the attestation provider's examination.⁶⁴⁶

The proposed rules would also require the attestation report to include a statement that the attestation provider is independent, as required by proposed 17 CFR 229.1505(a).⁶⁴⁷ Because independence from the registrant, including its affiliates, would be a necessary qualification for the GHG emissions attestation provider,⁶⁴⁸ the attestation report would be required to include the attestation provider's confirmation of his or her compliance with the proposed independence requirement.

The proposed rules would further require the attestation report, for a limited assurance engagement, to include a description of the work performed as a basis for the attestation provider's conclusion.⁶⁴⁹ This proposed provision is intended to enhance the transparency of the GHG emissions attestation report for investors by eliciting disclosure about the procedures undertaken by the attestation provider in its limited assurance engagement, such as inquiries and analytical procedures. This information would allow investors to assess and understand the extent of procedures performed to support the conclusion reached by the attestation provider, which could also facilitate an investor's comparison of different attestation reports provided under the same or different attestation standards.

The GHG emissions attestation report would also be required to include a statement that describes any significant inherent limitations associated with the measurement or evaluation of

⁶⁴⁶ See, e.g., AICPA SSAE No. 21, AT-C sec. 205.63(f) and sec. 206.12(e)(ii).

⁶⁴⁷ See proposed 17 CFR 229.1505(c)(7).

⁶⁴⁸ See *supra* Section II.H.2.

⁶⁴⁹ See proposed 17 CFR 229.1505(c)(8).

the subject matter (at a minimum, Scopes 1 and 2 emissions) against the criteria (*i.e.*, the applicable requirements in proposed Item 1504).⁶⁵⁰ Such a statement is a common characteristic of attestation reports, including the independent auditor's report on internal control over financial reporting. This proposed provision is intended to elicit disclosure about the estimation uncertainties inherent in the quantification of GHG emissions, driven by reasons such as the state of the science, methodology, and assumptions used in the measurement and reporting processes. For example, an attestation provider might include in its report a statement about measurement uncertainty resulting from accuracy and precision of GHG emission conversion factors.

The proposed rules would require the GHG emissions attestation report to include the attestation provider's conclusion or opinion, as applicable, based on the attestation standard(s) used.⁶⁵¹ For a limited assurance engagement, under prevailing attestation standards, the conclusion would typically state whether the provider is aware of any material modifications that should be made to the subject matter in order for the disclosure to be in accordance with (or based on) the requirements specified in Item 1504, or for the registrant's assertion about such subject matter to be fairly stated.⁶⁵² For a reasonable assurance engagement, the attestation provider would typically provide an opinion on whether the subject matter is in accordance with (or based on) the requirements specified in Item 1504 in all material respects, or that the registrant's assertion about its subject matter is fairly stated, in all material respects.⁶⁵³

⁶⁵⁰ See proposed 17 CFR 229.1505(c)(9).

⁶⁵¹ See proposed 17 CFR 229.1505(c)(10).

⁶⁵² See, *e.g.*, AICPA SSAE No. 22, AT-C sec. 210.45(l).

⁶⁵³ See, *e.g.*, AICPA SSAE No. 21 AT-C sec. 205.63(k) and sec. 206.12(j).

Finally, the proposed rules would require the GHG emissions attestation report to include the signature of the attestation provider (whether by an individual or a person signing on behalf of the attestation provider's firm),⁶⁵⁴ the city and state where the attestation report has been issued,⁶⁵⁵ and the date of the report.⁶⁵⁶ These are all common elements of current assurance and expert reports, and each of these proposed provisions would help to identify and confirm the validity of the GHG emissions attestation provider.

Request for Comment

154. Should we require the attestation engagement and related attestation report to be provided pursuant to standards that are publicly available at no cost and are established by a body or group that has followed due process procedures, including the broad distribution of the framework for public comment, as proposed? Is the requirement of "due process procedures, including the broad distribution of the framework for public comment" sufficiently clear? Would the attestation standards of the PCAOB, AICPA, and IAASB meet this due process requirement? Are there other standards currently used in the voluntary climate-related assurance market or otherwise in development that would meet the due process and publicly availability requirements? For example, would verification standards commonly used by non-accountants currently, such as ISO 14064-3 and the AccountAbility's AA1000 Series of Standards, meet the proposed requirements? Are there standards currently used in the voluntary climate-related assurance market or otherwise under development that would be appropriate for use under the Commission's climate-related disclosure rules although they may not strictly meet the proposed

⁶⁵⁴ See proposed 17 CFR 229.1505(c)(11).

⁶⁵⁵ See proposed 17 CFR 229.1505(c)(12).

⁶⁵⁶ See proposed 17 CFR 229.1505(c)(13).

public comment requirement? If so, please explain whether those standards have other characteristics that would serve to protect investors?

155. Should we require that the attestation standards used be publicly available at no cost to investors, as proposed? Should we permit the use of attestation standards, even if not publicly available at no cost, provided that registrants provide access to those standards at the request of their investors?

156. Should we require the GHG emissions attestation report to meet certain minimum requirements in addition to any form and content requirements set forth by the attestation standard or standards used by the GHG emissions attestation provider, as proposed? Should we instead require that the attestation report solely meet whatever requirements are established by the attestation standard or standards used?

157. Should we adopt each of the proposed minimum requirements? Are there any proposed requirements that we should omit or add to the proposed list of minimum GHG emissions attestation report requirements?

158. Regarding the proposed provision requiring the identification of the criteria against which the subject matter was measured or evaluated, would reference to proposed Item 1504(a), Item 1504(b), and Item 1504(e)'s instructions concerning the presentation, methodology, including underlying assumptions, and organizational and operational boundaries applicable to the determination of Scopes 1 and 2 emissions meet the "suitable criteria" requirement under prevailing attestation standards (*e.g.*, AICPA SSAE No. 18, AT-C 105.A16)?

159. If we require or permit a registrant to use the GHG Protocol as the methodology for determining GHG emissions, would the provisions of the GHG Protocol qualify as "suitable criteria" against which the Scope 1 and Scope 2 emissions disclosure should be evaluated?

4. Additional Disclosure by the Registrant

In addition to the minimum attestation report requirements described above, which reflect the contents of attestation reports under prevailing attestation standards, we are proposing to require disclosure by the registrant of certain additional matters related to the attestation of a registrant's GHG emissions.⁶⁵⁷ These disclosures are not typically included in an attestation report, and would not be included in the GHG emissions attestation report under the proposed rules. Instead, the registrant would be required to provide these disclosures in the separately captioned "Climate-Related Disclosure" section, where the GHG emissions disclosure would be provided pursuant to the proposed rules.⁶⁵⁸

These proposed additional disclosures should assist investors in evaluating the qualifications of the GHG emissions attestation provider selected by the registrant, particularly in light of the broad spectrum of attestation providers that would be permitted to provide an attestation report under the proposed rules.⁶⁵⁹

We considered requiring the proposed disclosures to be provided in the attestation report but are not proposing to do so because we are concerned such an approach may create confusion by conflicting with prevalent attestation standards. Furthermore, in light of the variety of attestation service providers the registrant is permitted to engage, requiring the registrant to provide such disclosures may allow the registrant to better provide its investors with relevant information about the qualifications of the service provider that the registrant engaged for the GHG emissions attestation.

⁶⁵⁷ See proposed 17 CFR 229.1505(d).

⁶⁵⁸ See *id.*

⁶⁵⁹ See *supra* Section II.H.2.

With respect to the Scope 1 and Scope 2 emissions attestation required pursuant to proposed Item 1505(a) for accelerated filers and large accelerated filers,⁶⁶⁰ the registrant would be required to disclose in the filing, based on relevant information obtained from any GHG emissions attestation provider:

- Whether the attestation provider has a license from any licensing or accreditation body to provide assurance, and if so, the identity of the licensing or accreditation body, and whether the attestation provider is a member in good standing of that licensing or accreditation body;⁶⁶¹
- Whether the GHG emissions attestation engagement is subject to any oversight inspection program, and if so, which program (or programs);⁶⁶² and
- Whether the attestation provider is subject to record-keeping requirements with respect to the work performed for the GHG emissions attestation engagement and, if so, identify the record-keeping requirements and the duration of those requirements.⁶⁶³

The first two above items of disclosure would help investors better understand the qualifications of the GHG emissions attestation provider, which in turn could help them assess the reliability of the attestation results. An example of a license from a licensing or accreditation body to provide assurance would be a Certified Public Accountant license issued by a state board of accountancy (*e.g.*, the California Board of Accountancy), while an example of oversight programs would include the AICPA peer review program, among others. The proposed

⁶⁶⁰ If an accelerated filer or a large accelerated filer voluntarily obtains assurance beyond what would be required by proposed Item 1505(a) and uses a different service provider for such assurance, it would also be required to provide the information required by proposed Item 1505(d) for such service provider.

⁶⁶¹ See proposed 17 CFR 229.1505(d)(1).

⁶⁶² See proposed 17 CFR 229.1505(d)(2).

⁶⁶³ See proposed 17 CFR 229.1505(d)(3).

disclosure requirement about any record-keeping requirements to which the attestation provider is subject would help enhance the transparency of the attestation process by providing investors with information about the business practices of the attestation provider that has been retained by the registrant.⁶⁶⁴

Request for Comment

160. Should we require certain items of disclosure related to the attestation of a registrant's GHG emissions to be provided by the registrant in its filing that includes the attestation report (where the GHG emissions and other climate-related disclosures are presented), based on relevant information obtained from the GHG emissions attestation provider, as proposed? Should these additional items of disclosure instead be included in the attestation report?

161. Should we require the registrant to disclose whether the attestation provider has a license from any licensing or accreditation body to provide assurance, and if so, the identity of the licensing or accreditation body, and whether the attestation provider is a member in good standing of that licensing or accreditation body, as proposed? In lieu of disclosure, should we require a GHG emissions attestation provider to be licensed to provide assurance by specified licensing or accreditation bodies? If so, which licensing or accreditation bodies should we specify?

162. Should we require a registrant to disclose whether the GHG emissions attestation engagement is subject to any oversight inspection program, and if so, which program (or programs), as proposed? Should we instead require the registrant to disclose whether the

⁶⁶⁴ For example, the AICPA imposes a minimum five-year documentation retention program for an audit. *See AU-C 230.17*. Although document retention is less prescriptive for attestation engagements, many attestation providers adhere to the five-year period in practice.

attestation engagement is subject to certain specified oversight programs? If so, which oversight programs should we specify?

163. Should we require a registrant to disclose whether the attestation provider is subject to record-keeping requirements with respect to the work performed for the GHG emissions attestation engagement and, if so, identify the record-keeping requirements and duration of those requirements, as proposed? In lieu of disclosure, should we specify that the record-keeping requirements of a GHG emissions attestation provider must be of a certain minimum duration, such as three, five, or seven years, or some other period? Should we specify that the record-keeping requirements must include certain reasonable procedures and, if so, what procedures?

5. Disclosure of Voluntary Attestation

Because GHG emissions reporting and assurance landscapes are both relatively new and evolving as described earlier, at this time, we are proposing to require a registrant, other than a large accelerated filer or an accelerated filer that is required to include a GHG emissions attestation report pursuant to proposed Item 1505(a), to disclose within the separately captioned “Climate-Related Disclosure” section in the filing the following information if the registrant’s GHG emissions disclosures were subject to third-party attestation or verification:

- (i) Identify the provider of such assurance or verification;⁶⁶⁵
- (ii) Describe the assurance or verification standard used;⁶⁶⁶
- (iii) Describe the level and scope of assurance or verification provided;⁶⁶⁷

⁶⁶⁵ See proposed 17 CFR 229.1505(e)(1).

⁶⁶⁶ See proposed 17 CFR 229.1505(e)(2).

⁶⁶⁷ See proposed 17 CFR 229.1505(e)(3).

- (iv) Briefly describe the results of the assurance or verification;⁶⁶⁸
- (v) Disclose whether the third-party service provider has any other business relationships with or has provided any other professional services to the registrant that may lead to an impairment of the service provider's independence with respect to the registrant;⁶⁶⁹ and
- (vi) Disclose any oversight inspection program to which the service provider is subject (*e.g.*, the AICPA's peer review program).⁶⁷⁰

Taken together, these proposed disclosure items should help investors understand the nature and reliability of the attestation or verification provided and help them assess whether the voluntary assurance or verification has enhanced the reliability of the GHG emissions disclosure. We are limiting the proposed assurance disclosure requirement to a registrant's GHG emissions disclosure because registrants are more likely to obtain assurance voluntarily for this disclosure item than for other climate-related disclosures.⁶⁷¹ The proposed approach should mitigate the compliance burden of the proposed GHG emissions disclosure rules, taking into consideration the proportionate compliance costs that may impact accelerated and large accelerated filers versus other types of filers, while providing transparency for investors about the level and reliability of the assurance or verification, if any, provided on the GHG emissions disclosures.

Request for Comment

⁶⁶⁸ See proposed 17 CFR 229.1505(e)(4).

⁶⁶⁹ See proposed 17 CFR 229.1505(e)(5).

⁶⁷⁰ See proposed 17 CFR 229.1505(e)(6).

⁶⁷¹ See, *e.g.*, letters from BNP Paribas; Eni SpA; ERM CVS; and Walmart. See also CAQ, *S&P 500 and ESG Reporting*.

164. Should we require a registrant that is not required to include a GHG emissions attestation report pursuant to proposed Item 1505(a) to disclose within the separately captioned “Climate-Related Disclosure” section in the filing the following information, if the registrant’s GHG emissions disclosure was subject to third-party attestation or verification, as proposed:

- (i) Identify the provider of such assurance or verification;
- (ii) Disclose the assurance or verification standard used;
- (iii) Describe the level and scope of assurance or verification provided;
- (iv) Briefly describe the results of the assurance or verification;
- (v) Disclose whether the third-party service provider has any other business relationships with or has provided any other professional services to the registrant that may lead to an impairment of the service provider’s independence with respect to the registrant; and
- (vi) Disclose any oversight inspection program to which the service provider is subject (*e.g.*, the AICPA’s peer review program), each as proposed?

Are there other disclosure items that we should require if a registrant has obtained voluntary assurance or verification of the climate-related disclosures? Are there any of the proposed disclosure items that we should omit? Should we specify parameters or include guidance on when the services provided by a third-party would be considered “assurance” or “verification” and thus require disclosure pursuant to the proposed rules? Should a registrant be required to furnish a copy of or provide a link to the assurance or verification report so that it is readily accessible by an investor?

165. Instead of requiring a registrant to disclose whether the third-party service provider has any other business relationships with or has provided any other professional services to the

registrant that may lead to an impairment of the service provider's independence with respect to the registrant as proposed, should we require the third-party service provider to be independent, according to the standard proposed under Item 1505(b) for accelerated filers and large accelerated filers that are required to include a GHG emissions attestation report pursuant to proposed Item 1505(a)? If not, should we provide guidance as to what constitutes an impairment of a service provider's independence with respect to the registrant? Would this result in decision-useful information to an investor? Should we instead require a registrant to disclose whether the third-party service provider would be considered independent under some other independence requirement?

166. As proposed, a registrant would be required to disclose any oversight inspection program to which the service provider is subject, such as the PCAOB's inspection program or the AICPA's peer review program. Are there other oversight programs that we should provide as examples? Would such disclosure provide decision-useful information to an investor? Is it clear what "any oversight inspection program" would include?

167. As proposed, a registrant would not be required to disclose the voluntary assurance or verification fees associated with the GHG disclosures. Should we require GHG disclosure assurance or verification fees to be disclosed? Would such disclosure be decision-useful to investors making voting or investment decisions?

I. Targets and Goals Disclosure

If a registrant has set any climate-related targets or goals, then the proposed rules would require the registrant to provide certain information about those targets or goals.⁶⁷² Those goals

⁶⁷² See proposed 17 CFR 229.1506(a)(1).

or targets might, for example, relate to the reduction of GHG emissions, or address energy usage,⁶⁷³ water usage, conservation or ecosystem restoration. A registrant might also set goals with regard to revenues from low-carbon products in line with anticipated regulatory requirements, market constraints, or other goals established by a climate-related treaty, law, regulation, policy, or organization. The proposed disclosure requirements could help investors better understand the scope of a registrant's climate-related targets or goals, including those related to GHG emissions, and assist in assessing progress towards achieving those targets or goals.

Many commenters recommended that we require registrants to provide detailed information about their climate-related targets and goals, including action plans and timelines for achieving such targets as GHG emissions reductions and performance data measured against those targets.⁶⁷⁴ This information could be important for investors in light of the fact that, according to one publication, two-thirds of S&P 500 companies had set a carbon reduction target by the end of 2020.⁶⁷⁵ Despite the numerous commitments to reduce GHG emissions, according to several sources, many companies do not provide their investors with sufficient information to understand how the companies intend to achieve those commitments or the progress made

⁶⁷³ For example, numerous companies have pledged to achieve 100% of the electricity used in their global operations from renewable sources by 2050. *See* RE100, [What are the requirements to become a RE100 member?](https://www.there100.org/technical-guidance), available at <https://www.there100.org/technical-guidance>.

⁶⁷⁴ *See, e.g.*, letters from Americans for Financial Reform Education Fund and Public Citizen; Center for Law and Social Policy; Domini Impact Investments; Dynamhex, Inc.; FAIRR Initiative; Generation Investment Management; Hannon Armstrong; HP, Inc.; Interfaith Center on Corporate Responsibility; NYC Office of Comptroller; Pre-Distribution Initiative; Regenerative Crisis Response Committee; and WK Associates.

⁶⁷⁵ *See supra* note 66 (referencing The Wall Street Journal (Nov. 5, 2021)).

regarding them.⁶⁷⁶ The proposed disclosure requirements are intended to elicit enhanced information about climate-related targets and goals so that investors can better evaluate these points.

If a registrant has set climate-related targets or goals, the proposed rules would require it to disclose them, including, as applicable, a description of:

- The scope of activities and emissions included in the target;
- The unit of measurement, including whether the target is absolute or intensity based;
- The defined time horizon by which the target is intended to be achieved, and whether the time horizon is consistent with one or more goals established by a climate-related treaty, law, regulation, policy, or organization;
- The defined baseline time period and baseline emissions against which progress will be tracked with a consistent base year set for multiple targets;
- Any interim targets set by the registrant; and
- How the registrant intends to meet its climate-related targets or goals.⁶⁷⁷

This information would help investors understand a registrant's particular target or goal and a particular timeline for that target or goal, how the target or goal is to be measured, and how progress against the target or goal is to be tracked. For example, a registrant might disclose that it plans to cut its Scopes 1 and 2 emissions by 50 percent by 2030.⁶⁷⁸ The registrant might also disclose a target to reduce its Scope 3 emissions by 50 percent by 2035. In addition, the

⁶⁷⁶ See, e.g., Jocelyn Timperley, *The Guardian*, *The truth behind corporate climate pledges* (July 26, 2021); Peter Eavis and Clifford Krauss, *The New York Times*, *What's Really Behind Corporate Promises on Climate Change?* (May 12, 2021); and Alice C. Hill and Jennifer Nash, *The Hill*, *The truth behind companies' 'net zero' climate commitments* (Apr. 9, 2021).

⁶⁷⁷ See proposed 17 CFR 229.1506(b)(1) through (6).

⁶⁷⁸ See proposed 17 CFR 229.1506(b)(3).

registrant might also set a goal of achieving net zero greenhouse gas emissions across its operations by 2050, in keeping with the goals of the Paris Agreement.

Under the proposed rules, the registrant would be required to disclose the baseline year for multiple targets.⁶⁷⁹ Requiring disclosure of defined baseline time periods and baseline emissions against which progress will be tracked, with a consistent base year for multiple targets, could help investors compare the progress made towards each target. The registrant would also be required to disclose the unit of measurement, including whether the target is expressed in absolute terms or is intensity-based. If the registrant has set intervening targets (*e.g.*, reducing its Scope 3 emissions by 35 percent by 2030), the registrant would be required to disclose these targets.⁶⁸⁰ Each of the proposed disclosure requirements is intended to provide investors with additional insight into the scope and specifics of a registrant's climate-related targets or goals.

The proposed rules would further require a registrant to discuss how it intends to meet its climate-related targets or goals.⁶⁸¹ This information should enable investors to better understand the potential impacts on a registrant associated with pursuing its climate-related targets or goals. For example, for a target or goal regarding net GHG emissions reduction, the discussion could include a strategy to increase energy efficiency, transition to lower carbon products, purchase carbon offsets or RECs, or engage in carbon removal and carbon storage.⁶⁸² For a registrant operating in a water-stressed area, with the goal of reducing its freshwater needs, the discussion could include a strategy to increase the water efficiency of its operations, such as by recycling

⁶⁷⁹ See proposed 17 CFR 229.1506(b)(4).

⁶⁸⁰ See proposed 17 CFR 229.1506(b)(5).

⁶⁸¹ See proposed 17 CFR 229.1506(b)(6).

⁶⁸² See proposed 17 CFR 229.1506(b)(6).

wastewater or, if in agriculture, engaging in bioengineering techniques to make crops more resilient and less water dependent. Information about how a registrant intends to achieve its climate-related target or goal could provide investors with a better understanding of the potential costs to mitigate a potential climate-related risk, such as a manufacturer's reduction of GHG emissions through implementation of a relatively high cost solution such as carbon capture and storage technology.⁶⁸³

The proposed rules would also require a registrant to disclose relevant data to indicate whether it is making progress toward achieving the target or goal and how such progress has been achieved.⁶⁸⁴ A registrant would be required to update this disclosure each fiscal year by describing the actions taken during the year to achieve its targets or goals.⁶⁸⁵ This proposed disclosure could help investors assess how well a registrant is managing its identified climate-related risks.

Some companies might establish climate-related goals or targets without yet knowing how they will achieve those goals. They might plan to develop their strategies over time, particularly as new technologies become available that might facilitate their achievement of their goals. The fact that a company has set a goal or target does not mean that it has a specific plan for how it will achieve those goals. What is important is that investors be informed of a registrant's plans and progress wherever it is in the process of developing and implementing its plan.

⁶⁸³ See proposed 17 CFR 229.1502.

⁶⁸⁴ See proposed 17 CFR 229.1506(c).

⁶⁸⁵ See *id.*

If the registrant has used carbon offsets or RECs in its plan to achieve climate-related targets or goals, it would be required to disclose the amount of carbon reduction represented by the offsets or the amount of generated renewable energy represented by the RECS, the source of the offsets or RECs, a description and location of the underlying projects, any registries or other authentication of the offsets or RECs, and the cost of the offsets or RECs.⁶⁸⁶ For example, a carbon offset might pertain to an underlying project to reduce GHG emissions, increase the storage of carbon, or enhance GHG removals from the atmosphere. Information regarding the source, value, underlying projects, and authentication of the offsets or RECs could help investors assess the offsets or RECs and the effectiveness of the registrant's plan to achieve its climate-related targets or goals. Such information could also help investors understand changes in the use or viability of the carbon offsets or RECs as part of achieving a registrant's climate-related targets or goals that are caused by changes in regulation or markets. A reasonable investor could well assess differently the effectiveness and value to a registrant of the use of carbon offsets where the underlying projects resulted in authenticated reductions in GHG emissions compared to the use of offsets where the underlying projects resulted in the avoidance, but not the reduction, in GHG emissions or otherwise lacked verification. As some commenters have indicated, mandated detailed disclosure about the nature of a purchased carbon offset could also help to mitigate instances of greenwashing.⁶⁸⁷

Proposed 17 CFR 229.1505(a)(2) (Item 1505(a)(2)) would state that a registrant may provide the disclosures required by the section when discussing climate-related impacts on its strategy, business model, and outlook (in response to proposed Item 1502) or when discussing its

⁶⁸⁶ See proposed 17 CFR 229.1506(d).

⁶⁸⁷ See, e.g., letter from Dimensional Fund Advisors.

transition plan as part of its risk management disclosure (in response to proposed Item 1503). If so, it need not repeat the disclosure in response to the proposed targets and goals section but should cross-refer to the section where the information has been provided.

A registrant's disclosure of its climate-related targets or goals should not be construed to be promises or guarantees. To the extent that information regarding a registrant's climate-related targets or goals would constitute forward-looking statements, which we would expect, for example, with respect to how a registrant intends to achieve its climate-related targets or goals and expected progress regarding those targets and goals, the PSLRA safe harbors would apply to such statements, assuming all other statutory requirements for those safe harbors are satisfied.

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168. Should we require a registrant to disclose whether it has set any targets related to the reduction of GHG emissions, as proposed? Should we also require a registrant to disclose whether it has set any other climate-related target or goal, *e.g.*, regarding energy usage, water usage, conservation or ecosystem restoration, or revenues from low-carbon products, in line with anticipated regulatory requirements, market constraints, or other goals, as proposed? Are there any other climate-related targets or goals that we should specify and, if so, which targets or goals? Is it clear when disclosure under this proposed item would be triggered, or do we need to provide additional guidance? Would our proposal discourage registrants from setting such targets or goals?

169. Should we require a registrant, when disclosing its targets or goals, to disclose:

- The scope of activities and emissions included in the target;
- The unit of measurement, including whether the target is absolute or intensity based;

- The defined time horizon by which the target is intended to be achieved, and whether the time horizon is consistent with one or more goals established by a climate-related treaty, law, regulation, or organization;
- The defined baseline time period and baseline emissions against which progress will be tracked with a consistent base year set for multiple targets;
- Any intervening targets set by the registrant; and
- How it intends to meet its targets or goals, each as proposed?

Are there any other items of information about a registrant's climate-related targets or goals that we should require to be disclosed, in addition to or instead of these proposed items? Are there any proposed items regarding such targets or goals that we should exclude from the required disclosure? If a registrant has set multiple targets or goals, should it be permitted to establish different base years for those targets or goals?

170. Should we require a registrant to discuss how it intends to meet its climate-related targets or goals, as proposed? Should we provide examples of potential items of discussion about a target or goal regarding GHG emissions reduction, such as a strategy to increase energy efficiency, a transition to lower carbon products, purchasing carbon offsets or RECs, or engaging in carbon removal and carbon storage, as proposed? Should we provide additional examples of items of discussion about climate-related targets or goals and, if so, what items should we add? Should we remove any of the proposed examples of items of discussion?

171. Should we require a registrant, when disclosing its targets or goals, to disclose any data that indicates whether the registrant is making progress towards meeting the target and how such progress has been achieved, as proposed?

172. Should we require that the disclosure be provided in any particular format, such as charts? Would certain formats help investors and others better assess these disclosures in the context of assessing the registrant's business and financial condition? What additional or other requirements would help in this regard?

173. If a registrant has used carbon offsets or RECs, should we require the registrant to disclose the amount of carbon reduction represented by the offsets or the amount of generated renewable energy represented by the RECS, the source of the offsets or RECs, the nature and location of the underlying projects, any registries or other authentication of the offsets or RECs, and the cost of the offsets or RECs, as proposed? Are there other items of information about carbon offsets or RECs that we should specifically require to be disclosed when a registrant describes its targets or goals and the related use of offsets or RECs? Are there proposed items of information that we should exclude from the required disclosure about offsets and RECs?

174. Should we apply the PSLRA statutory safe harbors as they currently exist to forward-looking statements involving climate-related targets and goals, or other climate-related forward-looking information? Should we instead create a separate safe harbor for forward-looking climate-related information, including targets and goals? Should we adopt an exception to the PSLRA statutory safe harbors that would extend the safe harbors to climate-related forward-looking disclosures made in an initial public offering registration statement?

J. Registrants Subject to the Climate-Related Disclosure Rules and Affected Forms

The proposed climate-related disclosure rules would apply to a registrant with Exchange Act reporting obligations pursuant to Exchange Act Section 13(a)⁶⁸⁸ or Section 15(d)⁶⁸⁹ and companies filing a Securities Act or Exchange Act registration statement. Specifically, we are proposing to require a registrant to include climate-related disclosure in Securities Act or Exchange Act registration statements (Securities Act Forms S-1, F-1, S-3, F-3, S-4, F-4, and S-11, and Exchange Act Forms 10 and 20-F)⁶⁹⁰ and Exchange Act annual reports (Forms 10-K and 20-F), including the proposed financial statement metrics.⁶⁹¹ Similar to the treatment of other important business and financial information, the proposed rules would also require registrants to disclose any material change to the climate-related disclosure provided in a registration statement

⁶⁸⁸ 15 U.S.C. 78m(a).

⁶⁸⁹ 15 U.S.C. 78o(d).

⁶⁹⁰ Form 20-F is the Exchange Act form used by a foreign private issuer for its annual report or to register a class of securities under Section 12 of the Exchange Act. The proposed rules would amend Part I of Form 20-F to require a foreign private issuer to provide the climate-related disclosures pursuant to the proposed rules either when registering a class of securities under the Exchange Act or when filing its Exchange Act annual report. A foreign private issuer would also be required to comply with the proposed rules when filing a Securities Act registration statement on Form F-1. Because Form F-1 requires a registrant to include the disclosures required by Part I of Form 20-F, the proposed amendment to Form 20-F would render unnecessary a formal amendment to Form F-1. We are similarly not formally amending Forms S-3 and F-3 because the climate-related disclosure would be included in a registrant's Form 10-K or 20-F annual report that is incorporated by reference into those Securities Act registration statements.

⁶⁹¹ See Form 20-F, General Instruction B(d) (stating that Regulation S-X applies to the presentation of financial information in the form). Although Item 17 and 18 of Form 20-F, and the forms that refer to Form 20-F (including Forms F-1 and F-3) permit a foreign private issuer to file financial statements prepared in accordance with IFRS as issued by the IASB, the proposed Article 14 disclosure would nevertheless be required (similar to disclosure required by Article 12 of Regulation S-X). See *Acceptance from Foreign Private Issuers of Financial Statements Prepared in Accordance with International Financial Reporting Standards Without Reconciliation to U.S. GAAP*, Rel. No. 33-8879 (Dec. 21, 2007) [73 FR 986 (Jan. 4, 2008)], 999, n.136 (stating that "Regulation S-X will continue to apply to the filings of all foreign private issuers, including those who file financial statements prepared using IFRS as issued by the IASB," but providing that such issuers "will comply with IASB requirements for form and content within the financial statements, rather than with the specific presentation and disclosure provisions in Articles 4, 5, 6, 7, 9, and 10 of Regulation S-X").

or annual report in its Form 10-Q (or, in certain circumstances, Form 6-K for a registrant that is a foreign private issuer that does not report on domestic forms).⁶⁹²

The proposed rules would amend Form 20-F and the Securities Act forms that a foreign private issuer may use to register the offer and sale of securities under the Securities Act to require the same climate-related disclosures as proposed for a domestic registrant.⁶⁹³ Because climate-related risks potentially impact both domestic and foreign private issuers, regardless of the registrant's jurisdiction of origin or organization, requiring that foreign private issuers provide this disclosure would be important to achieving our goal of more consistent, reliable, and comparable information across registrants. Moreover, we note that Form 20-F imposes substantially similar disclosure requirements as those required for Form 10-K filers on matters, such as risk factors and MD&A, that are similar and relevant to the proposed climate-related disclosures.⁶⁹⁴

⁶⁹² Form 6-K is the form furnished by a foreign private issuer with an Exchange Act reporting obligation if the issuer: (i) makes or is required to make the information public pursuant to the law of the jurisdiction of its domicile or in which it is incorporated or organized, or (ii) files or is required to file the information with a stock exchange on which its securities are traded and which was made public by that exchange, or (iii) distributes or is required to distribute the information to its security holders. *See* General Instruction B to Form 6-K. That instruction currently list certain types of information that are required to be furnished pursuant to subparagraphs (i), (ii), and (iii), above. While we are proposing to amend Form 6-K to add climate-related disclosure to the list of the types of information to be provided on Form 6-K, a foreign private issuer would not be required to provide the climate-related disclosure if such disclosure is not required to be furnished pursuant to subparagraphs (i), (ii), or (iii) of General Instruction B.

⁶⁹³ *See* proposed Item 3.E to Form 20-F.

⁶⁹⁴ For similar reasons, we believe that requiring the proposed climate disclosures on Forms F-1, F-3, and F-4 is appropriate because those forms either require the disclosure pursuant to certain parts of Form 20-F (Forms F-1 and F-4) and certain items, such as risk factors, under Regulation S-K, or permit the incorporation by reference of Form 20-F (Forms F-3 and F-4) and therefore require disclosure similar to the domestic forms.

We are not proposing generally to exempt SRCs, EGCs,⁶⁹⁵ or registrants that are foreign private issuers from the entire scope of the proposed climate-related disclosure rules because we agree with commenters who stated that, because of their broad impact across industries and jurisdictions, climate-related risks may pose a significant risk to the operations and financial condition of domestic and foreign issuers, both large and small.⁶⁹⁶ While we are not proposing to exempt SRCs from the full scope of the proposed climate-related disclosure rules, we are proposing to exempt SRCs from the proposed Scope 3 emissions disclosure requirement.⁶⁹⁷ We also are proposing to provide a longer transition period for SRCs to comply with the proposed rules than we are proposing for other registrants.⁶⁹⁸ The proposed accommodations for Scope 3 emissions disclosures could mitigate the proposed rules' compliance burden for smaller registrants that, when compared to larger registrants with more resources, may be less able to afford the fixed costs associated with the reporting of GHG emissions. In addition, the extended compliance period would give SRCs additional time to allocate the resources necessary to compile and prepare their climate-related disclosures.

⁶⁹⁵ An emerging growth company (“EGC”) is a registrant that had total annual gross revenues of less than \$1.07 billion during its most recently completed fiscal year and has not met the specified conditions for no longer being considered an EGC. *See* 17 CFR 230.405; 17 CFR 240.12b-2; 15 U.S.C. 77b(a)(19); 15 U.S.C. 78c(a)(80); and *Inflation Adjustments and Other Technical Amendments under Titles I and II of the JOBS Act*, Release No. 33-10332 (Mar. 31, 2017) [82 FR 17545 (Apr. 12, 2017)].

⁶⁹⁶ *See, e.g.*, letters from Rob Bonta, California Attorney General *et al.*; Ceres *et al.*; and Natural Resources Defense Council.

⁶⁹⁷ *See* proposed 17 CFR 229.1504(c)(3). In this regard we note that participants in the Commission-hosted 2021 Small Business Forum recommended that the Commission provide exemptions or scaled requirements for small and medium-sized companies in connection with any new ESG disclosure requirements adopted by the Commission. *See* Report on the 40th Annual Small Business Forum (May 2021), available at https://www.sec.gov/files/2021_OASB_Annual_Forum_Report_FINAL_508.pdf. *See also* Office of the Advocate for Small Business Capital Formation, *Annual Report for Fiscal Year 2021* (supporting “efforts to continue tailoring the disclosure and reporting framework to the complexity and size of operations of companies, either by scaling obligations or delaying compliance for the smallest of the public companies, particularly as it pertains to potential new or expanded disclosure requirements”).

⁶⁹⁸ *See infra* Section II.M.

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175. Should the proposed climate-related disclosures be required in Exchange Act reports and registration statements, as proposed? Should we exempt SRCs from all of the proposed climate-related disclosure rules instead of exempting them solely from Scope 3 emissions disclosure requirements, as proposed? Should we exempt SRCs from certain other proposed climate-related disclosure requirements and, if so, which requirements? For example, in addition to the proposed exemption from Scope 3 emissions disclosure, should we exempt SRCs from the proposed requirement to disclose Scopes 1 and 2 emissions? Are there certain types of other registrants, such as EGCs or business development companies (“BDCs”),⁶⁹⁹ that should be excluded from all or some of the proposed climate-related disclosure rules?

176. Should we require foreign private issuers that report on Form 20-F to provide the same climate-related disclosures as Form 10-K filers, as proposed? Should we require climate-related disclosures in the registration statements available for foreign private issuers, as proposed? If not, how should the climate-related disclosures provided by foreign private issuer registrants differ from the disclosures provided by domestic registrants?

177. Should we require a registrant to disclose any material changes to the climate-related disclosure provided in its registration statement or annual report in its Form 10-Q or Form 6-K, as proposed? Are there any changes that should be required to be reported on Form 8-K?

178. Should we require the climate-related disclosure in the forms specified above? Is the application of the proposed rules to the forms sufficiently clear, or should we include additional

⁶⁹⁹ A BDC is a closed-end investment company that has a class of its equity securities registered under, or has filed a registration statement pursuant to, Section 12 of the Exchange Act, and elects to be regulated as a business development company. *See* Section 54 of the Investment Company Act, 15 U.S.C. 80a-53. Like other Section 12 registrants, BDCs are required to file Exchange Act annual reports.

clarifying amendments? For example, would the application of proposed Article 14 to Forms 20-F, F-1 and F-3 be sufficiently clear when a registrant prepares its financial statements pursuant to IFRS as issued by the International Accounting Standards Board (“IASB”) without reconciliation to U.S. generally accepted accounting principles (“U.S. GAAP”), or should we add a related instruction to those forms?

179. Are there certain registration statements or annual reports that should be excluded from the scope of the proposed climate-related disclosure rules? For example, should we exclude Securities Act registration statements filed in connection with a registrant’s initial public offering? Would such an accommodation help address concerns about the burdens of transitioning to public company status? We have not proposed to require climate-related disclosures in registration statements on Form S-8 or annual reports on Form 11-K. Should we require such disclosures?

180. Should we require climate-related disclosure in Forms S-4 and F-4, as proposed? Should we provide transitional relief for recently acquired companies? For example, should we provide that a registrant would not be required to provide the proposed climate-related disclosures for a company that is a target of a proposed acquisition under Form S-4 or F-4 until the fiscal year following the year of the acquisition if the target company is not an Exchange Act reporting company and is not the subject of foreign climate-related disclosure requirements that are substantially similar to the Commission’s proposed requirements? Should such transitional relief in this instance be for a longer period than one year and, if so, for how long should such transitional relief extend?

181. We have not proposed to amend Form 40-F, the Exchange Act form used by a Canadian issuer eligible to report under the Multijurisdictional Disclosure System (“MJDS”) to

register securities or to file its annual report under the Exchange Act, to include the proposed climate-related disclosure requirements. Should we require a Form 40-F issuer to comply with the Commission's proposed climate-related disclosure requirements? Should we permit a MJDS issuer to comply with Canadian climate-related disclosure requirements instead of the proposed rules if they meet certain conditions or provide certain additional disclosures and, if so, which conditions or disclosures?

182. The proposed rules would not apply to asset-backed issuers. The Commission and staff are continuing to evaluate climate-related disclosures with respect to asset-backed securities. Should we require asset-backed issuers to provide some or all of the disclosures under proposed Subpart 1500 of Regulation S-K? If so, which of the proposed disclosures should apply to asset-backed issuers? Are other types of climate disclosure better suited to asset-backed issuers? How can climate disclosure best be tailored to various asset classes?

183. Should we adopt an alternative reporting provision that would permit a registrant that is a foreign private issuer and subject to the climate-related disclosure requirements of an alternative reporting regime that has been deemed by the Commission to be substantially similar to the requirements of proposed Subpart 1500 of Regulation S-K and Article 14 of Regulation S-X to satisfy its disclosure obligations under those provisions by complying with the reporting requirements of the alternative reporting regime ("alternative reporting provision")? If so, should we require the submission of an application for recognition of an alternative reporting regime as having substantially similar requirements for purposes of alternative reporting regarding climate-related disclosures? Should we permit companies, governments, industry groups, or climate-related associations to file such an application? Should we require the applicant to follow certain procedures, such as those set forth in 17 CFR 240.0-13?

184. If we adopt an alternative reporting provision, should we specify certain minimum standards that the alternative reporting regime must meet in order to be recognized and, if so, what standards? For example, should we specify that an alternative reporting regime must require the disclosure of a foreign private issuer's Scopes 1 and 2 emissions and related targets, the proposed financial statement metrics, as well as disclosures pursuant to the TCFD's recommendations regarding governance, strategy, and risk management disclosure? Should we specify that the alternative reporting regime must require the disclosure of Scope 3 emissions and, if so, should we deem the alternative reporting regime to be substantially similar even if its Scope 3 emissions requirements become effective after the Commission's phase in period for Scope 3 emissions disclosure requirements? Should we specify that the alternative reporting regime must require the disclosure of scenario analysis if a registrant uses scenario analysis in formulating its strategy regarding climate-related risks? Are there certain climate-related disclosure requirements that have been adopted or are in the process of being adopted in other jurisdictions that we should consider to be substantially similar to the Commission's rules for purposes of an alternative reporting provision? If so, which requirements should we consider?

185. If we adopt an alternative reporting provision, should it be a mutual recognition system, so that, as a condition of our recognition of a particular jurisdiction as an alternative reporting regime, that jurisdiction must recognize the Commission's climate-related disclosure rules as an alternative reporting system that a registrant dual-listed in the United States and the other jurisdiction may use to fulfill the foreign jurisdiction's climate-related disclosure rules?

186. If we adopt an alternative reporting provision, should we require a registrant filing the alternative climate-related disclosure to make certain changes that we deem necessary as a condition to alternative reporting? For example, should we require a registrant to comply with

XBRL tagging requirements as a condition to filing alternative climate-related disclosure? Are there other specific conditions that we should impose on disclosure under an alternative climate reporting provision?

187. If we adopt an alternative reporting provision, should we require a registrant using that system to:

- State in the filing that it is relying on this alternative reporting provision;
- Identify the alternative reporting regime for which the climate-related disclosure was prepared;
- Identify the exhibit number of the filing where the alternative disclosure can be found; and
- File a fair and accurate English translation of the alternative climate-related disclosure if in a foreign language?

Would these requirements enhance the accessibility of the alternative disclosures? Are there other requirements that we should impose to enhance the transparency of the alternative climate-related disclosure?

188. If we adopt an alternative reporting provision, should we permit a registrant to follow the submission deadline of the approved alternative reporting regime even if that deadline differs from the deadline for reporting under our rules? If so, what conditions, if any, should apply to permit the use of such alternative deadline? For example, should the registrant be required to provide adequate notice, before the due date of the Commission filing in which the alternative disclosure is required to be included? Should such notice indicate the registrant's intent to file the alternative disclosure using the alternative jurisdiction's deadline? If so, what would constitute adequate notice? For example, should the deadline for filing the notice be three, five,

or ten business days before the Commission filing deadline? Should we permit a registrant to provide such notice through an appropriate submission to the Commission's EDGAR system? Should we permit a registrant to indicate in its Form 20-F or other report that it will file the alternative disclosure at a later date if permitted to do so by the alternative reporting regime? In that case, should we permit the registrant to file the alternative disclosure on a Form 6-K or 8-K? Should we instead require a registrant to submit the notice via a form that we would create for such purpose? Should there be any consequences if a registrant fails to file a timely notice or fails to file the alternative disclosure by the alternative regime's due date? For example, should we preclude such a registrant from relying on the alternative reporting provision for the following fiscal year?

189. An International Sustainability Standards Board (ISSB) has recently been created, which is expected to issue global sustainability standards, including climate-related disclosure standards.⁷⁰⁰ If we adopt an alternative reporting provision, should that provision be structured to encompass reports made pursuant to criteria developed by a global sustainability standards body, such as the ISSB? If so, should such alternative reporting be limited to foreign private issuers, or should we extend this option to all registrants? What conditions, if any, should we place on a registrant's use of alternative reporting provisions based on the ISSB or a similar body?

K. Structured Data Requirement

The proposed rules would require a registrant to tag the proposed climate-related disclosures in a structured, machine-readable data language.⁷⁰¹ Specifically, the proposed rules

⁷⁰⁰ See *supra* note 92.

⁷⁰¹ See proposed 17 CFR 229.1507.

would require a registrant to tag climate-related disclosures in Inline eXtensible Business Reporting Language (“Inline XBRL”) in accordance with 17 CFR 232.405 (Rule 405 of Regulation S-T) and the EDGAR Filer Manual. The proposed requirements would include block text tagging and detail tagging of narrative and quantitative disclosures provided pursuant to Subpart 1500 of Regulation S-K and Article 14 of Regulation S-X.⁷⁰²

In 2009, the Commission adopted rules requiring operating companies to submit the information from the financial statements (including footnotes and schedules thereto) included in certain registration statements and periodic and current reports in a structured, machine-readable data language using eXtensible Business Reporting Language (“XBRL”).⁷⁰³ In 2018, the Commission adopted modifications to these requirements by requiring issuers to use Inline XBRL, which is both machine-readable and human-readable, to reduce the time and effort associated with preparing XBRL filings and improve the quality and usability of XBRL data for

⁷⁰² For the proposed Subpart 1500 disclosures, this tagging requirement would be implemented by including a cross-reference to Rule 405 of Regulation S-T in proposed Item 1507 of Regulation S-K, and by revising Rule 405(b) of Regulation S-T to include the proposed climate-related disclosures required by Subpart 1500 of Regulation S-K. The proposed Article 14 of Regulation S-X disclosures would be subject to existing requirements in Rule 405(b) to tag information in financial statements (including footnotes). Pursuant to Rule 301 of Regulation S-T the EDGAR Filer Manual is incorporated by reference into the Commission’s rules. In conjunction with the EDGAR Filer Manual, Regulation S-T governs the electronic submission of documents filed with the Commission. Rule 405 of Regulation S-T specifically governs the scope and manner of disclosure tagging requirements for operating companies and investment companies, including the requirement in Rule 405(a)(3) to use Inline XBRL as the specific structured data language to use for tagging the disclosures.

⁷⁰³ *Interactive Data to Improve Financial Reporting*, Release No. 33-9002 (Jan. 30, 2009) [74 FR 6776 (Feb. 10, 2009)] (“2009 Financial Statement Information Adopting Release”) (requiring submission of an Interactive Data File to the Commission in exhibits to such reports); *see also* Release No. 33-9002A (Apr. 1, 2009) [74 FR 15666 (Apr. 7, 2009)].

investors.⁷⁰⁴ In 2020, the Commission adopted Inline XBRL requirements for business development companies that will be effective no later than February 2023.⁷⁰⁵

Requiring Inline XBRL tagging of the proposed climate-related disclosures would benefit investors by making the disclosures more readily available and easily accessible to investors, market participants, and other users for aggregation, comparison, filtering, and other analysis, as compared to requiring a non-machine readable data language such as ASCII or HTML. This would enable automated extraction and analysis of climate-related disclosures, allowing investors and other market participants to more efficiently perform large-scale analysis and comparison of climate-related disclosures across companies and time periods. At the same time, we do not expect the incremental compliance burden associated with tagging the additional information to be unduly burdensome, because issuers subject to the proposed requirements are or in the near future will be subject to similar Inline XBRL requirements in other Commission filings.⁷⁰⁶

Request for Comment

190. Should we require registrants to tag the climate-related disclosures, including block text tagging and detail tagging of narrative and quantitative disclosures required by Subpart 1500 of Regulation S-K and Article 14 of Regulation S-X in Inline XBRL, as proposed? Should we permit custom tags for the climate-related disclosures?

⁷⁰⁴ *Inline XBRL Filing of Tagged Data*, Release No. 33-10514 (June 28, 2018) [83 FR 40846, 40847 (Aug. 16, 2018)]. Inline XBRL allows filers to embed XBRL data directly into an HTML document, eliminating the need to tag a copy of the information in a separate XBRL exhibit. *Id.* at 40851.

⁷⁰⁵ *Securities Offering Reform for Closed-End Investment Companies*, Release No. 33-10771 (Apr. 8, 2020) [85 FR 33290 (June 1, 2020) at 33318].

⁷⁰⁶ *See supra* notes 704 and 705. Inline XBRL requirements for business development companies will take effect beginning Aug. 1, 2022 (for seasoned issuers) and Feb. 1, 2023 (for all other issuers). *See id.* If the proposed Inline XBRL requirements are adopted in the interim, they will not apply to business development companies prior to the aforementioned effectiveness dates.

191. Should we modify the scope of the proposed climate-related disclosures required to be tagged? For example, should we only require tagging of the quantitative climate-related metrics?

192. Are there any third-party taxonomies the Commission should look to in connection with the proposed tagging requirements?

193. Should we require issuers to use a different structured data language to tag climate-related disclosures? If so, what structured data language should we require? Should we leave the structured data language undefined?

L. Treatment for Purposes of Securities Act and Exchange Act

We are proposing to treat the proposed required climate-related disclosures as “filed” and therefore subject to potential liability under Exchange Act Section 18,⁷⁰⁷ except for disclosures furnished on Form 6-K. The proposed filed climate-related disclosures would also be subject to potential Section 11 liability⁷⁰⁸ if included in or incorporated by reference into a Securities Act registration statement. This treatment would apply both to the disclosures in response to proposed subpart 1500 of Regulation S-K and to proposed Article 14 of Regulation S-X.

Form 6-K disclosures would not be treated as “filed” because the form, by its own terms, states that “information and documents furnished in this report shall not be deemed to be “filed” for the purposes of Section 18 of the Act or otherwise subject to the liabilities of that section.”⁷⁰⁹ The treatment of disclosures on Form 6-K as furnished is a long-standing part of our foreign private issuer disclosure system.⁷¹⁰

⁷⁰⁷ 15 U.S.C. 78r.

⁷⁰⁸ 15 U.S.C. 77k.

⁷⁰⁹ Form 6-K, General Instruction B.

⁷¹⁰ *See* Release No. 34-8069 (Apr. 28, 1967), [32 FR 7853 (May 30, 1967)]. Form 6-K’s treatment as furnished for purposes of Section 18 has existed since the Commission adopted the form.

Commenters expressed differing views on whether we should treat Commission-mandated climate-related disclosures as filed or furnished. Many commenters recommended that we treat such climate-related disclosures as filed.⁷¹¹ Some of these commenters stated that we should treat climate-related disclosures like financial disclosures and require them to be filed together with the rest of the Commission filing.⁷¹² Other commenters indicated that the treatment of climate-related disclosures as filed would help ensure that investors have confidence in the accuracy and completeness of such disclosures because of the liability associated with filed documents.⁷¹³

Other commenters recommended that we treat climate-related disclosures as furnished.⁷¹⁴ Some of these commenters stated that the Commission’s treatment of such disclosures as filed could act as a disincentive to providing “broader” disclosure and would incentivize some issuers “to disclose in the manner most limited to meet the specific requirement and avoid more robust explanation.”⁷¹⁵ Other commenters stated that the treatment of climate-related disclosures as

⁷¹¹ See, e.g., letters from Baillie Gifford; Rob Bonta, California Attorney General *et al.*; Calvert Research and Management; Carolyn Kohoot; Center for American Progress; Ceres *et al.*; Certified B Corporations; Clean Yield Asset Management; Climate Risk Disclosure Lab; Consumer Federation of America; Environmental Bankers Association; Friends of the Earth, Amazon Watch, and Rainforest Action Network; Garcia Hamilton & Associates (June 11, 2021); Grant Thornton; Sarah Ladin; Miller/Howard Investments; Natural Resources Defense Council; New York State Society of Certified Public Accountants; Nia Impact Capital; Teachers Insurance and Annuity Association of America; ValueEdge Advisors (July 5, 2021); and Vert Asset Management.

⁷¹² See, e.g., letters from Rob Bonta, California Attorney General *et al.*; Calvert Research and Management; and Ceres *et al.*

⁷¹³ See, e.g., letters from Consumer Federation of America; and Natural Resources Defense Council.

⁷¹⁴ See, e.g., letters from American Petroleum Institute; Associated General Contractors of America; Bank Policy Institute; Business Roundtable; Chamber of Commerce; Chevron; Cisco; ConocoPhillips; Dell Technologies; Dow; FedEx Corporation (June 11, 2021); Investment Company Institute; NACCO Industries, Inc. (June 11, 2021); KPMG, LLP; National Association of Manufacturers; National Investor Relations Institute; National Mining Association; Society for Corporate Governance; and United Airlines Holdings, Inc.

⁷¹⁵ Letter from American Petroleum Institute; see also letters from Chamber of Commerce; and National Association of Manufacturers.

furnished would be appropriate because, in their view, much of that disclosure is based on projections and aspirational statements ill-suited to the application of a stricter liability standard.⁷¹⁶

We agree with those commenters who indicated that the treatment of climate-related disclosures as filed could help promote the accuracy and reliability of such disclosures for the benefit of investors.⁷¹⁷ In this regard, we believe these disclosures should be subject to the same liability as other important business or financial information that the registrant includes in its registration statements and periodic reports. While we acknowledge commenters who stated that the methodology underlying climate data continues to evolve,⁷¹⁸ we intend to provide registrants with an ample transition period to prepare to provide such disclosure.⁷¹⁹ Further, much of the disclosure proposed to be required reflects discussion of a company's own climate risk assessment and strategy, which is not dependent on external sources of information. In addition, we have provided guidance and proposed rules on the applicability of safe harbors to certain disclosures under the proposed rules. For these reasons, we believe it would be appropriate for the proposed disclosures to be filed rather than furnished, except with respect to the proposed disclosure we are requiring on Form 6-K.

Request for Comment

194. Should we treat the climate-related disclosures required by proposed subpart 1500 of Regulation S-K and proposed Article 14 of Regulation S-X as filed for purposes of potential

⁷¹⁶ See, e.g., letters from National Mining Association; and United Airlines Holdings.

⁷¹⁷ See *supra* note 713.

⁷¹⁸ See, e.g., letter from National Association of Manufacturers.

⁷¹⁹ See *infra* Section II.M.

liability under the Securities Act and Exchange Act, except for the climate disclosures on Form 6-K, as proposed? Should we instead treat the climate-related disclosures required by both proposed subpart 1500 of Regulation S-K and proposed Article 14 of Regulation S-X as furnished? Are there reasons why the proposed climate-related disclosures should not be subject to Section 18 liability?

195. Should we only treat the climate-related disclosures required by proposed subpart 1500 of Regulation S-K as filed? Should we only treat the climate-related disclosures required by proposed Article 14 of Regulation S-X as filed? Is there some other subset of climate-related disclosures that should be treated as furnished rather than filed? For example, should we only treat as filed disclosures related to a registrant's Scopes 1 and 2 emissions, and treat a registrant's Scope 3 emissions as furnished?

196. Should we treat the climate disclosures on Form 6-K as filed?

M. Compliance Date

We recognize that many registrants may require time to establish the necessary systems, controls, and procedures to comply with the proposed climate-related disclosure requirements. In addition, some commenters recommended that the Commission not adopt a "one size fits all" approach when promulgating climate-related disclosure rules because such an approach would disproportionately impact smaller registrants.⁷²⁰ In order to provide registrants, especially smaller registrants, with additional time to prepare for the proposed climate-related disclosures, we are proposing phased-in dates for complying with proposed subpart 1500 of Regulation S-K and Article 14 of Regulation S-X, which would provide additional time for certain smaller

⁷²⁰ See *supra* note 556.

registrants. The table below summarizes the proposed phase-ins for the compliance date. The table assumes, for illustrative purposes, that the proposed rules will be adopted with an effective date in December 2022, and that the registrant has a December 31st fiscal year-end.

Registrant Type	Disclosure Compliance Date		Financial Statement Metrics Audit Compliance Date
	All proposed disclosures, including GHG emissions metrics: Scope 1, Scope 2, and associated intensity metric, but excluding Scope 3.	GHG emissions metrics: Scope 3 and associated intensity metric	
Large Accelerated Filer	Fiscal year 2023 (filed in 2024)	Fiscal year 2024 (filed in 2025)	Same as disclosure compliance date
Accelerated Filer and Non-Accelerated Filer	Fiscal year 2024 (filed in 2025)	Fiscal year 2025 (filed in 2026)	
SRC	Fiscal year 2025 (filed in 2026)	Exempted	

The proposed compliance dates in the table above would apply to both annual reports and registration statements. For example, if a non-accelerated filer with a December 31st fiscal year-end filed a registration statement that was not required to include audited financial statements for fiscal year 2024 (*e.g.*, the registration statement was filed in 2023 or 2024), it would not be required to comply with the proposed climate disclosure rules in that registration statement.

A registrant with a different fiscal year-end date that results in its fiscal year 2023 commencing before the effective date of the rules would not be required to comply with subpart 1500 of Regulation S-K and Article 14 of Regulation S-X until the following fiscal year. For example, a large accelerated filer with a March 31st fiscal year-end date would not be required to comply with the proposed climate disclosure rules until its Form 10-K for fiscal year 2024, filed in June, 2024. This would provide large accelerated filers, who would have the earliest compliance date of all categories of filers, with what we believe is a reasonable amount of time to comply with the rules.

We believe that initially applying the disclosure requirements to the more limited pool of large accelerated filers would be appropriate, because many large accelerated filers are already collecting and disclosing climate-related information, have already devoted resources to these efforts, and have some levels of controls and processes in place for such disclosure.⁷²¹ In comparison, registrants that are not large accelerated filers may need more time to develop the systems, controls, and processes necessary to comply with the proposed rules, and may face proportionately higher costs. Accordingly, we propose to provide them additional time to comply.

We also recognize that obtaining the data necessary to calculate a registrant's Scope 3 emissions might prove challenging since much of the data is likely to be under the control of third parties. In order to provide sufficient time for registrants to make the necessary arrangements to begin gathering and assessing such data, we are proposing an additional one-year phase-in period for the Scope 3 emissions disclosure requirements. As previously mentioned, we also are proposing an exemption for SRCs from the proposed Scope 3 emissions disclosure provision.⁷²²

The proposed mandatory compliance periods are intended to provide registrants with ample time to prepare to provide the proposed disclosures. Registrants would, however, be able to provide the disclosures at any time after the effective date of the rules.

Request for Comment

197. Should we provide different compliance dates for large accelerated filers, accelerated filers, non-accelerated filers, or SRCs, as proposed? Should any of the proposed compliance

⁷²¹ See, e.g., letters from Adobe; Apple; BNP Paribas; bp; Chevron; Eni SpA; and Walmart.

⁷²² See *supra* Section II.G.3.

dates in the table above be earlier or later? Should any of the compliance dates be earlier so that, for example, a registrant would be required to comply with the Commission's climate-related disclosure rules for the fiscal year in which the rules become effective?

198. Should we provide a compliance date for the proposed Scope 3 emissions disclosure requirements that is one year later than for the other disclosure requirements, as proposed? Should the compliance dates for the Scope 3 emissions disclosure requirements be earlier or later? Should the compliance date for the Scope 3 emissions disclosure requirements depend upon whether the registrant is a large accelerated filer, accelerated filer, or non-accelerated filer?

199. Should we provide different compliance dates for registrants that do not have a December 31st fiscal year-end?

200. Should we include rules or guidance addressing less common situations, such as, but not limited to, reverse mergers, recapitalizations, other acquisition transactions, or if a registrant's SRC (or EGC) status changes as a result of such situations?

201. Are there other phase-ins or exemptions regarding any or all of the proposed rules that we should provide?

III. GENERAL REQUEST FOR COMMENTS

We request and encourage any interested person to submit comments on any aspect of the proposed amendments, other matters that might have an impact on the proposed amendments, and any suggestions for additional changes. With respect to any comments, we note that they are of greatest assistance to our rulemaking initiative if accompanied by supporting data and analysis of the issues addressed in those comments and by alternatives to our proposals where appropriate.

IV. ECONOMIC ANALYSIS

We are mindful of the economic effects that may result from the proposed rules, including the benefits, costs, and the effects on efficiency, competition, and capital formation.⁷²³

This section analyzes the expected economic effects of the proposed rules relative to the current baseline, which consists of the regulatory framework of disclosure requirements in existence today, the current disclosure practices of registrants, and the use of such disclosures by investors and other market participants.

We anticipate the proposed rules will give rise to several benefits by strengthening investor protection, improving market efficiency, and facilitating capital formation. The primary benefit is that investors would have access to more consistent, comparable, and reliable disclosures with respect to registrants' climate-related risks, which is expected to enable investors to make more informed investment or voting decisions.⁷²⁴ By providing access to this information through SEC filings for all public issuers, this enhanced disclosure could mitigate the challenges that investors currently confront in assessing the nature and extent of the climate-related risks faced by registrants and their impact on registrants' business operations and financial condition. In this way, the proposed rules may reduce information asymmetry both among investors, which can reduce adverse selection problems and improve stock liquidity,⁷²⁵

⁷²³ Section 2(b) of the Securities Act, 15 U.S.C. 77b (b), and Section 3(f) of the Exchange Act, 17 U.S.C. 78c(f), require the Commission, when engaging in rulemaking where it is required to consider or determine whether an action is necessary or appropriate in the public interest, to consider, in addition to the protection of investors, whether the action will promote efficiency, competition, and capital formation. Further, Section 23(a)(2) of the Exchange Act, 17 U.S.C. 78w(a)(2), requires the Commission, when making rules under the Exchange Act, to consider the impact that the rules would have on competition, and prohibits the Commission from adopting any rule that would impose a burden on competition not necessary or appropriate in furtherance of the Exchange Act.

⁷²⁴ See *infra* Section IV.C.1.

⁷²⁵ *Id.*

and between investors and firms, which can reduce investors' uncertainty about estimated future cash flows, thus lowering the risk premium they demand and therefore registrant's cost of capital. The proposed rules could also mitigate certain agency problems between the firm's shareholders and management, thus strengthening investor protection.⁷²⁶ Further, by enabling climate-related information to be more fully incorporated into asset prices, the proposed rules would allow climate-related risks to be borne by those who are most willing and able to bear them, thereby strengthening financial system resilience. Taken together, the proposed rules are expected to contribute to the efficient allocation of capital, capital formation, competition, and the maintenance of fair and orderly markets.⁷²⁷

We are also mindful of the costs that would be imposed by the proposed rules. Registrants would face increased compliance burdens in meeting the new disclosure requirements. In some cases, these additional compliance burdens could be significant while in others relatively small if companies already provide information similar to that required by our rules. Other potential costs include increased litigation risk and the potential disclosure of proprietary information about firms' operations and/or production processes.⁷²⁸

A. Baseline and Affected Parties

This section describes the current regulatory and economic landscape with respect to climate-related disclosures. It discusses the parties likely to be affected by the proposed rules, current trends in registrants' voluntary reporting on climate risks, related assurance practices, and

⁷²⁶ *Id.*

⁷²⁷ *See infra* Section IV.D.

⁷²⁸ *See infra* Section IV.C.2

existing mandatory disclosure rules under state and other Federal laws. These factors form the baseline against which we estimate the likely economic effects of the proposed rules.

1. Affected Parties

The proposed disclosure requirements would apply to Forms S-1, F-1, S-3, F-3, S-4, F-4, S-11, 6-K, 10, 10-Q, 10-K, and 20-F. Thus, the parties that are likely affected by the proposed rules include registrants subject to the disclosure requirements imposed by these forms, as well as investors and other market participants that use the information in these filings (e.g. financial analysts, investment advisors, asset managers, etc.).

The proposed rules may affect both domestic registrants and foreign private issuers (FPIs).⁷²⁹ We estimate that during calendar year 2020, excluding registered investment companies, there were approximately 6,220 registrants that filed on domestic forms⁷³⁰ and approximately 740 FPIs that filed on Forms 20-F. Among the registrants that filed on domestic forms, approximately 31 percent were large accelerated filers, 11 percent were accelerated filers, and 58 percent were non-accelerated filers. In addition, we estimate that approximately 50 percent of these domestic registrants were smaller reporting companies (SRCs) and 22 percent were emerging growth companies (EGCs).

⁷²⁹ FPIs refer to the subset of all FPIs that file annual reports on Form 20-F, excluding MJDS filers using form 40-F. The number of domestic registrants and FPIs affected by the final amendments is estimated as the number of unique companies, identified by Central Index Key (CIK), that filed a Form 10-K, Form 20-F, or an amendment thereto, or both a Form 10-Q and a Form S-1, S-3, S-4, or S-11 with the Commission during calendar year 2020, excluding asset-backed securities issuers. For purposes of this economic analysis, these estimates do not include registrants that only filed a Securities Act registration statement during calendar year 2020, or only filed a Form 10-Q not preceded by a Securities Act registration statement (in order to avoid including entities such as certain co-issuers of debt securities). We believe that most registrants that have filed a Securities Act registration statement or a Form 10-Q not preceded by a Securities Act registration statement, other than such co-issuers, would be captured by this estimate. The estimates for the percentages of SRCs, EGCs, accelerated filers, large accelerated filers, and non-accelerated filers are based on data obtained by Commission staff using a computer program that analyzes SEC filings, with supplemental data from Ives Group Audit Analytics and manual review of filings by staff.

⁷³⁰ This number includes approximately 20 FPIs that filed on domestic forms in 2020 and approximately 90 BDCs.

2. Current Regulatory Framework

A number of the Commission's existing disclosure requirements may elicit disclosure about climate-related risks; however, many of these requirements are principles-based in nature and thus the nature and extent of the information provided depends to an extent on the judgment of management. As discussed above, in 2010, the Commission published interpretive guidance on existing disclosure requirements as they pertain to business or legal developments related to climate change.⁷³¹ The 2010 Guidance emphasized that if climate-related factors have a material impact on a firm's financial condition, disclosure may be required under current Item 101 (Description of Business), Item 103 (Legal Proceedings), Item 105 (Risk Factors), or Item 303 (MD&A) of Regulation S-K. While these provisions may elicit some useful climate-related disclosure, these provisions have not resulted in the consistent and comparable information about climate-related risks that many investors have stated that they need in order to make informed investment or voting decisions.⁷³²

3. Existing State and Federal Laws

There are also state and other Federal laws that require certain climate-related disclosures or reporting. For instance, there are requirements for mandatory climate risk disclosure within the insurance industry. As of 2021, 14 states⁷³³ and the District of Columbia require any

⁷³¹ See *Commission Guidance Regarding Disclosure Related to Climate Change*, Release No. 33-9106 (Feb. 2, 2010) [75 FR 6290 (Feb. 8, 2010)] ("2010 Climate Change Guidance"), available at <https://www.sec.gov/rules/interp/2010/33-9106.pdf> (The guidance did not create new legal requirements nor modify existing ones. Instead, it highlighted climate-related topics that registrants should consider in seeking to meet their existing disclosure obligations (e.g. the impact of legislation, regulation, international accords, indirect consequences, physical risks, etc.) and in what section they should be discussed (e.g. risk factors, MD&A, etc.)). See also discussion in Section I.A.

⁷³² See Section I.B.

⁷³³ The 14 states are California, Connecticut, Delaware, Maine, Maryland, Massachusetts, Minnesota, New Mexico, New York, Oregon, Pennsylvania, Rhode Island, Vermont, and Washington.

domestic insurers that write more than \$100 million in annual net written premium⁷³⁴ to disclose their climate-related risk assessment and strategy via the NAIC Climate Risk Disclosure Survey.⁷³⁵ Survey question topics include climate risk governance, climate risk management, modeling and analytics, stakeholder engagement, and greenhouse gas management. In fiscal year 2020, there were 66 publicly traded insurance companies that may be required to provide disclosure pursuant to these state law provisions and that also would be subject to the proposed rules.

There also exist Federal- and state-level reporting requirements related to greenhouse gas (GHG) emissions. Federal GHG reporting requirements consist of the U.S. Environmental Protection Agency's (EPA) 2009 Mandatory Reporting of Greenhouse Gases Rule.⁷³⁶ This rule requires large direct emitters and suppliers of fossil fuels to report their emissions to the EPA.⁷³⁷ Specifically, the rule requires each facility that directly emits more than 25,000 metric tons of CO₂e per year to report these direct emissions. Additionally, facilities that supply certain products that would result in over 25,000 metric tons of CO₂e if those products were released,

⁷³⁴ Net written premium is defined as the premiums written by an insurance company, minus premiums paid to reinsurance companies, plus any reinsurance assumed.

⁷³⁵ See NAIC, *Assessments of and Insights from NAIC Climate Risk Disclosure Data* (Nov. 2020), [available at https://content.naic.org/article/news_release_naic_assesses_provides_insight_insurer_climate_risk_disclosure_survey_data.htm](https://content.naic.org/article/news_release_naic_assesses_provides_insight_insurer_climate_risk_disclosure_survey_data.htm).

⁷³⁶ See 40 CFR Part 98 (2022); see also EPA, *EPA Fact Sheet: Greenhouse Gases Reporting Program Implementation* (2013), [available at https://www.epa.gov/sites/default/files/2014-09/documents/ghgrp-overview-factsheet.pdf](https://www.epa.gov/sites/default/files/2014-09/documents/ghgrp-overview-factsheet.pdf).

⁷³⁷ According to the EPA, "direct emitters" are facilities that combust fuels or otherwise put GHGs into the atmosphere directly from their facility. An example of this is a power plant that burns coal or natural gas and emits carbon dioxide directly into the atmosphere. The EPA estimates that the GHGRP data reported by direct emitters covers about half of total U.S. emissions. "Suppliers" are those entities that supply products into the economy which if combusted, released or oxidized emit greenhouse gases into the atmosphere. These fuels and industrial gases are not emitted from the supplier facility but instead distributed throughout the country and used. An example of this is gasoline, which is sold in the U.S. and primarily burned in cars throughout the country. The majority of GHG emissions associated with the transportation, residential and commercial sectors are accounted for by these suppliers.

combusted, or oxidized must similarly report these “supplied” emissions.⁷³⁸ The resulting emissions data are then made public through their website.

Due to the nature of the EPA’s reporting requirements, their emissions data does not allow a clean disaggregation across the different scopes of emissions for a given registrant. The EPA requires reporting of facility-level direct emissions, which can contribute to a registrant’s Scope 1 emissions (but can typically be considered a subset, to the extent that the registrant has other non-reporting facilities), and facility-level supplied emissions, which can contribute to a registrant’s Scope 3 emissions (but can also be very different from it).⁷³⁹ Gases required to be reported by the EPA include all those referenced by the GHG Protocol and included within the proposed definition of “greenhouse gases.”⁷⁴⁰ The EPA estimates that the required reporting under their rule covers 85-90% of all GHG emissions from over 8,000 facilities in the United States.⁷⁴¹

In addition, at least 17 states have specific GHG emissions reporting requirements.⁷⁴² States’ rules vary with respect to reporting thresholds and emissions calculation methodologies,

⁷³⁸ The EPA’s emissions data does not include emissions from agriculture, land use, or direct emissions from sources that have annual emissions of less than 25,000 metric tons of CO₂e.

⁷³⁹ On this latest point, in particular, facility-level supplied emissions cannot necessarily be characterized as a portion of the registrant’s Scope 3 emission as the boundaries of the entity required to report under the EPA reporting regime (the facility) are different from the boundaries of the entity required to report under our proposed rules (the registrant).

⁷⁴⁰ The EPA requires emissions reporting only for domestic facilities, while the proposed rule would not be limited to U.S. facilities and includes indirect emissions. The EPA also requires some gases (e.g. fluorinated ethers, perfluoropolyether) that are considered optional under the GHG Protocol and that are not included within the proposed definition of “greenhouse gases.”

⁷⁴¹ *See supra* note 736.

⁷⁴² *See* NCSL, *Greenhouse Gas Emissions Reduction Targets and Market-Based Policies* (2021), available at <https://www.ncsl.org/research/energy/greenhouse-gas-emissions-reduction-targets-and-market-based-policies.aspx>. The 17 states with GHG reporting requirements are Hawaii, Washington, Oregon, California, Nevada, Colorado, Minnesota, Iowa, Virginia, Pennsylvania, New York, New Jersey, Maryland, Connecticut, Massachusetts, Vermont, and Maine.

but most tend to focus on direct emissions (i.e., Scope 1), with certain exceptions. For example, New York requires the reporting of direct emissions from any owner or operator of a facility that directly emits or has the potential to emit 100 tons per year or more of GHGs, and 100,000 tons per year or more of carbon dioxide equivalent (CO₂e).⁷⁴³ Colorado excludes oil and gas that is exported out of state, but includes both imported and exported electricity when calculating the state's emissions inventory.⁷⁴⁴ California requires annual reporting of GHG emissions by industrial sources that emit more than 10,000 metric tons of CO₂e, transportation and natural gas fuel suppliers, and electricity importers.⁷⁴⁵ As a result of these federal and state-level emissions reporting requirements, some registrants affected by the proposed rules may already have in place certain processes and systems to measure and disclose their emissions.

4. International Disclosure Requirements

Issuers with operations abroad may also be subject to those jurisdictions' disclosure requirements. Many jurisdictions' current and/or proposed requirements are based on the TCFD's framework for climate-related financial reporting.⁷⁴⁶ In 2015, the Financial Stability Board (FSB) established the TCFD, an industry-led task force charged with developing a framework for assessing and disclosing climate-related financial risk. In 2017, the TCFD published disclosure recommendations that provide a framework to evaluate climate-related risks

⁷⁴³ See Air Compliance and Emissions (ACE) Reporting, available at <https://www.dec.ny.gov/chemical/54266.html>.

⁷⁴⁴ See M. Sakas, Colorado Greenhouse Gas Producers Are Now Required To Report Emissions Data To The State, *Colorado Public Radio News* (2020), available at <https://www.cpr.org/2020/05/22/colorado-greenhouse-gas-producers-are-now-required-to-report-emissions-data-to-the-state>.

⁷⁴⁵ See Cal. Air Res. Bd., *Mandatory Greenhouse Gas Reporting 2020 Emissions Year Frequently Asked Questions* (Nov. 4, 2021), available at https://www.arb.ca.gov/cc/reporting/ghg-rep/reported-data/2020mrrfaqs.pdf?_ga=2.110314373.182173320.1638196601-1516874544.1627053872.

⁷⁴⁶ See Section I.D.

and opportunities through an assessment of their projected short-, medium-, and long-term financial impact on an issuer. The framework establishes eleven disclosure topics related to four pillars that reflect how companies operate: governance, strategy, risk management, and metrics and targets.⁷⁴⁷ The TCFD forms the framework for the recently published climate prototype standard that the IFRS Foundation is considering as a potential model for standards by the IFRS Foundation's International Sustainability Standards Board (ISSB). As of September 2021, the TCFD reported that eight jurisdictions have implemented formal TCFD-aligned disclosure requirements for domestic issuers: Brazil, the European Union, Hong Kong, Japan, New Zealand, Singapore, Switzerland, and the United Kingdom.⁷⁴⁸ In these jurisdictions, disclosures are already being provided by in-scope issuers or are expected to start between 2022 and 2025. Plans to expand the scope of current requirements have also been announced in several countries,

⁷⁴⁷ See TCFD, *Overview* (Mar. 2021) ("TCFD_Booklet_FNL_Digital_March-2020"), available at https://assets.bbhub.io/company/sites/60/2020/10/TCFD_Booklet_FNL_Digital_March-2020.pdf.

⁷⁴⁸ See TCFD, *2021 Status Report* (Oct. 2021), available at https://assets.bbhub.io/company/sites/60/2021/07/2021-TCFD-Status_Report.pdf.

including the United Kingdom,⁷⁴⁹ the European Union,⁷⁵⁰ and Japan.⁷⁵¹ In addition, several other jurisdictions have proposed TCFD-aligned disclosure requirements, issued policies or guidance in line with the TCFD recommendations, or otherwise indicated support for the TCFD

⁷⁴⁹ For example, the United Kingdom’s Financial Conduct Authority (FCA) issued a policy statement in 2021 expanding its TCFD-aligned disclosure requirements to standard issuers and formally incorporating references to the TCFD’s Oct. 2021 guidance on metrics, targets and transition plans and updated implementation annex. This policy will apply for accounting periods beginning on or after Jan. 1, 2022. The FCA requirements are currently on a comply-or-explain basis; the FCA has announced that it plans to consult on making these requirements mandatory alongside future proposals adapting the rules to any future ISSB climate standard, once issued. See FCA, *PS21/23: Enhancing Climate-Related Disclosures by Standard Listed Companies* (Dec. 2021), available at <https://www.fca.org.uk/publication/policy/ps21-23.pdf>. In addition, the United Kingdom has adopted TCFD-aligned disclosure requirements for asset managers and certain asset owners, effective Jan. 1, 2022, with certain phase-ins. See FCA, *PS21/24: Enhancing Climate-Related Disclosures by Asset Managers, Life Insurers and FCA-Regulated Pension Providers* (Dec. 2021), available at <https://www.fca.org.uk/publication/policy/ps21-24.pdf>.

⁷⁵⁰ In the European Union, the European Commission (EC) adopted a proposal for a Corporate Sustainability Reporting Directive (CSRD), which would revise existing company reporting rules and aim to provide more comparable and consistent information to investors. The CSRD proposal enlarges the scope of the reporting requirements and would cover nearly 50,000 companies in the European Union. The CSRD proposal acknowledges the importance of the IFRS’ efforts to establish the ISSB and seeks compatibility with the TCFD recommendations, along with other international frameworks. The EC aims to have the new CSRD reporting requirements in place for reporting year 2023. See *Proposal for Directive of the European Parliament and of the Council amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting*, COM (2021) 189 final (Apr. 21, 2021), available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0189>. Additionally, the EC is progressing work on reporting standards for meeting the proposed CSRD requirement. The European Financial Reporting Advisory Group (“EFRAG”) published a climate standard prototype in Sept. 2021 that is based on the TCFD framework. See EFRAG, *Climate Standard Working Paper*, (Sept. 8, 2021), available at <https://www.efrag.org/News/Project-527/EFrag-PTF-ESRS-welcomes-climate-standard-prototype-working-paper?AspxAutoDetectCookieSupport=1>.

⁷⁵¹ Japan’s Financial Services Agency (FSA) is planning to make it mandatory for large companies to make climate-related disclosures aligned with the TCFD framework from as early as Apr. 2022. In addition, climate disclosures have been part of Japan’s corporate governance code since June 2021; however, the code is not legally binding and the disclosures were introduced on a ‘comply-or-explain’ basis. In Apr. 2022, the Tokyo Stock Exchange (TSE) will be replacing its First and Second sections, the “Mothers” market for startups and the tech-focused JASDAQ, with three new segments: Prime, Standard and Growth. According to Nikkei, companies listed on the Prime market will be required to comply with disclosure requirements aligned with the TCFD recommendations starting in Apr. 2022. See Japan’s FSA to Mandate Climate Disclosures from Apr. 2022, (Oct. 2021), available at <https://www.esginvestor.net/japans-fsa-to-mandate-climate-disclosures-from-april-2022/>.

recommendations, including Australia, Canada⁷⁵², Denmark, France, Ireland, Italy, Malaysia, Norway, Russia and South Korea.⁷⁵³ Insofar as issuers have operations abroad, they would already be subject to these mandatory disclosure requirements, policies and guidance.

5. Current Market Practices

a. Climate-Related Disclosures in SEC Filings

The Commission's staff reviewed 6,644 annual reports (Forms 10-K, 40-F, and 20-F) submitted from June 27, 2019 until December 31, 2020 to determine how many contain any of the following keywords: "climate change", "climate risk", or "global warming". The presence of any of the keywords in any part of the annual report is indicative of some form of climate-related disclosure.⁷⁵⁴ Table 1 (presented as a graph in Figure 1) shows that 33% of all annual reports contain some disclosure related to climate change, with a greater proportion coming from foreign registrants (the corresponding percentages for Forms 20-F and 40-F are 39% and 73%, respectively). Table 2 (presented as a graph in Figure 2) provides a breakdown by accelerated filer status. Among large accelerated filers, 49% of filings discussed climate change, while the figures for accelerated filers and non-accelerated filers are 29% and 17%, respectively. Table 3 (presented as a graph in Figure 3), which provides a breakdown by industry groups, shows that

⁷⁵² The Canadian Securities Administrators (CSA) is considering proposed climate-related disclosure requirements largely consistent with the TCFD recommendations, with a few exceptions. The proposed requirements would elicit disclosure by issuers related to the four pillars of the TCFD recommendations (Governance, Strategy, Risk management, and Metrics and targets). The CSA anticipates that the proposed requirements would come into force in 2022 and would be phased in over one and three year periods. See Consultation: Climate -Related Disclosure Update and CSA and Request for Comment, available at https://www.osc.ca/sites/default/files/2021-10/csa_20211018_51-107_disclosure-update.pdf.

⁷⁵³ See TCFD 2021 Status Report, available at <https://assets.bbhub.io/company/sites/60/2021/07/2021-TCFD-Status-Report.pdf>.

⁷⁵⁴ One limitation of using this keyword search is that it is unable to discern the extent or quality of climate-related disclosures, nor can it determine specific sub-topics within climate-related disclosures. For these reasons, the analysis was supplemented by natural language processing (NLP) analysis, as described later in this section.

the industries with the highest percentage of annual reports containing climate-related disclosure include maritime transportation, electric services, oil and gas, steel manufacturing, and rail transportation, among others.

Table 1. Filings with Climate-related Keywords by Form Type

Form	Has Keyword	All Filings	Percent
10-K	1,785	5,791	31%
20-F	286	729	39%
40-F	91	124	73%
Total	2,162	6,644	33%

This table presents the analysis of annual filings submitted to the Commission between June 27, 2019, and Dec. 31, 2020. For each form type, the table indicates how many contain any of the climate-related keywords, which include “climate change,” “climate risk,” and “global warming.”

Figure 1. Filings with Climate-related Keywords by Form Type

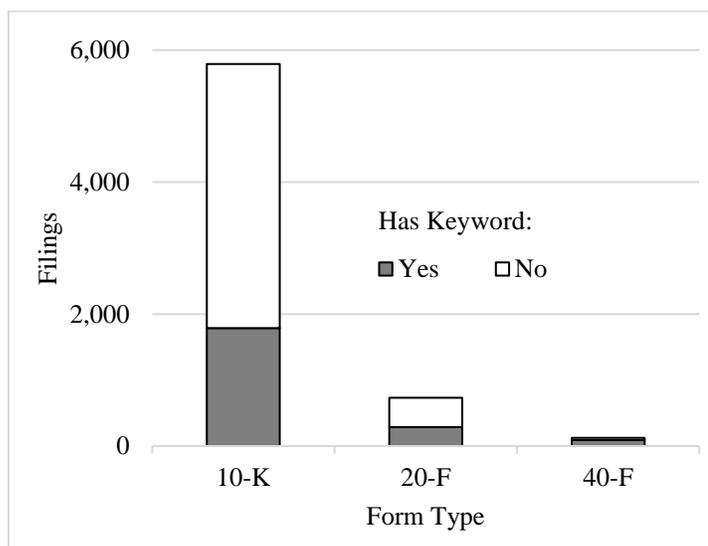


Table 2. Filings with Climate-related Keywords by Accelerated Filer Status

Filer Status	Has Keyword	All Filings	Percent
LAF	1,117	2,280	49%
AF	371	1,290	29%
NAF	465	2,754	17%
Other	209	320	65%
Total	2,162	6,644	33%

This table presents the analysis of annual filings submitted to the Commission between June 27, 2019, and Dec. 31, 2020. Filer status consists of large accelerated filers (LAF), accelerated filers (AF), and non-accelerated filers (NAF). For each filer status, the table indicates how many contain any of the climate-related keywords, which include “climate change,” “climate risk,” and “global warming.”

Figure 2. Filings with Climate-related Keywords by Accelerated Filer Status

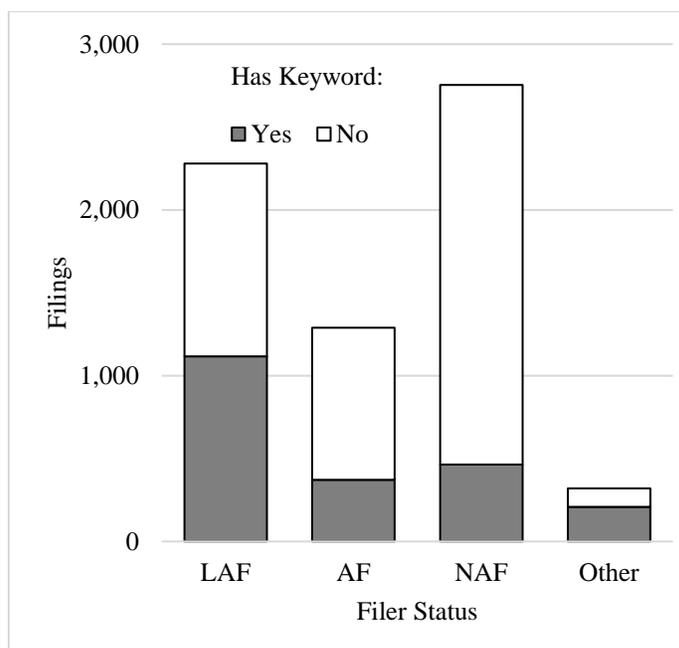
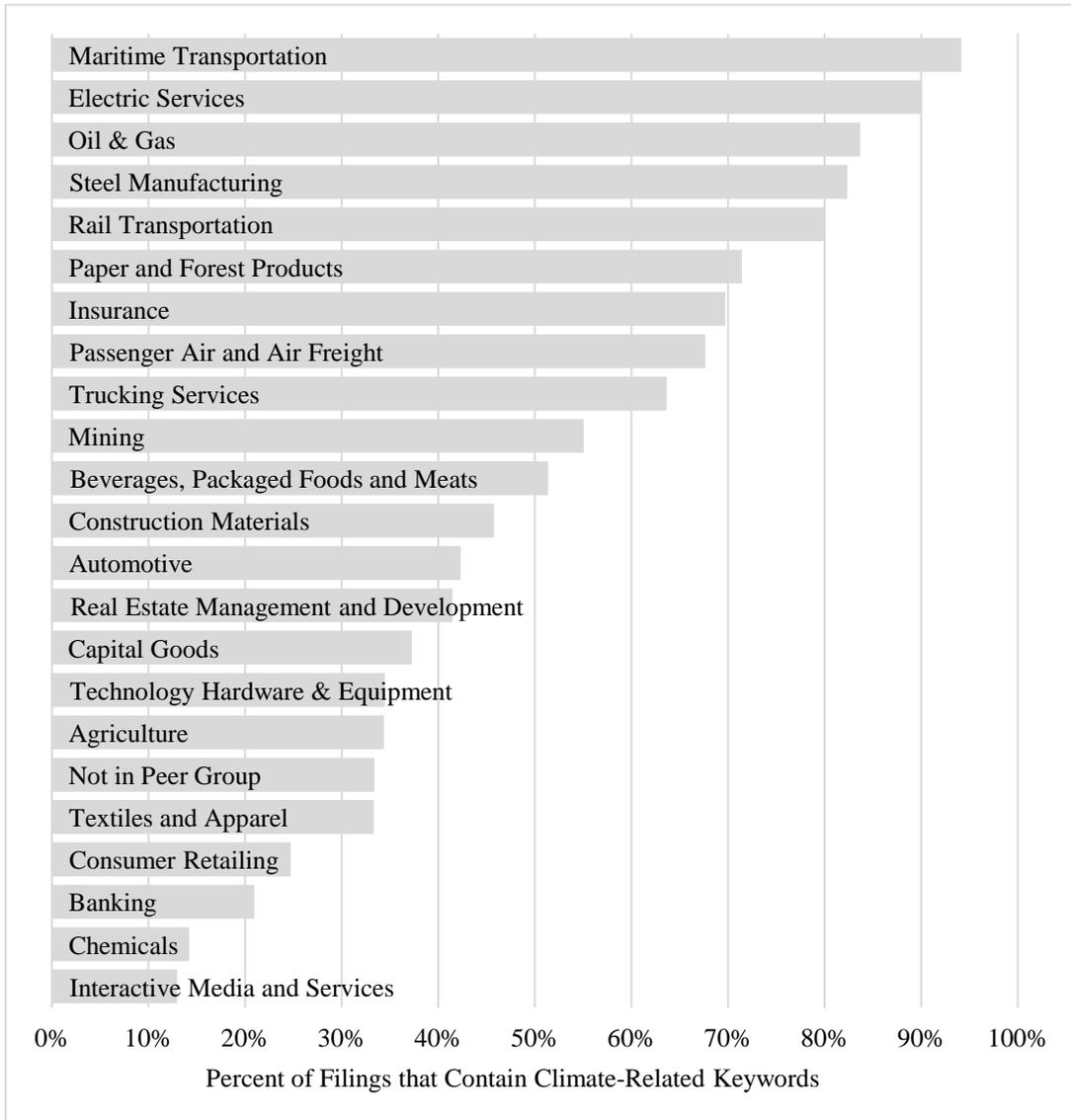


Table 3. Filings with Climate-related Keywords by Industry

Industry	Has Keyword	All Filings	Percent
Maritime Transportation	64	68	94%
Electric Services	154	171	90%
Oil and Gas	169	202	84%
Steel Manufacturing	14	17	82%
Rail Transportation	8	10	80%
Paper and Forest Products	20	28	71%
Insurance	46	66	70%
Passenger Air and Air Freight	23	34	68%
Trucking Services	14	22	64%
Mining	109	198	55%
Beverages, Packaged Foods and Meats	56	109	51%
Construction Materials	54	118	46%
Automotive	11	26	42%
Real Estate Management and Development	274	661	41%
Capital Goods	41	110	37%
Technology Hardware & Equipment	61	177	34%
Agriculture	11	32	34%
Textiles and Apparel	12	36	33%
Not in Peer Group	478	1,431	33%
Consumer Retailing	138	558	25%
Banking	158	754	21%
Chemicals	131	922	14%
Interactive Media and Services	116	894	13%
Total	2,162	6,644	33%

This table presents the analysis of annual filings submitted to the Commission between June 27, 2019, and Dec. 31, 2020. For each industry, the table indicates how many contain any of the climate-related keywords, which include “climate change,” “climate risk,” and “global warming.”

Figure 3. Filings with Climate-related Keywords by Industry



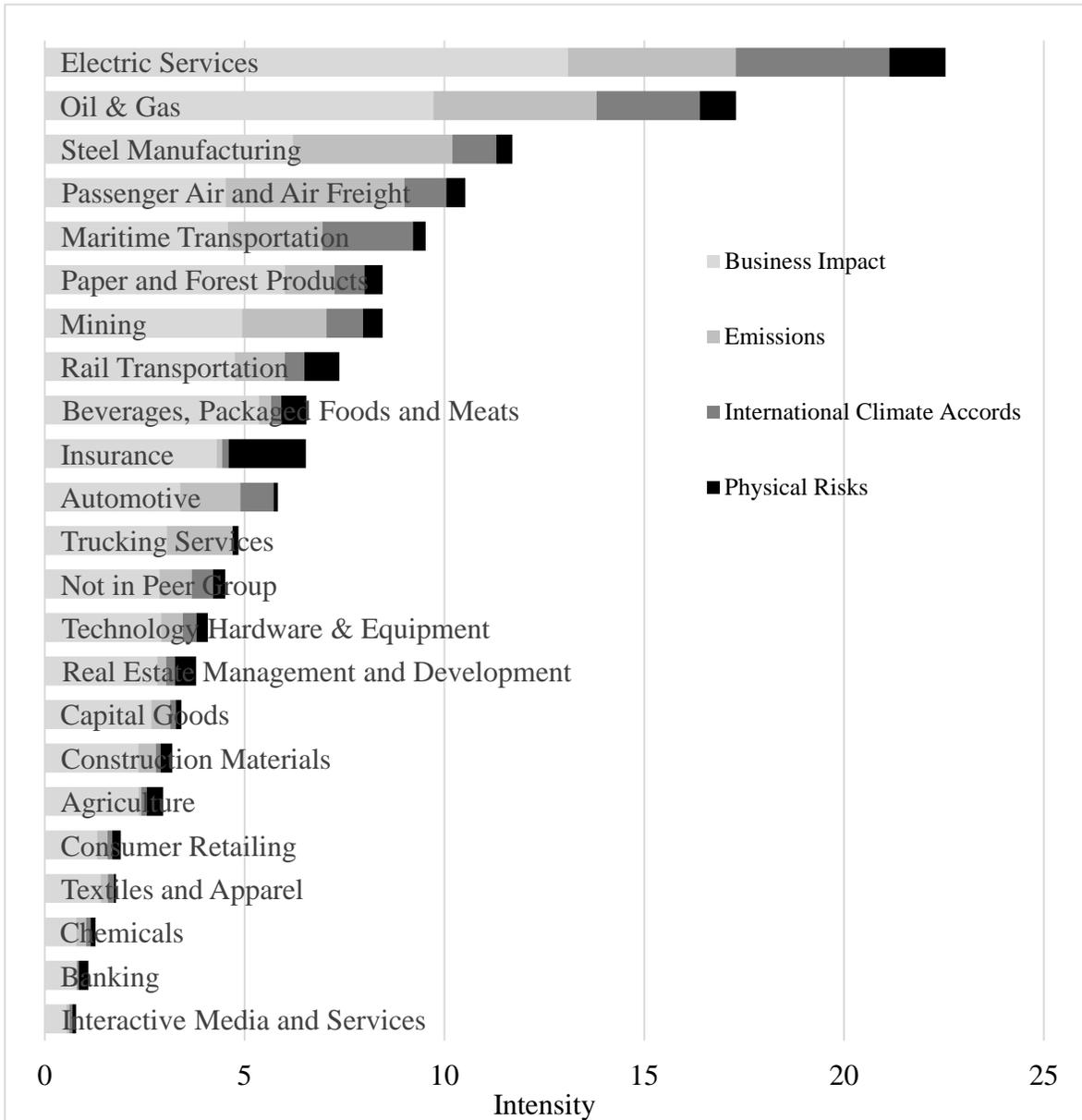
Using the same sample of annual reports, additional analysis was conducted by Commission’s staff using natural language processing (NLP), which can provide insight on the semantic meaning of individual sentences within registrants’ climate-related disclosures and

classify them into topics (i.e. clusters).⁷⁵⁵ The NLP analysis suggests that climate-related disclosures can be broadly organized into four topics: business impact, emissions, international climate accords, and physical risks. The analysis finds significant heterogeneity, both within the quantity and content, of climate-related disclosures across industries, as shown in Figures 4 and 5. Figure 4 presents the intensity of disclosure for domestic filings. The intensity refers to sentences per firm, which is calculated by taking the aggregate number of sentences in an industry and dividing it by the total number of firms within the industry (including those that do not discuss climate change at all). Thus, the intensity represents a more comparable estimate across industries.

Figure 4 shows that firms in the following industries have the most ample climate-related discussion, on average: electric services, oil and gas, steel manufacturing, passenger air and air freight, and maritime transportation. The majority of the discussion is on business impact, followed by emissions, international climate accords, and physical risks. Figure 5 presents the corresponding information for foreign filings (Forms 40-F and 20-F). Overall, the analysis indicates that the majority of the disclosure is focused on transition risks, with comparatively fewer mentions of physical risk.

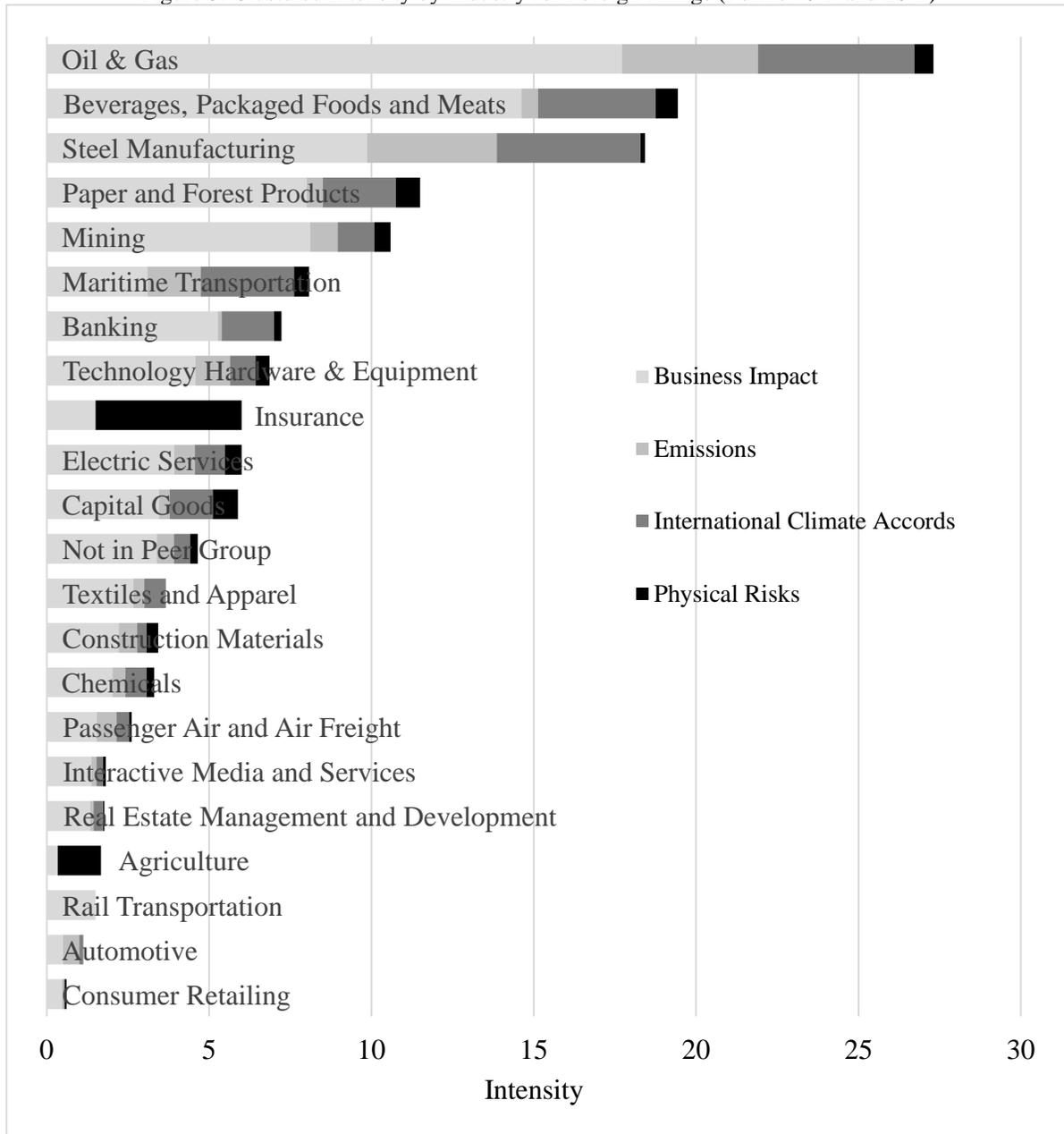
⁷⁵⁵ The specific NLP method used in this analysis is word embedding, which utilizes Google's publicly available, pre-trained word vectors that are then applied to the text of climate-related disclosures within regulatory filings. While this NLP analysis can be used to identify the general topic and the extent of disclosures, it is limited in its ability to discern the quality or decision-usefulness of disclosures from investors' perspective.

Figure 4. Clustered Intensity by Industry for Forms 10-K



This figure presents the analysis of Form 10-K annual filings submitted to the Commission between June 27, 2019, and Dec. 31, 2020. Natural language processing (NLP) is used to analyze sentences contained within the annual filings and classify them into four broad topics (i.e. clusters): business impact, emissions, international climate accords, and physical risks. Intensity refers to sentences per firm, which is calculated by taking the aggregate number of sentences in an industry and dividing it by the total number of firms within the industry

Figure 5. Clustered Intensity by Industry for Foreign Filings (Forms 40-F and 20-F)



This figure presents the analysis of Forms 40-F and 20-F annual filings submitted to the Commission between June 27, 2019, and Dec. 31, 2020. Natural language processing (NLP) is used to analyze sentences contained within the annual filings and classify them into four broad topics (i.e. clusters): business impact, emissions, international climate accords, and physical risks. Intensity refers to sentences per firm, which is calculated by taking the aggregate number of sentences in an industry and dividing it by the total number of firms within the industry.

The staff’s findings are consistent with academic studies that have looked at the extent of climate-related disclosures by SEC registrants. Bolstad et al. (2020) systematically reviewed

Form 10-K filings from Russell 3000 firms over the last 12 years and found that the majority of climate-related disclosure is focused on transition risks as opposed to physical risks.⁷⁵⁶ They further report that while 35% of Russell 3000 firms provided climate-related information in 2009, this figure grew to 60% in 2020,⁷⁵⁷ representing a significant increase. They also found that the extent of disclosure for a given report has increased. In 2009, firms mentioned climate risks 8.4 times on average in their Form 10-K. This figure grew to 19.1 times in 2020.

b. Additional Trends in Climate-Related Disclosures

While Commission staff reviewed certain firms’ sustainability reports for climate-related disclosures, they did not conduct a systematic review of a large, representative sample of sustainability reports. However, as discussed below, a number of industry and advocacy groups have examined the scope of voluntary ESG reporting, including climate-related disclosures and their findings could be relevant to an assessment of the proposed rules’ impact.

The U.S. Chamber of Commerce’s Center for Capital Markets Competitiveness (CCMC), in collaboration with several other organizations, conducted a survey (“CCMC Survey”) on a sample of U.S. public companies – 436 companies across 17 industries that range from small to large in terms of market capitalization.⁷⁵⁸ According to the survey, over half of the companies (52%) are currently publishing a corporate social responsibility (CSR), sustainability, ESG or similar report whose content commonly includes information regarding climate-related risks.

⁷⁵⁶ See P. Bolstad, S. Frank, E. Gesick, and D. Victor, *Flying Blind: What Do Investors Really Know About Climate Change Risks in the U.S. Equity and Municipal Debt Markets*, *Hutchins Center Working Paper 67* (2020).

⁷⁵⁷ *Id.* The methodology uses a series of keywords to determine whether a company provides climate-related disclosures. Some keywords may occur in non-climate contexts, with the authors noting that the statistics are biased.

⁷⁵⁸ See *Climate Change & ESG Reporting from the Public Company Perspective (2021)*, available at https://www.centerforcapitalmarkets.com/wp-content/uploads/2021/08/CCMC_ESG_Report_v4.pdf.

The most frequently discussed topics there are energy (74%), emissions (70%), environmental policy (69%), water (59%), climate mitigation strategy (57%), and supplier environmental policies (35%). Among the registrants that report climate-related information to the public, the majority disclose such information via external reports or company websites rather than regulatory filings. Similar to the Commission staff review, the CCMC Survey finds that about a third (34%) of the respondents disclose climate change, greenhouse gas emissions, or energy sourcing in their SEC filings information on risks. Among these firms, 82% disclose such information in Risk Factors, 26% in the MD&A, 19% in the Description of Business, and 4% in Legal Proceedings.

The Governance & Accountability Institute⁷⁵⁹ (“G&A”) analyzed sustainability reports by the companies belonging to the Russell 1000 Index and found that in 2020, 70% published sustainability reports – up from 65% in 2019 and 60% in 2018.⁷⁶⁰

Other sources confirm that, at least within samples of larger firms, a sizeable portion already measure and disclose their emissions, though not necessarily through their regulatory filings. The CDP⁷⁶¹ reports that out of the 524 U.S. companies in their Climate High Impact

⁷⁵⁹ Governance & Accountability Institute Inc. (“G&A, Inc.”) is a consulting and research organization providing services to publicly traded and privately owned companies to help enhance their public environmental, social and governance (ESG) and sustainability profiles.

⁷⁶⁰ See G & A Inc., *Sustainability Reporting in Focus* (2021), available at <https://www.ga-institute.com/research/ga-research-collection/sustainability-reporting-trends/2021-sustainability-reporting-in-focus.html>.

⁷⁶¹ CDP operates a global disclosure system that enables companies, cities, states and regions to measure and manage their environmental risks, opportunities and impacts. Despite not being a framework like GRI, SASB and TCFD, CDP’s questionnaires gather both qualitative and quantitative information from across governance, strategy, risk, impact and performance. To aid comparability and ensure comprehensiveness, CDP includes sector-specific questions and data points. In 2018, CDP aligned its climate change questionnaire with the TCFD.

Sample,⁷⁶² 402 disclosed through the CDP system in 2021, up from 379 in 2020, and 364 in 2019. Out of the sample of reviewed companies, 22.1% (89 out of 402 companies) reported Scope 3 emissions in 2021. This reflects an increase from the previous two years, during which 18% (67 out of 379 companies) reported such information in 2020, and 17% (62 out of 364 companies) in 2019.⁷⁶³ One commenter stated that there is significant variation in disclosure rates of GHG emissions across various industries.⁷⁶⁴ The commenter, using a sample of the 1,100 U.S. companies included within the Sustainalytics dataset, reports that the disclosure rate of material Scopes 1, 2, and 3 emissions is 59.5%.⁷⁶⁵ Furthermore, the International Platform on Sustainable Finance found that among the U.S. listed firms present in the Refinitiv dataset, 10.8% disclosed Scope 1 emissions in 2019, representing 55.4% of U.S. market capitalization.⁷⁶⁶ To the extent that registrants' current climate-related disclosures overlap with the proposed rules, registrants may face lower incremental compliance costs, as discussed in further detail below.⁷⁶⁷

c. Use of Third-Party Frameworks

Some companies follow existing third-party reporting frameworks when developing climate-related disclosures for SEC filings or to be included in CSR, sustainability, ESG, or similar reports. For instance, the CCMC Survey finds that 59% of respondents follow one or

⁷⁶² The CDP Climate High Impact sample identifies companies deemed high impact based on two main considerations – market cap and GHG emissions.

⁷⁶³ See Letter from CDP North America (Dec. 13, 2021).

⁷⁶⁴ See Letter from Aron Szapiro, Head of Policy Research, Morningstar (June 9, 2021).

⁷⁶⁵ *Id.* The comment letter does not disaggregate the disclosure rate across the different scopes of emissions.

⁷⁶⁶ See State and Trends of ESG Disclosure Policy Measures Across IPSF Jurisdictions, Brazil, and the US, International Platform on Sustainable Finance (2021) (The disclosure rates are calculated using data from Refinitiv), available at https://ec.europa.eu/info/sites/default/files/business_economy_euro/banking_and_finance/documents/211104-ipsf-esg-disclosure-report_en.pdf.

⁷⁶⁷ See Section IV.C.2.3.

more such frameworks. Among these respondents, 44% use the SASB,⁷⁶⁸ 31% use the GRI,⁷⁶⁹ 29% use the TCFD,⁷⁷⁰ and 24% use the CDP.⁷⁷¹ Similar statistics on the usage of different reporting frameworks are also provided by other studies. The G&A report⁷⁷² finds that 53% of the Russell 1000 reporters either mention or align with SASB,⁷⁷³ 52% utilized GRI reporting standards,⁷⁷⁴ 30% either mention or align with TCFD recommendations,⁷⁷⁵ and 40% responded to the CDP Climate Change questionnaire. The law firm White & Case also conducted an in-

⁷⁶⁸ The SASB standards are designed for communication by companies to investors about how sustainability issues impact long-term enterprise value. SASB standards guide the disclosure of financially material sustainability information by companies to their investors. SASB standards, which are available for 77 industries, identify the subset of ESG issues most relevant to financial performance in each industry. The SASB standards can be both complementary with the core elements of the TCFD recommendations, as well as used by organizations to operationalize them. See <https://www.sasb.org/about/sasb-and-other-esg-frameworks/>

⁷⁶⁹ The GRI standards outline both how and what to report regarding the material economic, social and environmental impacts of an organization on sustainable development. For 33 potentially material sustainability topics, the GRI standards contain disclosure requirements. Three series of GRI standards support the reporting process: the GRI Topic Standards, each dedicated to a particular topic and listing disclosures relevant to that topic; the GRI Sector Standards, which are applicable to specific sectors; and the GRI Universal Standards, which apply to all organizations. The GRI Standards can be used in sustainability reports, as well as in annual or integrated reports that are oriented at a broad range of stakeholders. See <https://www.globalreporting.org/standards/>

⁷⁷⁰ The TCFD recommended disclosures cover four core elements: Governance, Strategy, Risk Management and Metrics and Targets. Each element has two or three specific disclosures (as shown in Table 4) to be made in the organization's mainstream report (i.e. annual financial filings). These are meant to generate comparable, consistent and reliable information on climate-related risks. The TCFD provides both general, and in some cases, sector-specific guidance for each disclosure, while simultaneously framing the context for disclosure, and offering suggestions on what and how to disclose in the mainstream report. See <https://www.fsb-tcf.org/recommendations/>

⁷⁷¹ See *supra* note 761.

⁷⁷² See *supra* note 760.

⁷⁷³ Of the Russell 1000 reporting companies, 39% indicate that they are in alignment with SASB standards, while the other 14% simply mention the standards.

⁷⁷⁴ Of those reporters utilizing the GRI standards, G&A finds that a small portion (5%) utilizes the "Comprehensive" level of reporting, the majority (64%) chose to report in accordance with the "Core" option, while the remaining portion (31%) utilizes "GRI-Referenced" reports, which are not fully in accordance with the GRI standards. GRI-Referenced reports contain the GRI Content Index and reference certain disclosures.

⁷⁷⁵ Of the Russell 1000 reporting companies, 17% indicate that they are in alignment with the TCFD recommendations, while the other 13% simply mention the recommendations.

depth review of website sustainability disclosures by 80 small- and mid-cap firms across five different industries and found comparable numbers.⁷⁷⁶

While these various frameworks are distinct, they overlap in their alignment with the TCFD. In particular, the CDP questionnaire fully incorporates the TCFD framework and thus exhibits full alignment.⁷⁷⁷ The Corporate Reporting Dialogue⁷⁷⁸ also provides a detailed assessment of the various frameworks' degrees of alignment with each TCFD disclosure item, ranging from maximum to minimum alignment as follows: Full, Reasonable, Moderate, Very Limited, and None. They report that the GRI exhibits "Reasonable" alignment, while the SASB generally exhibits "Moderate" or "Reasonable" alignment with the majority of the TCFD disclosure items. Thus, companies that report following the CDP, SASB, or GRI frameworks are, to varying degrees, already producing disclosures that are in line with parts of the TCFD. However, because each framework takes different approaches (e.g. intended audience, reporting channel) and because certain differences exist in the scope and definitions of certain elements, investors may find it difficult to compare disclosures under each framework. Table 4 reports the

⁷⁷⁶ See White & Case and the Society for Corporate Governance: A Survey and In-Depth Review of Sustainability Disclosures by Small- and Mid-Cap Companies, *available at* <https://www.whitecase.com/publications/article/survey-and-depth-review-sustainability-disclosures-small-and-mid-cap-companies> (Among the firms reviewed, 41 firms (51%) provided some form of voluntary sustainability disclosure on their websites. Further, only nine of those 41 firms indicated the reporting standards with which they aligned their reporting, with the majority of the nine companies not following any one set of standards completely. Additionally, six firms followed the GRI, while three firms stated that they follow both the TCFD and SASB).

⁷⁷⁷ See How CDP is Aligned to the TCFD (2018), *available at* <https://www.cdp.net/en/guidance/how-cdp-is-aligned-to-the-tcfid>.

⁷⁷⁸ The Corporate Reporting Dialogue is a platform, convened by the Value Reporting Foundation, to promote greater coherence, consistency and comparability between corporate reporting frameworks, standards and related requirement. See *Driving Alignment in Climate-related Reporting*, *Corporate Reporting Dialogue* (2019), *available at* https://www.integratedreporting.org/wp-content/uploads/2019/09/CRD_BAP_Report_2019.pdf.

rate of disclosure for each TCFD disclosure element for a sample of 659 U.S. companies in 2020/21.

Table 4. Disclosure Rate of TCFD Elements among U.S. Firms⁷⁷⁹

TCFD Disclosure Element		Rate of Disclosure
Governance	a) Describe the board’s oversight of climate-related risks and opportunities	17%
	b) Describe management’s role in assessing and managing climate-related risks and opportunities.	10%
Strategy	a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term	45%
	b) Describe the impact of climate-related risks and opportunities on the organization’s businesses, strategy, and financial planning	34%
	c) Describe the resilience of the organization’s strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	5%
Risk Management	a) Describe the organization’s processes for identifying and assessing climate-related risks.	15%
	b) Describe the organization’s processes for managing climate-related risks.	17%
	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization’s overall risk management.	16%
Metrics and Targets	a) Describe the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	21%
	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	19%

⁷⁷⁹ See Moody’s Analytics, *TCFD-Aligned Reporting by Major U.S. and European Corporations*, (2022), available at <https://www.moodyanalytics.com/articles/pa/2022/tcfd-aligned-reporting-by-major-us-and-european-corporations>. To arrive at these statistics, Moody’s conducted an artificial intelligence (AI) based review of all public filings, including financial filings, annual reports, integrated reports, sustainability reports, and other publicly available reports that were associated with companies’ annual reporting on sustainability. Non-public disclosures, such as CDP reports, were not included in the analysis.

	c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets	25%
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d. Climate-Related Targets, Goals, and Transition Plan Disclosures

Carbon reduction targets or goals have become an increasing focus for both companies and countries.⁷⁸⁰ For example, 191 countries, including the United States and European Union, have signed the Paris Climate Agreement. The agreement aims to strengthen the global response to the threat of climate change by keeping a rise in global temperatures to well below 2° Celsius above pre-industrial levels this century, as well as pursue efforts to limit the temperature increase even further to 1.5° degrees Celsius.⁷⁸¹ As of 2020, according to one source, about two-thirds of S&P 500 companies have established a target for carbon emissions – a number that has nearly doubled over the past decade.⁷⁸² Approximately one-fifth of these companies have science-based targets in-line with a 1.5 degree Celsius limit on global warming.⁷⁸³ In addition, a growing number of companies or organizations have signed on to the Climate Pledge, which indicates a

⁷⁸⁰ See Commitments to Net Zero Double in Less Than a Year, United Nations Climate Change (Sept. 21, 2020), available at <https://unfccc.int/news/commitments-to-net-zero-double-in-less-than-a-year>.

⁷⁸¹ See Section I.

⁷⁸² See, e.g., J. Eaglesham, Climate Promises by Businesses Face New Scrutiny, *The Wall Street Journal* (2021), available at www.wsj.com/articles/climate-promises-by-businesses-face-new-scrutiny-11636104600.

⁷⁸³ See memorandum, dated Nov. 30, 2021, concerning staff meeting with representatives of Persefoni. This statistic is compiled by Persefoni using information from the Science Based Targets Initiative. This and the other staff memoranda referenced below are available at <https://www-draft.sec.gov/comments/s7-10-22/s71022.htm>.

commitment to achieve net-zero emissions by 2040.⁷⁸⁴ The trend in companies disclosing other climate-related targets (e.g. water usage) has also been increasing over time.⁷⁸⁵

Despite the increasing prevalence in stated targets and goals, monitoring which firms are taking steps to implement them is difficult given the lack of required recurring standardized metrics for progress. Absent such a monitoring device, investors have insufficient information to gauge the credibility of the targets. Moreover, without knowing the specific strategy that registrants intend on adopting in pursuit of their targets, investors are unable to determine how the targets will impact the company's financial position (e.g., a company that plans to only purchase offsets may face different risks and costs over time than a company that invests in renewable energy or carbon capture technology).⁷⁸⁶

Consistent with this need for an oversight or monitoring mechanism, research suggests that the prevalence of “green bonds” and positive cumulative abnormal stock returns surrounding their announcements may arise, at least in part, because they help signal credible value-enhancing targets in the absence of mandatory standardized public disclosures.⁷⁸⁷ These findings suggest a demand for such an oversight or monitoring mechanism for targets and goals among investors that would facilitate their understanding of registrants' stated climate-related targets and progress and the impact on the registrant's business.

⁷⁸⁴ As of Jan. 25, 2022, The Climate Pledge has acquired 217 signatories. See The Climate Pledge, available at <https://www.theclimatepledge.com/us/en/Signatories>.

⁷⁸⁵ For example, the percentage of both global and U.S. companies with water reduction targets grew by 4% in 2019 on a year-over-year basis. This represented 28% of major global companies (i.e. those listed on the S&P Global 1200 index) and 27% of major (i.e. those listed in the S&P 500 index) U.S. companies publicly disclosing these targets. See State of Green Business 2021, available at <https://www.spglobal.com/marketintelligence/en/news-insights/research/state-of-green-business-2021>.

⁷⁸⁶ See S. Lu, *The Green Bonding Hypothesis: How do Green Bonds Enhance the Credibility of Environmental Commitments?* (2021), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3898909.

⁷⁸⁷ See C. Flammer, Corporate Green Bonds, *Journal of Financial Economics*, 499-516 (2021). (Green bonds may only be a partial solution to achieving credible targets given that they have implications beyond commitment.)

e. Third-Party Assurance of Climate-Related Disclosures

Among the companies that provide climate-related disclosures, a considerable portion include some form of third-party assurance for these disclosures. The G&A study⁷⁸⁸ finds that 35% of Russell 1000 index firms, which are virtually all large accelerated filers, obtained third-party assurance for their sustainability reports in 2020, up from 24% in the year prior. The rate of assurance is concentrated among the larger half of the sample firms (i.e., the S&P 500 firms). Among the firms that obtained assurance, however, only 3% obtained assurance for the entire report. The remaining firms were evenly split between obtaining assurance on specified sections only and GHG emissions only. Regarding the level of assurance, the overwhelming majority (90%) obtained limited assurance while only 7% obtained reasonable assurance. Regarding service providers, 14% of firms received assurance from an accounting firm, 31% from small consultancy/boutique firms, and 55% from engineering firms. Because these statistics are limited to Russell 1000 firms, corresponding figures for the full sample of U.S. registrants may be lower to the extent that the practice of obtaining third-party assurance is concentrated in large firms.⁷⁸⁹

⁷⁸⁸ See *supra* note 760.

⁷⁸⁹ Other studies also report evidence of third-party assurance among smaller samples of companies analyzed. For example, according to a recent study by the International Federation of Accountants, in 2019, 99 out of the 100 largest U.S. firms by market capitalization provided some form of sustainability disclosure, which may contain climate-related information among other sustainability-related topics. Seventy of those firms obtained some level of third-party assurance, with the vast majority being “limited assurance” according to the study. Of the 70 firms that obtained assurance, the study reports that 54 obtained “limited assurance,” eight obtained “reasonable assurance,” five obtained “moderate assurance,” and three did not disclose any assurance. Of the 81 unique assurance reports examined in the study, nine were found to be issued by an auditing firm, while 72 were issued by another service provider. See International Federation of Accountants (“IFAC”), *The State of Play in Sustainability Assurance (2021)*, available at <https://www.ifac.org/knowledge-gateway/contributing-global-economy/publications/state-play-sustainability-assurance>. Among the sample of 436 companies included in the CCMC Survey, 28% disclosed that they engaged a third party to provide some form of assurance regarding their climate-related disclosure (the frequency of these disclosures was 52% among the 436 companies in the sample). See *supra* note 758.

B. Broad Economic Considerations

1. Investors' Demand for Climate Information

Investors have expressed a need for information on climate-related risks as they relate to companies' operations and financial condition.⁷⁹⁰ The results of multiple recent surveys indicate that climate risks are among the most important priorities for a broad set of large asset managers.⁷⁹¹ PWC reported in their Annual Global CEO Survey that in 2016, only 39% of asset and wealth management CEOs reported that they were concerned about the threats posed by physical risks brought about climate change, whereas this figure increased to 70% in 2021.⁷⁹²

⁷⁹⁰ See 2021 Global Investor Statement to Governments on the Climate Crisis (2021) (this statement has been signed by 733 investors collectively managing over US\$52 trillion in assets), available at <https://theinvestoragenda.org/wp-content/uploads/2021/09/2021-Global-Investor-Statement-to-Governments-on-the-Climate-Crisis.pdf>; See also Alexander Karsner, *Testimony Before the House Financial Services Subcommittee on National Security*, INTERNATIONAL DEVELOPMENT AND MONETARY POLICY (Sept. 11, 2019), available at <https://financialservices.house.gov/uploadedfiles/hhrg-116-ba10-wstate-karsnera-20190911.pdf>. A recent report examined how climate change could affect 22 different sectors of the U.S. economy and found that if global temperatures rose 2.8 °C from pre-industrial levels by 2100, climate change could cost \$396 billion each year. If temperatures increased by 4.5 °C, the yearly costs would reach \$520 billion. See Jeremy Martinich and Allison Crimmins, *Climate Damages and Adaptation Potential Across Diverse Sectors of the United States*, NATURE CLIMATE CHANGE 9, 397–404 (2019); available at <https://www.nature.com/articles/s41558-019-0444-6>. Similarly, the Swiss Re Institute estimated how global warming could affect 48 countries – representing 90% of the world economy – and found that the decrease in GDP in North America could range from – 3.1% if Paris Agreement targets are met (a well-below 2°C increase), to – 9.5% if no mitigating actions are taken (3.2°C increase); See *The Economics of Climate Change: No Action Not an Option*, available at <https://www.swissre.com/dam/jcr:e73ee7c3-7f83-4c17-a2b8-8ef23a8d3312/swiss-re-institute-expertise-publication-economics-of-climate-change.pdf>.

⁷⁹¹ See, e.g., Emirhan Ilhan, *Climate Risk Disclosure and Institutional Investors*, *Swiss Fin. Inst. Research Paper Series* (Working Paper No. 19-66), (last revised Jan. 7, 2020), available at <https://ssrn.com/abstract=3437178> (noting that a survey of 439 large institutional investors shows that 79% of respondents believe that climate risk reporting is as important as traditional financial reporting, and almost one-third consider it to be more important); See also *Macquaire Asset Management 2021 ESG Survey Report* (2021), available at <https://www.mirafunds.com/assets/mira/our-approach/sustainability/mam-esg-survey/mam-2021-esg-survey-report.pdf> (noting that in a survey of 180 global institutional real assets investors, including asset managers, banks, consultants and investment advisors, foundations and endowments, insurance companies, and pension funds, who combined represent more than \$21 trillion of assets under management, more than half of responding investors selected climate change as their primary ESG concern).

⁷⁹² See PWC, *The Economic Realities of ESG* (Oct. 28, 2021), available at <https://www.pwc.com/gx/en/services/audit-assurance/corporate-reporting/esg-investor-survey.html>.

Investors' demand for climate-related information may also be related to the transition risks that companies face (e.g. changes in future regulation, shifts in investor, consumer, counterparty preferences or other market conditions, and other technological challenges or innovations). For example, the United States' commitment to the Paris Agreement may have contributed to investors' demand for information on registrants' emissions and exposure to potential transition risk, as well as whether they have in place emissions targets with credible pathways of achievement.⁷⁹³ The 2021 Institutional Investors Survey solicited the views of 42 global institutional investors managing over \$29 trillion in assets (more than a quarter of global assets under management (AUM)) and found that climate risk remains the number one investor engagement priority. A significant majority (85%) of surveyed investors cite climate risk as the leading issue driving their engagements with companies. These institutional investors also indicated that they consider climate risk to be material to their investment portfolios and are demanding robust and quantifiable disclosure around its impacts and the plan to transition to net zero.⁷⁹⁴

State Street Global Advisors (SSGA) and Blackrock, two of the world's largest investment managers, recently announced the focus areas for their asset stewardship program for 2022, with climate change at the top of their priority list. One of the key expectations set by SSGA this year is a requirement for companies to provide disclosures aligned with TCFD recommendations, including reporting on board oversight on climate-related risks and

⁷⁹³ See Section IV.A.5.d.

⁷⁹⁴ See Morrow and Sodali, Institutional Investor Survey (2021), available at https://higherlogicdownload.s3.amazonaws.com/GOVERNANCEPROFESSIONALS/a8892c7c-6297-4149-b9fc-378577d0b150/UploadedImages/Institutional_Investor_Survey_2021.pdf.

opportunities, Scope 1 and 2 GHG emissions, and targets for emissions reduction.⁷⁹⁵ Similarly, Blackrock expects to continue encouraging companies to demonstrate that their plans are resilient under likely decarbonization pathways, and to ask that companies disclose a net zero-aligned business plan that is consistent with their business model to demonstrate how their targets are consistent with the long-term economic interests of their shareholders.⁷⁹⁶

Investors, including large institutional investors, have also formed initiatives aimed in part at improving corporate disclosures on climate-related risks. These initiatives include the Climate Disclosure Project, Climate Action 100+,⁷⁹⁷ the Global Investor Coalition on Climate Change (“GIC”),⁷⁹⁸ the Institutional Investors Group on Climate Change (“IIGCC”),⁷⁹⁹ and the Transition Pathway Initiative (“TPI”),⁸⁰⁰ with many of these groups seeing increasing membership in recent years.⁸⁰¹ In addition to stated demand, revealed preferences from investment decisions and asset price responses to ESG-related news and climate change risk

⁷⁹⁵ See <https://www.esgtoday.com/state-street-to-require-companies-to-provide-tcf-aligned-climate-disclosures/>

⁷⁹⁶ See BlackRock Investment Stewardship (BIS), *Policies Updated Summary* (2022), <https://www.blackrock.com/corporate/literature/fact-sheet/blk-responsible-investment-engprinciples-global-summary.pdf>

⁷⁹⁷ Climate Action 100+ is composed of 615 global investors across 33 markets with more than US\$60 trillion in AUM. See Climate Action 100+, available at <https://www.climateaction100.org/about/>.

⁷⁹⁸ As of Apr. 2018, GIC was signed by 409 investors representing more than U.S. \$24 trillion in AUM, available at [https://climateinitiativesplatform.org/index.php/Global_Investor_Coalition_on_Climate_Change_\(GIC\)](https://climateinitiativesplatform.org/index.php/Global_Investor_Coalition_on_Climate_Change_(GIC)).

⁷⁹⁹ IIGCC has more than 330 members, mainly pension funds and asset managers, across 22 countries, with over \$33 trillion in AUM. See The Institutional Investors Group on Climate Change, available at <https://www.iigcc.org/>.

⁸⁰⁰ The TPI is supported globally by 108 investors with more than \$29 trillion combined AUM. See Transition Pathway Initiative, available at <https://www.transitionpathwayinitiative.org/>.

⁸⁰¹ For example, Climate Action 100+ launched in 2017 with 225 investors with more than USD \$26.3 trillion AUM to engage with 100+ of the world’s highest emitting companies to reduce material climate risks. In 2021, Climate Action 100+ has grown to 615 investors, \$60 trillion in assets, engaging with 167 companies that represent 80%+ of global industrial emissions.

suggest substantive demand for information on climate-related risks.⁸⁰² Investors have also demonstrated their interest in climate-related issues through an increase in climate-related shareholder proposals⁸⁰³ and increased flows into mutual funds with environmental goals in their investment mandates.⁸⁰⁴

2. Impediments to voluntary climate-related disclosures

a. General impediments to voluntary climate-related disclosures

In practice, however, investors' demand for climate-related information is often met by inconsistent and incomplete disclosures due to the considerable variation in the coverage, specificity, location, and reliability of information related to climate risk. Multiple third-party reporting frameworks and data providers have emerged over the years; however, these resources

⁸⁰² See P. Krüger, *Corporate Goodness and Shareholder Wealth*, 115(2) JOURNAL OF FINANCIAL ECONOMICS 304-329 (2015); G. Capelle-Blancard, A. Petit, *Every Little Helps? ESG News and Stock Market Reaction*, JOURNAL OF BUSINESS ETHICS 157, 543-565 (2019); and G. Serafeim and A. Yoon, *Which Corporate ESG News Does the Market React To?* (Forthcoming) FINANCIAL ANALYSTS JOURNAL (2021) (for evidence of stock market responses to ESG news). See also A. Bernstein, M. Gustafson, and R. Lewis, *Disaster on the Horizon: The Price Effect of Sea Level Rise*, 134.2 JOURNAL OF FINANCIAL ECONOMICS 253-300 (2019), A. Bernstein, S. Billings, M. Gustafson, and R. Lewis, *Partisan Residential Sorting on Climate Change Risk* (Forthcoming), JOURNAL OF FINANCIAL ECONOMICS (2021); M. Baldauf, L. Garlappi, and C. Yannelis, *Does Climate Change Affect Real Estate Prices? Only If You Believe In It*, 33 (3) REVIEW OF FINANCIAL STUDIES 1256-1295 (2020) (for evidence of responses of investor demand in equilibrium prices and investment choice (based on heterogeneous preferences and beliefs) in real estate markets).

⁸⁰³ A recent 2021 proxy season review by the Harvard Law School found that shareholder climate-related proposals have increased for the second consecutive year. The authors also note that, in 2021, environmental proposals were withdrawn at a meaningfully higher rate relative to the prior year. This is an indication of stronger commitments from companies to take actions towards the specified environmental goals, or at the very least provide the related disclosures. Many companies may prefer engaging with a proponent rather than taking the proposal to a vote. See 2021 Proxy Season Review: Shareholder Proposals on Environmental Matters, available at <https://corpgov.law.harvard.edu/2021/08/11/2021-proxy-season-review-shareholder-proposals-on-environmental-matters/>.

⁸⁰⁴ See S.M. Hartzmark and A.B. Sussman, *Do Investors Value Sustainability? A Natural Experiment Examining Ranking and Fund Flows*, 74 (6) THE JOURNAL OF FINANCE 2789-2837 (2019). Data from fund tracker Morningstar Inc. compiled by Goldman Sachs Group Inc. shows that, since the start of 2019, a net \$473 billion has flowed into stock mutual and exchange-traded funds with environmental goals as part of their mandates, compared to a net \$103 billion going into all other stock funds. See Scott Patterson and Amrith Ramkumar, *Green Finance Goes Mainstream, Lining Up Trillions Behind Global Energy Transition*, Wall Street Journal (May 22, 2021), available at https://www.wsj.com/articles/green-finance-goes-mainstream-lining-up-trillions-behind-global-energy-transition-11621656039?mod=article_inline.

lack mechanisms to ensure compliance and can contribute to reporting fragmentation.⁸⁰⁵ Due to deficiencies in current climate-reporting practices, investor demand for comparable and reliable information does not appear to have been met.⁸⁰⁶ As a result, investors may face difficulties locating and assessing climate-related information when making their investment or voting decisions.⁸⁰⁷ Below we describe some key market failures with regard to disclosure, for example (1) disclosures are not costless; (2), there are agency problems;⁸⁰⁸ (3) managers may inaccurately present information; and (4) investor responses may be unpredictable and non-uniform.⁸⁰⁹ In addition, there may be other problems, e.g. a lack of consistency, that may indicate Commission action.

(1) Disclosures are not costless

In practice, firms can still approach full disclosure voluntarily if there are costs to disclosure, as long as these costs are relatively low.⁸¹⁰ This is not the case, however, if individual firms' private benefits of disclosure are also small, yet those same disclosures provide positive informational externalities. For example, disclosures by one registrant may provide investors with useful information via inference with respect to peer firms. Consistent with this theory,

⁸⁰⁵ See Section IV.B.2.b.

⁸⁰⁶ See IOSCO, *Report on Sustainability-Related Registrant Disclosures*(2021), available at <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD678.pdf>.

⁸⁰⁷ See GAO, *Climate-Related Risks* (2018) available at <https://www.gao.gov/assets/gao-18-188.pdf> (reporting that “investors may find it difficult to navigate through the filings to identify, compare, and analyze the climate-related disclosures across filings”).

⁸⁰⁸ Agency problems are those conflicts of interest between shareholders (i.e., the principals) and managers (i.e., the agents) of a firm.

⁸⁰⁹ See Beyer, Cohen, Lys, and Walther, *The Financial Reporting Environment: Review of The recent Literature*, J. ACCT. ECON. 296–343 (2010) for a more technical and detailed discussion of these and other additional assumptions.

⁸¹⁰ See for example R.E. Verrecchia, *Discretionary Disclosure*, 5 JOURNAL OF ACCOUNTING AND ECONOMICS 365-380 (1983).

research in the accounting literature has documented that earnings announcements by one firm can provide predictive signals about the earnings of other firms in the same industry.⁸¹¹ In these cases, disclosures can benefit investors in the aggregate (though not necessarily investors of a specific firm) by allowing them to make comparisons across firms, which can aid in their capital allocation decisions.

This illustrates how, theoretically, in the absence of mandated disclosure requirements, registrants fully internalize the costs of disclosure but not the benefits, which may lead them to rationally under-disclose relative to what is optimal from the investors' perspective.⁸¹² As a result, a tension can exist between investors (in the aggregate) and managers, where investors prefer more disclosure and managers prefer less. In such instances, there may be scope for regulation to substantially increase information provision since absent regulation, investors are not able to fully ascertain the risks and opportunities that firms face.

(2) Agency problems

In order for voluntary disclosure to result in the complete revelation of all relevant private information, there would need to be no agency problems (*i.e.*, no conflicts of interest between managers and shareholders) such that managers' sole objective with respect to such disclosures would be to maximize shareholder information and, ultimately, shareholder value. However, if managers have other objectives and incentives for making voluntary disclosures (*i.e.*, there exist agency problems), then the voluntary disclosures may not result in the same complete

⁸¹¹ See Robert Freeman and Senyo Tse, *An Earnings Prediction Approach to Examining Intercompany Information Transfers*, 15(4) J. ACCT. ECON. 509-523 (1992).

⁸¹² It is worth noting that in some cases, undertaking costly signals can allow agents to credibly signal their type to investors. In these cases, costly disclosures can lead to a separating equilibrium where it may otherwise not exist. See D. Kreps and J. Sobel, 2(1) *Signaling*, HANDBOOK OF GAME THEORY WITH ECONOMIC APPLICATIONS, 849-867 (1994); J. Riley, *Silver Signals: Twenty-Five Years of Screening and Signaling*, 39(1) JOURNAL OF ECONOMIC LITERATURE 432-478, (2001).

information.⁸¹³ Moreover, when agency problems exist, investors can no longer be sure if the absence of disclosure under a voluntary regime reflects good or bad news for the firm, given that some managers may have self-serving incentives. For example, managers may have career concerns which could incentivize them to withhold disclosing information they expect to be favorably received until it is useful to balance out bad news. In contrast, when the disclosure requirements are mandatory, the relevant, complete information should be disclosed regardless of managers' objectives or incentives, and investors would accordingly have more confidence in the completeness of the resulting disclosures. For these reasons, the benefits of a mandatory reporting regime may be more pronounced in settings in which disclosure-related conflicts of interests exist between managers and shareholders.

(3) Misrepresentation by managers

If investors are unable to verify that managerial disclosures are complete and truthful (e.g., if investors have difficulty in determining the extent of managers' selective disclosure of metrics or methods of computation, exaggeration, obfuscation, outright misreporting, etc.), then voluntary disclosures may not be fully revealing. For example, managers may be able to engage in misleading reporting (i.e., they can apply a favorable bias to their disclosures), but they incur a cost that increases with the magnitude of the misreporting.⁸¹⁴ Under these circumstances, theoretical research suggests that, in equilibrium, they may not accurately report their private information. This is because investors would not be able to distinguish truthful disclosures from

⁸¹³ See E. Einhorn, *Voluntary Disclosure Under Uncertainty About the Reporting Objective*, 43 JOURNAL OF ACCOUNTING AND ECONOMICS 245-274(2007).

⁸¹⁴ See E. Einhorn, and A. Ziv, *Biased Voluntary Disclosure*, REVIEW OF ACCOUNTING STUDIES 420-442 (2012) (Biases in reporting can be any number of costs in these models. These include not only inefficient actual investments associated with the cost of distorted reporting, but also the risk of litigation, reputation erosion, and/or future flexibility in reporting.).

those that are misleading (i.e., favorably biased). In this setting, all managers would then have an incentive to misreport by providing disclosures with a favorable bias, the extent of which depends on the cost of misreporting. Furthermore, because misreporting comes at a cost, this would violate the assumption of costless disclosure, which can exacerbate the issue of incomplete disclosures.⁸¹⁵

If, on the other hand, misreporting has no costs for managers, then this results in what is referred to as a cheap talk equilibrium.⁸¹⁶ In this setting, any misalignment of incentives between managers and investors could again result in a situation in which not all relevant private information is fully revealed. While this could be driven by agency problems stemming from managerial self-interest, it also occurs when investors have heterogeneous preferences that cause differing incentives or if managers are concerned with strategic disclosures that may be viewed by not only investors, but also competitors, regulators, and customers.

In this case, a mandatory reporting regime would be beneficial to investors to the extent that voluntary disclosures are unverifiable and possibly misleading. These include situations where managers obfuscate certain information in their disclosures, convey information in a complex or difficult manner, or conceal the discretionary choices with respect to what was reported.

⁸¹⁵ If misrepresentation becomes sufficiently costly, then there may be no managers who find it advantageous to misrepresent, despite any potential benefits. In this case, purposeful misrepresentation would not occur, thereby fulfilling one of the assumptions of the standard full revelation argument. Clear guidelines for disclosure and imposed costs upon the discovery of misrepresentation are important mechanisms for enforcing and promoting the transmission of information to investors.

⁸¹⁶ See V. Crawford, J. Sobel, *Strategic Information Transformation*, 50 *ECONOMETRICA* 1431-1451 (1982).

(4) Uncertain investor responses

Another condition necessary for voluntary reporting to be fully revealing is that managers must be certain of investor responses to disclosures. However, if investors have heterogeneous prior beliefs, such that managers cannot determine whether investors will consider a given disclosure good or bad news, then not all managers will choose to disclose, resulting in certain private information remaining undisclosed.⁸¹⁷ Similarly, if there are varying levels of sophistication among investors in their ability to understand disclosures, then again, some managers may be uncertain about how reports may be interpreted, leading them to abstain from some disclosures.⁸¹⁸ In this respect, mandatory disclosure is more likely to benefit investors in settings where the types of disclosures are complex or divisive, such that managers may not be certain how they will be perceived by investors with differing prior beliefs and/or sophistication.

b. Climate-specific factors that exacerbate impediments to voluntary disclosure

In the context of climate-related disclosure, these impediments may be made worse due to agency problems arising from the potentially long-term nature of certain climate-related risks and other issues related to the complexity and uncertainty of climate-related factors. We explore each of these impediments in further detail.

Impediments to climate-related disclosures may be exacerbated due to agency problems related to potential conflicts between short-term profitability and long-term climate risk horizons. Physical and transition risks can materialize over time horizons ranging from the immediate

⁸¹⁷ See J. Suijs, *Voluntary Disclosure Of Information When Firms Are Uncertain Of Investor Response*, 43 JOURNAL OF ACCOUNTING AND ECONOMICS 391-410 (2007).

⁸¹⁸ See R.A. Dye, *Investor Sophistication and Voluntary Disclosures*, 3 REVIEW OF ACCOUNTING STUDIES 261-287 (1998).

future to several decades.⁸¹⁹ Likewise, shareholders may have interests in maximizing their investment returns over both the short- and long-term. Agency problems can worsen to the extent that the investment horizons of a firm's shareholders and its management are misaligned.⁸²⁰ If management prioritizes short-term results⁸²¹ due to pressures to perform along certain metrics,⁸²² management may fail to assess and provide relevant disclosures on certain climate-related risks,⁸²³ particularly those that are medium- or long-term in nature.⁸²⁴ Stock-based management compensation has the potential to mitigate this issue, provided that the stock price reflects the value of the company in the long-run. However, under the current regime, certain climate-related risks may be unobservable or obfuscated, and hence not fully reflected into stock prices, giving

⁸¹⁹ Longer horizons, for example, tend to involve changes in chronic physical risks — sea-level rise, drought, etc. Shorter-term horizons may, instead, be relevant for any increase in acute physical risks such as hurricanes, wildfires, and heatwaves. See ING Climate Risk Report 2020, *available at* <https://www.ing.com/MediaEditPage/ING-Climate-Risk-report-2020.htm>.

⁸²⁰ A stream of literature examines the association of climate-related disclosures with corporate governance structures and managerial characteristics. See, e.g., M. Kılıç and C. Kuzey, *The Effect of Corporate Governance on Carbon Emission Disclosures: Evidence from Turkey*, 11-1 INTERNATIONAL JOURNAL OF CLIMATE CHANGE STRATEGIES AND MANAGEMENT 35-53 (2019). See also S. Yunus, E.T. Evangeline, and S. Abhayawansa, *Determinants of Carbon Management Strategy Adoption: Evidence from Australia's Top 200 Publicly Listed Firms*, 31-2 MANAGERIAL AUDITING JOURNAL 156-179 (2016).

⁸²¹ Henry M. Paulson Jr., *Short-Termism and the Threat From Climate Change*, PERSPECTIVES ON THE LONG TERM: BUILDING A STRONGER FOUNDATION FOR TOMORROW (Apr. 2015), *available at* <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/short-termism-and-the-threat-from-climate-change>.

⁸²² Factors including corporate executive compensation and attention to quarterly earnings and reporting are thought to contribute to excessive focus on short-term goals. See, e.g., *Short-Termism Revisited*, *available at* <https://corpgov.law.harvard.edu/2020/10/11/short-termism-revisited/>.

⁸²³ See *How to Take the Long-Term View in a Short-Term World*, MORAL MONEY (FINANCIAL TIMES), (Feb. 25, 2021), *available at* <https://www.ft.com/content/5bc1580d-911e-4fe3-b5b5-d8040f060fe1>.

⁸²⁴ See Richard Mahony and Diane Gargiulo, *The State of Climate Risk Disclosure: A Survey of U.S. Companies* (2019) (A recent survey conducted on the members of the Society for Corporate Governance (SCG) about the state of U.S. climate risk disclosures revealed that tying executive compensation to progress on climate goals is beginning to emerge among some companies, but it is far from a common practice. Only 6% of respondents said their board linked compensation to climate objectives.), *available at* https://www.dfindolutions.com/sites/default/files/documents/2019-10/TCFD_II_Climate_Disclosure_V10_revisedFINAL.pdf.

short-term-focused managers an incentive to initiate or continue projects exposed to these risks to maximize their compensation at the expense of long-term shareholder value.

Impediments to voluntary climate-related disclosures can also be exacerbated due to the uncertainty and complexity of climate-related risks and the multidimensional nature of the information being disclosed. First, this uncertainty and complexity may lead to misrepresentation of disclosures, which, as discussed previously, violates a condition for the full revelation of material information in a voluntary reporting environment. The complexity of these risks has led to many types of methodologies, metrics, and statements that can be provided to communicate potential economic impacts and risks.⁸²⁵ This multitude of choices to represent such risks may therefore allow managers substantial discretion to selectively choose metrics that appear favorable. If this managerial discretion is more difficult to be verified by investors, managers may face lower costs for their misreporting. Moreover, the complex and multidimensional nature of certain climate-related risks may further impede investors' abilities to detect misreporting. This could lead to a cheap-talk equilibrium, which, as previously discussed, could lead to climate-related information remaining undisclosed.

The uncertainty and complexity of climate-related risks may also be an impediment to voluntary disclosure if managers are less able to anticipate how investors may respond to such disclosures. As noted above, predictable investor responses to disclosures is one of the key assumptions necessary for the full revelation of material information in a voluntary reporting

⁸²⁵ See, e.g., TCFD, *Recommendations of the Task Force on Climate-Related Financial Disclosures*, at 16 (June 2017), available at <https://www.fsb-tcf.org/wp-content/uploads/2017/06/FINAL-2017-TCFD-Report-11052018.pdf>.

environment.⁸²⁶ Uncertainty in responses means mandatory disclosures have the potential to improve information provision to investors. The challenge in anticipating investor responses to climate-related disclosure may stem, in part, from the fact that the impact of these risks on registrants' financial outcomes and operations can vary significantly. This challenge may be compounded by the uncertainty surrounding the future path of climate change and the evolving nature of the science and methodologies measuring their economic impacts.⁸²⁷ The uncertainty and complexity of climate-related risks are likely to cause substantial heterogeneity with respect to investors' interpretation of related disclosures and their understanding of firms' exposures to such risks, resulting in heterogeneous and unpredictable investor responses. In this circumstance, managers may prefer to withhold applicable disclosures.⁸²⁸

Due to these impediments, companies may not report (or may report only limited amounts of) relevant climate-related information, and hence, the stock price that investors observe may not reflect the companies' true exposures to physical and transition risks.⁸²⁹ Even when companies assess and disclose climate-related risks, reporting fragmentation can present

⁸²⁶ In other words, this assumes that all investors uniformly interpret (and react to) managers' disclosures or their absence and that investors' interpretation and reaction is known to managers. *See, e.g.*, A. Beyer, D.A. Cohen, T.Z. Lys, and B.R. Walther, *The Financial Reporting Environment: Review of the Recent Literature*, 50 (2) JOURNAL OF ACCOUNTING AND ECONOMICS 296-343 (2010).

⁸²⁷ *See, e.g.*, TCFD, [Recommendations of the Task Force on Climate-Related Financial Disclosures](https://www.fsb-tcf.org/wp-content/uploads/2017/06/FINAL-2017-TCFD-Report-11052018.pdf), at 16 (June 2017), available at <https://www.fsb-tcf.org/wp-content/uploads/2017/06/FINAL-2017-TCFD-Report-11052018.pdf>.

⁸²⁸ *See, e.g.*, M. J. Fishman and K. M. Hagerty, *Mandatory versus Voluntary Disclosure in Markets With Informed and Uninformed Customers*, 19 (1) JOURNAL OF LAW, ECONOMICS, & ORGANIZATION 45-63 (2003); P. Bond and Y. Zeng, *Silence Is Safest: Information Disclosure When the Audience's Preferences Are Uncertain* (forthcoming), JOURNAL OF FINANCIAL ECONOMICS (2021); D. Butler, and D. Read, *Unravelling Theory: Strategic (Non-) Disclosure of Online Ratings*, 12 GAMES 73(2021).

⁸²⁹ *See* J.A. Bingler, M. Kraus, and M. Leippold, *Cheap Talk and Cherry-Picking: What Climate Bert Has to Say on Corporate Climate Risk Disclosures* (2021) available at, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3796152.

substantial obstacles to investors in processing this information.⁸³⁰ This is because disclosures currently vary considerably in terms of coverage, location, and presentation across companies, making it difficult for investors to navigate through different information sources and filings to identify, compare, and analyze climate-related information.⁸³¹ Moreover, these disclosures are often vague and boilerplate, creating further challenges for investors.⁸³² While it may seem that more information is always better, when the incentives of investors and managers diverge, evidence suggests such amorphous statements could reduce the quality of communication both in theory⁸³³ and in practice.⁸³⁴

The current regulatory regime leaves substantial uncertainty around the type of climate-related information that should be disclosed and how it should be presented. Multiple third-party climate reporting frameworks have emerged to try to fill this reporting gap.⁸³⁵ Due to the voluntary nature of third-party frameworks, however, companies often disclose some but not all components, and the components that are disclosed may not be the same across companies.⁸³⁶

⁸³⁰ Carbon Disclosure Project (“CDP”), *Pitfalls Of Climate-Related Disclosures* (2020), available at [Pitfalls-of-Climate-Related-Disclosure.pdf](https://www.cdp.com/en/2020/pitfalls-of-climate-related-disclosure) (rackcdn.com).

⁸³¹ See SASB, *The State Of Disclosure: An Analysis of the Effectiveness of Sustainability Disclosure in SEC Filings*, (2017), available at <https://www.sasb.org/knowledge-hub/state-of-disclosure-2017/>.

⁸³² The SASB reports that about 50% of SEC registrants provide generic or boilerplate sustainability information in their regulatory filings.

⁸³³ See Vincent P. Crawford and Joel Sobel, *Strategic Information Transmission*, *ECONOMETRICA: JOURNAL OF THE ECONOMETRIC SOCIETY* 1431-1451 (1982).

⁸³⁴ See, e.g., Robert Forsythe, Russell Lundholm and Thomas Rietz, *Cheap Talk, Fraud, and Adverse Selection In Financial Markets: Some Experimental Evidence*, 12 (3) *THE REVIEW OF FINANCIAL STUDIES* 481–518 (July 1999), available at <https://doi.org/10.1093/revfin/12.3.0481>.

⁸³⁵ The TCFD, the SASB, the GRI, the Principles for Responsible Investment, the PCAF, and the CDP (among others), have all developed standards and systems that aim to help firms and investors identify, measure, and communicate climate-related information and incorporate that information into their business practices. Multiple frameworks have emerged, in part, because each seeks to provide different information or fulfill different functions when it comes to disclosing information related to climate-related risks or other ESG factors that may be important to investors.

⁸³⁶ See *Climate Risk Disclosures & Practices*, available at <https://climatedisclosurelab.duke.edu/wp-content/uploads/2020/10/Climate-Risk-Disclosures-and-Practices.pdf>.

The location, format, and granularity of the information provided may also vary, although the substance may be similar. This has resulted in considerable heterogeneity in firms' existing disclosure practices.⁸³⁷ The wide range of reporting practices and frameworks makes it difficult to assess how much material climate-related information firms currently are disclosing and may leave opportunities for companies to omit unfavorable information.⁸³⁸ Some studies point to the potential for substantial underreporting of material climate-related information within the current voluntary reporting regime.⁸³⁹

The proposed rules aim to address these market failures by requiring more specificity around the way registrants disclose climate-related risks and their impacts on business activities and operations in the short, medium, and long-term. By requiring comprehensive and standardized climate-related disclosures along several dimensions, including disclosure on governance, business strategy, risk management, financial statement metrics, GHG emissions, and targets and goals, the proposed rules would provide investors with climate-related

⁸³⁷ See Section IV.A.5. A recent survey of members of the Society for Corporate Governance (SCG) regarding the state of U.S. climate risk disclosures revealed that companies are using many of the existing frameworks to present emissions, environmental data, and other information on ESG issues. Many of the respondents indicated that their companies are now reporting using CDP, GRI, SASB and other standards, with corporate registrants expressing a desire for greater clarity regarding how to make adequate climate disclosures. The survey results indicate that many companies are grappling with how best to provide useful information to investors regarding complex and interrelated risks. See Richard Mahony and Diane Gargiulo, *The State of Climate Risk Disclosure: A Survey of U.S. Companies* (2019), available at https://www.dfinsolutions.com/sites/default/files/documents/2019-10/TCFD_II_Climate_Disclosure_V10_revisedFINAL.pdf.

⁸³⁸ See Lee Reiners and Charlie Wowk, *Climate-Risk-Disclosures-and-Practices* (2021), available at <https://climatedisclosurelab.duke.edu/wp-content/uploads/2020/10/Climate-Risk-Disclosures-and-Practices.pdf>.

⁸³⁹ A past study using ESG disclosure data in Bloomberg on US-listed firms, found that, on average, from 2007 to 2015, firms provided only about 18% (median: 13%) of the prescribed SASB disclosure items (which serve as benchmark for financially material disclosures). See J. Grewal, C. Hauptmann and G. Serafeim, *Material Sustainability Information and Stock Price Informativeness*, JOURNAL OF BUSINESS ETHICS (Forthcoming) (2020), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2966144.

information that is more comparable, consistent, and reliable and presented in a centralized location.

C. Benefits and Costs

Below we discuss the anticipated economic effects that may result from the proposed rules. Where possible, we have attempted to quantify these economic effects, including the benefits and costs. In many cases, however, we are unable to reliably quantify these potential benefits and costs. For example, existing empirical evidence does not allow us to reliably estimate how enhancements in climate-related disclosure affect information processing by investors or firm monitoring. Nevertheless, there is a large body of studies examining the effects of corporate disclosure in general, as well as a subset focusing on sustainability-related disclosures (e.g. ESG- or CSR-related disclosures).⁸⁴⁰ We draw on existing empirical evidence and theoretical arguments from these studies to the extent they are applicable to disclosures on climate-related information specifically.

Similarly, we qualitatively describe the factors that may affect disclosure costs but we are unable to accurately quantify these costs. Costs related to preparing climate-related disclosures are generally private information known only to the issuing firm, hence such data are not readily available to the Commission. There is also likely considerable variation in these costs depending on a given firm's size, industry, complexity of operations, and other characteristics, which makes comprehensive estimates difficult to obtain.

We encourage commenters to provide us with relevant data or empirical evidence related to the costs of preparing climate-related disclosures and, more generally, to provide us with any

⁸⁴⁰ See H.B. Christensen, L. Hail, and C. Leuz, *Mandatory CSR and Sustainability Reporting: Economic Analysis and Literature Review*, REVIEW OF ACCOUNTING STUDIES 1-73 (2021).

type of data that would allow us to quantitatively assess the costs and benefits of the proposed rules.

1. Benefits

The primary benefit of the proposed rules is that investors would have access to more comparable, consistent, and reliable disclosures with respect to registrants' climate-related risks. As discussed in the previous sections, investors currently face obstacles in accessing comparable, consistent, and reliable climate-related information due to a combination of registrants not disclosing this information at all, or registrants disclosing this information but with varying degrees of coverage and specificity and in varying formats and locations, including company websites, standalone reports, and SEC filings.

Investors are expected to benefit from the required disclosures given that material climate-related information would be provided to the market more consistently across registrants of different sizes and filer status, whether domestic or foreign issuers, and regardless of industry. Investors are also expected to benefit from the more consistent content of the disclosures. Specifically, the proposed rules would enhance comparability by requiring registrants to provide disclosures on a common set of qualitative and quantitative climate-related disclosure topics in their filings.

In addition to the standardized content, investors are expected to benefit from a common location of the disclosures in regulatory filings. The proposed rules would require registrants to place all relevant climate-related disclosures in Securities Act or Exchange Act registration statements and Exchange Act annual reports in a separately captioned "Climate-Related Disclosure" section, or alternatively, to incorporate by reference from another section, such as Risk Factors, Description of Business, or MD&A. By mandating that standardized climate-

related information be disclosed, and requiring it to be placed in a centralized location within regulatory filings, the proposed rules could reduce investors' search costs and improve their information-processing efficiency. These factors can also lead to positive information externalities – as more firms disclose how measures of climate risk affect their business operations, investors would gain a better understanding of how those same climate risks may affect other similar firms.⁸⁴¹

Furthermore, by requiring this information to be *filed* with the Commission as opposed to posted on company websites or *furnished* as exhibits to regulatory filings, the proposed rules are expected to improve the reliability of information provided to investors moving forward.⁸⁴²

Several commenters indicated that the treatment of climate-related disclosures as filed would help improve investor confidence in the accuracy and completeness of such disclosures.⁸⁴³

Recent academic work provides evidence of firms' engagement in obfuscation and other misleading efforts (so-called "greenwashing")⁸⁴⁴ to manipulate the set of information available on corporate websites and sustainability reports with the goal of attaining higher ESG ratings, which are relied upon, in particular, by unsophisticated investors for the value of institutional

⁸⁴¹ One study documents how investors can use information from one firm to make inferences of other similar firms in the context of earnings announcements. *See supra* note 811.

⁸⁴² By proposing to treat the proposed required climate-related disclosures as "filed," we are therefore subjecting them to potential liability under Exchange Act Section 18, except for disclosures made on Form 6-K. The proposed filed climate-related disclosures would also be subject to potential Section 11 liability if included in or incorporated by reference into a Securities Act registration statement. *See* Section II.C.4 (discussions within).

⁸⁴³ *See* Section II.H.k.

⁸⁴⁴ A review of several academic papers reveal that there is no universally accepted definition of "greenwashing." Though the term "greenwashing" is often used in industry discussions regarding ESG, the Commission does not define "greenwashing" in this proposal, rules, or form amendments. Greenwashing is typically described as the set of activities conducted by firms or funds to falsely convey to investors that their investment products or practices are aligned with environmental or other ESG principles.

certification.⁸⁴⁵ Direct disclosures may also reduce reliance on these ESG ratings, which are not necessarily standardized nor fully transparent with respect to their methodologies. In fact, several studies found low correlations of classifications across ESG providers.⁸⁴⁶ Additionally, a study suggested that models and metrics used by ESG providers for appropriately classifying funds are not always transparent and consistent across ESG providers.⁸⁴⁷

As discussed in Section IV.B.1, surveys of institutional investors indicate that climate risk is one of the most prominent issues driving their investment decisions and engagements with companies. Evidence from the stock market response appears consistent with this, with increased mandatory ESG disclosure being associated with aggregate stock price movement.⁸⁴⁸ Such stock price effects tend to display cross-sectional heterogeneity with, for example, firms disclosing large GHG emissions experiencing price declines.⁸⁴⁹ Similar effects have also been observed in

⁸⁴⁵ See Ruoke Yang, *What Do We Learn From Ratings About Corporate Social Responsibility?*, R&R JOURNAL OF FINANCIAL INTERMEDIATION (2021), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3165783.

⁸⁴⁶ Florian Berg, Julian Kölbel, Roberto Rigobon, *Aggregate Confusion: The Divergence of ESG Ratings*, MIT SLOAN SCHOOL (Working Paper 5822-19) (May 17, 2020), available at <https://ssrn.com/abstract=3438533> or <http://dx.doi.org/10.2139/ssrn.3438533>. Authors found that the correlations between six different ESG ratings are on average 0.54, and range from 0.38 to 0.71, while the correlations between credit ratings were 0.99. See also OECD, *OECD Business and Finance Outlook 2020*, SUSTAINABLE AND RESILIENT FINANCE (Sept. 29, 2020), available at <https://www.oecd.org/daf/oecd-business-and-finance-outlook-26172577.htm>. OECD analyzed different rating providers, such as Bloomberg, MSCI and Refinitiv and found wide differences in the ESG ratings assigned, with an average correlation of 0.4. When OECD analysis then compared ESG ratings with the issuer credit rating by major providers, it found that credit scores for selected issuers vary much less. See also International Monetary Fund, *Global Financial Stability Report* (Oct. 2019), available at <https://www.imf.org/en/Publications/GFSR/Issues/2019/10/01/global-financial-stability-report-october-2019>. It found that only 37% of Lipper ethical funds also carry a sustainable designation by Bloomberg.

⁸⁴⁷ See OECD Business and Finance Outlook 2020, *Sustainable and Resilient Finance* (Sept. 29, 2020); H. Friedman, M. Heinle, and I. Luneva, *A Theoretical Framework for Environmental and Social Impact Reporting* (Working Paper) (2021).

⁸⁴⁸ See J. Grewal, E. J. Riedl, and G. Serafeim, *Market Reaction to Mandatory Nonfinancial Disclosure*, 65 (7) MANAGEMENT SCIENCE 3061-3084 (2019).

⁸⁴⁹ See V. Jouvenot and P. Kruger, *Mandatory Corporate Carbon Disclosure: Evidence from a Natural Experiment* (Working Paper) (2021); P. Bolton and M. Kacperczyk, *Signaling through Carbon Disclosure* (Working Paper) (2020).

derivatives markets.⁸⁵⁰ Investor responses in real estate markets potentially affected by physical risks,⁸⁵¹ as well as revealed preferences from flows into mutual funds with environmental goals in their investment mandates,⁸⁵² provide further evidence of investors' interest in disclosures pertaining climate risks. Taken together, the mandatory and standardized nature of the proposed climate-related disclosures could benefit investors by improving their ability to assess these risks and their impact on registrants' financial condition and operations, thereby allowing investors to make better-informed investment decisions and enhancing investor protection.

Improving and standardizing climate disclosures also could mitigate adverse selection problems that may arise in the presence of asymmetric information⁸⁵³ by making more accurate and standardized information available to the general public.⁸⁵⁴ Improved disclosure could make it easier for investors to process information more effectively and improve the estimation of firm's future cash flows, leading to more accurate firm valuation.⁸⁵⁵ In particular, the enhanced disclosures may yield further benefits for the disclosures of financial firms. Because financial firms can have significant exposures to climate-related risks through their portfolio companies,

⁸⁵⁰ E. Ilhan, Z. Sautner, G. Vilkov, *Carbon Tail Risk*, 34 (3) REVIEW OF FINANCIAL STUDIES 1540-1571 (2021).

⁸⁵¹ See *supra* note 802.

⁸⁵² See *supra* note 804.

⁸⁵³ Asymmetric information occurs when one party to an economic transaction possesses greater material knowledge than the other party. Adverse selection occurs when the more knowledgeable party only chooses to transact in settings that, based on their private information, is advantageous for them. Less informed parties aware of their informational disadvantage might be less inclined to transact at all for fear of being taken advantage of. See George Akerlof, *The Market for 'Lemons, Quality Uncertainty and the Market Mechanism*, 84 (3) QUARTERLY JOURNAL OF ECONOMICS 488-500 (1970).

⁸⁵⁴ See R. E. Verrecchia, Essays on Disclosure, 32 *Journal of Accounting and Economics* 1-3, 97-180 (2001).

⁸⁵⁵ See R. Lambert, C. Leuz, and R. E. Verrecchia, *Accounting Information, Disclosure, and the Cost of Capital*, 45 (2) JOURNAL OF ACCOUNTING RESEARCH 385-420 (2007).

any enhancements in the portfolio companies' disclosures can subsequently be leveraged by these financial firms in assessing the risks to their portfolios and to the firm as a whole.⁸⁵⁶

Another benefit of the proposed rules is that it could allow firm's shareholders to better monitor management's decisions and mitigate certain agency problems stemming from management's discretionary choices with respect to climate disclosure. Agency problems could occur when management act opportunistically in their own self-interest at the expense of shareholders by disclosing only certain climate-related information at their discretion. As previously discussed in Section IV.B.2.b, management may be motivated to selectively disclose only climate-related information,⁸⁵⁷ while omitting harder to verify risks.⁸⁵⁸ In the context of climate-related risks, agency issues may be exacerbated by the potential conflicts between short-term profitability and long-term climate risk horizons⁸⁵⁹ and the misalignment of interests and

⁸⁵⁶ In 2021, the CDP coordinated with 168 financial institutions, with a combined AUM of \$17 trillion USD, to engage over 1,300 companies to request climate-related information, among other topics. *See* CDP Non-Disclosure Campaign: 2021 Results, *available at* https://cdn.cdp.net/cdp-production/cms/reports/documents/000/006/069/original/CDP_2021_Non-Disclosure_Campaign_Report_10_01_22_%281%29.pdf?1642510694.

⁸⁵⁷ *See supra* note 829 (A recent study, for example, shows that absent mandatory requirements from regulators, voluntary disclosures following third-party frameworks are generally of poor quality and that firms making these disclosures cherry-pick to report primarily non-material climate risk information.).

⁸⁵⁸ *See* World Economic Forum, *How to Set Up Effective Climate Governance on Corporate Boards: Guiding Principles and Questions* (2019), *available at* https://www3.weforum.org/docs/WEF_Creating_effective_climate_governance_on_corporate_boards.pdf. In addition, there are a number of academic studies examining the association of climate-related disclosures with corporate governance structures and managerial characteristics. *See, e.g.,* M. Kılıç and C. Kuzey, *The Effect of Corporate Governance on Carbon Emission Disclosures: Evidence from Turkey*, 11-1 INTERNATIONAL JOURNAL OF CLIMATE CHANGE STRATEGIES AND MANAGEMENT 35-53 (2019); S. Yunus, E.T. Evangeline, and S. Abhayawansa, *Determinants of Carbon Management Strategy Adoption: Evidence from Australia's Top 200 Publicly Listed Firms*, 31-2 MANAGERIAL AUDITING JOURNAL 156-179 (2016); Caroline Flammer, Michael W. Toffel, and Kala Viswanathan, *Shareholder Activism and Firms' Voluntary Disclosure of Climate Change Risks*, 42-10 STRATEGIC MANAGEMENT JOURNAL 1850-1879 (Oct. 2021).

⁸⁵⁹ Physical and transition climate risks can materialize over time horizons ranging from the immediate future to several decades. Long horizons, for example, tend to involve changes in chronic physical risks — (sea-level rise, drought, etc.). Shorter-term horizons may, instead, be relevant for increase in acute physical risks such as hurricanes, wildfires, and heatwaves. *See* ING Climate Risk Report 2020, *available at* <https://www.ing.com/2021-Climate-Report.htm>.

incentives between long-term shareholders and management,⁸⁶⁰ whereby the latter may unduly focus on short-term results⁸⁶¹ given pressures to demonstrate performance.⁸⁶² Under the current regime, many climate-related risks may be unobservable or obfuscated, giving short-term-focused managers an incentive to initiate projects exposed to these risks without properly informing investors.

Agency problems might be exacerbated by registrants' use of boilerplate language or selective disclosure (i.e. "cherry picking"),⁸⁶³ which might reduce transparency and impair investors' ability to effectively monitor firm management. The lack of a standardized disclosure framework could make it easier for registrants to forego the use of certain metrics or scopes and omit information that might otherwise indicate shortcomings.⁸⁶⁴ Previous studies have found that more detailed reporting can mitigate agency problems as it facilitates the scrutiny and discipline of firm management, allowing investors to monitor firms' operations more closely and thus

⁸⁶⁰ A report by the Environmental Audit Committee of the UK House of Commons on Greening Finance, issued in June 2018, found that short-termism is a pervasive problem in corporate decision making and leaves business ill-equipped to consider and incorporate long term risks, such as climate change and sustainability. *See* Envtl. Audi Comm., House of Commons, U.K. Parliament, *Greening Finance: Embedding Sustainability in Financial Decision Making* (June 6, 2018), available at <https://publications.parliament.uk/pa/cm201719/cmselect/cmenvaud/1063/106302.htm>.

⁸⁶¹ *See* Henry M. Paulson Jr., *Short-Termism and the Threat From Climate Change, Perspectives on the Long Term: Building a Stronger Foundation for Tomorrow* (Apr. 2015), available at <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/short-termism-and-the-threat-from-climate-change>.

⁸⁶² Factors including corporate executive compensation and attention to quarterly earnings and reporting are thought to contribute to excessive focus on short-term goals. *See, e.g.*, <https://corpgov.law.harvard.edu/2020/10/11/short-termism-revisited>.

⁸⁶³ *See supra* note 806; see also Morningstar, *Corporate Sustainability Disclosures* (2021), available at <https://www.morningstar.com/en-uk/lp/corporate-sustainability-disclosures>. ("Companies will disclose the good and hide the bad while disclosure remains voluntary.")

⁸⁶⁴ *See* JE Fisch, *Making Sustainability Disclosure Sustainable*, 107 GEORGETOWN LAW JOURNAL 923–966 (2019). *See* Climate Risk Disclosures & Practices: Highlighting the Need for a Standardized Regulatory Disclosure Framework to Weather the Impacts of Climate Change on Financial Markets, (2020), available at <https://climatedisclosurelab.duke.edu/wp-content/uploads/2020/10/Climate-Risk-Disclosures-and-Practices.pdf>.

evaluate whether managers have acted in the best interests of shareholders.⁸⁶⁵ By requiring registrants to provide comprehensive and detailed climate-related information to investors, the proposed rules are expected to reduce the likelihood of unreliable or boilerplate disclosures. This can enable investors to better monitor firm's management, reducing agency problems and ultimately strengthening investor protection. In the following sections, we discuss how specific aspects of the proposed rules could contribute to the aforementioned benefits.

The proposed rules would mandate more detailed and comprehensive disclosure with respect to climate-related risks. More consistent, comparable, and reliable disclosures could lead to capital market benefits in the form of improved liquidity, lower costs of capital, and higher asset prices (or firm valuations).⁸⁶⁶ These benefits would stem from reductions in information asymmetries brought about by the required disclosure of climate-related information, both among investors and between firms and their investors. In the first case, less information asymmetry among investors could mitigate adverse selection problems by reducing the informational advantage of informed traders. This is likely to improve stock liquidity which, in turn, can attract more investors, thereby reducing the cost of capital. In the second case, less information asymmetry between firms and their investors could allow investors to better estimate future cash flows, which could reduce investors' uncertainty, as well as the risk premium they

⁸⁶⁵ See C. Kanodia and D. Lee, *Investment and Disclosures: The Disciplinary Role of Performance Reports*, 36(1) JOURNAL OF ACCOUNTING RESEARCH 33-55 (1998); P. Healy, and K. Palepu, *Information Asymmetry, Corporate Disclosure, and the Capital Markets: A Review of the Empirical Disclosure Literature*, 31 (1-3) JOURNAL OF ACCOUNTING AND ECONOMICS 405-440 (2001); Huang Pingsun and Yan Zhang, *Does Enhanced Disclosure Really Reduce Agency Costs? Evidence from the Diversion of Corporate Resources*, 87(1) THE ACCOUNTING REVIEW, 199-229 (2012); R. M. Bushman and A. J. Smith, *Financial Accounting Information and Corporate Governance*, 32 (1-3) JOURNAL OF ACCOUNTING AND ECONOMICS 237-333 (2001); R. Lambert, C. Leuz, and R. E. Verrecchia, *Accounting Information, Disclosure, and the Cost of Capital*, 45 (2) JOURNAL OF ACCOUNTING RESEARCH 385-420 (2007).

⁸⁶⁶ See Section IV.D for more information on capital market benefits.

demand, thus lowering the costs of capital for registrants. Economic theory illustrates how, all else equal, a drop in the cost of capital leads to a boost in equity valuation, which can further benefit investors.

a. Disclosure Regarding Climate-Related Risks and their Impacts on Strategy, Business Model, and Outlook

The proposed rules would require registrants to identify their climate-related risks that are reasonably likely to have a material impact on the registrant's business or consolidated financial statements over the short, medium, and long-term and describe the actual and potential impacts of those risks on its strategy, business model, and outlook. Registrants would specifically be required to disclose impacts on, or any resulting significant changes made to, their: (i) business operations, including the types and locations of its operations; (ii) products or services; (iii) supply chain or value chain; (iv) activities to mitigate or adapt to climate-related risks; and (v) expenditures for research and development.

If, as part of its net emissions reduction strategy, a registrant uses carbon offsets or RECs, the proposed rules would require it to disclose specific information around the role that carbon offsets or RECs play in the registrant's climate-related business strategy. If a registrant uses an internal carbon price, the proposed rules would require it to disclose information around the boundaries for measurement of overall CO₂e, the price per metric ton of CO₂e, as well as how the total price is estimated to change over time, if applicable. Similarly, to the extent that the registrant uses analytical tools such as scenario analysis, the proposed rules would require a description of those analytical tools, including the assumptions and methods used.

The specific disclosures required by the proposed rules are expected to improve investors' understanding of what the registrant considers to be the relevant short-, medium-, and

long-term climate-related risks that are reasonably likely to have a material impact on its business, taking into consideration the useful life of the organization's assets or infrastructure and the fact that climate-related risks may manifest themselves over the medium and longer terms. Compared to the baseline, investors would be better able to identify and assess how climate-related risks may affect a registrant's businesses, strategy, and financial planning in several areas, including products and services, supply chain and/or value chain, adaptation and mitigation activities, investment in research and development, operations (including types of operations and location of facilities), acquisitions or divestments, and access to capital. Investors would gain insight into how climate-related risks may serve as an input to the registrant's financial planning process and the time period(s) used for this process.

For example, investors may gain better insights into the registrant's estimated costs of any operational changes expected to be implemented to achieve emission reduction targets. Alternatively, investors may gain valuable information on how certain climate events may impact the registrant's property, workforce, or its production schedule across the different physical sites where the registrant conducts business. Adverse climate-related events may impact the useful lives and/or valuation reserves of balance sheet assets. For example, sea level increases and other climate related patterns may adversely impact the estimated useful lives of coastal facilities. Similarly, more extreme weather patterns may adversely impact agricultural regions and the value of related equipment and lands. This information is expected to be useful for investors in assessing how climate-related risks are managed, and whether and how these risks may affect a registrant's financial condition and results of operations. The required disclosure around the role that carbon offsets or RECs play in the registrant's climate-related business strategy could help investors better understand that strategy, including how resilient it is

to changes in costs or the availability or value of offsets or RECs over the short, medium and long-term. The required disclosures around internal carbon price, when used by a registrant, could provide investors with more standardized and detailed information regarding how the registrant developed a particular business strategy and help investors assess whether a registrant's internal carbon pricing practice is reasonable and whether its overall evaluation and planning regarding climate-related factors is sound. The required disclosure around the assumptions and methods used by a registrant when employing analytical tools or conducting scenario analysis can improve investors' assessment of the resiliency of a registrant's strategy and business model in light of foreseeable climate-related risks and improve investors' ability to compare said resiliency among registrants.

The proposed requirement to identify material climate-related risks over the short-, medium-, and long-term could also help mitigate agency problems deriving from the potential misalignment of planning horizons between the firm's shareholders and its managers. The information required to be disclosed about the firm's business operations, products or services, supply or value chain, activities to mitigate or adapt to climate-related risks, and expenditure for research and development could allow investors to assess how climate-related issues may impact the registrant's financial performance (e.g., revenues, costs) and financial condition (e.g., assets, liabilities). These disclosures should allow investors to gain valuable insights on how resources are being used by management to mitigate climate-related risks and to facilitate investors' evaluation of whether managers are taking appropriate steps to address such risks.

b. Governance Disclosure

The proposed rules would require a registrant to disclose information concerning the board's oversight of climate-related risks as well as management's role in assessing and

managing those risks. The proposed rules would require a registrant to disclose whether any member of its board of directors has expertise in climate-related matters and the processes and frequency by which the board discusses climate-related factors. When describing management's role in assessing and managing climate-related factors, a registrant would be required to disclose whether certain management positions are responsible for assessing and managing climate-related factors and the processes by which the responsible managers are informed about and manage climate-related factors.

The disclosures required by the proposed rules should enable investors to better understand how the firm is informed about climate-related factors and how frequently the firm considers such factors as part of its business strategy, risk management, and financial oversight. Investors would be expected to gain better information around whether the organization has assigned climate-related responsibilities to management-level positions or committees and, if so, whether those responsibilities include assessing and/or managing climate-related risks. As a result, investors may be better able to understand and evaluate the processes by which management is informed about and monitors climate-related risks. For example, investors may be better positioned to assess whether and how the firm's board and management consider climate-related risks when reviewing and guiding business strategy and major plans of action, when setting and monitoring implementation of risk management policies and performance objectives, and when reviewing and approving annual budgets.

With detailed information about climate expertise among the registrant's directors, investors could more effectively evaluate the firm's governance practices related to the identification and management of climate-related risks. In particular, investors may be able to exercise closer oversight of management's actions as they assess implementation of risk

management policies and performance objectives, review and approve annual budgets, and oversee major capital expenditures, acquisitions, and divestitures.

c. Risk Management Disclosure

The proposed rules would require registrants to describe their processes for identifying, assessing, and managing climate-related risks. This includes disclosure on how registrants assess materiality, whether they consider likely future regulatory actions, how they prioritize, mitigate, or adapt to climate-related risks, and overall how climate-related factors are integrated into the registrants' risk management systems or processes. Registrants would also be required to provide detailed descriptions on any transition plans,⁸⁶⁷ as applicable, including relevant targets and metrics, how physical and transition risks are managed, and actions taken and progress made toward the plan's targets or goals.⁸⁶⁸

The disclosures required by the proposed disclosures could inform investors regarding how proactive and diligent registrants may be with respect to climate-related risks. Investors can use this information to acquire a more detailed understanding of how resilient registrants' risk management systems may be towards climate-related risks, which could contribute to better-informed investment or voting decisions. These disclosures could allow investors to better monitor and assess whether registrants have in place adequate risk management systems and whether they are aligned with investor preferences.

⁸⁶⁷ Transition plans would be defined as a registrant's strategy and implementation plan to reduce climate-related physical and transition risks and increase climate-related opportunities, including by reducing its own emissions. If the registrant has made a public commitment to reduce its GHG emissions by a certain date, it must disclose such date and its plan to achieve its public commitment.

⁸⁶⁸ See Section IV.C.1.f for a more detailed discussion of the potential benefits of targets and goals disclosure.

Conversely, investors may be better able to detect whether certain registrants' risk management systems would fail to account for certain types of climate factors such as change in consumer preferences, adjustments of business models, and technological challenges or innovations, which may have implications on companies' operations and financial conditions. These disclosures may also allow investors to assess whether registrants are evaluating these risks over specific time horizons, which may be particularly relevant in cases in which management may be more concerned with short-term performance while neglecting longer term risks. Accordingly, this provision could help address agency problems related to the misalignment of planning horizons.

d. Financial Statement Metrics

The proposed rules would require registrants to disclose certain disaggregated climate-related metrics in its financial statements under the following categories: (i) financial impact metrics; (ii) financial expenditure metrics; and (iii) financial assumptions. The proposed rules would require a registrant to disclose the impact of climate-related events (severe weather events and other natural conditions and physical risks identified by the registrant) and transition activities (including transition risks identified by the registrant) on its consolidated financial statements, if the disclosure threshold is met. For each type of metric, the provisions would require the registrant to disclose contextual information to enable the reader to understand how it derived the metric, including a description of significant inputs and assumptions used to calculate the specified metrics, thus providing the necessary transparency for facilitating investors' understanding and peer comparisons. To avoid potential confusion and to maintain consistency with the rest of the financial statements, the proposed financial statement metrics would be required to be calculated using financial information that is consistent with the scope of the rest

of the registrant's consolidated financial statements included in the filing. The proposed rules would specify the basis of calculation for the climate-related financial statement metrics and clarify how to apply these accounting principles when calculating the climate-related financial statement metrics.

With respect to financial impact metrics, the proposed rules would require a registrant to disclose the impacts arising from climate-related events, including physical risks identified by the registrant and severe weather events and natural conditions, such as flooding, drought, wildfires, extreme temperatures, and sea level rise. In addition to physical risks, registrants also would be required to disclose the financial impact of transition activities (including transition risks identified by the registrant), such as efforts to reduce GHG emissions or otherwise mitigate exposure to transition risks on any relevant line items in the registrant's consolidated financial statements. The proposed rule would require registrants to reflect the impact of the climate-related events or transition activities on each line item of the registrant's consolidated financial statements (*e.g.*, line items of the consolidated income statement, balance sheet, or cash flow statement) unless the aggregate impact of the events and transition activities is less than one percent of the total line item. By exempting such line item reporting when the aggregate impact of the events is less than one percent, the proposed rule would reduce overall costs for firms associated with disclosures for instances where the impact is likely to be quite small, while providing assurance to investors that more significant impacts are reflected in line item reporting.⁸⁶⁹

⁸⁶⁹ The choice of a one percent threshold is consistent with what the Commission currently uses in other contexts for disclosure of certain items within the financial statements and without (*e.g.*, §§ 210.5-03.1(a), 210.12-13, and 229.404(d)).

We expect that the proposed financial statement metrics impact would provide additional transparency into the nature of a registrant's business and the significance of many of the climate-related risks and impacts on its overall financial condition. Such disclosures are expected to provide investors with valuable insights into potential changes to, among others, revenue or costs from disruptions to business operations or supply chains; impairment charges and changes to the carrying amount of assets due to the assets being exposed to physical risks; revenue or cost due to new emissions pricing or regulations resulting in the loss of a sales contract and; operating, investing, or financing cash flow from changes in upstream costs, such as transportation of raw materials. Separately reporting the financial statement impacts from the specified climate-related events and transition activities could improve comparability of both the registrant's year-to-year disclosure and between the disclosures of different registrants. Because the risks presented by the climate-related events and transition activities may be correlated across different registrants and across time, future climate-related risks could manifest in such a way that a large subset of registrants are affected, making them potentially a non-diversifiable risk. In this case, separate financial impact disclosures could inform investors of their exposure to these risks not just for a single registrant, but across all the registrants in their portfolios. Such disclosures could be beneficial as they would be informative of both individual registrant exposures to climate-related risks, and the level of climate-related risks in the aggregate, thus allowing investors to more effectively evaluate and manage the risk of their entire portfolio. . Moreover, to the extent that registrants are not aware of climate-related risks in the aggregate, these disclosures would allow for a greater understanding of the climate-related risks they face, providing them the opportunity to make more informed investment decisions taking into account such risks.

With respect to financial expenditure metrics, the proposed rules would require a registrant to disclose the positive and negative impacts associated with the same climate-related events and transition activities as the proposed financial impact metrics. The expenditure metrics would require a registrant to separately aggregate amounts of expenditure expensed and capitalized costs incurred during the fiscal years presented. For each of those categories, a registrant would be required to disclose separately the amount incurred during the fiscal years presented toward positive and negative impacts associated with the specified climate-related events and to mitigate exposure to transition risks. The expenditure metrics would also be subject to the same disclosure threshold as the financial impact metrics, which should promote consistency and clarity.

Together, these disclosures are expected to provide investors with information about the total expenditure toward or capitalized costs incurred for specified climate-related events. As such, they are expected to increase the resilience of assets or operations, retire or shorten the estimated useful lives of impacted assets, relocate assets or operations at risk, or otherwise reduce the future impact of severe weather events and other natural conditions on business operations. The proposed rules also would provide investors with information about the amount of expenditure expensed or capitalized costs incurred for climate-related transition activities related, among others, to research and development of new technologies, purchase of assets, infrastructure, or products that are intended to reduce GHG emissions, increase energy efficiency, or improve other resource efficiency.

With respect to financial assumptions, the proposed rules would require registrants to disclose whether the estimates and assumptions used to produce the consolidated financial statements were impacted by risks and uncertainties associated with, or known impacts from,

severe weather events and other natural conditions, such as flooding, drought, wildfires, extreme temperatures, and sea level rise. If so, the registrant would be required to provide a qualitative description of how such events have impacted the development of the estimates and assumptions used to prepare such financial statements. Similarly, if the estimates and assumptions were impacted by potential transition risks, the registrant would be required to provide a qualitative description of how the development of the estimates and assumptions were impacted by such a transition. We expect that the proposed disclosures would provide transparency to investors on the impact of climate-related events and transition activities on the estimates and assumptions used by the registrant to prepare the financial statements and allow investors to evaluate the reasonableness of the registrant's estimates and assumptions.

Prior evidence shows that existing climate-related disclosures often contain boilerplate language or are “cherry-picked” to present information that is favorable to the company.⁸⁷⁰ Accordingly, registrants under the current regulatory regime may choose to provide only brief, qualitative descriptions of certain climate-related factors while omitting concrete, quantitative information on how climate-related factors can impact individual financial statement line items. The proposed rule may mitigate these types of agency problems by requiring registrants to disclose specific, quantitative metrics according to standardized scopes and methodologies, thereby helping investors processing information more effectively.

The proposed financial metrics would be part of the financial statements and thus audited by an independent public accounting firm in accordance with existing Commission rules and

⁸⁷⁰ See *supra* note 829 and 806.

PCAOB auditing standards.⁸⁷¹ Subjecting these climate-related disclosures to reasonable assurance pursuant to an audit would require the auditor to assess the risk of material misstatement related to the estimates and judgments, including through evaluation of the method of measurement and reasonableness of the assumptions used, and to understand management's risk management processes, including the accuracy of the proposed disclosure, thereby alleviating possible concerns about the data's reliability and comparability, and improving investor confidence in such disclosure.⁸⁷² Academic research finds that assurance procedures can increase the relevance and reliability of disclosures, particularly for those involving significant estimation uncertainties.⁸⁷³

e. GHG Emissions Metrics

The proposed rules would require all registrants to disclose Scope 1 and Scope 2 GHG emissions. Given the possibility of a transition to a lower-carbon economy, investors and other market participants may be concerned about registrants that have high GHG emissions since these registrants may be more exposed to certain transition risks, such as regulations that restrict emissions or the potential impacts of changing consumer preferences or market conditions. Should a transition to a low-carbon economy gain momentum, registrants with higher amounts of

⁸⁷¹ Such audits could increase the probability of discovering and penalizing any misrepresentation. Since this would increase the expected costs of engaging in misrepresentation, as discussed in Section IV.B.2, this would also be likely to increase the odds of accurate revelation of material information.

⁸⁷² See Section II.F.5.

⁸⁷³ See M. DeFond and J. A. Zhang, *A Review of Archival Auditing Research*, 58(2-3) *Journal of Accounting and Economics* 275-326 (2014); V.K. Krishnan, *The Association Between Big 6 Auditor Industry Expertise and the Asymmetric Timeliness of Earnings* 20 *Journal of Accounting, Auditing and Finance* 209-228 (2005); W. Kinney and R. Martin, *Does Auditing Reduce Bias in Financial Reporting? A Review of Audit-Related Adjustment Studies*, 13 *AUDITING: A JOURNAL OF PRACTICE & THEORY* 149-156 (1994); K.B. Behn, J.H. Choi, and T. Kang, (2008), *Audit Quality and Properties of Analyst Earnings Forecasts* 83 *THE ACCOUNTING REVIEW* 327-349 (2008). Some commenters expressed similar views. See, e.g., Comment Letters from CAQ, Ceres; Impax Asset Management; San Francisco Employees' Retirement System; and UNEP-FI.

Scope 1 and 2 emissions may be more likely to face sharp declines in cash flows, either from greater costs of emissions or the need to scale back on high-emitting activities, among other reasons, as compared to firms with lower amounts of such emissions.

Understanding the extent of this potential exposure to transition risks could help investors in assessing their risk exposures with respect to the companies in which they invest. Greater consistency in emissions disclosures can further benefit investors as it can facilitate comparisons between the registrants and their peers and assist in understanding the overall risk of their portfolios. As described below, emissions disclosures would also help inform investors about the extent to which a company has been or is following through with its disclosed strategies and transition plans. As further discussed in Section IV.D, we expect this provision to lower uncertainty for investors, thereby reducing the cost of capital. This may make it easier to raise equity and debt, or to obtain loan financing.

Besides the direct risk to cash flows through cost of emissions or the need to scale back on high-emitting activities, such a transition could also cause a registrant's assets to suffer from unanticipated or premature write-downs, devaluations, and/or adverse adjustments in reserves. The proposed Scope 1 and 2 emission disclosures would allow investors to identify registrants whose assets may be more likely to become obsolete or non-performing or lose economic value ahead of their anticipated useful life due to a potential transition to a lower-carbon economy, and more generally allow investors to discern whether certain investments are unlikely to earn the anticipated economic return due to such transition. The proposed disclosures would also allow investors to more closely monitor whether a firm's management is properly accounting for the impairment of such stranded assets to ensure that they are recorded on the balance sheet as a loss of profit and are not carried at more than their recoverable amount. Given the significant

possibility that Scope 1 and 2 emissions will affect the valuation of the registrant through impacts on earnings, cost of capital, investor demand, or potentially some other channel, investor protection would be enhanced by requiring disclosure of this information.

Moreover, by specifying that the information should be provided by all registrants, investors would benefit from having access to a more comprehensive set of emissions data against which to measure a registrant's progress in meeting any stated emissions goals or otherwise managing its climate-related risks, as a part of assessing the registrant's overall business and financial condition. In the absence of the proposed rules, some registrants may choose to selectively omit quantitative emissions metrics. The resulting state of disclosures is less meaningful and less transparent, making it significantly more difficult for investors to assess the degree of risk in individual firms, to compare across firms, and to value securities.

As discussed in Section IV.A, some registrants currently report emissions via the EPA's 2009 mandatory Greenhouse Gas Reporting Program.⁸⁷⁴ However, the nature of the reporting requirements and the resulting data is more suited to the purpose of building a national inventory of GHG emissions, not of assessing emissions-related risks to individual registrants. Specifically, direct emitters must report their emissions at the facility-level (not registrant-level) and suppliers of certain products must report their "supplied emissions," conditional on these emissions exceeding a specified threshold.⁸⁷⁵ In addition, as previously discussed, the EPA emissions data does not allow a clean disaggregation across the different scopes of emissions for a given registrant.⁸⁷⁶ From the point of view of an investor seeking greater information regarding a

⁸⁷⁴ See Section IV.A.3.

⁸⁷⁵ See *supra* note 737.

⁸⁷⁶ See Section IV.A.3.

registrant, the EPA's emissions data may be difficult for investors to use, because the data are made public by facility and not by company. While each facility is matched to its parent company, this company may not be the entity registered with the SEC and thus of interest to investors. Taken together, the EPA emissions data is not well suited to enabling investors to fully assess the degree to which each registrant is exposed to transition risks.

The proposed rules would result in more comprehensive and tailored emissions information by requiring disclosure of Scope 1, Scope 2, and in some cases Scope 3 emissions by registrants in SEC filings. Prior evidence has shown that when information that is already publicly available elsewhere is included within SEC filings, the public becomes more aware of the information.⁸⁷⁷ While there are numerous differences with regard to EPA reporting, this evidence suggests that even were these differences not to exist, and the only change were to be inclusion in SEC filings, there would nonetheless be an advantage in improving consistency and reliability and decreasing search costs.

The proposed rules would also provide informational benefits beyond the voluntary disclosure of emissions in sustainability reports. While currently disclosed information reflects investor demand, the overall information disclosed to the market may be biased due to its voluntary nature, in that companies that have more favorable data (e.g., lower emissions) may be more likely to make these voluntary disclosures. Requiring all registrants to provide consistent disclosures, as proposed, would reduce the bias that can result from a voluntary regime. Moreover, as discussed above, locating the information in SEC filings may make it more accessible to investors and contribute to greater consistency and reliability.

⁸⁷⁷ See H.B. Christensen, E. Floyd, L.Y. Liu, and M Maffett, *The Real Effects of Mandated Information on Social Responsibility in Financial Reports: Evidence from Mine-Safety Records*, 64 (2-3) JOURNAL OF ACCOUNTING AND ECONOMICS 284-304 (2017).

Specific provisions are designed to facilitate comparability across registrants and industries. For example, requiring the disclosure of GHG intensity in terms of metric tons of CO₂e per unit of total revenue and per unit of production would allow investors to directly assess the efficiency of the registrant's operations and compare across different industries and firms of varying size. Increased standardization in the reporting of these metrics may allow investors to assess more effectively a registrant's transition risk against that of its competitors. As another example, the proposed rules would require a registrant to set the organizational boundaries for its GHG emissions disclosure using the same scope of entities, operations, assets, and other holdings within its business organization structure as those included in its consolidated financial statements. Requiring a consistent approach would avoid potential investor confusion about the reporting scope used in the financial statements and enhance comparability across registrants,⁸⁷⁸ helping investors in assessing a registrant's transition risk against that of its competitors.

The proposal would also require non-SRC registrants to disclose Scope 3 emissions if material or if the registrant has a target or goal related to Scope 3.⁸⁷⁹ In addition, specified registrants would also be required to disclose the methodology used to compute emissions, the breakdown of the different GHGs, as well as upstream and downstream activities, and data quality.⁸⁸⁰ Scope 3 emissions GHG emissions can represent the majority of the carbon footprint

⁸⁷⁸ Unlike the GHG Protocol, which currently provides different options for setting organizational boundaries, the proposed rules would require that the scope of consolidation and reporting be consistent for financial data and GHG emissions data.

⁸⁷⁹ The proposed rules include a safe harbor for Scope 3 emissions disclosure from certain forms of liability under the federal securities laws.

⁸⁸⁰ In calculating Scope 3 emissions, registrants have the flexibility to choose a methodology they deem fit, however, the specific methodology must be disclosed. Estimates or ranges are permitted. Emissions reporting must be presented as CO₂e as well as disaggregated into the different types of GHGs.

for many companies, in some cases as high as 85% to 95%.⁸⁸¹ For example, according to Morgan Stanley Capital International (MSCI), the Scope 3 emissions of the integrated oil and gas industry are more than six times the level of its Scope 1 and 2 emissions.⁸⁸² Companies may have indirect control over their Scope 3 emissions through choices they make, for example in selecting suppliers, designing products, or sourcing inputs more efficiently. Nevertheless, the majority of companies do not typically report this information. As of July 10, 2020, for example, within the sample of companies belonging to the MSCI ACWI Investable Market Index (IMI),⁸⁸³ the total Scope 3 average intensity was almost three times greater than the combined Scope 1 and 2 intensity. Yet, only 18% of constituents of the MSCI ACWI IMI reported Scope 3 emissions, with even lower reporting percentages when looking at the individual Scope 3 categories.⁸⁸⁴

The reporting of Scope 3 emissions for these registrants would provide additional benefits for investors. Scope 3 emissions information may be material in a number of situations to help investors gain a more complete picture of the transition risks to which a registrant may be exposed. Relative to registrants with substantial Scope 1 and 2 emissions, future regulations that restrict emissions may impact registrants with high Scope 3 emissions differently. In certain industries, a transition to lower-emission products or processes may already be underway,

⁸⁸¹ See Eric Rosenbaum, Climate experts are worried about the toughest carbon emissions for companies to capture (Aug. 18, 2021) available at <https://www.cnbc.com/2021/08/18/apple-amazon-exxon-and-the-toughest-carbon-emissions-to-capture.html#:~:text=Scope%203%20carbon%20emissions%2C%20or,as%2085%25%20to%2095%25>.

⁸⁸² See also MSCI, *Emissions: Seeing the Full Picture* (Sept. 17, 2020), available at <https://www.msci.com/www/blog-posts/scope-3-carbon-emissions-seeing/02092372761>

⁸⁸³ The MSCI ACWI Investable Market Index (IMI) captures large, mid and small cap representation across 23 Developed Markets and 25 Emerging Markets countries, covering approximately 99% of the global equity investment opportunity set.

⁸⁸⁴ *Ibid.*

triggered by existing policies, a shift in consumer preferences, technological changes, or other market forces.

Registrants with significant Scope 3 emissions may be more likely to face disruptions not only in their cash flows, but also in their business models or value chains to the extent that these registrants are compelled to make changes in their products, suppliers, distributors, or other commercial partners.⁸⁸⁵ Moreover, if consumer demand changes to favor less carbon intensive products, companies with high Scope 3 emissions may see a marked reduction in demand for their products, and companies that are not aware of these risks could be less profitable relative to those that understand these risks and are prepared to mitigate them. Alternatively, companies that can source inputs that involve less GHG emissions could achieve potential cost savings and those that could produce products that generate less GHG emissions by the end user could potentially enjoy higher demand. Some registrants may plan to shift their activities to capitalize on these changes and thus may need to allocate capital to invest in lower emissions equipment or to create new types of products. Investors would need information about the registrants' full GHG emissions footprint and intensity to determine and compare how exposed a registrant is to the financial risks associated with a transition to lower-carbon economy.

Over the last few years, a number of studies have shown that firms try to reduce their local carbon footprints by outsourcing their carbon emissions to suppliers in states or countries

⁸⁸⁵ Scope 3 upstream and downstream emissions represents a substantial portion of global GHG emissions. For example, according to a recent report, Scope 3 downstream emissions that happen after a product or service leaves a company's control/ownership represented about 49 % of global GHG emissions in 2019. Capital goods (87%), banks (81%) and retailing (80%) were among the industries with the highest percentage of Scope 3 downstream emissions relative to their total emissions. These downstream emissions can come from a variety of sources. For example, capital goods activities include emissions from raw material manufacturing and transport. Banks emit few GHGs to run their operations, — but finance the emissions of other companies through loans and investments. *See* State of Green Business 2021, *available at* <https://www.spglobal.com/marketintelligence/en/news-insights/research/state-of-green-business-2021>.

with weaker environmental policies.⁸⁸⁶ These studies provide evidence of the substitutional relationship between direct and outsourced GHG emissions. Recent studies have also analyzed the substitution effects between Scope 1 and Scope 3 GHG emission activities of U.S. firms. The findings show that the relative share of Scope 1 emissions out of a firm's total emissions tend to fall at the expense of the rising proportion of its supplier-generated Scope 3 emissions and that a firm's imports further augment the substitutional relationship between its Scope 1 and Scope 3 emissions.⁸⁸⁷ In addition to the outsourcing incentives related to regulatory arbitrage, the authors of these studies posit that firms may also be outsourcing emissions abroad to exploit investors' current difficulties in assessing the firm's carbon emissions through imports along the upstream supply chain. By requiring the disclosure of Scope 3 GHG emissions, the proposed rules would make it more difficult for non-SRC registrants to avoid investors' scrutiny by outsourcing all or part of their activities abroad.

Finally, as described in Section IV.A5.d, many companies have set emissions targets, and it is not always clear whether these targets pertain to Scope 3 emissions or not. As explained in Section IV.C.1.g, registrants would be required to disclose whether the targets pertain to Scope 3 emissions, and as described above, if they do, they would need to report such emissions.

Without reporting of Scope 3 emissions amounts and categories, investors would not have the information they need to understand the scale and scope of actions the company may need to

⁸⁸⁶ See, e.g. I Ben-David, Y. Jang, S. Kleimeier, and M. Viehs, *Exporting Pollution: Where Do Multinational Firms Emit CO₂?* 36 (107) ECONOMIC POLICY 377–437 (2021); X. Li and Y.M. Zhou, *Offshoring Pollution While Offshoring Production?* 38 STRATEGIC MANAGEMENT JOURNAL 2310–2329 (2017).

⁸⁸⁷ See R. Dai, R. Duan, H. Liang, and L. Ng, *Outsourcing Climate Change* (SSRN Working Paper)(2021), available here https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3765485.

take to fulfill its commitment, and thus the overall financial implications of a registrant's targets. For example, a registrant's disclosure of its Scope 3 emissions, together with the proposed financial statement metrics, could allow investors to assess the potential (additional) investments the registrant may need to make to meet a certain goal. Moreover, as described further below, reporting of Scope 3 emissions gives a quantitative metric for investors to track, thus reducing opportunities for misleading claims on the part of the registrant.

Because the value of a firm's equity is largely derived from expected future cash flows, disclosure of Scope 1, 2, and 3 emissions can help investors incorporate risks associated with such future cash flows into asset values today. Indeed, the academic literature indicates that equity is a long-term asset, meaning that even risks related to regulatory changes in the distant future could be priced today.⁸⁸⁸ Thus, for many registrants, reasonable investors may view GHG emissions as necessary to assess the registrants' exposure to climate-related risks, particularly transition risks, and whether they have developed strategies to reduce their carbon footprint in the face of potential regulatory, policy, and market constraints. This may be particularly important in light of the investor demand documented in IV.B.1 and the potential price impact, as discussed in IV.D.

⁸⁸⁸ See J. van Binsbergen, *Duration-Based Stock Valuation: Reassessing Stock Market Performance and Volatility* (2021), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3611428; D. Greenwald, M. Leombroni, H. Lustig, and S. van Nieuwerburgh, *Financial and Total Wealth Inequality with Declining Interest Rates* (2021), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3789220. Both of these papers find that the Macauley duration of equity, the weighted average length of time which investors will receive the cash flows from the asset, is in excess of 35 years as of 2019. This indicates that changes in cash flows in the distant future can impact equity prices today.

f. Assurance of GHG Scopes 1 and 2 emissions disclosures for large accelerated filers and accelerated filers

The proposed rules would require registrants that are large accelerated filers and accelerated filers to provide an attestation report for the registrant's Scope 1 and 2 GHG emissions disclosures. Large accelerated filers constitute approximately 31% of the universe of registrants that filed annual reports during calendar year 2020 (1,950 out of 6,220), but account for 93.6% of market cap within the same universe. Accelerated filers constitute approximately 10% of the universe of registrants that filed annual reports during calendar year 2020 (645 out of 6,220) and account for 0.9% of market cap within the same universe.

The proposed rules provide specific transition periods for obtaining attestation reports. Large accelerated filers would be required to provide Scopes 1 and 2 emissions disclosures in the fiscal year immediately following rule adoption. Next, they would be required to obtain limited assurance over these disclosures in fiscal years 2 and 3 after adoption. They would then be required to obtain reasonable assurance over these disclosures in fiscal year 4 after adoption and going forward. Accelerated filers would follow the same timeline but with a delay of one fiscal year. Specifically, accelerated filers would be required to provide Scopes 1 and 2 emissions disclosures in fiscal year 2 after adoption. Next, they would be required to obtain limited assurance over these disclosures fiscal years 3 and 4 after adoption. They would then be required to obtain reasonable assurance over these disclosures in fiscal year 5 after adoption and going forward.

The proposed transition periods for assurance over large accelerated filers' and accelerated filers' Scopes 1 and 2 GHG emission disclosures are intended to provide these registrants time to familiarize themselves with the GHG emissions disclosure requirements,

develop the relevant DCP, and provide the market with an opportunity to develop enough expertise to satisfy the increased demand for GHG emission assurance services. We expect that during the proposed transition periods, the market for assurance services would further mature with respect to institutional knowledge, procedural efficiency, and overall competition, thus lowering costs for registrants and improving the quality of service. Although Scope 3 GHG emissions can constitute a large portion of a registrant's total emission, the proposed rules would exclude Scope 3 GHG emission disclosures from the attestation requirement due to the unique challenges associated with their measurement, which is based on data sources not owned by the registrant,⁸⁸⁹ as well as the potential higher costs associated with their verification.

Section IV.A.5.e above discusses survey evidence on the frequency with which firms obtain assurance in sustainability reports. This evidence suggests that a significant fraction of large companies already obtain some form, albeit limited, of assurance. Practices appear to be fragmented with respect to the levels of assurance provided, the assurance standards used, the types of service providers, and the scope of disclosures covered by the assurance. One consequence of such fragmentation has been a lack of clarity about the nature of assurance provided, which can lead to confusion for investors when assessing the quality of disclosures. Moreover, as noted above, the voluntary nature of the reporting could result in biased or incomplete data. The fact, however, that a significant proportion of large companies already obtain some form of assurance over this information is indicative of investors' and companies' need for such disclosures to be reliable.

⁸⁸⁹ See Section II.G.3.

The importance of assurance for climate-related information also is highlighted by the International Federation of Accountants, which recently published its Vision for High-Quality Sustainability Assurance.⁸⁹⁰ As discussed earlier, contrary to other quantitative information that is provided outside of the financial statements, and which is typically derived from the same books and records that are used to generate a registrant’s audited financial statements, GHG emissions disclosures are not developed from information that is included in the registrant’s books and records.⁸⁹¹ Accordingly, such quantitative disclosure is not be subject to audit procedures as part of the audit of the financial statements in the same filing. Because of this, the proposed requirement of a third-party attestation report may be particularly beneficial to verify the reliability of such quantitative information and enhance its accuracy.. In general, subjecting climate-related disclosures to assurance would require the assurance provider to assess the risk of material misstatements related to the estimates and judgments, including through evaluation of the method of measurement and reasonableness of the assumptions used, and an understanding of management’s risk management processes, including the risks identified and the actions taken to address those risks.⁸⁹² Moreover, by specifying minimum standards for the assurance provided with respect to GHG Scope 1 and 2 emissions disclosures, we expect the proposed rules to promote accuracy and consistency in the reporting of this information, while also providing investors with a baseline level of reliability against which to evaluate the disclosures.⁸⁹³

⁸⁹⁰ See IFAC Charts the Way Forward for Assurance of Sustainability Information (Dec. 6, 2021), *available at* <https://www.ifac.org/news-events/2021-12/ifac-charts-way-forward-assurance-sustainability-information>.

⁸⁹¹ See Section II.H.1 for more information.

⁸⁹² See PCAOB, AS 2110 Identifying and Assessing Risks of Material Misstatement (2010).

⁸⁹³ See K. Hodge, K., N. Subramaniam, J. Stewart, *Assurance of Sustainability Reports: Impact on Report Users' Confidence and Perceptions of Information Credibility*, (19) *Australian Accounting Review* 178-194 (2009), *available at* <https://doi.org/10.1111/j.1835-2561.2009.00056.x>

Academic research finds that assurance procedures can increase the relevance and reliability of disclosures,⁸⁹⁴ particularly for those involving significant estimation uncertainties. While most of this academic evidence focuses on the effects of reasonable assurance procedures, we cannot preclude the possibility that such findings may have implications for limited assurance as well. Experimental evidence has found that both limited and reasonable assurance can increase perceived reliability of sustainability reports, but those same studies do not find a statistically significant difference between limited and reasonable assurance.⁸⁹⁵ Obtaining assurance for sustainability reports, which as noted above is typically limited assurance, has also been associated with firms with lower costs of capital, increased analyst coverage, and decreased analyst forecast errors and forecast dispersion.⁸⁹⁶

The proposed rules would require the attestation report to identify the criteria against which the subject matter was measured or evaluated, the level of assurance provided, the nature of the engagement, and the attestation standard used. In particular, the proposed rules would

⁸⁹⁴ See supra note 873.

⁸⁹⁵ See, e.g., K. Hodge, K., N. Subramaniam, and J. Stewart, *Assurance of Sustainability Reports: Impact on Report Users' Confidence and Perceptions of Information Credibility*, 19 AUSTRALIAN ACCOUNTING REVIEW 178-194 (2009), available at <https://doi.org/10.1111/j.1835-2561.2009.00056.x>; Mark Sheldon, *User Perceptions of CSR Disclosure Credibility with Reasonable, Limited and Hybrid Assurances* (Dissertation) (2016) available at https://vtechworks.lib.vt.edu/bitstream/handle/10919/65158/Sheldon_MD_D_2016.pdf. This absence of evidence, however, is not necessarily evidence of absence. It is possible that reasonable assurance can have benefits over limited assurance that are not easily identifiable.

⁸⁹⁶ See R.J. Casey and J.H. Grenier, Understanding and contributing to the enigma of corporate social responsibility (CSR) assurance in the United States, 34(1) AUDITING: A JOURNAL OF PRACTICE & THEORY 97, 97-130 (2015). The authors also find that the lower costs of capital are in excess of estimated assurance costs (i.e., 5% to 10% of total audit fees) for the majority of companies. We acknowledge, however, that the benefits cited in this study may be overstated to the extent that they reflect a selection bias. Specifically, companies that anticipate a net loss due to assurance would choose to forgo obtaining such assurance, thereby removing themselves from the treatment group. This potential limitation in interpreting such findings is also supported by evidence of systematic differences in companies voluntarily reporting higher assurance levels. See C. H. Cho, G. Michelon, D. M. Patten, and R. W. Roberts, *CSR report assurance in the USA: an empirical investigation of determinants and effects*, 5(2) SUSTAINABILITY ACCOUNTING, MANAGEMENT AND POLICY JOURNAL 130, 130-148 (2014), available at <https://doi.org/10.1108/SAMPJ-01-2014-0003>.

require the attestation report to include a description of the work performed as a basis for the attestation provider's conclusion and for that conclusion to be provided pursuant to standards that are established by a body or group that has followed due process procedures, including the broad distribution of the framework for public comment. We expect this provision would help ensure that the standards upon which the attestation report is based were the result of a transparent and reasoned process. In this way, the requirement should help to protect investors who may rely on the attestation report by limiting the standards used to those that are appropriate for the subject matter and purpose. Further, we expect this provision to enhance the transparency of the GHG emissions attestation report for investors by providing them with additional information about the general procedures undertaken by the attestation provider. For example, under the proposed rules, an attestation report providing limited assurance would need to state that the procedures performed vary in nature and timing from, and are less extensive than, a reasonable assurance engagement, thus helping investors understand the level of assurance provided.

The GHG emissions attestation report would also be required to include a statement that describes any significant limitations associated with the measurement or evaluation of the subject matter against the criteria. The provision would require disclosure about the estimation uncertainties inherent in the quantification of GHG emissions, driven by reasons such as the state of the science and assumptions used in the measurement and reporting processes. By eliciting disclosure with respect to the procedures undertaken by the attestation provider, such as inquiries and analytical procedures, and the methodology used in the attestation process, the proposed provision would enhance the transparency of the GHG emissions attestation quality, thus allowing investors to gain a better understanding of the emission related information. This could

help investors process emission related information more effectively. More informed investment decisions by investors also may benefit registrants by lowering their cost of capital.

The proposed rules would also require registrants to disclose whether the attestation provider has a license from any licensing or accreditation body to provide assurance and whether the GHG emissions attestation engagement is subject to any oversight inspection program and record-keeping requirements with respect to the work performed for the GHG emissions attestation. These requirements are expected to benefit investors by helping them to better understand the qualifications of the GHG emissions attestation provider, which in turn would allow them to make better informed decisions about the reliability of such information.

Finally, the proposed rules would require that the GHG emissions attestation report be prepared and signed by a provider that is an expert in GHG emissions and independent with respect to the registrant, and any of its affiliates, for whom it is providing the attestation report. These qualification and independence requirements should help ensure that the attestation provider is capable of exercising informed, objective and impartial judgment. Academic research has found that the independence of assurance providers can be important in certain settings for disclosure quality.⁸⁹⁷ Academic research has also found that equity prices respond to analyst forecast even after management has released the exact same information, highlighting more generally the perceived value of external evaluations of firm disclosures and resulting investor confidence in the related disclosures.⁸⁹⁸

⁸⁹⁷ See N. Tepalagul, and L. Lin, Auditor Independence And Audit Quality: A Literature Review, 30(1) JOURNAL OF ACCOUNTING, AUDITING & FINANCE 101-121 (2015) (for a more detailed discussion on academic evidence on independence in auditing).

⁸⁹⁸ See Marco Grotteria, and Roberto Gomez Cram, *Do Financial Investors Underreact To Voluntary Corporate Disclosure?* (Working Paper) (2022).

g. Targets and Goals Disclosure

The proposed rules would require a registrant to disclose whether it has set any climate-related targets or goals and, if so, how it intends to meet those targets and goals. Such climate-related targets or goals might relate to the reduction of GHG emissions or address energy usage, water usage, conservation or ecosystem restoration. Associated disclosure would include the scope of activities and emissions included in the target, the unit of measurement, and the defined time horizon. Additionally, disclosures include the baseline emissions for measuring progress, any interim targets, how it intends to meet these targets or goals, and data showing any progress toward achieving these targets, including how that progress was achieved, and details about any carbon offsets of RECs that have been used.

For example, in 2019 Amazon and Global Optimism co-founded The Climate Pledge, a commitment to net zero carbon by 2040. Since then, a growing list of major companies and organizations have signed on to the Climate Pledge, which indicates a commitment to the following three principles: (i) Measure and report greenhouse gas emissions on a regular basis; (ii) Implement decarbonization strategies in line with the Paris Agreement; (iii) Neutralize any remaining emissions with additional offsets to achieve net zero annual carbon emissions by 2040.⁸⁹⁹ The proposed rules would help to make such commitments more transparent by requiring disclosure on the unit of measurement, time horizon, and baseline for measuring progress, including how that progress was achieved (e.g. through efficiency improvements, renewable energy adoption, materials reductions, and other carbon emission elimination strategies).

⁸⁹⁹ As of Jan. 25, 2022, The Climate Pledge has acquired 217 signatories. See *The Climate Pledge*, available at <https://www.theclimatepledge.com/us/en/Signatories>.

Such standardized reporting as a form of an oversight or monitoring mechanism might be critical in overcoming agency problems in the presence of asymmetric information. Investment in achieving targets could be value-enhancing in the long-run, but reduce cash flow in the short-run. Companies may decide that it is an optimal strategy to bear the costs up front of shifting its operations to those that have fewer emissions or upgrading their equipment, rather than bearing the risk that these costs will be borne in an unpredictable and possibly disorderly way in the future. In the absence of a means to credibly convey that efforts to achieve these long-term targets are being undertaken diligently, however, investors might be unable to observe which registrants are actually following through on such actions. For example, if registrants are incurring costs in the short-run to undertake investments to reduce Scope 1, 2, and 3 emissions, reducing short-run profitability, but are unable to convey to investors that they are meaningfully following through on achieving potential long-term value-enhancing strategies, there could be a disincentive for investors to invest in the firm, thus undermining its value in the long-run. This has been put forth as one potential explanation for some private sector attempts at addressing these problems, such as green bonds, which commit firms to recurring, more standardized disclosure requirements for progress in achieving stated targets and goals.⁹⁰⁰ The proposed rules would provide enhanced transparency about targets and goals so that investors can identify registrants with credible goals and track their progress over time. This can not only reduce incentives for misleading goal disclosures, but can also allow investors to recognize goals that generate long-term value despite short run costs, which can attract capital and increase firm value.

⁹⁰⁰ See S. Lu, *The Green Bonding Hypothesis: How do Green Bonds Enhance the Credibility of Environmental Commitments?* (2021), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3898909.

As explained above, the pursuit of targets could have a material impact, either in the short-term or long-term, on a registrant's operations or financial condition.⁹⁰¹ At this time, however, there is little consistency with respect to the extent of disclosure and the relevant details concerning such climate-related targets and goals. This can result in insufficient information for investors' monitoring or decision-making needs. The proposed disclosure could provide more comparable, consistent, and reliable metrics of any climate-related targets or goals. It would require a registrant to clearly define baselines for targets, the scope of activities and emissions covered by the target, the unit of measurement, the defined time horizon, and how progress is made towards the targets. For example, the disclosure would require the registrant to state whether or not the targets pertain to Scope 3 emissions. If targets do include Scope 3 emissions, disclosure of Scope 3 emission sources and amounts would be required so that investors would understand the scale and scope of changes the company would need to undertake, and thus the full financial impact of meeting the target.⁹⁰² Such disclosures would also enable investors to monitor progress firm management has made and plans to make towards achieving climate-related targets or goals, assess the credibility of its goal, and evaluate the effectiveness of the company's investments to achieve its goals. As described above, this required disclosure could make targets more credible and serves as an oversight or monitoring mechanism.

⁹⁰¹ See supra Sections II.G.1.b. and III C.1.e.

⁹⁰² See *id.*

h. Structured Data Requirement

Under the proposed rules, the new climate-related disclosures would be tagged in the Inline XBRL structured data language. The provision requiring Inline XBRL tagging of climate-related disclosures would benefit investors by making those disclosures more readily available for aggregation, comparison, filtering, and other enhanced analytical methods.⁹⁰³ These benefits are expected to reduce search costs and substantially improve investors' information-processing efficiency.⁹⁰⁴ XBRL requirements for public company financial statement disclosures have been observed to reduce information-processing costs, thereby decreasing information asymmetry and increasing transparency by incorporating more company-specific information into the financial markets.⁹⁰⁵ In addition, the proposed Inline XBRL requirement for the climate-related disclosures may further limit agency problems, as XBRL requirements for financial statement

⁹⁰³ For example, structuring climate-related disclosures would enable more advanced analyses than those described in the aforementioned Commission staff review that used keyword searches and NLP. *See supra* IV.A.5.a.

⁹⁰⁴ The findings on XBRL cited in the following paragraphs are not necessarily focused on climate-related disclosures and metrics, but we expect the findings to be generally applicable and to result in similar benefits for investors.

⁹⁰⁵ *See, e.g.,* Y. Cong, J. Hao, and L. Zou, *The Impact of XBRL Reporting on Market Efficiency*, 28 J. INFO. SYS. 181 (2014) (finding support for the hypothesis that “XBRL reporting facilitates the generation and infusion of idiosyncratic information into the market and thus improves market efficiency”); Y. Huang, J.T. Parwada, Y.G. Shan, and, J. Yang, *Insider Profitability and Public Information: Evidence From the XBRL Mandate* (Working Paper) (2019) (finding XBRL adoption levels the informational playing field between insiders and non-insiders); J. Efendi, J.D. Park, and C. Subramaniam, *Does the XBRL Reporting Format Provide Incremental Information Value? A Study Using XBRL Disclosures During the Voluntary Filing Program*, 52 ABACUS 259 (2016) (finding XBRL filings have larger relative informational value than HTML filings); J. Birt, K. Muthusamy, and P. Bir, *XBRL and the Qualitative Characteristics of Useful Financial Information*, 30 ACCOUNT. RES. J. 107 (2017) (finding “financial information presented with XBRL tagging is significantly more relevant, understandable and comparable to non-professional investors”); S.F. Cahan, S. Chang, W.Z. Siqueira, and K. Tam, *The Roles of XBRL and Processed XBRL in 10-K Readability*, J. BUS. FIN. ACCOUNT. (2021) (finding Form 10-K file size reduces readability before XBRL’s adoption since 2012, but increases readability after XBRL adoption, indicating “more XBRL data improves users’ understanding of the financial statements”).

tagging have been observed to facilitate external monitoring of firms through the aforementioned reduction of information processing costs.⁹⁰⁶

Investors with access to XBRL analysis software may directly benefit from the availability of the climate-related disclosures in Inline XBRL, whereas other investors may indirectly benefit from the processing of Inline XBRL disclosures by asset managers and by information intermediaries such as financial analysts.⁹⁰⁷ In that regard, XBRL requirements for public company financial statement disclosures have been observed to increase the number of companies followed by analysts, decrease analyst forecast dispersion, and, in some cases, improve analyst forecast accuracy.⁹⁰⁸ Should similar impacts on the analysts' informational

⁹⁰⁶ See, e.g., P.A. Griffin, H.A. Hong, J.B. Kim, and J.H. Lim, *The SEC's XBRL Mandate and Credit Risk: Evidence on a Link between Credit Default Swap Pricing and XBRL Disclosure*, 2014 AMERICAN ACCOUNTING ASSOCIATION ANNUAL MEETING (2014) (attributing the negative association between XBRL information and credit default swap spreads to "(i) a reduction in firm default risk from better outside monitoring and (ii) an increase in the quality of information about firm default risk from lower information cost"); J.Z. Chen, H.A. Hong, J.B. Kim, and J.W. Ryou, *Information Processing Costs and Corporate Tax Avoidance: Evidence from the SEC's XBRL Mandate*, 40 (2) *J. ACCOUNT PUB. POL.* (2021) (finding XBRL reporting decreases likelihood of firm tax avoidance, because "XBRL reporting reduces the cost of IRS monitoring in terms of information processing, which dampens managerial incentives to engage in tax avoidance behavior").

⁹⁰⁷ Additional information intermediaries that have used XBRL disclosures may include financial media, data aggregators and academic researchers. See, e.g., N. Trentmann, *Companies Adjust Earnings for Covid-19 Costs, but Are They Still a One-Time Expense?* THE WALL STREET JOURNAL (2020), available at <https://www.wsj.com/articles/companies-adjust-earnings-for-covid-19-costs-but-are-they-still-a-one-time-expense-11600939813> (citing XBRL research software provider Calcbench as data source); *Bloomberg Lists BSE XBRL Data*, XBRL.org (2018), available at <https://www.xbrl.org/news/bloomberg-lists-bse-xbrl-data/>; R. Hoitash, and U. Hoitash, *Measuring Accounting Reporting Complexity with XBRL*, 93 *ACCOUNT. REV.* 259–287 (2018). See *2019 Pension Review First Take: Flat to Down*, GOLDMAN SACHS ASSET MANAGEMENT (2020) (an example of asset manager use of XBRL data), available at https://www.gsam.com/content/dam/gsam/pdfs/common/en/public/articles/2020/2019_Pension_First_Take.pdf?sa=n&rd=n (citing XBRL research software provider Idaciti as a data source).

⁹⁰⁸ See, e.g., A.J. Felo, J.W. Kim, and J. Lim, *Can XBRL Detailed Tagging of Footnotes Improve Financial Analysts' Information Environment?*, 28 *INT'L J. ACCOUNT. INFO. SYS.* 45 (2018); Y. Huang, Y.G. Shan, and J.W. Yang., *Information Processing Costs and Stock Price Informativeness: Evidence from the XBRL Mandate*, 46 *AUST. J. MGMT.*, 110–131 (2020) (finding "a significant increase of analyst forecast accuracy post-XBRL"); M. Kirk, J. Vincent, and D. Williams, *From Print to Practice: XBRL Extension Use and Analyst Forecast Properties* (Working Paper 2016) (finding "the general trend in forecast accuracy post-XBRL adoption is

environment arise from climate-related disclosure tagging requirements, this would likely benefit retail investors, who have generally been observed to rely on analysts' interpretation of financial disclosures rather than directly analyzing those disclosures themselves.⁹⁰⁹

2. Costs

Below we discuss the anticipated direct and indirect costs of the proposed rules. Direct costs would include compliance burdens for registrants in their efforts to meet the new disclosure requirements. These direct costs could potentially be significant; however, the incremental costs would be lower to the extent that registrants already provide the required disclosures. Indirect costs may include heightened litigation risk and the potential disclosure of proprietary information.⁹¹⁰ We proceed by discussing these various costs.

a. Direct costs

The primary direct costs that the proposed rules would impose on registrants are compliance costs. To the extent that they are not already gathering the information required to be disclosed under the proposed rules, registrants may need to re-allocate in-house personnel, hire additional staff, and/or secure third-party consultancy services. Registrants may also need to

positive"); C. Liu, T. Wang, and L.J. Yao, *XBRL's Impact on Analyst Forecast Behavior: An Empirical Study*, 33 J. ACCOUNT. PUB. POL. 69–82 (2014) (finding “mandatory XBRL adoption has led to a significant improvement in both the quantity and quality of information, as measured by analyst following and forecast accuracy”). *But see* S.L. Lambert, K. Krieger, and N. Mauck, *Analysts' Forecasts Timeliness and Accuracy Post-XBRL*, 27 INT'L J. ACCOUNT. INFO. MGMT. 151-188 (2019) (finding significant increases in frequency and speed of analyst forecast announcements, but no significant increase in analyst forecast accuracy post-XBRL).

⁹⁰⁹ *See, e.g.*, A. Lawrence, J. Ryans, and E. Sun, *Investor Demand for Sell-Side Research*, 92 ACCOUNT. REV. 123–149 (2017) (finding the “average retail investor appears to rely on analysts to interpret financial reporting information rather than read the actual filing”); D. Bradley, J. Clarke, S. Lee, and C. Ornthanalai, *Are Analysts' Recommendations Informative? Intraday Evidence on the Impact of Time Stamp Delays*, 69 J. FINANCE 645–673 (2014) (concluding “analyst recommendation revisions are the most important and influential information disclosure channel examined”).

⁹¹⁰ For example, these costs may include the revelation of trade secrets, the disclosure of profitable customers and markets, or the exposure of operating weakness to competing firms, unions, regulators, investors, customers or suppliers. These costs are commonly referred to as “proprietary costs.”

conduct climate-related risk assessments, collect information or data, measure emissions (or, with respect to Scope 3 emissions, gather data from relevant upstream and downstream entities), integrate new software or reporting systems, seek legal counsel, and obtain assurance on applicable disclosures (i.e., Scopes 1 and 2 emissions). In addition, even if a registrant already gathers and reports the required information, some or all of this information may be in locations outside of SEC filings (such as sustainability reports posted on company websites or emissions data reported to the EPA). These registrants may face lower incremental costs by virtue of already having the necessary processes and systems in place to generate such disclosures; however they may still incur some additional costs associated with preparing this information for inclusion in SEC filings.

(1) General cost estimates

In this section, we review sources that provide insight into the magnitude of the potential costs associated with the proposed rules. With some exceptions discussed in further detail, these sources provide information at the level of general costs for climate disclosures. We acknowledge that these sources are limited in scope or representativeness and thus may not directly reflect registrants' compliance costs. For instance, some third-party sources may present cost estimates that do not include all items required under the proposed rules (e.g., assurance costs), or else they may aggregate the costs of multiple items (including those not required under the proposed rules) into a single cost figure. However, these sources may serve as useful references to the extent that they overlap with specific disclosure elements required in the proposed rules. For example, third-party cost estimates of preparing TCFD reports or completing the CDP questionnaire can offer a rough approximation of potential compliance costs due to their

similarity with the proposed rules. Below, we request further data to assist us in estimating potential costs.

As discussed in Section V, for purposes of the Paperwork Reduction Act of 1995 (“PRA”),⁹¹¹ we estimate the annual costs over the first six years of compliance with the proposed rules.⁹¹² For non-SRC registrants, the costs in the first year of compliance are estimated to be \$640,000 (\$180,000 for internal costs and \$460,000 for outside professional costs), while annual costs in subsequent years are estimated to be \$530,000 (\$150,000 for internal costs and \$380,000 for outside professional costs). For SRC registrants, the costs in the first year of compliance are estimated to be \$490,000 (\$140,000 for internal costs and \$350,000 for outside professional costs), while annual costs in subsequent years are estimated to be \$420,000 (\$120,000 for internal costs and \$300,000 for outside professional costs). These costs are expected to decrease over time for various reasons, including increased institutional knowledge, operational efficiency, and competition within the market for relevant services.

One commenter provided cost estimates for their services in assisting client companies prepare TCFD-aligned disclosures.⁹¹³ For companies that have no prior experience in GHG analysis or climate-related disclosures, the commenter estimates initial costs to range from

⁹¹¹ See Paperwork Reduction Act, Pub. L. No. 104-13, 109 Stat 163 (1995) (codified at 44 U.S.C. 3501 *et seq.*). See *infra* Section V.

⁹¹² The following estimates are applicable to registrants filing form 10-K that have no existing climate-related disclosure processes or expertise. All estimates are rounded to the nearest \$5,000.

⁹¹³ See memorandum, dated Feb. 4, 2022, concerning staff meeting with representatives of S&P Global.

\$150,000 to \$200,000 to prepare TCFD-aligned disclosures.⁹¹⁴ Companies that have already calculated their carbon footprints and only need assistance with TCFD reporting may expect costs of \$50,000 to \$200,000, with the average cost of approximately \$100,000. Ongoing costs for their services are expected to be zero conditional upon the TCFD requirements remaining unchanged,⁹¹⁵ however the reporting company may still incur internal costs in preparing these disclosures on an annual basis.

Another source presents survey results of climate-related disclosure costs for three unnamed companies, which consist of a European-based multinational large-cap financial institution, a US-based large-cap industrial manufacturing company, and a US-based mid-cap waste management company.⁹¹⁶ The survey reports that each firm has “already established robust in-house climate disclosure systems that can easily be leveraged to comply with any new disclosure rule,” as evidenced by their concurrent reporting under multiple climate disclosure frameworks (e.g., TCFD, CDP, SASB, GRI, etc.). The respondents indicate that anticipated incremental costs of a mandatory climate disclosure rule are therefore expected to be minimal.⁹¹⁷

⁹¹⁴ This cost range pertains to clients’ use of the commenter’s “TCFD Suite”, which consists of the following modules: benchmarking / gap assessment, management interviews, physical risk assessment, and various transition risk assessments, including policy risk analysis, market risk assessment, technology risk assessment, and reputation risk assessment. This cost range excludes the cost of additional services, such as target-setting (\$20,000 to \$30,000) and calculating GHG footprints (\$75,000 to \$125,000 for Scopes 1, 2, and 3), the latter of which is discussed in further detail in the following subsection.

⁹¹⁵ The commenter reports that should the TCFD requirements change based on new science, projections, and business changes, costs of the TCFD Suite in future years may range from \$125,000 to \$175,000.

⁹¹⁶ See L. Reiners and K. Torrent, *The Cost of Climate Disclosure: Three Case Studies on the Cost of Voluntary Climate-Related Disclosure*, Climate Risk Disclosure Lab (2021), available at <https://climatedisclosurelab.duke.edu/wp-content/uploads/2021/12/The-Cost-of-Climate-Disclosure.pdf>.

⁹¹⁷ Incremental costs would be minimal to the extent that the mandatory disclosure rule overlaps with their current reporting practices. The respondents acknowledge that actual incremental costs would depend on the contents of the final rule.

All respondents disclose Scopes 1, 2, and 3 emissions, while none of them obtain third-party assurance for their climate-related disclosures.

The mid-cap waste management company estimates that the cost of producing their first TCFD report was less than \$10,000. The company's reported annual costs consist of employee costs (\$12,600)⁹¹⁸ and third-party costs (\$60,000 to \$160,000).⁹¹⁹ However, the reported annual costs may be less applicable to potential compliance costs as they combine additional costs associated with several other activities not necessarily required in the proposed rules, including its adherence to multiple climate disclosure frameworks (e.g. TCFD, GRI, SASB, and CDP) and designing its annual sustainability report and associated webpage.⁹²⁰ Overall, the company reports that its total costs related to producing climate-related disclosures across these multiple frameworks are less than 5% of its total SEC compliance-related costs.

The large-cap industrial manufacturing company reports that the costs of preparing its first CDP questionnaire was no more than \$50,000. Additionally, the combined costs of producing its first TCFD, SASB, and GRI disclosures were between \$200,000 and \$350,000. Reported annual costs include internal costs (between \$200,000 and \$350,000)⁹²¹ and the cost for

⁹¹⁸ The company allocates three employees to produce climate-related disclosures. Two employees in Legal and Compliance devote a combined 80 hours per year on this task, while one employee in Management and Administration devotes two hours per year.

⁹¹⁹ The company reports that approximately one-third of these third-party costs is associated with designing the annual sustainability report and associated webpage, while the remaining two-thirds is associated with report writing and consulting work on the voluntary frameworks.

⁹²⁰ These annual costs reflect a larger scope of climate-related disclosures (e.g. multiple frameworks, sustainability report, etc.) relative to the initial cost, which is specific to TCFD reporting only. Nevertheless, because these estimates aggregate the costs of reporting under the TCFD in addition to other climate disclosure framework, these estimates can serve as an upper bound of what annual costs may be specific to TCFD reporting only.

⁹²¹ Internal costs include the cost of approximately 20 employees working part-time on climate-related disclosures from Nov. until Mar. and one full-time consultant.

auditors and consultants (\$400,000).⁹²² These cost estimates, however, may overestimate potential compliance costs to the extent that they include disclosure items or activities not required in the proposed rules. The company reports that their annual costs of producing its voluntary climate-related disclosures are less than 0.1% of their revenues.

The multinational financial institution reports that the cost of producing its first TCFD report, SASB report, and CDP questionnaire were each less than \$100,000 given that such information overlaps with what the company already discloses under the EU's Prospectus Regulation (Regulation (EU) 2017/1129). The company estimates annual costs ranging from \$250,000 and \$500,000 to produce these disclosures, but as before, this range may combine the costs of activities that are not required in the proposed rules.⁹²³ Similar to the industrial manufacturing company, this company also notes that the annual costs of producing its voluntary climate-related disclosures are less than 0.1% of their revenues.

Some commenters also provided estimates of climate-related disclosure costs for individual firms. One commenter provided a breakdown of such costs for seven unnamed large cap firms across six different industries.⁹²⁴ Headcount requirements ranged from two to 20 full-time equivalent employees. One large-cap firm in the energy industry reported that its TCFD reporting process involved 40 employees and six months of nearly full-time participation by 20 core team members. Employee hours spent on climate reporting ranged from 7,500 to 10,000 annually. Fees for external advisory services ranged from \$50,000 to \$1.35 million annually,

⁹²² Auditors review data quality and data collection procedures, while consultants help prepare substantive disclosures, advise on adherence to the voluntary climate disclosure frameworks, and prepare web updates.

⁹²³ The company notes that the bulk of its annual costs comes from producing chapter 7 of its Universal Registration Document, issued under the EU's Prospectus Regulation (Regulation (EU) 2017/1129). Chapter 7 pertains to the extra-financial performance statement of the consolidated firm.

⁹²⁴ See Letter from Society for Corporate Governance (June 11, 2021).

which generally included legal counsel and consulting services related to environmental engineering, emissions, climate science, modeling, or sustainability reporting. Another commenter, a Fortune 500 energy infrastructure firm, reported that it employs a full-time, management level director that spends about 25% of his time developing sustainability reports and other ESG initiatives. This commenter also reported that it pays a third-party consulting firm more than \$250,000 annually to assist in its ESG and sustainability report process.⁹²⁵

The UK's Department for Business, Energy & Industrial Strategy, as part of its Green Finance Strategy, has released a final stage impact assessment (the "UK impact assessment") of their proposed rules that would also require certain TCFD-aligned disclosures from firms and asset managers listed on UK financial markets.⁹²⁶ The UK impact assessment provides a breakdown of estimated average compliance costs per affected entity. Under the assumption that affected entities have no pre-existing climate-related disclosure practices or expertise, the UK impact assessment estimates that first-year one-time costs would include familiarization costs (\$17,300⁹²⁷ plus \$2,600 per subsidiary, as applicable) and legal review (\$4,400). They also

⁹²⁵ See Letter from Williams Companies, Inc. (June 12, 2021).

⁹²⁶ See U.K. Dep't for Bus., Energy, & Indus. Strategy, *Mandating Climate-Related Financial Disclosures by Publicly Quoted Companies, Large Private Companies and Limited Liability Partnerships (LLPs)*, Final Stage Impact Assessment (Oct. 1, 2021), available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1029317/climate-related-financial-disclosure-consultation-final-stage-impact-assessment.pdf (The UK's climate-related disclosure rules would apply to Relevant Public Interest Entities (PIEs), including Premium and Standard Listed Companies with over 500 employees, UK registered companies with securities admitted to AiM with more than 500 employees, Limited Liability Partnership (LLPs) within the threshold of the "500 test," and UK registered companies which are not included in the categories above and are within the threshold of the "500 test.").

⁹²⁷ In the final stage impact assessment, the cost estimate provided for familiarization costs assumes that scenario analysis is required. Because the proposed rules do not require scenario analysis, this number references familiarization costs provided in the *initial* impact assessment, which assumes no scenario analysis. See U.K. Dep't for Bus., Energy, & Indus. Strategy, *Mandating Climate-Related Financial Disclosures by Publicly Quoted Companies, Large Private Companies and Limited Liability Partnerships (LLPs)*, Consultation Impact Assessment (Jan. 29, 2021), available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/972423/impact-assessment.pdf.

estimate recurring annual governance disclosure costs (\$12,500), strategy disclosure costs (\$17,900⁹²⁸), risk management disclosure costs (\$14,900), metrics and targets disclosure costs (\$104,400 in the first year and \$80,500 in subsequent years⁹²⁹), internal audit costs (\$30,300), and signposting costs (\$100).⁹³⁰ For companies with subsidiaries, the costs of collecting information from subsidiaries and processing this information are expected to be \$4,300 for the parent company and \$1,700 for each subsidiary. In total, the study estimates that a company with no pre-existing climate-related disclosure practices or expertise could incur costs of \$201,800 in the first year and \$177,900 in subsequent years, plus additional costs due to subsidiaries, as applicable. This cost estimation methodology is conditional upon assumptions regarding the number of required staff, the rank or title of the staff, and the required labor hours, which are then matched with local wage data to estimate final costs.

It is important to note that all of these cost estimates are conditional on specific assumptions and can vary significantly depending on firm characteristics, such as firm size, industry, business model, the complexity of the firm’s corporate structure, starting level of internal expertise, etc. In addition, we note that, in certain cases, these cost estimates may represent a registrant’s optimal response to investor demand, and thus may exceed the minimum cost necessary to fulfill mandatory reporting of climate-related risks. We are accordingly requesting comments regarding compliance costs, including cost data that can be used to

⁹²⁸ This number excludes the cost of scenario analysis since this is not required under the proposed rules.

⁹²⁹ We note that these numbers do not include the costs of measuring and reporting Scope 3 emissions since this is not required under the UK proposed rules.

⁹³⁰ These numbers have been converted from GBP based on the 2021 average exchange rate of \$1.3757 USD/GBP, rounded to the nearest \$100. We note that the impact assessment also provides estimates of incremental costs associated with each subsidiary; however, these costs are not included in the estimates cited above for the sake of brevity. Signposting costs refer to the “additional annual cost to those in scope to upload the required reporting documentation and signposting to this documentation within their annual report.”

generate more accurate, granular, and reliable cost estimates that are more representative of the full set of affected registrants.

(2) Cost estimates specific to emissions

In this section, we review the available evidence, which provides some insight into the scope of the compliance costs associated with reporting GHG emissions. We are cognizant of the type of costs that registrants will incur to report GHG emissions, e.g. resources, systems, design and implementation of DCP, external consulting services. In light of the limited information available, however, we are unable to fully and accurately quantify these costs. Accordingly, we are requesting comments regarding cost data for GHG emissions reporting.

One commenter reports that their services in calculating client companies' GHG footprints (Scopes 1, 2, and 3 emissions) would initially cost \$75,000 to \$125,000 if the client company has no prior experience in this area.⁹³¹ Ongoing costs amount to approximately \$40,000 assuming no material changes in Scope 3 emissions (i.e., assess Scopes 1 and 2 only). If there are material changes to Scope 3 emissions, ongoing costs would range from \$75,000 to \$125,000 (i.e., assess Scopes 1, 2, and 3).

Another commenter, a climate management and accounting platform, provided cost estimates of the measurement and reporting of emissions. This commenter's estimates are disaggregated across scopes of emissions as well as "low maturity" vs "high maturity" companies with respect to emissions reporting. Low maturity companies are defined as those that have no formal understanding of GHG emission calculations and have no related policies or programs in place. Accordingly, these companies have not organized or collected any data for

⁹³¹ See *supra* note 783. Legal and audit fees are not included in these cost estimates.

such a calculation. High maturity companies are defined as those that have the aforementioned understanding, policies, programs, and data. Therefore, high maturity companies are expected to face lower incremental costs. The commenter estimates that the average first-year startup cost of assessing Scopes 1 and 2 emissions amount to \$45,000 and \$25,000 for companies of low and high maturity, respectively. Including the assessment of Scope 3 emissions would increase the costs by \$80,000 and \$25,000 for companies of low and high maturity, respectively. The commenter indicated that it expects these costs to decrease over time as software solutions simplify the process and reduce the burden on companies.

Additional cost estimates are provided by another commenter, which is an organization that assists companies, communities, and other organizations in accurately assessing emissions data across all scopes of emissions.⁹³² According to their pricing structure, initial one-time costs amount to \$10,000, which includes identifying data input needs, developing the design and organization of user interfaces, establishing software and IT systems, and reporting emissions from prior years to the extent that historic data is available. Ongoing costs, which includes a subscription fee and data management fee, amount to \$12,000 plus \$1,200 per building that is covered in the calculation of emissions. Another organization that offers similar services, among others, indicates that their fees for GHG accounting for Scopes 1, 2, and 3 can range from \$11,800 to \$118,300.⁹³³ Their fees for applying the PCAF method on investment and lending

⁹³² See memorandum, dated Jan. 21, 2022, concerning staff meeting with representatives of Ledger8760, available at <https://www-draft.sec.gov/comments/s7-10-22/s71022.htm>.

⁹³³ See memorandum, dated Jan. 14, 2022, concerning staff meeting with representatives of South Pole. These numbers have been converted from EUR based on the 2021 average exchange rate of \$1.183 USD/EUR, rounded to the nearest \$100.

portfolios range from \$11,800 to \$35,500. They note that the assessment process take approximately 1-3 months depending on the complexity and availability of data.

The EPA has also sought to quantify the costs of measuring and reporting emissions in accordance with the mandatory Greenhouse Gas Reporting Program, which generally requires facility-level reporting of emissions from large emitters and from large suppliers of certain products (e.g., entities that produce gasoline that will eventually be consumed downstream by the end-user).⁹³⁴ The EPA estimated that the rule would impose small expected costs on the facilities under its purview. The EPA estimated that, for most sectors, the costs represent at most 0.1% of sales.⁹³⁵ For small entities,⁹³⁶ the EPA estimated that the costs are on average less than 0.5% of sales. While the EPA's emissions reporting requirements, as discussed above, may elicit some of the information required under our proposed rules, given that the requirements are different, the actual compliance costs would differ accordingly.

A survey conducted by PCAF provides some estimates of the costs of assessing financed emissions.⁹³⁷ Financed emissions, which can be one component of Scope 3 emissions for certain financial institutions, can be described as the emissions generated by companies in which a financial institution invests or to which it otherwise has exposure. The PCAF survey of 18

⁹³⁴ See Section IV.A.3 for more information on the EPA mandatory Greenhouse Gas Reporting Program.

⁹³⁵ See EPA, *Regulatory Impact Analysis for the Mandatory Reporting of Greenhouse Gas Emissions* (Sept. 2009), available at <https://www.epa.gov/sites/default/files/2015-07/documents/regulatoryimpactanalysisghg.pdf>. The EPA notes that several facility types do not currently report emissions (or the existence of such disclosure practices cannot be confirmed), therefore the cost estimates for these facility types reflect full start-up costs to meet the reporting requirements.

⁹³⁶ The EPA defines a small entity as (1) a small business, as defined by SBA's regulations at 13 CFR Part 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district, or special district with a population of less than 50,000; or (3) a small organization that is any not-for-profit enterprise that is independently owned and operated and is not dominant in its field.

⁹³⁷ See Letter from PCAF (Dec. 21, 2021).

unnamed financial institutions⁹³⁸ found that typical staff time ranged between 50 and 100 days and the costs for contracting external support was less than \$20,000 for the majority of respondents. These estimates may provide some sense of the costs that may be incurred by those financial institutions that would be required to report Scope 3 emissions under the proposed rules.

(3) Cost estimates of assurance for Scopes 1 and 2 emissions disclosures

Registrants that are accelerated filers and large accelerated filers will incur additional costs in obtaining assurance of Scopes 1 and 2 emissions disclosures. The Commission estimates these costs starting with data on these filers' median audit fees in fiscal year 2020, which is \$989,566 and \$2,781,962 for accelerated filers and large accelerated filers, respectively.⁹³⁹ Next, an academic study suggests that assurance costs for sustainability reports (which serve as a common location for climate-related information, in addition to other non-financial topics) may range from 5% to 10% of total audit fees.⁹⁴⁰ We take the minimum, median, and maximum percentages (5%, 7.5%, and 10%, respectively) and apply further adjustments based on (i) emissions disclosures typically comprising only a portion of CSR reports, (ii) the potential fee premium related to attestation report included in SEC filings, and (iii) the average pricing difference between limited and reasonable assurance. For limited assurance, we estimate that

⁹³⁸ The 18 survey respondents consist of 2 insurance companies, 13 banks (commercial, investment, or development), 1 asset owner, and 2 asset managers. Respondents' asset size ranges from less than a \$1bn USD to \$500bn USD. The average assets covered by this disclosure activity was approximately \$5-20bn USD.

⁹³⁹ Data on audit fees is from Audit Analytics, which provides all fee data disclosed by SEC registrants in electronic filings since Jan. 1, 2000.

⁹⁴⁰ See R.J. Casey and J.H. Grenier, *Understanding and Contributing to the Enigma of Corporate Social Responsibility (CSR) Assurance in the United States*, 97 *AUDITING: A JOURNAL OF PRACTICE & THEORY* 130 (2015).

accelerated filers will incur costs ranging from \$30,000 to \$60,000 (with a median of \$45,000), while large accelerated filers will incur costs ranging from \$75,000 to \$145,000 (with a median of \$110,000). For reasonable assurance, we estimate that accelerated filers will incur costs ranging from \$50,000 to \$100,000 (with a median of \$75,000), while large accelerated filers will incur costs ranging from \$115,000 to \$235,000 (with a median of \$175,000).

On the one hand, these estimates may underestimate actual costs as they are based on relative costs of assurance for financial statements, and assurance on emissions may differ in important ways. On the other hand, the costs may be lower in the future to the extent that the market for assurance services matures with respect to institutional knowledge, procedural efficiency, and overall competition. We request additional data that may assist in accurately assessing the costs of obtaining assurance over emissions disclosures.

(4) Factors that affect direct costs

Incremental compliance costs may be relatively lower for registrants that already meet some of the disclosure and tagging requirements. For instance, registrants that are currently subject to the EPA's Greenhouse Gas Reporting Program would face lower incremental costs in reporting certain scopes of emissions relative to a firm that has no emissions measurement systems in place.⁹⁴¹ Similarly, registrants that already provide extensive qualitative disclosures on climate-related risks, which tend to be large accelerated filers and registrants in high emission industries,⁹⁴² may face lower incremental costs in meeting certain disclosure requirements. As discussed in Section IV.A.5.a, the Commission's staff reviewed 6,644 recent annual reports

⁹⁴¹ See Section IV.C.1.e for more information on how the proposed rules compare to the EPA's emissions reporting requirements.

⁹⁴² See Section IV.A.5.a

(Forms 10-K, 40-F, and 20-F) and found that 33% of them contained disclosures related to climate change, the majority of which discussed information related to business impact, emissions, international climate accords, and physical risks. Registrants with operations in foreign jurisdictions⁹⁴³ where disclosure requirements are based on the TCFD's framework for climate-related financial reporting, would also face lower incremental costs.⁹⁴⁴ Moreover, costs may also be mitigated by the proposed transition period, which would allow firms to more gradually transition to the new reporting regime.

Several industry reports also document how a sizeable portion of U.S. companies report climate-related information under one or more third-party frameworks that are either fully or partially aligned with the TCFD disclosure elements. For example, the CCMC survey (G&A study) reports that among their sample of U.S. public companies, 44% (53%) use the SASB, 31% (52%) use the GRI, 29% (30%) use the TCFD, and 24% (40%) use the CDP. Moody's analytics provides a detailed view for a sample of 659 U.S. companies of the existing disclosure rate across the different TCFD disclosure elements that range from a high of 45% disclosure rate for Risks and Opportunities - Strategy (a), to a low of 5% for Risks and Opportunities - Strategy (c) (see Table 4). Since the proposed rules are broadly consistent with the TCFD framework, we would expect lower incremental compliance costs for registrants that provide most or all disclosures according to the TCFD or related frameworks, including the CDP, which has fully integrated the TCFD disclosure elements into its disclosure questionnaire, and other frameworks and/or standards partly aligned with the TCFD recommendations.

⁹⁴³ E.g., Morningstar reports that over 35% of S&P 500 revenues came from foreign markets, while this percentage is around 20% for the revenues coming from companies belonging to the Russell 2000 index. See, <https://www.morningstar.com/articles/918437/your-us-equity-fund-is-more-global-than-you-think>.

⁹⁴⁴ See Section IV.A.4 for a discussion on International Disclosure Requirements.

Similarly, registrants in the insurance industry may also face lower incremental costs due to their existing disclosure practices. As discussed in Section IV.A.3, a large subset of insurance firms are required to disclose their climate-related risk assessment and strategy via the NAIC Climate Risk Disclosure Survey. A comment by a state insurance commissioner stated that because this survey overlaps extensively with the TCFD recommendations, these firms should be able to easily switch to reporting via the TCFD disclosure framework.⁹⁴⁵ This is because the proposed rules are broadly consistent with the TCFD. We expect that registrants in the insurance industry may be able to adapt more easily to providing disclosure under these rules.

Section IV.A.5.e reports survey evidence on the frequency with which firms obtain assurance in sustainability reports. This evidence suggests that a significant fraction of large companies already obtain some form, albeit limited, of assurance. To the extent that large accelerated filers and accelerated filers already voluntarily obtain some form of assurance over their GHG emissions, these registrants would face lower incremental costs associated with complying with the proposed rules' assurance requirements. These registrants tend to bear proportionately lower compliance costs than smaller issuers due to the fixed cost components of such compliance.⁹⁴⁶ Additionally, as the market for assurance matures, the Commission staff expects these costs to decrease over time.

Incremental costs may be higher for smaller firms considering that they are less likely to have climate-related disclosure systems and processes already in place.⁹⁴⁷ If smaller firms were

⁹⁴⁵ See Letter from Mike Kreidler, Office of the Insurance Commissioner, State of Washington (June 14, 2021).

⁹⁴⁶ For example, during fiscal year 2020, median audit fees as percentage of revenue for large accelerated filers and accelerated filers was 0.16%, while the corresponding figure for non-accelerated filers was 1.1%.

⁹⁴⁷ See *supra* note 760. See also discussion of the Commission staff's review using climate-related keyword searches in Section IV.A.5.a.

to face higher proportional fixed costs in meeting the disclosure requirements, this may potentially put them at a competitive disadvantage to larger firms.⁹⁴⁸ Conversely, incremental costs for smaller firms may be lower to the extent that they have less complexity with respect to their assets and operations, which may allow them to assess climate-risk exposures or measure emissions at lower cost.

With respect to the Inline XBRL tagging requirements, various preparation solutions have been developed and used by operating companies to fulfill their structuring requirements, and some evidence suggests that, for smaller companies, XBRL compliance costs have decreased over time.⁹⁴⁹ The incremental compliance costs associated with Inline XBRL tagging of climate-related disclosures would also be mitigated by the fact that filers that would be subject to the proposed requirements would also be subject to other Inline XBRL requirements for other disclosures in Commission filings, including financial statement and cover page disclosures in

⁹⁴⁸ Because higher proportional fixed costs for smaller firms may be particularly acute with respect to assessing Scope 3 emissions, the proposed rules exempt SRCs from providing Scope 3 emissions disclosures. Since SRCs are a small fraction of the market, the overall benefit to investors would not be as large as for non-SRCs, while avoiding high fixed costs that could put them at a potential competitive disadvantage.

⁹⁴⁹ An AICPA survey of 1,032 reporting companies with \$75 million or less in market capitalization in 2018 found an average cost of \$5,850 per year, a median cost of \$2,500 per year, and a maximum cost of \$51,500 per year for fully outsourced XBRL creation and filing, representing a 45% decline in average cost and a 69% decline in median cost since 2014. *See* M. Cohn, *AICPA Sees 45% Drop in XBRL Costs for Small Companies*, *Accounting Today* (Aug. 15, 2018) (stating that a 2018 NASDAQ survey of 151 listed registrants found an average XBRL compliance cost of \$20,000 per quarter, a median XBRL compliance cost of \$7,500 per quarter, and a maximum, XBRL compliance cost of \$350,000 per quarter in XBRL costs per quarter), *available at* <https://www.accountingtoday.com/news/aicpa-sees-45-drop-in-xbrl-costs-for-small-reporting-companies> (retrieved from Factiva database). *See also* Letter from Nasdaq, Inc., Mar. 21, 2019 to the Request for Comment on Earnings Releases and Quarterly Reports; Release No. 33-10588 (Dec. 18, 2018) 83 Fed. Reg. 65601 (Dec. 21, 2018).

certain periodic reports and registration statements.⁹⁵⁰ As such, the proposal would not impose Inline XBRL compliance requirements on filers that would otherwise not be subject to such requirements, and filers may be able to leverage existing Inline XBRL preparation processes and/or expertise in complying with the proposed climate-related disclosure tagging requirements.

We expect that the number of registrants committed to preparing climate-related disclosures will increase in the future, independently from our proposed rules. As discussed in Section IV.B.1, a sizeable and growing portion of global investors consider climate change as the leading issue driving their engagements with companies and is demanding robust disclosure around its impacts and the plan to mitigate climate-related risks. Consistent with this increasing demand for climate-related information, recent trends showed an uptick in climate-related disclosures, particularly within samples of larger firms, though not necessarily through their regulatory filings.⁹⁵¹ Furthermore, the market for related services (e.g., GHG accounting services, auditors, and other consultants, etc.) may become more competitive, driving down costs. To the extent that these trends continue in the future, we would expect that the incremental costs for complying with the proposed rules would become lower for an increasing number of firms.

⁹⁵⁰ See 17 CFR 229.601(b)(101); 17 CFR 232.405 (for requirements related to tagging financial statements (including footnotes and schedules) in Inline XBRL). See also 17 CFR 229.601(b)(104); 17 CFR 232.406 for requirements related to tagging cover page disclosures in Inline XBRL. Beginning in 2024, filers of most fee-bearing forms will also be required to structure filing fee information in Inline XBRL, although the Commission will provide an optional web tool that will allow filers to provide those tagged disclosures without the use of Inline XBRL compliance services or software. See 17 CFR 229.601(b)(108) and 17 CFR 232.408; Filing Fee Disclosure and Payment Methods Modernization, Release No. 33-10997 (Oct. 13, 2021), 86 FR 70166 (Dec. 9, 2021).

⁹⁵¹ See Section IV.A.5

b. Indirect costs

In addition to the direct costs of preparing climate-related disclosures, the proposed rules could also lead to indirect costs. For example, the proposed rules may result in additional litigation risk since the proposed climate-related disclosures may be new and unfamiliar to many registrants.⁹⁵² The proposed rules would significantly expand the type and amount of information registrants are required to provide about climate-related risks. Registrants unfamiliar preparing these disclosures may face significant uncertainty and novel compliance challenges. To the extent this leads to inadvertent non-compliance, registrants may face additional exposure to litigation or enforcement action.

However, certain factors may mitigate this concern. First, existing and proposed safe harbors⁹⁵³ would provide protection from liability for certain statements by registrants, including projections regarding future impacts of climate-related risks on a registrant's consolidated financial statements and climate-related targets and goals. Second, the proposed rules would include phase-in periods after the effective date to provide registrants with sufficient time to become familiar with and meet the proposed disclosure requirements.⁹⁵⁴

⁹⁵² See *supra* note 840.

⁹⁵³ As previously noted, registrants would be able to use the existing safe harbors for forward-looking statements that were added to the Securities Act and Exchange Act pursuant to the PSLRA assuming all conditions of those safe harbor provisions are met. See *supra* note 219.

⁹⁵⁴ Compliance would be required in a registrant's fiscal year ending no earlier than two years after the effective date of any adopted rules. An additional one year phase-in would be provided for registrants that are not large accelerated filers, while complying with Scope 3 emissions reporting would also be provided with an additional one year phase-in.

Another potential indirect cost is the possibility that certain provisions of the proposed rules may force registrants to disclose proprietary information.⁹⁵⁵ Under the proposed rules, registrants would be required to disclose a wide range of climate-related information, including potential impacts on its business operations or production processes, types and locations of its operations, products or services, supply chain and/or value chain. Registrants would be further required to disclose whether they have emissions-related targets and metrics or an internal carbon price, and if they do, what they are. To the extent that a registrant’s business model or strategy relies on the confidentiality of such information, the required disclosures may put the registrant at a competitive disadvantage.

c. Other cost considerations

Although the proposed rules may impose significant compliance costs, we expect these costs to decrease over time, both from firm-specific and market-wide contexts. From the firm-specific context, registrant disclosing climate-related information for the first time is likely to incur initial fixed costs to develop and implement the necessary processes and controls.⁹⁵⁶ Once the firm invests in the institutional knowledge and systems to prepare the disclosures, the procedural efficiency of these processes and controls should subsequently improve, leading to lower costs in following years.⁹⁵⁷

⁹⁵⁵ Proprietary costs are generally relevant for reporting that involves information about a firms’ business operations or production processes and disclosures that are specific, detailed and process-oriented. *See, e.g.,* C. Leuz, A. Triantis, and T. Y. Wang, *Why Do Firms Go Dark? Causes and Economic Consequences of Voluntary SEC Deregistrations*, 45(2) JOURNAL OF ACCOUNTING AND ECONOMICS 181-208 (2008); D.A. Bens, P. G. Berger, and S. J. Monahan, *Discretionary Disclosure in Financial Reporting: An Examination Comparing Internal Firm Data to Externally Reported Segment Data*, 86 (2) THE ACCOUNTING REVIEW 417-449 (2011).

⁹⁵⁶ *See* Letter from Financial Executives International’s (FEI) Committee on Corporate Reporting (CCR) (June 10, 2021).

⁹⁵⁷ The assumption that first year’s costs are greater than subsequent years’ is consistent with the cost estimation models of the EPA’s Greenhouse Gas Reporting Program and the UK’s proposal of mandatory TCFD-aligned disclosure.

Establishing a framework for standardized climate-related disclosures could also reduce uncertainty for registrants over the specific content to disclose and could mitigate disclosure burdens to the extent that it reduces information requests from third parties. Before registrants can take any tangible steps toward preparing climate-related disclosures, they must first determine which specific climate-related discussions, metrics, and analyses are most appropriate to disclose – a process that, under the current regime, can involve significant uncertainty. Furthermore, the uncertain, complex, and multidimensional nature unique to climate-related risks, combined with the unpredictability of investor responses to such disclosures,⁹⁵⁸ can also make it costly for management to determine the risks which meet the materiality threshold.

By implementing a standardized climate disclosure framework, the proposed rules could potentially reduce the burden that registrants may face in the environment of diverging voluntary frameworks and help clarify for registrants what they should disclose, where and when to make their disclosures, and what structure or methodology to use.⁹⁵⁹ While a more principles-based approach would provide additional flexibility for registrants, it also may impose certain costs if they are unsure of what climate-related measures are needed to satisfy legal requirements. Such an approach could entail additional judgment on the part of management, or result in registrants erring on the side of caution in complex matters such as climate-related disclosures. This could ultimately translate into spending more resources to determine appropriate compliance with the Commission's applicable reporting standards. The proposed rules should provide legal certainty around climate-related disclosure and therefore mitigate the compliance burdens associated with the existing regulatory framework.

⁹⁵⁸ See Section IV.B.2.a.(4)

⁹⁵⁹ See *supra* note 806.

Furthermore, some registrants currently receive multiple, diverse requests for climate-related information from different parties, such as investors, asset managers, and data service providers. Responding to such third-party request can be costly and inefficient⁹⁶⁰ and may put significant and sometimes competing demands on registrants.⁹⁶¹ A standardized climate disclosure framework could potentially reduce information requests from third parties to the extent that such requests overlap with the disclosures required under the proposed rules. We acknowledge, however, that registrants that currently use third-party frameworks to disclose climate-related information may incur certain costs of switching from their existing practice to our proposed disclosure framework.

From a market-wide context, mandated climate disclosures may heighten demand for certain data or third-party services related to preparing the required disclosures, including assistance with the reporting of emissions data. In the short term, there could be a potential increase in the prices of such services to extent that the initial growth in demand exceeds the supply. In the long term, however, this heightened demand is expected to spur competition, innovation, and other economies of scale that could over time lower associated costs for such services and data and improve their availability. Moreover, the aggregate accumulation of institutional knowledge may lead to a broad convergence of disclosure-related best practices, which could further reduce the costs of the proposed disclosures. .

Overall, the market effects deriving from competition and innovation could enhance the efficiency and availability of relevant data and services, thereby lowering costs. These positive

⁹⁶⁰ *Id.*

⁹⁶¹ TCFD, *Status Report: Task Force on Climate-related Financial Disclosures*, (June 2019), available at <https://www.fsb-tcfid.org/wp-content/uploads/2019/06/2019-TCFD-Status-Report-FINAL-053119.pdf>.

externalities from standard reporting practices can provide additional market-wide cost savings to the extent that they reduce duplicative effort in the production and acquisition of information.⁹⁶²

D. Anticipated Effects on Efficiency, Competition, and Capital Formation

1. Efficiency

As discussed in Section IV.B.2, the complexity, uncertainty, and long-term nature of climate risks make it unlikely that voluntary disclosure of such risks would be fully revealing. Therefore, as detailed in Section IV.C.1, mandating that climate-related disclosures be presented in a comparable and consistent manner and in a machine-readable language (Inline XBRL) is likely to enhance the information environment for investors. In doing so, the proposed rules are expected to improve market efficiency and price discovery by enabling climate-related information to be more fully incorporated into asset prices. Improved efficiency could inform the flow of capital and allow climate-related risks to be borne by those who are most willing and able to bear them.⁹⁶³

These expected improvements in market efficiency are broadly consistent with empirical research. If climate-related information is relevant for asset prices, and therefore market efficiency, then the effective disclosure of climate-related information would be expected to cause differential asset price/financing cost responses across firms and settings. Empirical

⁹⁶² See *supra* note 840.

⁹⁶³ A recent study by McKinsey found that 85% of investors either agreed or strongly agreed that “more standardization of sustainability reporting” would help them allocate capital more effectively, and 83% either agreed or strongly agreed that it would help them manage risk more effectively. See Sara Bernow et. al., *More Than Values: The Value-Based Sustainability Reporting That Investors Want*, MCKINSEY & COMPANY (Aug. 7, 2019), available at <https://www.mckinsey.com/~media/McKinsey/Business%20Functions/Sustainability/Our%20Insights/More%20than%20values%20The%20value%20based%20sustainability%20reporting%20that%20investors%20want/More%20than%20values-VF.pdf>.

evidence is largely consistent with this expectation. Academic studies have found evidence that among firms that voluntarily report emissions via the CDP questionnaire, those with higher emissions (relative to their size and industry peers) pay higher loan spreads.⁹⁶⁴ A recent report from Lazard Ltd. also found a significant relationship between carbon dioxide emissions and a company's price-to-earnings ratio.⁹⁶⁵ Even in settings with mandatory disclosure, evidence is consistent with abnormally positive stock returns on announcement date for low-emitters and negative returns for high-emitters.⁹⁶⁶

While the disclosure of climate-related information can improve market efficiency, investor response to such disclosures can vary depending on specific circumstances, thereby highlighting the limitations of the aforementioned studies.⁹⁶⁷ For example, if increased disclosure causes investors to realize that their portfolios are more exposed to climate risk than previously known, valuations may fall and costs of capital may increase as investors reallocate capital to balance this risk. Further, aggregate pricing effects could also be due to a better understanding of

⁹⁶⁴ See S. Kleimeier, and M. Viehs, Carbon Disclosure, Emission Levels, and the Cost of Debt, Emission Levels, and the Cost of Debt, SSRN (2018), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2719665.

⁹⁶⁵ See Lazard Climate Center (2021), available at <https://www.lazard.com/media/451920/lazard-climate-center-presentation-december-2021.pdf>. The report examined more than 16,000 companies from 2016 through 2020 and found that investors are actively and directly pricing some transition risk into valuations, however the effects vary significantly across different types of GHGs, market cap, and sectors. Large cap companies (>\$50 billion) experience greater valuation discounts, while big emitters, such as energy companies, showed the starkest correlation. On average, a 10% decrease in a large U.S. energy company's emissions corresponded with a 3.9% increase in its price-to-earnings ratio.

⁹⁶⁶ See *supra* note 849 (Jouvenout and Kruger, 2021).

⁹⁶⁷ *Id.* See also J. Grewal, E. J. Riedl, and G. Serafeim, Market Reaction to Mandatory Nonfinancial Disclosure, 65 (7) *Management Science* 3061-3084 (2019); See *supra* note 849 (Bolton and Kacperczyk, 2020). The first paper in particular finds a negative aggregate stock market response to the passage of a mandatory ESG disclosure rules in the EU. These results, however, should be interpreted with caution. For one, the empirical design is based on matching, but there are reasons to believe that the treatment and control groups differ along important dimensions. Further, there is no event study plot, and results are not shown for cumulative abnormal returns after controlling for common risk factors like the Fama-French 3-factor model. It is therefore difficult to discern whether the passage of the disclosure rules is actually driving the aggregate market response.

future regulatory risks firms face.⁹⁶⁸ Studies find, however, that cumulative abnormal stock returns around the announcement date are negatively correlated with firms' mandatorily disclosed emission levels. This consistent with mandatory reporting of climate-related information improving price discovery and market efficiency.

Empirical research has also documented evidence of market inefficiencies with respect to climate-related risks. For example, one study finds that stock prices of food companies (i.e. food processing and agricultural companies) may exhibit mispricing with respect to drought exposure.⁹⁶⁹ The study documents that drought-exposed firms report reduced future profitability, indicating that drought exposure is a financial risk. In an efficient market, this risk should result in trading activity that decreases the current stock price and increases the expected return (to compensate investors for bearing this risk). The study, however, finds that drought-exposed firms deliver *lower* future returns relative to firms with less exposure, suggesting that the market initially under-reacts to drought exposure. In other words, the market may fail to sufficiently incorporate the risk of drought exposure into the current stock price, resulting in investors holding mispriced assets and bearing risk for which they are not appropriately compensated. Another study finds, through similar reasoning, that stock prices may exhibit mispricing with respect to temperature changes induced by climate change.⁹⁷⁰ According to survey evidence of global institutional investors, respondents believe that equity valuations do not fully reflect

⁹⁶⁸ For example, the passage of disclosure rules may signal more stringent enforcement of emissions rules going forward, leading to an increase in the risk of regulation. Therefore, it is difficult to disentangle the pure effect of disclosure rules on stock performance and the cost of capital.

⁹⁶⁹ See H. Hong, F.W. Li, J. Xu. *Climate Risks And Market Efficiency*, 208.1 JOURNAL OF ECONOMETRICS 265-28 (2019).

⁹⁷⁰ See, e.g., K. Alok, W. Xin, C. Zhang, *Climate Sensitivity And Predictable Returns*, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3331872.

climate-related risks.⁹⁷¹ Mandatory disclosures may help address these inefficiencies as it would provide investors with the information necessary to better incorporate climate-related risks into asset prices.

These capital market benefits can be further strengthened by the requirement to tag the climate-related disclosures in Inline XBRL, as XBRL requirements have been observed to reduce informational advantages of informed traders, increase stock liquidity, and reduce cost of capital.⁹⁷² These benefits may also have valuation implications. The discounted cash flow model illustrates how, all else equal, a drop in the cost of capital leads to a boost in equity valuation, which can further benefit investors.

There are also important efficiency implications in relation to systemic risks.⁹⁷³ The increasing frequency and severity of climate events can potentially lead to destabilizing losses for insurance companies,⁹⁷⁴ banks,⁹⁷⁵ and other financial intermediaries with direct and indirect

⁹⁷¹ See P. Krueger, Z. Sautner, L.T. Starks, *The Importance of Climate Risks for Institutional Investors*, 33(3) THE REVIEW OF FINANCIAL STUDIES, 1067-1111 (2020).

⁹⁷² See, e.g., N. Bhattacharya, Y.J. Cho, J.B. Kim, *Leveling the Playing Field Between large and Small Institutions: Evidence from the SEC's XBRL Mandate*, 93(5) THE ACCOUNTING REVIEW 51-71 (2018); B. Li, Z. Liu, W. Qiang, and B. Zhang, *The Impact of XBRL Adoption on Local Bias: Evidence from Mandated U.S. Filers*, 39(6) JOURNAL OF ACCOUNTING AND PUBLIC POLICY (2020); W. Sassi, H. Ben Othman, and K. Hussainey, *The Impact of Mandatory Adoption of XBRL on Firm's Stock Liquidity: A Cross-Country Study*, 19(2) JOURNAL OF FINANCIAL REPORTING AND ACCOUNTING 299-324 (2021); C. Ra and H. Lee, *XBRL Adoption, Information Asymmetry, Cost of Capital, and Reporting Lags*, 10 iBUSINESS, 93-118 (2018); S.C. Lai, Y.S. Lin, Y.H. Lin, and H.W. Huang, *XBRL Adoption and Cost of Debt*, INTERNATIONAL JOURNAL OF ACCOUNTING & INFORMATION MANAGEMENT (2015); Y. Cong, J. Hao, and L. Zou, *The Impact of XBRL Reporting on Market Efficiency*, 28(2) JOURNAL OF INFORMATION SYSTEMS 181-207 (2014).

⁹⁷³ Systemic risk refers to the risk of a breakdown of an entire system, rather than simply the failure of individual parts. In a financial context, systematic risk denotes the risk of a cascading failure in the financial sector, caused by linkages within the financial system, resulting in a severe economic downturn.

⁹⁷⁴ See *Facts + Statistics: Global Catastrophes*, INSURANCE INFORMATION INSTITUTE, available at <https://www.iii.org/fact-statistic/facts-statistics-global-catastrophes>.

⁹⁷⁵ The Office of the Comptroller of the Currency (OCC) recently requested feedback on draft principles designed to support the identification and management of climate-related financial risks at OCC-regulated institutions with more than \$100 billion in total consolidated assets. See *Principles for Climate-Related Financial Risk Management for Large Banks*, Office of the Comptroller of the Currency (2021), available at <https://occ.gov/news-issuances/news-releases/2021/nr-occ-2021-138.html?source=email>.

exposures to different affected industries and assets. Some commentators state that, in addition to physical risks, the financial system could be destabilized also by potentially rapid and unexpected losses to carbon-intensive assets caused by a disorderly transition to a low-carbon economy or a shift in the market's perception of climate risks.⁹⁷⁶ With insufficient and inconsistent disclosures, asset prices may not fully reflect climate-related risks. Consequently, market participants may inadvertently accumulate large exposures to such risks, leaving them vulnerable to considerable unexpected and potentially sudden losses.⁹⁷⁷

In the face of such losses, financial intermediaries may be forced to sell off assets at fire-sale prices to generate enough cash to pay claims or to otherwise meet the time-sensitive cash demands of creditors and counterparties. This fire-sale dynamic could push down asset prices as well as the value of firms holding similar assets due to mark-to-market losses, potentially increasing risk premia and correlations across asset classes.⁹⁷⁸ Stress from large, complex, and interconnected financial institutions, or correlated stress across smaller market participants, could be transmitted and propagate through the financial system,⁹⁷⁹ causing disruptions in the provision

⁹⁷⁶ Gregg Gelzinis and Graham Steele, *Climate Change Threatens the Stability of the Financial System*, CENTER FOR AMERICAN PROGRESS (Nov. 21, 2019, 12:01 a.m.), available at <https://www.americanprogress.org/issues/economy/reports/2019/11/21/477190/climate-change-threatens-stability-financial-system>.

⁹⁷⁷ See *The Availability Of Data with Which to Monitor and Assess Climate-Related Risks to Financial Stability*, The Financial Stability Board (“FSB”) (July 7, 2021) (stating that the availability of data with which to monitor and assess climate-related risks to financial stability), available at <https://www.fsb.org/2021/07/the-availability-of-data-with-which-to-monitor-and-assess-climate-related-risks-to-financial-stability/>.

⁹⁷⁸ *The Implications of Climate Change for Financial Stability*, FSB, available at <https://www.iii.org/fact-statistic/facts-statistics-global-catastrophes> (2021).

⁹⁷⁹ Physical risks can have immediate and direct effects on asset values, but they also present long-term indirect risks. By damaging assets that serve as collateral for loans or that underpin other investments, reducing property values, increasing insurance premiums or decreasing insurance coverage, diminishing agricultural capacity, and causing labor forces to migrate, the physical consequences of climate change could have profound and long term effects on financial markets more generally. See Jonathan Woetzel et al., *Climate Risk and Response: Physical Hazards and Socioeconomic Impacts*, McKinsey Global Institute (Jan. 2020), available at <https://www.mckinsey.com/business-functions/sustainability/our-insights/climate-risk-and-response-physical-hazards-and-socioeconomic-impacts>.

of financial services.⁹⁸⁰ A more efficient allocation of capital brought about the disclosure required by the proposed rules could reduce the probability and magnitude of disorderly price corrections or dislocations, thereby strengthening financial system resilience.⁹⁸¹

2. Competition

The provisions included in the proposed rules are expected to increase comparability among registrants by demanding climate-related information in a consistent manner and with machine-readable data language (Inline XBRL). More standardized climate reporting could improve competition among registrants as it could reduce their costs for both producing such information due to enhanced efficiencies of scale across the economy and the cost for acquiring and processing said information by investors.

As discussed in Section IV.C.2, positive externalities from standard reporting practices can provide market-wide cost savings to registrants in the long-term, to the extent that they reduce duplicative effort in registrants' production and acquisition of information (e.g. certain data or third-party services related to preparing the required disclosures, including the reporting of emissions data, may become cheaper in the long run as the heightened demand spur competition, innovation, and other economies of scale). These cost savings could be particularly

⁹⁸⁰ A recent report by an advisory committee to the Commodity Futures Trading Commission (CFTC) concluded that "climate change poses a major risk to the stability of the U.S. financial system and to its ability to sustain the American economy." See Report of the Climate-Related Market Risk Subcommittee, Market Risk Advisory Committee of the U.S. Commodity Futures Trading Commission, *Managing Climate Risk in the U.S. Financial System* (2020). The Office of the Comptroller of the Currency (OCC) has identified the effects of climate change and the transition to a low carbon economy as presenting emerging risks to banks and the financial system. See, e.g., *Semiannual Risk Perspective*, 2-4 (Fall 2021), available at <https://www.occ.treas.gov/publications-and-resources/publications/semiannual-risk-perspective/files/pub-semiannual-risk-perspective-fall-2021.pdf>.

⁹⁸¹ See *The Availability Of Data with Which to Monitor and Assess Climate-Related Risks to Financial Stability*, (July 7, 2021) (stating that the availability of data with which to monitor and assess climate-related risks to financial stability), available at <https://www.fsb.org/2021/07/the-availability-of-data-with-which-to-monitor-and-assess-climate-related-risks-to-financial-stability/>.

helpful for smaller registrants, or those that are capital constrained, which otherwise may not be able to provide the same amount, or level of detail, of climate-related disclosures as registrants with greater resources.

More standardized reporting should also reduce investors' costs for acquiring and processing climate-related information by facilitating investors' analysis of a registrant's disclosure and assessing its climate-related risks against those of its competitors. The placement of climate-related information in SEC filings with machine-readable data language (Inline XBRL), rather than external reports or company websites, should also make it easier for investors to find and compare this information.

Overall, we expect that by standardizing reporting practices, the proposed rules would level the playing field among firms, making it easier for investors to assess the climate-related risks of a registrant against those of its competitors. The effects of peer benchmarking can contribute to increased competition for companies in search for capital both across and within industries, whereby firms can be more easily assessed and compared by investors against alternative options.

Failure to implement the proposed rules could lead to an informational gap between U.S. registrants and companies operating in foreign jurisdictions which require climate-related disclosures. For example, such a gap may increase investors' uncertainty when assessing climate-related risks of U.S. registrants vis-à-vis foreign competitors and place U.S. registrants at a competitive disadvantage, with the potential to deter investments and hence increase U.S. registrants' cost of capital. This informational gap may also pose obstacles to U.S. companies transacting with counterparts and businesses in their supply-chain operating in foreign jurisdictions which require Scope 3 emission disclosures. According to Morningstar, more than

35% of S&P 500 firms' total revenues came from foreign markets, while this percentage is around 20% for the revenues of Russell 2000 firms.⁹⁸² Lack of standardized disclosures around Scope 1 and 2 GHG emission by U.S. companies, which may in part be due to the aforementioned impediments to voluntary disclosure,⁹⁸³ may obstruct foreign counterparts from accurately assessing their Scope 3 GHG emissions, thus putting U.S. registrants at a competitive disadvantage over other foreign companies which may be publicly disclosing such information.

3. Capital formation

More consistent, comparable, and reliable disclosures could lead to capital-market benefits in the form of improved liquidity, lower costs of capital, and higher asset prices (or firm valuations).⁹⁸⁴ Enhanced disclosures (e.g., accurate GHG emissions disclosures) can reduce the time necessary for processing registrant's relevant information, thus increasing efficiency for registrants in their access to capital and allowing the market to more efficiently assess its cost. These benefits would stem from reductions in information asymmetries brought about by the required disclosure of climate-related information. More comparable, consistent, and reliable climate-related disclosures could reduce information asymmetries, both among investors and between firms and their investors.

⁹⁸² See, <https://www.morningstar.com/articles/918437/your-us-equity-fund-is-more-global-than-you-think>

⁹⁸³ See Section IV.B.2.

⁹⁸⁴ See D.W. Diamond and R.E. Verrecchia, Disclosure, Liquidity, and the Cost of Capital, 46 *J. Fin.* 1325 (1991) (this study finds that revealing public information to reduce information asymmetry can reduce a firm's cost of capital through increased liquidity); See also C. Leuz and R.E. Verrecchia, The Economic Consequences of Increased Disclosure, 38 *J. Acct. Res.* 91 (2000). Several studies provide both theoretical and empirical evidence of the link between information asymmetry and cost of capital. See, e.g., T.E. Copeland and D. Galai, *Information Effects on the Bid-Ask Spread*, 38 *J. FIN.* 1457 (1983) (proposing a theory of information effects on the bid-ask spread); D. Easley and M. O'Hara, *Information and the Cost of Capital*, 59 *J. FIN.* 1553 (2004) (This study shows that differences in the composition of information between public and private information affect the cost of capital, with investors demanding a higher return to hold stocks with greater private information.).

In the first case, less information asymmetry among investors could mitigate adverse selection problems by reducing the informational advantage of informed traders.⁹⁸⁵ This is likely to improve stock liquidity (i.e., narrower bid-ask spreads), which could attract more investors and reduce the cost of capital. In the second case, less information asymmetry between firms and their investors could allow investors to better estimate future cash flows, which could reduce investors' uncertainty, as well as the risk premium they demand, thus lowering the costs of capital.⁹⁸⁶

Recent studies provide some supporting empirical evidence of these effects within the context of ESG- or climate-related disclosure. These studies have found that, when firms voluntarily provide material sustainability disclosures, they also experience improvements in liquidity (e.g. smaller bid-ask spreads).⁹⁸⁷ In addition, firms that choose to disclose emissions have lower costs of equity and loan spreads.⁹⁸⁸ While firms' decisions about whether and when to disclose emissions data may be correlated with other factors as well as asset prices/financing costs, this would be consistent with such disclosures reducing the costs of capital for firms (to the extent that some of these effects are driven by the disclosures themselves).

⁹⁸⁵ See R.E. Verrecchia, *Essays on Disclosure*, 32(1-3) JOURNAL OF ACCOUNTING AND ECONOMICS 97-180 (2001).

⁹⁸⁶ See *supra* note 840; See also D.W. Diamond and R.E. Verrecchia, *Disclosure, Liquidity, and the Cost of Capital*, 46(4) THE JOURNAL OF FINANCE 1325-1359 (1991).

⁹⁸⁷ See J. Grewal, C. Hauptmann, and G. Serafeim, *Material Sustainability Information and Stock Price Informativeness*, JOURNAL OF BUSINESS ETHICS 1-32 (2020); M.E. Barth, S.F. Cahan, L. Chen, and E.R. Venter, *Integrated Report Quality: Share Price Informativeness and Proprietary Costs*, SOCIALLY RESPONSIBLE INVESTMENT EJOURNAL (2021).

⁹⁸⁸ See D.S. Dhaliwal et al, *Voluntary Nonfinancial Disclosure And The Cost Of Equity Capital: The Initiation Of Corporate Social Responsibility Reporting*, 86.1 THE ACCOUNTING REVIEW 59-100 (2011); S. Kleimeier, and M. Viehs, *Carbon Disclosure, Emission Levels, and the Cost of Debt, Emission Levels, and the Cost of Debt* (2018); E.M. Matsumura, R. Prakash, and S.C. Vera-Munoz. *Climate Risk Materiality and Firm Risk*, available at SSRN 2983977 (2020).

E. Other Economic Effects

The proposed rules may have some effects on firm behavior. Prior empirical evidence supports the notion that, in response to mandatory ESG-related disclosure rules, firms tend to report actions that appear more “favorable” with respect to the corresponding disclosures. These decisions would be made by a firm’s management with the goal of maximizing firm value in response to the new disclosure mandate. To the extent that these actions reduce firms’ exposures to physical and transition risks, this could lower the return that investors require for investing in these firms, hence facilitating capital formation. This could reduce volatility of stock returns due to enhanced resiliency against such risks.

Empirical evidence shows that mandatory reporting of GHG emissions results in reduced aggregate reported emissions among affected firms.⁹⁸⁹ Academic research shows that mandatory ESG-related disclosure often contributes, not only to increased monitoring by investors or other stakeholders, but also to enhanced peer benchmarking by firms as they can more easily compare themselves with their competitors.⁹⁹⁰ These changes may reflect market responses by companies and investors to the newly disclosed information. Accordingly, registrants may change their behavior in response to the proposed disclosure requirements by reducing exposures to certain physical or transition risks. However, this could also come with the potential cost of lower productivity, profitability, or market share in the short-term.

⁹⁸⁹ See B. Downar, J. Ernstberger, S. Reichelstein, S. Schwenen, and A. Zaklan, *The Impact of Carbon Disclosure Mandates on Emissions and Financial Operating Performance*, REVIEW OF ACCOUNTING STUDIES 1-39 (2021); S. Tomar, *Greenhouse Gas Disclosure and Emissions Benchmarking* (Working Paper) (2021), available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3448904; See *supra* note 849 (Jouvenout and Kruger, 2021).

⁹⁹⁰ See *supra* note 840.

Registrants might respond to the proposed disclosures by devoting more resources to climate-related governance and risk management in an effort to address indirect effects on their business arising from the disclosures. For example, the proposed rules require disclosure of members of the board or management that have prior climate expertise. Some registrants may respond by giving more weight to climate expertise when searching for directors, which may lead them to deviate from the board composition that would have been in place absent the proposed rules. Similarly, the proposed rules would require disclosure on how climate-related risks can impact registrants' consolidated financial statements, among others. Registrants may respond by taking measures to minimize negative impacts in order to put forth more favorable metrics. For example, registrants may move assets or operations away from geographic areas with higher physical risk exposures or may seek to decrease GHG emissions.

The provision on GHG Emissions would also require scope 1, 2, and 3 (if material or the registrant has a set a target or goal for scope 3) emission disclosures. These emission disclosures may induce firms to use peer benchmarking to decide whether to investigate and reevaluate their energy usage⁹⁹¹ or otherwise reduce emissions based on anticipated market reactions to the disclosed information. This process may provide certain registrants with incentives to search for alternative energy sources or find different suppliers, which could increase costs. Conversely, it could also prompt certain firms to reduce nonessential activities and improve operational efficiency, which could lead to lower operating costs.

The provision requiring assurance of GHG Scopes 1 and 2 emissions disclosures would only apply to accelerated filers. Non-accelerated filers would, instead, be required only to state

⁹⁹¹ See *supra* note 840.

whether any of their GHG emissions disclosures were subject to third-party assurance, and if so, at what level. By asking all registrants, including non-accelerated filers, to disclose climate-related information within SEC filings, however, the proposed rules may motivate more non-accelerated filers to voluntarily seek assurance over these types of disclosures, than if the same information had been disclosed on companies' websites or sustainability reports. Certain non-accelerated filers may also voluntarily decide to attain assurance over their GHG emission disclosures in order to enhance their reliability and prevent these disclosures from being perceived by investors as less reliable compared to those provided by accelerated filers.

As another example, the proposed rules would require the disclosure of the location (via ZIP code) of firm assets or operations, which could allow investors to assess firms' exposures to physical risk at a more granular level. This may allow investors to more easily diversify these geographic-driven risks or expose themselves to such risks, if they choose to, more deliberately. This may cause some firms to relocate assets or operations to geographical areas less exposed to physical risks and/or give preferences to such areas for future business activity. It may also cause some firms with higher geographic exposures to physical risks to alter overall operational risk and strategies.

The proposed rules might also affect the networks firms choose to operate in. For example, a firm may choose to change some suppliers or disengage with certain clients due to the effect that they may have on the firm's Scope 3 emissions. This may be particularly relevant for certain financial institutions that are impacted by their portfolio firms' emissions or climate-related risks. These financial institutions may be less willing to extend credit to firms for which it is difficult to measure climate risk exposure information, potentially increasing the cost of capital for these firms.

However, there are certain factors that may mitigate this effect. First, the proposed rules establish a phase-in period, which is intended to give financial institutions and their prospective borrowers sufficient time to prepare the required disclosures. Second, analytical tools, data, and related methodologies (such as those related to measuring/reporting GHG emissions) are developing rapidly and increasing in availability. Finally, frameworks like the PCAF to measure financed emissions would allow financial institutions to compute proxies for the emissions of their clients in a systematic and comparable manner even in the absence of actual emissions data.

The proposed rules could also cause some firms to pursue avoidance strategies. The provision on Targets and Goals would require a registrant to disclose whether it has set any climate-related targets or goals and the specific plans in place to achieve those objectives and metrics to monitor progress. This may disincentivize certain firms from making such commitments and providing the associated disclosures in SEC filings. Risk of litigation or enforcement actions, could result in registrants being more cautious in their decision to set climate-related targets. Other firms, however, may find the existence of mandatory disclosures around climate-related targets and goals to be beneficial for signaling credible value-enhancing commitments to investors. More credible and standardized disclosures on climate-related targets and goals could make registrants' communication more effective and facilitate investors' understanding of related progress, hence providing additional incentives for making such commitments.

More generally, if compliance costs with the proposed rules are high, this could influence the marginal firm's decision to exit public markets or refrain from going public in the first place in order to circumvent the disclosure requirements. Firms may choose this strategy if they believe the potential compliance costs from the proposed rules outweigh the benefits of being

registered public company. Uptake of this avoidance strategy may widen the transparency gap between public and private firms, negatively affecting capital markets' information efficiency, and potentially reduce the size of the stock market. However, it is unlikely that a significant number of firms would pursue this avoidance strategy given that it would come with significant disadvantages, such as higher costs of capital, limited access to capital markets, and limits to their growth potential. Moreover, recent trends in private markets indicate that industry's top leaders are working toward a standard set of metrics for tracking their portfolio companies' ESG progress. The pressure on private companies to disclose information on climate-related risks is rapidly escalating within the private industry, hence diminishing the potential incentive for registrants to go private in order to avoid climate-related disclosure requirements. For example, since its launch in September 2021, the ESG Data Convergence Project, which seeks to standardize ESG metrics and provide a mechanism for comparative reporting for the private market industry, has announced a milestone commitment of over 100 leading general partners and limited partners to its partnership representing \$8.7 trillion USD in AUM and over 1,400 underlying portfolio companies across the globe. The initial data for the project includes, among others, greenhouse gas emissions and renewable energy metrics.⁹⁹²

F. Reasonable Alternatives

1. Requirements limited to only certain classes of filers

One alternative would be to require the proposed disclosures only from larger registrants, such as large accelerated filers or non-SRCs. While the proposed rules already provide certain

⁹⁹² See Carlyle, Private Equity Industry's First-Ever ESG Data Convergence Project Announces Milestone Commitment of Over 100 LPs and GPs (Jan. 28, 2022), available at <https://www.carlyle.com/media-room/news-release-archive/private-equity-industrys-first-ever-esg-data-convergence-project-announces-over-100-lps-gps>.

exemptions for SRCs (e.g., Scope 3 emissions disclosures and assurance requirements), this alternative would exempt smaller registrants from the entirety of the proposed rules. The main benefit of this alternative is that it would avoid imposing potentially significant compliance costs on smaller registrants, which are more likely to be resource-constrained. However, considering that SRCs make up approximately 50% of registrants (and registrants that are not large accelerated filers make up approximately 70%), this alternative would also considerably undermine one of the primary objectives of the proposed rules, which is to achieve consistent, comparable, and reliable disclosures of climate-related information. Furthermore, climate-related risks are impacting or are expected to impact every sector of the economy,⁹⁹³ further highlighting the need for enhanced disclosures from all registrants. In an effort to arrive at an appropriate balance between these costs and benefits, the proposed rules exempt SRCs from some, but not all, disclosure requirements.

2. Require scenario analysis

Another alternative would be to require registrants to conduct scenario analysis and include the related information in their disclosures. Consistent, comparable, and reliable disclosures of scenario analysis could inform investors with respect to the resilience of registrants' business strategies and operations across a range of plausible future climate scenarios. Disclosure of scenario analysis could deliver informational benefits to investors beyond that which would be provided under the proposed rules. It could help investors assess

⁹⁹³ SASB research shows climate risk is nearly ubiquitous but highly differentiated across 77 industries. See *SASB Publishes Updated Climate Risk Technical Bulletin* (Apr. 13, 2021), available at <https://www.globenewswire.com/news-release/2021/04/13/2208855/0/en/SASB-Publishes-Updated-Climate-Risk-Technical-Bulletin.html>.

issues that have high uncertainty by evaluating the impact on and the resiliency of the registrant under multiple plausible future scenarios, such as a temperature increase of 1.5°C, 2°C, and 3°C above pre-industrial levels. It could also allow investors to proactively manage risk as they would be better able to assess the range of potential threats and opportunities, evaluate different management actions, and adapt accordingly. Furthermore, since some climate-related risks may only manifest over longer horizons, scenario analysis could assist investors in determining whether registrants have incorporated such risks into their long-term strategy. Investors could subsequently incorporate this information into asset prices, thereby more accurately pricing climate-related risks and contributing to market efficiency.

Both scenario analysis methodologies and climate science, however, continue to advance and develop, which may pose significant challenges for some registrants. Specifically, the required data may be unavailable or costly to obtain. Furthermore, some registrants may lack the necessary expertise, requiring them to hire external consultants to conduct the analysis. These challenges may pose undue burdens with respect to difficulty and/or costs to some registrants, such as smaller companies and those that otherwise have no prior experience in scenario analysis. For these reasons, the Commission is not proposing to mandate scenario analysis and related disclosure at this time.

3. Require specific external protocol for GHG emissions disclosure

Another alternative would be to require registrants to follow an external protocol (e.g., GHG protocol) for reporting emissions. Requiring a specific protocol may potentially benefit investors by providing a more consistent and comparable framework in reporting emissions, thus facilitating investors' information processing. However, there also may be certain drawbacks.

First, the organizational boundaries adopted by external protocols may create inconsistencies with the way companies would report information about their GHG emissions vis-à-vis the rest of their financial statements. The GHG Protocol, for example, requires that a company base its organizational boundaries on either an equity share approach or a control approach, which may differ from the way registrants set their scope for the purpose of reporting information in their financial statements. The proposed rules would require a registrant to set the organizational boundaries for its GHG emissions disclosure using the same scope of entities, operations, assets, and other holdings as those included in its consolidated financial statements. Requiring a consistent scope of consolidation and reporting between financial data and GHG emissions data should help avoid potential investor confusion about the reporting scope used in determining a registrant's GHG emissions and the reporting scope used for the financial statement metrics.

Furthermore, requiring companies to follow a specific external protocol might limit flexibility for registrants and thus reduce their ability to report emissions in a manner that is tailored to their specific circumstances. For example, registrants following an existing but different protocol, which nevertheless provides relevant emissions information, would be required to switch protocols, incurring additional cost.

Requiring compliance with a specific protocol could also reduce the scope for innovation in driving the most appropriate forms of disclosure within these overarching guidelines (e.g., the methodologies pertaining to the measurement of GHG emissions, particularly Scope 3 emissions, are still evolving). Additionally, requiring compliance with a specific external protocol as of the date of the adoption of any final rules may become problematic in the future to the extent that the external protocol's methodologies shift or evolve such that the version incorporated by reference

into the final rules becomes outdated or inconsistent with improving methodologies. While we expect that many registrants will choose to follow many of the standards and guidance provided by the GHG Protocol when calculating their GHG emissions, not requiring compliance with the GHG Protocol would provide some flexibility to the Commission’s climate-related disclosure regime and enable registrants to follow new and potentially less costly methodologies as they emerge.

4. Permit GHG emissions disclosures to be “furnished” instead of “filed”

Another alternative would be to permit Scopes 1, 2, and 3 emissions disclosures to be considered “furnished” instead of “filed,” which may limit the incremental risk of being held liable under Section 18 of the Exchange Act for these disclosures. This may also benefit some registrants as their Scopes 1 and 2 emissions disclosures would not be automatically incorporated into Securities Act registration statements and thereby not be subject to Section 11 liability. We note that this could have a lower incremental impact on Scope 3 emissions disclosures since Scope 3 emissions disclosures are covered under a proposed safe harbor provision and hence already afforded other liability protections. However, reduced liability in general may lead to the applicable disclosures being perceived as less reliable by investors, which could have adverse effects on registrants’ stock liquidity or costs of capital. For these reasons, the Commission is not proposing to permit emissions disclosures to be furnished at this time.

5. Do not require Scope 3 emissions for registrants with a target or goal related to Scope 3

Another alternative would be to not require Scope 3 emissions disclosures if such emissions are part of a target or goal from any registrant. This would allow certain registrants to avoid the potentially significant costs and difficulties associated with measuring and reporting

Scope 3 emissions. This could potentially deprive investors of important information necessary to assess registrants' exposures to certain risks associated with trying to achieve targets or transition plans. Scope 3 emissions can provide investors with a more complete picture of how targets or transition plans might impact risks (*e.g.*, future regulations restricting emissions or changes in market conditions that disfavor high emissions products or services) of the registrant through the value chain. This can be particularly important considering that Scope 3 emissions can make up the vast majority of total emissions for many registrants.⁹⁹⁴ Furthermore, some firms can give the appearance of low (direct) emissions by shifting high-emission activities elsewhere in their value chain.⁹⁹⁵ Mandatory disclosure of Scope 3 emissions for registrants with a target or goal related to Scope 3 emissions can help prevent such misrepresentation.

6. Exempt EGCs from Scope 3 emissions disclosure requirements

Another alternative would be to retain the exemption for SRCs, as currently proposed, but also extend it to EGCs. EGCs may similarly face resource constraints related to company size or age, hence this alternative would allow EGCs to avoid the costs of Scope 3 emissions measurement and reporting. Given that the designations of SRC and EGC are not mutually exclusive, however, EGCs that are also SRCs would be covered under the exemption as currently proposed. Conversely, EGCs that are *not* SRCs are relatively less resource-constrained since they, by definition, have greater revenues and/or public float, and therefore may be better positioned to provide Scope 3 emissions disclosures.

⁹⁹⁴ See *supra*, note 881.

⁹⁹⁵ See *supra*, note 886.

7. Eliminate exemption for SRCs from Scope 3 reporting

Another alternative would be to eliminate the exemption for SRCs. Because SRCs make up approximately half of domestic filers in terms of numbers (though considerably less in terms of market cap), this alternative could address data gaps with respect to Scope 3 emissions, with the potential to benefit all investors. As discussed in Section II.G.3, however, this alternative may pose fixed costs (e.g. data gathering and verification), that would fall disproportionately on SRCs. Also, because SRCs are a small fraction of the market, the overall benefit to investors would be limited.

8. Remove safe harbor for Scope 3 emissions disclosures

The proposed rules provide a safe harbor for Scope 3 emissions disclosures. An alternative would be to remove this safe harbor for Scope 3 emissions disclosures. This alternative would strengthen accountability for Scope 3 emissions disclosures. It also would significantly increase registrants' exposure to litigation over the accuracy of such disclosures. While rigorous liability in many contexts can provide incentives that promote reliable disclosures, an accommodation may be warranted for Scope 3 emissions due to the challenges associated with their measurement and disclosure.⁹⁹⁶

9. Require large accelerated filers and accelerated filers to provide a management assessment and to obtain an attestation report covering the effectiveness of controls over GHG emissions disclosures.

The proposed rules would require assurance over Scopes 1 and 2 emissions disclosure from large accelerated filers and accelerated filers. In addition to such assurance, we could

⁹⁹⁶ See Section II.G.3

require these filers to also obtain either a separate assessment by management and disclosure on the effectiveness of controls over GHG emissions disclosures or an attestation report specifically covering the effectiveness of controls over GHG emissions disclosures, or both. Specifically, management could be required to include a statement in the annual report on their responsibility for the design and evaluation of controls over GHG emission disclosures, as well as to disclose their conclusion regarding the effectiveness of controls over GHG emissions disclosures, in addition to the existing DCP evaluation and disclosure. In addition, we could require a GHG emissions attestation provider to obtain reasonable assurance on whether material weaknesses exist regarding management's assessment of the effectiveness of controls over GHG emissions disclosures as of the measurement date. The GHG emissions attestation provider could also be required to issue an attestation report on the effectiveness of controls over GHG emissions disclosures.⁹⁹⁷

By requiring GHG emissions attestation providers to assess not just the disclosures, but also the controls over GHG emissions disclosures (*i.e.*, the underlying mechanisms, rules, and procedures associated with generating such disclosures), this alternative could further strengthen the integrity of the disclosed information. In the context of emissions, GHG emissions attestation providers may evaluate and test the effectiveness of registrants' controls related to the collection, calculation, estimation, and validation of GHG emissions data and disclosure. These processes could strengthen disclosure credibility as they reduce the likelihood of errors or fraud

⁹⁹⁷ See AICPA, AU-C 940, *An Audit of Internal Control Over Financial Reporting That Is Integrated With an Audit of Financial Statements* (2021), available at <https://www.aicpa.org/content/dam/aicpa/research/standards/auditattest/downloadabledocuments/au-c-00940.pdf>.

and their ensuing misstatements.⁹⁹⁸ Investors would benefit from any resulting improvement in disclosure reliability for reasons discussed in prior sections: it would allow investors to make better-informed investment decisions, allow applicable information to be better incorporated into asset prices, and contribute to a more efficient allocation of capital. Registrants may also benefit via reduced costs of capital and increased stock liquidity.

However, this alternative would also impose additional assurance costs.⁹⁹⁹ Given that GHG emissions measurement and disclosure are developing areas, it is unclear what exact controls are or would be in effect, making it difficult to anticipate precisely what such attestation would entail. These uncertainties pose further difficulties in obtaining informative cost estimates and, accordingly, accurate assessments of how burdensome such a requirement would be to registrants. This leaves the possibility that the costs could outweigh the incremental benefits given that the proposed rules already require assurance for Scopes 1 and 2 emissions disclosures for applicable registrants. For these reasons, the Commission is not proposing at this time to require an attestation report on the effectiveness of controls over GHG emissions disclosures.

⁹⁹⁸ Potentially consistent with this, though in a different setting, academic evidence surrounding Section 404 of the Sarbanes-Oxley Act (SOX) finds lower accruals and discretionary accruals for small firms whose 2002 float (prior to when firms could have known and therefore tried to alter their float to avoid the regulation) made them likely to be just above the requirements for compliance, relative to those just below. Iliev, Peter (2010). The effect of SOX Section 404: Cost, earnings quality and stock prices. *Journal of Finance*, 65, 1163-1196.

⁹⁹⁹ Also potentially consistent with this, prior academic studies of Section 404 of SOX find significantly higher auditing fees, negative stock returns, and reduced innovation, though no clear evidence of a decline in investment, for marginally complying small firms near the float requirement threshold. *See* Iliev, Peter (2010). The effect of SOX Section 404: Cost, earnings quality and stock prices. *Journal of Finance*, 65, 1163-1196; Gao, Huasheng, and Jin Zhang (2019). SOX Section 404 and corporate innovation. *Journal of Financial and Quantitative Analysis* 54(2): 759-787; Albuquerque, Ana and Julie Lei Zhu (2019). Has Section 404 of the Sarbanes-Oxley Act discouraged corporate investment? New evidence from a natural experiment. *Management Science* 65(7): 3423-3446.

10. Require reasonable assurance for Scopes 1 and 2 emissions disclosures from all registrants.

Another alternative would be to require reasonable assurance for Scopes 1 and 2 emissions disclosures from all registrants. As described above, requiring assurance can benefit investors in several ways, including enhanced reliability of disclosures, which would allow investors to make better-informed investment decisions

However, because costs increase with the level of assurance, requiring reasonable assurance may be particularly burdensome for affected registrants (*i.e.*, smaller firms) as they would be more likely to incur proportionately higher compliance costs due to the fixed cost components of such compliance, regardless of whether or not there is a transition period before this requirement takes effect. While the benefits of assurance could be approximately proportional to registrant's market value, the costs are not. In an effort to arrive at an appropriate balance between these factors, the proposed rules would require reasonable assurance (after a specified transition period) only from large accelerated filers and accelerated filers because the benefits to investors are more likely to justify the costs for these firms.

11. Require limited, not reasonable, assurance for large accelerated filers and/or accelerated filers and/or other filers.

Obtaining reasonable assurance generally costs more than obtaining limited assurance. Current market practice appears to favor obtaining limited assurance over sustainability reports, if assurance is obtained at all. Experimental evidence suggests assurance (relative to none) may increase perceived reliability of sustainability reports, but is yet to provide evidence that reasonable assurance increases perceived reliability of sustainability reports relative to limited

assurance.¹⁰⁰⁰ We acknowledge, however, that experimental findings from lab settings may not necessarily reflect the behavior or preferences of experienced investors in actual financial markets. Furthermore, other research often exhibits a selection bias (*i.e.*, companies that voluntarily decide to obtain a higher-than-required level of assurance are systematically different across several dimensions), making it difficult to determine the causal effect of the different levels of assurance.¹⁰⁰¹

One possibility to mitigate the additional costs of reasonable assurance would be to maintain the requirement that large accelerated filers obtain reasonable assurance, but allow accelerated filers to obtain limited assurance without any scaling up to a reasonable assurance. Another possibility would be to require limited assurance, but expand the assurance requirement to a broader scope of registrants including non-accelerated filers and smaller reporting companies. However, these possibilities have the disadvantage of lack of consistency, which could lead to confusion among investors.

12. In lieu of requiring assurance, require disclosure about any assurance obtained over GHG emissions disclosures

Another alternative would be to require all registrants to disclose what type of assurance they are receiving, if any, in lieu of requiring assurance. This would potentially allow affected

¹⁰⁰⁰ See, e.g., K. Hodge, K., N. Subramaniam, and J. Stewart, *Assurance of Sustainability Reports: Impact on Report Users' Confidence and Perceptions of Information Credibility*, 19 AUSTRALIAN ACCOUNTING REVIEW 178-194 (2009), available at <https://doi.org/10.1111/j.1835-2561.2009.00056.x>; Mark Sheldon, *User Perceptions of CSR Disclosure Credibility with Reasonable, Limited and Hybrid Assurances* (Dissertation) (2016) available at https://vtechworks.lib.vt.edu/bitstream/handle/10919/65158/Sheldon_MD_D_2016.pdf.

¹⁰⁰¹ See C. H. Cho, G. Michelon, D. M. Patten, and R. W. Roberts, *CSR report assurance in the USA: an empirical investigation of determinants and effects*, 5 (2) SUSTAINABILITY ACCOUNTING, MANAGEMENT AND POLICY JOURNAL 130, 130-148 (2014), available at <https://doi.org/10.1108/SAMPJ-01-2014-0003>.

registrants to avoid the costs of obtaining limited assurance and/or reasonable assurance.¹⁰⁰²

Additionally, registrants would have the flexibility to choose any level of assurance (*i.e.*, none, limited, or reasonable assurance) but still be required to disclose their choice for transparency.

This alternative, however, may reduce the reliability and comparability of these disclosures relative to the standardized assurance requirements within the proposed rules. In addition, as it does not set any minimum requirements for the assurance, this alternative would not address the fragmentation and selective disclosure issues that characterize the current, voluntary reporting regime.

13. Permit host country disclosure frameworks

Another alternative would be to permit alternative compliance using host country disclosure frameworks that the Commission deems suitable. Such an alternative would be beneficial for registrants that already comply with another country's disclosure requirements since they could avoid incurring additional costs to comply with the Commission's rules. This flexibility, however, may fail to address or may even exacerbate growing concerns from investors that climate-related disclosures lack comparability and consistency. While it might be individually optimal for a given firm to use their existing host country disclosure frameworks, the potential lack of consistency and comparability of the disclosure between these firms and other registrant might impose costs on investors. Investors might not be able to compare across firms using different disclosure presentations, or may have to incur additional costs in order to do so.

¹⁰⁰² See Section IV.C.2.(3) for cost estimates of assurance over emissions disclosures.

14. Alternative tagging requirements

With respect to Inline XBRL tagging, one alternative is to change the scope of disclosures required to be tagged. We could, for example, remove the tagging requirements for climate-related disclosures for all or a subset of registrants (such as smaller reporting companies). As another example, we could require only a subset of proposed climate-related disclosures, such as the quantitative climate-related metrics, to be tagged in Inline XBRL. Narrowing the scope of climate-related disclosures to be tagged could provide some incremental cost savings for registrants compared to the proposal, because incrementally less time would be required to select and review the particular tags to apply to the climate-related disclosures.

We expect this incremental cost savings to be low because all affected registrants are or in the near future will be required to tag certain of their disclosures (including both quantitative and qualitative disclosures) in Inline XBRL.¹⁰⁰³ Moreover, narrowing the scope of tagging requirements would diminish the extent of informational benefits that would accrue to investors by reducing the volume of climate-related information that would become less costly to process and easier to compare across time and registrants. For example, an alternative whereby only quantitative climate-related disclosures would be tagged would inhibit investors from efficiently extracting/searching climate-related disclosures about registrants' governance; strategy, business model, and outlook; risk management; and targets and goals, thus creating the need to manually

¹⁰⁰³ Inline XBRL requirements for business development companies will take effect beginning Aug. 1, 2022 (for seasoned issuers) and Feb. 1, 2023 (for all other issuers). If the proposed Inline XBRL requirements are adopted in the interim, they will not apply to business development companies prior to the aforementioned effectiveness dates. *See supra* note 706.

run searches for these disclosures through entire documents.¹⁰⁰⁴ Such an alternative would also inhibit the automatic comparison/redlining of these disclosures against prior periods, and the performance of targeted artificial intelligence or machine learning assessments (tonality, sentiment, risk words, etc.) of specific narrative climate-related disclosures outside the financial statements rather than the entire unstructured document.

G. Request for Comment

We request comment on all aspects of our economic analysis, including the potential costs and benefits of the proposed rules and alternatives thereto, and whether the proposed rules, if adopted, would promote efficiency, competition, and capital formation or have an impact on investor protection. In addition, we also seek comment on alternative approaches to the proposed rules and the associated costs and benefits of these approaches. Commenters are requested to provide empirical data, estimation methodologies, and other factual support for their views, in particular, on costs and benefits estimates. Specifically, we seek comment with respect to the following questions:

- Are there any costs and benefits to any entity that are not identified or misidentified in the above analysis?
- Are there any effects on efficiency, competition, and capital formation that are not identified or misidentified in the above analysis?
- Are there any other alternative approaches to improving climate-related disclosure that we should consider? If so, what are they and what would be the associated costs or

¹⁰⁰⁴ To illustrate, using a search string such as “climate change” or “greenhouse gas” to search through the text of all filings from a particular filer population so as to determine the trends in narrative climate-related disclosure among that population over time, could return many narrative disclosures outside of the climate-related disclosures. Examples of this would be a description of pending environmental litigation, existing government regulations and agency names, and broader regulatory risk factors.

benefits of these alternative approaches? For example, what would be the costs and benefits of implementing a new, comprehensive system, for reporting and transferring GHG emissions across corporate supply and distribution chains, as described by Kaplan and Ramanna (2021)?¹⁰⁰⁵

- Are there any sources of data that could provide a more precise estimation of the potential compliance costs that registrants may incur if the proposed rules are adopted?
 - Have we accurately estimated the costs of disclosing Scope 1 and 2 emissions? If not, please provide alternative estimates of these costs.
 - Have we accurately estimated the costs of disclosing Scope 3? If not, please provide alternative estimates of these costs.
 - Are there any additional sources of information to estimate the costs of complying with the Scopes 1, 2, and 3 GHG emissions disclosure requirements and the costs of obtaining limited and reasonable assurance for these disclosures?
 - Would any data sources allow these compliance cost estimates to be apportioned to separate provisions of the proposed rules? Furthermore, how would these cost estimates vary across time horizons? For example, the first year of implementation may come with higher start-up costs while subsequent years may come with lower costs.
 - Have we accurately characterized the cost of limited assurance and reasonable assurance over Scopes 1 and 2 emissions? If not, please provide an estimate of these costs.
- Similarly, is there data that can show how the costs of limited assurance and reasonable assurance differ for large accelerated, accelerated and non-accelerated filers?

¹⁰⁰⁵ See R. Kaplan and K. Ramanna, *How to Fix ESG Reporting* (2021), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3900146.

- How are the costs of obtaining limited assurance and reasonable assurance likely to change over time (*e.g.*, over the five years following adoption or compliance with a specified level of assurance)? What would be the costs and benefits of providing a longer transition period for obtaining assurance over Scopes 1 and 2 emissions disclosures?

V. PAPERWORK REDUCTION ACT

A. Summary of the Collections of Information

Certain provisions of our rules and forms that would be affected by the proposed amendments contain “collection of information” requirements within the meaning of the Paperwork Reduction Act of 1995 (“PRA”).¹⁰⁰⁶ The Commission is submitting the proposal to the Office of Management and Budget (“OMB”) for review in accordance with the PRA.¹⁰⁰⁷ The hours and costs associated with preparing and filing the forms and reports constitute reporting and cost burdens imposed by each collection of information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information requirement unless it displays a currently valid OMB control number. Compliance with the information collections is mandatory. Responses to the information collections are not kept confidential and there is no mandatory retention period for the information disclosed. The titles for the affected collections of information are:

- Form S-1 (OMB Control No. 3235-0065);
- Form F-1 (OMB Control No. 3235-0258);
- Form S-4 (OMB Control No. 3235-0324);
- Form F-4 (OMB Control No. 3235-0325);

¹⁰⁰⁶ See 44 U.S.C. 3501 et seq.

¹⁰⁰⁷ 44 U.S.C. 3507(d) and 5 CFR 1320.11.

- Form S-11 (OMB Control No. 3235-0067);
- Form 10 (OMB Control No. 3235-0064);
- Form 10-K (OMB Control No. 3235-0063);
- Form 10-Q (OMB Control No. 3235-0070);
- Form 20-F (OMB Control No. 3235-0288); and
- Form 6-K (OMB Control No. 3235-0116).¹⁰⁰⁸

The proposed amendments would require U.S. registrants filing Securities Act registration statements on Forms S-1, S-4, and S-11 to include the climate-related disclosures required under proposed subpart 1500 of Regulation S-K and proposed Article 14 of Regulation S-X. The proposed amendments would also require foreign private issuers to include the proposed climate-related disclosures when filing Securities Act registration statements on Forms F-1 and F-4. The proposed amendments would further require U.S. registrants and foreign private issuers to include the proposed climate-related disclosures in their Exchange Act annual reports filed, respectively, on Forms 10-K and 20-F and in Exchange Act registration statements filed, respectively, on Forms 10 and 20-F. Registrants would be required to include the climate-related information required under proposed subpart 1500 in a part of the registration statement or annual report that is separately captioned as *Climate-Related Disclosure*. Registrants would be required to include the climate information required under Article 14 in a note to the financial statements, which would be subject to audit. Further, as described below, accelerated filers and

¹⁰⁰⁸ The proposed amendments would also indirectly affect Forms S-3 and F-3. Registrants filing Forms S-3 and F-3 are able to incorporate by reference their annual reports filed on Forms 10-K or 20-F. Because the proposed amendments would affect Forms 10-K and 20-F, and are not expected to affect Forms S-3 and F-3 except when Forms 10-K and 20-F are incorporated by reference into those Securities Act forms, we are not separately accounting for the PRA burden related to Forms S-3 and F-3.

large accelerated filers would be required to include an attestation report covering their Scopes 1 and 2 emissions disclosure, subject to phase-ins. In addition, U.S. registrants and foreign private issuers would be required to report material changes to the climate information disclosed in their Exchange Act reports on, respectively, Forms 10-Q and 6-K. A description of the proposed amendments, including the need for the climate information and its proposed use, as well as a description of the likely respondents, can be found in Section II above, and a discussion of the economic effects of the proposed amendments can be found in Section IV above.

B. Summary of the Proposed Amendments’ Effects on the Collections of Information

Our estimates of the paperwork burden associated with the proposed amendments are based primarily on climate-related reporting cost estimates from six sources: a comment letter from the Society for Corporate Governance (“Society”) that provided some hour and cost estimates for climate reporting by large-cap companies;¹⁰⁰⁹ a report by the Climate Risk Disclosure Lab at Duke University School of Law’s Global Financial Markets Center that presents survey results of climate-related disclosure costs for three unnamed companies;¹⁰¹⁰ an impact assessment conducted by the United Kingdom’s Department for Business, Energy, and Industrial Strategy for a rule that, similar to the Commission’s proposed rules, would require

¹⁰⁰⁹ See letter from Society for Corporate Governance.

¹⁰¹⁰ See Climate Risk Disclosure Lab *The Cost of Climate Disclosure: Three Case Studies on the Cost of Voluntary Climate-Related Disclosure* (Dec. 2021), available at <https://climatedisclosurelab.duke.edu/wp-content/uploads/2021/12/The-Cost-of-Climate-Disclosure.pdf>.

TCFD-aligned disclosures from all listed firms;¹⁰¹¹ two cost estimates from a data analytics firm—one that covered primarily risk assessment and analysis pursuant to the TCFD framework, and the other for calculating GHG emissions;¹⁰¹² and cost estimates for GHG emissions measurement and reporting from two climate management firms.¹⁰¹³

In response to Acting Chair Lee’s request for public input about climate disclosures,¹⁰¹⁴ Society submitted the results of a survey it had conducted on a small number of public large-cap companies about the costs of their current climate reporting. According to this commenter, two companies estimated that the number of employee hours spent on climate reporting ranged from 7,500 to 10,000 annually, while a third company estimated the number of annual employee hours spent on climate reporting to be 2,940 hours.¹⁰¹⁵ The average annual employee hours spent on climate reporting for these large-cap companies was 6,813 hours.¹⁰¹⁶

The Climate Risk Disclosure Lab’s report presents the results of its survey of one European large-cap financial institution, one US large-cap industrial manufacturing company,

¹⁰¹¹ See UK Department for Business, Energy, and Industrial Strategy, [Final Stage Impact Assessment](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1029317/climate-related-financial-disclosure-consultation-final-stage-impact-assessment.pdf) (Oct. 1, 2021), available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1029317/climate-related-financial-disclosure-consultation-final-stage-impact-assessment.pdf; see also UK Department for Business, Energy, and Industrial Strategy, Initial Impact Assessment (Jan. 29, 2021), available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/972423/impact-assessment.pdf. The scope of the impact assessment included companies listed on the London Stock Exchange with over 500 employees, UK registered companies admitted to AIM with over 500 employees, and certain other companies.

¹⁰¹² See memorandum, dated Feb. 4, 2022, concerning staff meeting with representatives of S&P Global. This and the other staff memoranda referenced below are available at <https://www-draft.sec.gov/comments/s7-10-22/s71022.htm>.

¹⁰¹³ See memorandum, dated Nov. 30, 2021, concerning staff meeting with representatives of Persefoni; and memorandum, dated Jan. 14, 2022, concerning staff meeting with representatives of South Pole.

¹⁰¹⁴ See *supra* Section I.B.

¹⁰¹⁵ See letter from Society for Corporate Governance. This commenter also stated that fees for external climate advisory services ranged from \$50,000 to \$1.35 million annually.

¹⁰¹⁶ 7,500 hrs.+ 10,000 hrs. +2,940 hrs. = 20,440 hrs.; 20,440/3 = 6,813 hrs.

and one US mid-cap waste management company about their climate-related disclosure costs.¹⁰¹⁷ The European financial institution reported annual climate-related disclosure costs ranging from \$250,000 to \$500,000, which averages to \$375,000 annually.¹⁰¹⁸ For PRA purposes, we have converted this dollar cost average to 6,818 burden hours using a metric of \$55/hour.¹⁰¹⁹ The US industrial manufacturing company disclosed annual climate-related disclosure costs for its employees and one full-time consultant ranging from \$200,000 to \$350,000, which averages to \$275,000 annually. We have similarly converted this dollar cost average to 5,000 burden hours.¹⁰²⁰ The US waste management company reported that its employees spent 82 hours annually to produce its climate-related disclosures. The average annual internal burden hours spent on climate reporting for these three companies comes to 3,967 hours.¹⁰²¹

The UK Impact Assessment estimated on an ongoing, annual basis the number of hours and costs that it would take in-house personnel¹⁰²² to gather data and prepare and provide disclosure for each of the following TCFD-aligned topics: governance, strategy, risk management, and metrics and targets.¹⁰²³ The impact assessment also estimated on an annual, ongoing basis the number of hours and costs that it would take a parent company's personnel to

¹⁰¹⁷ See *supra* Section IV.C.2 for a more detailed discussion of these reported costs.

¹⁰¹⁸ $\$250,000 + \$500,000 = \$750,000$. $\$750,000/2 = \$375,000$.

¹⁰¹⁹ This metric is based on a reported national annual average salary for a climate specialist of \$114,463. See glassdoor, *How much does a Climate Change Specialist make?* (Dec. 2021), available at https://www.glassdoor.com/Salaries/climate-change-specialist-salary-SRCH_KO0,25.htm. $\$114,463/2080 \text{ hrs.} = \$55/\text{hr.}$ $\$375,000/\$55/\text{hr.} = 6,818 \text{ hrs.}$ (rounded to nearest dollar).

¹⁰²⁰ $\$200,000 + \$350,000 = \$550,000$. $\$550,000/2 = \$275,000$. $\$275,000/\$55/\text{hr.} = 5,000 \text{ hrs.}$

¹⁰²¹ $6,818 \text{ hrs.} + 5,000 \text{ hrs.} + 82 \text{ hrs.} = 11,900 \text{ hrs.}$; $11,900 \text{ hrs.}/3 = 3,967 \text{ hrs.}$

¹⁰²² Unlike this PRA analysis, which assumes that some of the paperwork burden will be borne by in-house personnel and some by outside professionals, the UK Impact Assessment assumed that all of the work would be done by in-house personnel.

¹⁰²³ The UK Impact Assessment's estimated number of hours for each TCFD-aligned disclosure topic per company was: 225 hrs. for governance; 295 hrs. for strategy; 245 hrs. for risk management; and (in Year 1) 2,227 hrs. for metrics and targets, which included one in-house climate-related expert working full-time.

collect and process climate-related data from its subsidiaries.¹⁰²⁴ The impact assessment further estimated on a one-time basis the number of hours and costs that it would take in-house personnel to become familiar with and review the new climate-related reporting requirements and related guidance.¹⁰²⁵ The total number of hours that the Impact Assessment estimated it would take a company to comply with the TCFD-aligned disclosure requirements in the first year came to 3,447 hours, of which 977.5 hours pertained to qualitative, TCFD-aligned disclosure and 2,469.5 hours pertained to GHG emissions metrics and targets disclosure.¹⁰²⁶

We also have considered cost estimates from S&P Global, a data analytics firm that provides ESG consulting services, including climate-related data collection and analysis, among other services. This firm provided one cost estimate for preparing TCFD-aligned disclosures primarily covering physical risk and transition risk assessment and analysis, which, for a company lacking any experience in climate reporting, ranged from \$150,000 to \$200,000 (an average of \$175,000) in the first year of reporting.¹⁰²⁷ For a company with prior experience in GHG emissions reporting but requiring assistance with TCFD-aligned reporting, the firm

¹⁰²⁴ This estimate was 85 hrs.

¹⁰²⁵ The primary difference between the Initial Impact Assessment and Final Impact Assessment concerned the estimated “familiarization” costs. The Final Impact Assessment assumed that the rule would require scenario analysis and added additional hours for in-house personnel to become familiar with scenario analysis methodology. Because our proposed rules do not require scenario analysis, we are using the familiarization estimate of the Initial Impact Assessment (323 hrs.) when totaling the estimated hours required to comply with the UK’s proposed climate disclosure rules. We have added to the familiarization estimate the number of hours (77 hrs.) that the Final Impact Assessment estimated for the one-time legal review of the new climate disclosure requirements by in-house personnel.

¹⁰²⁶ 400 hrs. (familiarization and review) + 195 hrs. (governance) + 295 hrs. (strategy) + 245 hrs. (risk management) + 2,227 hrs. (metrics and targets) + 85 hrs. (parent co. processing) = 3,447 hrs. For purposes of the PRA, we have allocated approximately half of the hours pertaining to familiarization and review and parent company processing between the qualitative TCFD-aligned disclosure and the GHG emissions metrics and targets disclosure. This results in 977.5 hrs. allocated to the qualitative TCFD-aligned disclosure and 2,469.5 hrs. allocated to the GHG emissions metrics and targets disclosure.

¹⁰²⁷ See memorandum concerning staff meeting with representatives of S&P Global. $\$150,000 + \$200,000 = \$350,000$; $\$350,000/2 = \$175,000$.

estimated average costs of \$100,000.¹⁰²⁸ This results in an average cost estimate for all companies for TCFD-aligned disclosures, excluding GHG emissions calculation and reporting, of \$137,500 in the first year of TCFD-aligned reporting.¹⁰²⁹ For PRA purposes, we have converted this dollar cost average to 2,500 burden hours.¹⁰³⁰

This data analytics firm provided a separate cost estimate for calculating a company's Scopes 1, 2, and 3 emissions.¹⁰³¹ For the initial calculation of a company's GHG emissions, including all three scopes, the cost estimate ranged from \$75,000 to \$125,000 (an average of \$100,000).¹⁰³² The firm also estimated that the setting and reporting of GHG emissions targets would on average add an additional \$25,000, resulting in an average first-year cost estimate for GHG emissions metrics and targets of \$125,000.¹⁰³³ For PRA purposes, we have converted this dollar cost average to 2,273 burden hours.¹⁰³⁴ This results in a total incremental burden increase (for both TCFD-aligned disclosures and GHG emissions calculation) in the first year of climate-related reporting of 4,773 burden hours.¹⁰³⁵

¹⁰²⁸ *See id.*

¹⁰²⁹ $\$175,000 + \$100,000 = \$275,000$; $\$275,000/2 = \$137,500$.

¹⁰³⁰ $\$137,500/\$55/\text{hr.} = 2,500 \text{ hrs.}$

¹⁰³¹ *See* memorandum concerning staff meeting with representatives of S&P Global. Although the proposed rules would require the disclosure of a registrant's Scope 3 emissions only if they are material, this cost estimate is relevant for determining the upper bound of the proposed rules' estimated PRA burden.

¹⁰³² $\$75,000 + \$125,000 = \$200,000$; $\$200,000/2 = \$100,000$.

¹⁰³³ Although the proposed rules would not require a registrant to set GHG emissions targets, they would require certain disclosures if the registrant does set targets. We have therefore included S&P Global's cost estimate for targets for purposes of determining the upper bound of the proposed rules' estimated PRA burden. However, because setting targets would be voluntary under the proposed rules, the estimated PRA burden may overstate the potential burden.

¹⁰³⁴ $\$125,000/\$55/\text{hr.} = 2,273 \text{ hrs.}$

¹⁰³⁵ $2,500 \text{ hrs.} + 2,273 \text{ hrs.} = 4,773 \text{ hrs.}$

We also considered the cost estimates for GHG emissions measurement and reporting provided by two climate management firms, Persefoni and South Pole. Persefoni estimated that, depending on the maturity of a company's emissions reporting program, a company's average first-year costs for measuring and reporting Scopes 1, 2, and 3 emissions ranged from \$50,000 to \$125,000, which averages to \$87,500, or 1,591 hours.¹⁰³⁶ South Pole estimated annual costs for measuring and reporting Scopes 1, 2 and 3 emissions as ranging from \$11,800 to \$118,300, which averages to \$65,050, or 1,183 hours.¹⁰³⁷

The UK Impact Assessment estimated that the calculation and reporting of GHG emissions metrics and related targets would take the greatest amount of time, constituting approximately 72 percent of the total incremental burden.¹⁰³⁸ The data analytics firm, however, estimated that GHG emissions metrics and targets would constitute approximately 48 percent of the total incremental burden.¹⁰³⁹ The burden estimates provided by the above-referenced commenter and Climate Lab did not allocate between GHG emissions and non-GHG emissions climate reporting. For purposes of the PRA, we have allocated the burden estimates from the commenter and Climate Lab equally between the qualitative TCFD-aligned disclosure and the GHG emissions metrics and targets disclosure.¹⁰⁴⁰

¹⁰³⁶ See memorandum concerning staff meeting with representatives of Persefoni. $\$50,000 + \$125,000 = \$175,000$; $\$175,000/2 = \$87,500$; $\$87,500/\$55/\text{hr.} = 1,591$ hrs.

¹⁰³⁷ See memorandum concerning staff meeting with representatives of South Pole. $\$11,800 + \$118,300 = \$130,100$; $\$130,100/2 = \$65,050$; $\$65,050/\$55/\text{hr.} = 1,183$ hrs.

¹⁰³⁸ See *supra* note 1026 (2,469.5 hrs./3,447 hrs. = 72 percent).

¹⁰³⁹ See *supra* note 1035 (2,273 hrs./4,773 hrs. = 48 percent).

¹⁰⁴⁰ For the Society for Corporate Governance-derived estimate, this results in 3,406.5 hrs. for each of the qualitative TCFD-aligned disclosure and the GHG emissions metrics and targets disclosure. For the Climate Lab-derived burden estimate, this results in 1,983.5 burden hrs. for each of the qualitative and quantitative disclosures.

Based on the above sources, we estimate that the proposed qualitative TCFD-aligned disclosures would result in an average incremental burden hour increase of 2,217 hrs. for each affected collection of information for the first year of climate reporting.¹⁰⁴¹ We estimate that the proposed GHG emissions metrics and targets disclosure would result in an average incremental burden hour increase of 2,151 hours for each affected collection of information for the first year of reporting.¹⁰⁴²

In addition to GHG emissions metrics, the proposed rules would require the disclosure of certain climate-related financial statement metrics. Although the TCFD recommends the disclosure of metrics pertaining to the financial impacts of climate-related events and conditions, it is unclear whether the above sources' burden estimates for TCFD-aligned disclosure would include financial statement metrics. Based on staff experience reviewing financial statements, we estimate that preparation of the financial statements to present the proposed financial statement metrics would require 70 additional burden hours per filing. To ensure that our PRA estimates cover the burden associated with the proposed climate-related financial statement metrics, we have included this amount, in addition to the burden estimate for GHG emissions metrics and targets, in the estimated overall PRA burden of the proposed rules.

The proposed rules would require a registrant to present the climate-related financial statement metrics and associated disclosures in a note to its financial statements, which would be audited. Because the audit of such information would be part of the registrant's overall audit of its financial statements, we expect the incremental audit costs associated with these climate-

¹⁰⁴¹ 3,406.5 hrs. (Society) + 1,983.5 hrs. (Climate Lab) + 977.5 hrs. (UK) + 2,500 hrs. (S&P Global) = 8,867.5 hrs.; 8,867.5/4 = 2,217 hrs. (rounded to the nearest whole number).

¹⁰⁴² 3,406.5 hrs. (Society) + 1,983.5 hrs. (Climate Lab) + 2,469.5 hrs. (UK) + 2,273 hrs. (S&P Global) + 1,591 hrs. (Persefoni) + 1,183 hrs. (South Pole) = 12,906.5 hrs.; 12,906.5 hrs./6 = 2,151 hrs.

related financial statement metrics and disclosures to be modest.¹⁰⁴³ We are conservatively estimating that auditing the note pertaining to the climate-related financial statement metrics and associated disclosures would add audit fees of \$15,000 to the overall costs associated with the audit of the registrant’s financial statements. We derived this estimate by first estimating costs as an average percentage of total audit fees (1.5%)¹⁰⁴⁴ and then applying that percentage to median audit fees of \$690,000,¹⁰⁴⁵ which results in \$10,350. To be conservative, we have increased this amount to \$15,000 for estimated audit fees. We believe that this estimate represents the average cost of the incremental efforts that may be incurred, taking into consideration factors such as the scale and complexity of different registrants and the extent of impact by climate-related events (*e.g.*, location of operations, nature of business). This cost also takes into consideration the need to understand and evaluate the registrants’ processes and internal controls associated with the reporting of the climate-related financial statement metrics and associated disclosures.

¹⁰⁴³ This belief is based on post-implementation review observations and activities from accounting standards that provided further disaggregation of information and that are analogous to the proposed financial statement metrics requirements, as discussed *supra* Section II.F.2.a (*e.g.*, segment reporting and disaggregation of revenue). See FASB’s post-implementation review report on FASB Statement No. 131, Disclosures about Segments of an Enterprise and Related Information (Dec. 2012), 11, (“Preparers’ incremental costs to implement and comply with Statement 131 generally were not significant and were in line with expectations”), available at https://www.accountingfoundation.org/cs/Satellite?c=Document_C&cid=1176160621900&pagename=Foundati on%2FDocument_C%2FDocumentPage. See also FASB’s Board Meeting Handout, post-implementation review of Topic 606, Revenue with Contracts with Customers Our (July 28, 2021) (While the post-implementation review is still ongoing, most users agreed that the disaggregated [revenue] disclosure is helpful (par. 16) and users noted that although they incurred costs to become familiar with the new standard, update models, or maintain dual models during the transition period, most of those costs were nonrecurring. For users that are generalists or that cover sectors that did not have significant changes to revenue recognition measurement or timing under Topic 606, the costs were not significant. (par. 20), available at https://www.fasb.org/cs/ContentServer?c=Document_C&cid=1176176976563&d=&pagename=FASB%2FDoc ument_C%2FDocumentPage.

¹⁰⁴⁴ The staff estimated a range of 0.5% to 2.5%, which averages to 1.5%.

¹⁰⁴⁵ This is based on staff review of Audit Analytics data for 2020.

The proposed rules would require a registrant that is a large accelerated filer¹⁰⁴⁶ or an accelerated filer¹⁰⁴⁷ to include, in the relevant filing, an attestation report covering the disclosure of its Scope 1 and Scope 2 emissions and to provide certain related disclosures. Following a one-year phase-in period in which no attestation report would be required, for filings made for the second and third fiscal years following the compliance date for the GHG emissions disclosure requirement, large accelerated filers would be required to obtain an attestation report for their Scopes 1 and 2 emissions disclosure, at minimum, at a limited assurance level. We estimate the cost of a limited assurance attestation report covering a large accelerated filer's Scopes 1 and 2 emissions to be \$110,000.¹⁰⁴⁸ Commencing with the fourth fiscal year following the compliance date and thereafter, a large accelerated filer would be required to obtain an attestation report covering its Scopes 1 and 2 emissions disclosure at a reasonable assurance level. We estimate the cost for such a reasonable assurance attestation report to be \$175,000.¹⁰⁴⁹ This results in an initial six-year average¹⁰⁵⁰ assurance cost for a large accelerated filer's Scopes 1 and 2 emissions of \$124,167.¹⁰⁵¹

Following a one-year phase-in period in which no attestation report would be required, for filings made for the second and third fiscal years following the compliance date for the GHG

¹⁰⁴⁶ Based on staff review of filings made in 2020, large accelerated filers filed approximately 31% of domestic forms and approximately 37% of Form 20-Fs in 2020. For PRA purposes, we have used 37% as a proxy for the percentage of all foreign private issuer forms filed by large accelerated filers in 2020.

¹⁰⁴⁷ Based on staff review of filings made in 2020, accelerated filers filed approximately 11% of domestic forms and 15% of Form 20-Fs in 2020.

¹⁰⁴⁸ See *supra* Section IV.C.2.a.3. for the basis of this limited assurance cost estimate.

¹⁰⁴⁹ See *id.*

¹⁰⁵⁰ In order to capture three years of the cost of a reasonable assurance attestation report required for accelerated filers and large accelerated filers, which requirement does not commence until the fourth fiscal year following the proposed rules' compliance date, we have used a six-year average when calculating the estimated paperwork burden effects of the proposed rules.

¹⁰⁵¹ $0 + \$110,000 + \$110,000 + \$175,000 + \$175,000 + \$175,000 = \$745,000$; $\$745,000/6 = \$124,167$.

emissions disclosure requirement, accelerated filers would be required to obtain an attestation report for their Scopes 1 and 2 emissions disclosure, at minimum, at a limited assurance level. We estimate the cost of a limited assurance attestation report covering an accelerated filer's Scopes 1 and 2 emissions to be \$45,000.¹⁰⁵² Commencing with the fourth fiscal year following the compliance date and thereafter, an accelerated filer would be required to obtain an attestation report covering its Scopes 1 and 2 emissions disclosure at a reasonable assurance level. We estimate the cost for such a reasonable assurance attestation report to be \$75,000.¹⁰⁵³ This results in an initial six-year average assurance cost for an accelerated filer's Scopes 1 and 2 emissions of \$52,500.¹⁰⁵⁴

The proposed rules would require a registrant that is not required to include a GHG emissions attestation report to state whether any of the registrant's GHG emissions disclosures were subject to third-party attestation or verification. If so, the registrant would be required to identify the provider of assurance or verification and disclose certain additional information, such as the level and scope of assurance or verification provided, among other matters.¹⁰⁵⁵ The burden and costs for this disclosure are encompassed within the estimated overall internal burden and costs for the proposed GHG emissions disclosure.

The UK Impact Assessment assumed a 25 percent reduction in hour and cost estimates for the work required to comply with the GHG emissions metrics and targets disclosure requirement in Year 2 compared to Year 1 because initial implementation of the metrics and

¹⁰⁵² See *supra* Section IV.C.2.a.3. for the basis of this limited assurance cost estimate.

¹⁰⁵³ See *id.*

¹⁰⁵⁴ $0 + \$45,000 + \$45,000 + \$75,000 + \$75,000 + \$75,000 = \$315,000$; $\$315,000/6 = \$52,500$.

¹⁰⁵⁵ See proposed 17 CFR 229.1505(e).

targets framework would not need to be repeated. We believe this assumption is reasonable and have made a similar reduction after the first year of compliance when calculating the four-year average for the estimated paperwork burden hour effect of the proposed rules. We also have assumed a 10 percent reduction in the hour and cost estimates for preparing and providing the disclosures for the other TCFD-aligned topics in Years 2 through 6 compared to Year 1. We believe that this assumption is reasonable because the burden hours and costs associated with becoming familiar with the other TCFD disclosure topics would not need to be repeated.¹⁰⁵⁶ We believe that the reduction in the compliance burden and costs for the metrics and targets disclosure requirement would be greater than the reduction for the other TCFD-aligned disclosure topics because the initial work to implement a climate data collection and reporting framework to comply with the metrics and targets requirement would be greater than the initial framework required for the other disclosure requirements.

SRCs, which comprise 50 percent of domestic filers, and 45 percent of total affected registrants,¹⁰⁵⁷ would bear a lesser compliance burden because those registrants would not be subject to the proposed disclosure requirement pertaining to Scope 3 emissions, which, of the three types of GHG emissions, poses the greatest challenge to calculate and report. We accordingly estimate that the increase in the PRA burden pertaining to the GHG emissions requirement for SRCs filing on domestic forms would be approximately 50% less than the

¹⁰⁵⁶ S&P Global estimated a similar reduction in costs in subsequent years, the magnitude of which depends on the extent of material changes to the TCFD-aligned disclosure and the GHG emissions metrics.

¹⁰⁵⁷ In 2020, there were 6,220 domestic filers + 740 foreign private issuer (fpi) filers = 6,960 affected filers. 3,110 domestic filers + 740 fpi filers = 3,850 non-SRC filers. $3,850/6,960 = 55\%$. 3,110 filers were SRCs in 2020. $3,110/6,960 = 45\%$. *See supra* Section IV.B.

increased burden for the GHG emissions requirement for non-SRC registrants.¹⁰⁵⁸ Smaller foreign private issuers that file on the foreign private issuer forms would not be eligible for this adjustment because those foreign private issuers are excluded from the definition of, and therefore cannot be, SRCs.¹⁰⁵⁹

In addition to requiring the annual climate disclosures, the proposed rules would require a registrant to disclose any material change to its climate-related disclosures reported in its annual Exchange Act annual report (Form 10-K or 20-F) on a Form 10-Q (if a domestic filer) or a Form 6-K (if a foreign private issuer filer). We would not expect a registrant to report such a material change until its second year of compliance, at the earliest. Based on the staff's assessment of the amount of time it would take to determine that there has been a material change in the previously reported climate disclosure, particularly concerning its GHG emissions metrics, and to prepare disclosures regarding the material change, if any, we estimate a burden hour increase of 40 hours per form, or an initial six-year average of 33 hours per form.¹⁰⁶⁰

The following table summarizes the estimated paperwork burden effects of the proposed amendments for non-SRC and SRC registrants associated with the affected collections of information.

PRA Table 1. Estimated Paperwork Burden Effects of the Proposed Amendments for Non-SRC and SRC Registrants¹

¹⁰⁵⁸ This is generally consistent with some of the cost estimates obtained for calculating and reporting Scopes 1, 2, and 3 emissions. For example, Persefoni indicated that the annual GHG emissions costs for a company having experience calculating and reporting GHG emissions would double if it included Scope 3 emissions after calculating Scopes 1 and 2 emissions. *See supra* note 1013. In addition, S&P Global indicated that a company's annual ongoing reporting costs of Scopes 1 and 2 emissions would, at a minimum, increase from \$40,000 to \$75,000 if it included Scope 3 emissions. *See supra* note 1012.

¹⁰⁵⁹ *See, e.g.*, Instruction 2 to the definition of smaller reporting company under 17 CFR 230.405.

¹⁰⁶⁰ $0 + (40 \text{ hrs.} \times 5) = 200 \text{ hrs.}; 200 \text{ hrs.}/6 = 33 \text{ hrs.}$ (rounded to nearest whole number).

Collections of Information	Proposed Disclosure Item	Estimated PRA Burden Hour Effect for Non-SRC Registrants (Year 1)	Estimated PRA Burden Hour Effect for SRC Registrants (Year 1)	Estimated PRA Burden Hour Effect for Non-SRC Registrants (For each Year 2 through 6)	Estimated PRA Burden Hour Effect for SRC Registrants (For each Year 2 through 6)	Estimated PRA Burden Hour Effect for Non-SRC Registrants (6 Year Average)	Estimated PRA Burden Hour Effect for SRC Registrants (6 Year Average)	Estimated Average Annual Assurance Costs for Climate-related Financial Statement Metrics (6 Year Average)	Estimated Average Annual Assurance Costs for Scopes 1 and 2 Emissions Disclosure by AFs ² (6 Year Average)	Estimated Average Annual Assurance Costs for Scopes 1 and 2 Emissions Disclosure by LAFs ³ (6 Year Average)
Forms S-1, S-4, S-11, 10, and 10-K	Climate-related disclosures regarding governance, strategy, and risk management	+2,217 hrs.	+2,217 hrs.	+1,995 hrs.	+1,995 hrs.	+2,032 hrs.	+2,032 hrs.	+\$15,000	+\$52,500	\$124,167
	Financial statement metrics	+70 hrs.	+70 hrs.	+63 hrs.	+63 hrs.	+64 hrs.	+64 hrs.			
	GHG emissions metrics and targets	+2,151 hrs.	+1,076 hrs.	+1,613 hrs.	+807 hrs.	+1,703 hrs.	+852 hrs.			
Total		+4,438 hrs.	+3,363 hrs.	+3,671 hrs.	+2,865 hrs.	+3,799 hrs.	+2,948 hrs.	+\$15,000	+\$52,500	\$124,167
Forms F-1, F-4, and 20-F	Climate-related disclosures regarding governance, strategy, and risk management	+2,217 hrs. +70 hrs.	NA	+1,995 hrs.	NA	+2,032 hrs.	NA	+\$15,000	+\$52,500	\$124,167

	Financial statement metrics			+63 hrs.		+64 hrs.				
	GHG emissions metrics and targets	+2,151 hrs.		+1,613 hrs.		+1,703 hrs.				
Total		+4,438 hrs.		+3,671 hrs.		+3,799 hrs.		+\$15,000	+\$52,500	\$124,167
Forms 10-Q and 6-K	Material change to 10-K/20-F	0		+40 hrs.		+33 hrs.		0	0	0

¹ All numbers rounded to nearest whole number.

² Accelerated Filers

³ Large Accelerated Filers

C. Incremental and Aggregate Burden and Cost Estimates for the Proposed Amendments

Below we estimate the incremental and aggregate increase in paperwork burden resulting from the proposed amendments. These estimates represent the average burden for all issuers, both large and small. In deriving our estimates, we recognize that the burdens will likely vary among individual registrants based on a number of factors, including the nature of their business, the size and complexity of their operations, and whether they are subject to similar climate-related disclosure requirements in other jurisdictions or already preparing similar disclosures on a voluntary basis. For purposes of the PRA, the burden is to be allocated between internal burden hours and outside professional costs. The table below sets forth the percentage estimates we typically use for the burden allocation for each affected collection of information. We also estimate that the average cost of retaining outside professionals is \$400 per hour.¹⁰⁶¹

PRA Table 2. Standard Estimated Burden Allocation for Specified Collections of Information

Collection of Information	Internal	Outside Professionals
Forms S-1, F-1, S-4, F-4, S-11, 10, and 20-F	25%	75%
Forms 10-K, 10-Q, and 6-K	75%	25%

We estimate that the proposed amendments would change the burden per response, but not the frequency, of the existing collections of information. The burden increase estimates for

¹⁰⁶¹ We recognize that the costs of retaining outside professionals may vary depending on the nature of the professional services, but for purposes of this PRA analysis, we estimate that such costs would be an average of \$400 per hour.

each collection of information were calculated by multiplying the number of responses by the increased estimated average amount of time it would take to prepare and review the disclosure required under the affected collection of information (using the estimated three-year average increase). Since 50 percent of the domestic filers in 2020 were non-SRCs and 50 percent were SRCs, we assume for purposes of our PRA estimates that 50 percent of each domestic collection of information was filed by non-SRCs and 50 percent by SRCs. The table below illustrates the incremental change to the annual compliance burden of the affected collections of information, in hours and costs.

PRA Table 3. Calculation of the Incremental Change in Burden Estimates of Current Responses Resulting from the Proposed Amendments¹

Collection of Information	Filed By	Number of Estimated Affected Respondents	Burden Hour Annual Increase per Affected Respondent	Increase in Burden Hours for Affected Respondents	Increase in Internal Burden Hours for Affected Respondents	Increase in Professional Hours for Affected Respondents	Climate-Related Financial Statement Metrics Assurance Costs for Affected Respondents ²	GHG Emissions Assurance Costs for AFs ³	GHG Emissions Assurance Costs for LAFs ⁴	Increase in Professional Costs for Affected Respondents
		(A)	(B)	(C) = (A) x (B)	(D) = (C) x 0.25 or 0.75	(E) = (C) x 0.75 or 0.25	(F) = (A) x \$15,000	(G) = (A) x 0.11 or 0.15 x \$52,500	(H) = (A) x 0.31 or 0.37 x \$124,167	(I) = (E) x \$400 + (F) + (G) + (H)
S-1	Non-SRCs	447	3,799	1,698,153						
S-1	SRCs	447	2,948	1,317,756						
S-1 (Total)		894		3,015,909	753,977	2,261,932	\$13,410,000	\$5,145,000	\$34,394,259	\$957,722,059
S-4	Non-SRCs	294	3,799	1,116,906						
S-4	SRCs	294	2,948	866,712						
S-4 (Total)		588		1,983,618	495,905	1,487,714	\$8,820,000	\$3,412,500	\$22,598,394	\$629,916,494
S-11	Non-SRCs	34	3,799	129,166						
S-11	SRCs	33	2,948	97,284						
S-11 (Total)		67		226,450	56,613	169,838	\$1,005,000	\$367,500	\$2,607,507	\$71,915,207
10	Non-SRCs	108	3,799	410,292						
10	SRCs	108	2,948	318,384						
10 (Total)		216		728,676	182,169	546,507	\$3,240,000	\$1,260,000	\$8,319,189	\$231,421,989
10-K	Non-SRCs	4,146	3,799	15,750,654						
10-K	SRCs	4,146	2,948	12,222,408						
10-K (Total)		8,292		27,973,062	20,979,797	6,993,266	\$124,380,000	\$47,880,000	\$319,233,357	\$3,288,799,757
10-Q	Non-SRCs	11,463	33	378,279						
10-Q	SRCs	11,462	33	378,246						
10-Q (Total)		22,925		756,525	567,394	189,131	0	0	0	\$75,652,400
F-1	Both	66	3,799	250,734	62,684	188,051	\$990,000	\$525,000	\$2,980,008	\$79,715,408
F-4	Both	39	3,799	148,161	37,040	111,121	\$585,000	\$315,000	\$1,738,338	\$47,086,738

20-F	Both	729	3,799	2,769,471	692,368	2,077,103	\$10,935,000	\$5,722,500	\$33,525,090	\$881,023,790
6-K	Both	34,794	33	1,148,202	861,152	287,051	0	0	0	\$114,820,400

¹ All numbers rounded to nearest whole number.

² We have not assumed assurance costs for Form 10-Q or Form 6-K because these forms typically have only marginal assurance costs. We expect these forms to be filed in the 2nd year, at the earliest.

³ AFs filed 11% of domestic forms and 15% of foreign private issuer forms in 2020.

⁴ LAFs filed 31% of domestic forms and 37% of foreign private issuer forms in 2020.

The table below illustrates the program change expected to result from the proposed rule amendments together with the total requested change in reporting burden and costs.

PRA Table 4. Requested Paperwork Burden under the Proposed Amendments

Collection of Information	Current Burden			Program Change			Requested Change in Burden		
	Current Annual Responses	Current Internal Burden Hours	Current External Cost Burden	No. of Affected Responses	Change in Internal Burden Hours	Change in External Costs	Annual Responses	Internal Burden Hours	External Cost Burden
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H) = (B) + (E)	(I) = (C) + (F)
S-1	894	146,067	\$178,922,043	894	753,977	\$957,722,059	894	900,044	\$1,134,929,102
S-4	588	562,362	\$677,255,579	588	495,905	\$629,916,494	588	1,058,267	\$1,306,034,573
S-11	67	12,229	\$14,943,768	67	56,613	\$71,915,207	67	68,842	\$86,736,475
10	216	11,855	\$14,091,488	216	182,169	\$231,421,989	216	194,024	\$245,093,477
10-K	8,292	14,188,040	\$1,893,793,119	8,292	20,979,797	\$3,288,799,757	8,292	35,167,837	\$5,166,632,876
10-Q	22,925	3,182,333	\$421,490,754	22,925	567,394	\$75,652,400	22,925	3,749,727	\$497,143,154

F-1	66	26,707	\$32,293,375	66	62,684	\$79,715,408	66	89,391	\$111,833,783
F-4	39	14,049	\$17,073,825	39	37,040	\$47,086,738	39	51,089	\$64,055,563
20-F	729	479,261	\$576,824,025	729	692,368	\$881,023,790	729	1,171,629	\$1,455,940,315
6-K	34,794	227,031	\$30,270,780	34,794	861,152	\$114,820,400	34,794	1,088,183	\$145,091,180
Total		18,849,934	\$3,856,958,756		24,689,099	\$6,378,073,242		43,539,033	\$10,235,031,998

D. Request for Comment

We request comment in order to:

- Evaluate whether the proposed collections of information are necessary for the proper performance of the functions of the agency, including whether the information would have practical utility;
- Evaluate the accuracy of our estimate of the burden of the proposed collections of information, including any assumptions used;
- Determine whether there are ways to enhance the quality, utility, and clarity of the information to be collected;
- Evaluate whether there are ways to minimize the burden of the collections of information on those who are to respond, including through the use of automated collection techniques or other forms of information technology; and
- Evaluate whether the proposed amendments would have any effects on any other collections of information not previously identified in this section.¹⁰⁶²

Any member of the public may direct to us any comments about the accuracy of these burden estimates and any suggestions for reducing these burdens. Persons submitting comments on the collection of information requirements should direct the comments to the Office of Management and Budget, Attention: Desk Officer for the Securities and Exchange Commission, Office of Information and Regulatory Affairs, Washington, DC 20503, and should send a copy to Vanessa A. Countryman, Secretary, Securities and Exchange Commission, 100 F Street NE, Washington, DC 20549-1090, with reference to File No. S7-10-22. Requests for materials

¹⁰⁶² We request comment pursuant to 44 U.S.C. 3506(c)(2)(B).

submitted to OMB by the Commission with regard to these collections of information should be in writing, refer to File No. S7-10-22, and be submitted to the Securities and Exchange Commission, Office of FOIA Services, 100 F Street NE, Washington, DC 20549-2736. OMB is required to make a decision concerning the collection of information between 30 and 60 days after publication of this release. Consequently, a comment to OMB is best assured of having its full effect if OMB receives it within 30 days of publication.

VI. INITIAL REGULATORY FLEXIBILITY ACT ANALYSIS

This Initial Regulatory Flexibility Act Analysis (“IRFA”) has been prepared, and made available for public comment, in accordance with the Regulatory Flexibility Act (“RFA”).¹⁰⁶³ It relates to the proposal to add new subpart 1500 to Regulation S-K and new Article 14 to Regulation S-X, which would require registrants to provide certain climate-related disclosures in their Securities Act and Exchange Act registration statements and Exchange Act reports. As required by the RFA, this IRFA describes the impact of these proposed amendments of Regulations S-K and S-X on small entities.¹⁰⁶⁴

A. Reasons for, and Objectives of, the Proposed Action

We are proposing to require registrants to provide certain climate-related information in their registration statements and annual reports, including certain information about climate-related financial risks and climate-related financial metrics in their financial statements. The disclosure of this information would provide consistent, comparable, and decision-useful information to investors to enable them to make informed judgments about the impact of climate-related risks on current and potential investments. Information about climate-related

¹⁰⁶³ 5 U.S.C. 601 *et seq.*

¹⁰⁶⁴ 5 U.S.C. 603(a).

risks can have an impact on public companies' financial performance or position and may be material to investors in making investment or voting decisions. For this reason, many investors—including shareholders, investment advisors, and investment management companies—currently seek information about climate-related risks from companies to inform their investment decision-making. Furthermore, many companies have begun to provide some of this information voluntarily in response to investor demand and in recognition of the potential financial effects of climate-related risks on their businesses. We are concerned that the existing voluntary disclosures of climate-related risks do not adequately protect investors. For this reason, mandatory disclosures may be necessary or appropriate to improve the consistency, comparability, and reliability of this information. The reasons for, and objectives of, the proposed amendments are discussed in more detail in Section II above.

B. Legal Basis

We are proposing the amendments contained in this release under the authority set forth in Sections 7, 10, 19(a), and 28 of the Securities Act, as amended, and Sections 3(b), 12, 13, 15, 23(a), and 36 of the Exchange Act, as amended.

C. Small Entities Subject to the Proposed Rules

The proposed amendments would affect some issuers that are small entities. The RFA defines “small entity” to mean “small business,” “small organization,” or “small governmental jurisdiction.”¹⁰⁶⁵ For purposes of the RFA, under 17 CFR 240.0-10(a), an issuer, other than an investment company, is a “small business” or “small organization” if it had total assets of \$5

¹⁰⁶⁵ 5 U.S.C. 601(6).

million or less on the last day of its most recent fiscal year and, under 17 CFR 230.157, is also engaged or proposing to engage in an offering of securities that does not exceed \$5 million.

The proposed rules would apply to a registrant when filing a Securities Act or Exchange Act registration statement or an Exchange Act annual or other periodic report. We estimate that there are 1,004 registrants that are small entities that would be affected by the proposed rules.

D. Reporting, Recordkeeping, and Other Compliance Requirements

The proposed amendments would require a registrant, including a small entity, to disclose certain climate-related information, including data about their GHG emissions, when filing a Securities Act or Exchange Act registration statement or Exchange Act annual or other periodic report. In particular, like larger registrants, small entities would be required to disclose information about: the oversight of their boards and management regarding climate-related risks; any material impacts of climate-related risks on their consolidated financial statements, business, strategy, and outlook; their risk management of climate-related risks; climate-related targets or goals, if any; and certain financial statement metrics. In addition, like other registrants, small entities would be required to disclose their Scopes 1 and 2 emissions. We anticipate that the nature of any benefits or costs associated with the above proposed amendments would be similar for large and small entities. Accordingly, we refer to the discussion of the proposed amendments' economic effects on all affected parties, including small entities, in Section IV.C. Consistent with that discussion, we anticipate that the economic benefits and costs likely would vary widely among small entities based on a number of factors, including the nature and conduct of their businesses, which makes it difficult to project the economic impact on small entities with precision. However, we request comment on how the proposed amendments would affect small entities.

While small entities would not be exempt from the full scope of the proposed amendments, they would be exempt from the Scope 3 emissions disclosure requirements, which would likely impose the greatest compliance burden for registrants due to the complexity of data gathering, calculation, and assessment required for that type of emissions.¹⁰⁶⁶ Small entities would also have a longer transition period to comply with the proposed rules than other registrants.¹⁰⁶⁷ We believe that these accommodations would reduce the proposed rules' compliance burden for small entities that, compared to larger registrants with more resources, may be less able to absorb the costs associated with reporting of Scope 3 emissions and may need additional time to allocate the resources necessary to begin providing climate-related disclosures.

E. Duplicative, Overlapping, or Conflicting Federal Rules

The proposed rules do not duplicate or conflict with other existing federal rules. As discussed in Section IV, some registrants currently report certain GHG emissions via the EPA's 2009 mandatory Greenhouse Gas Reporting Program. However, as discussed above, the reporting requirements of the EPA's program and the resulting data are different and more suited to the purpose of building a national inventory of GHG emissions rather than allowing investors to assess emissions-related risks to individual registrants.

¹⁰⁶⁶ See *supra* Section II.G.3 and II.L (discussing the proposed exemption from Scope 3 emissions disclosure for smaller reporting companies).

¹⁰⁶⁷ See *supra* Section II.L (discussing the proposed additional two years for smaller reporting companies to comply with the proposed rules compared to large accelerated filers).

F. Significant Alternatives

The RFA directs us to consider alternatives that would accomplish our stated objectives, while minimizing any significant economic impact on small entities. In connection with the proposed amendments, we considered the following alternatives:

- Establishing different compliance or reporting requirements that take into account the resources available to small entities;
- Clarifying, consolidating, or simplifying compliance and reporting requirements under the rules for small entities;
- Using performance rather than design standards; and
- Exempting small entities from all or part of the requirements.

As discussed above, the proposed amendments would exempt small entities from certain GHG emissions disclosure requirements that would likely impose the greatest compliance burden on registrants compared to other proposed disclosure requirements. In addition, while there would be a transition period for all registrants to comply with the proposed amendments, small entities would have an additional two more years to comply with the proposed rules than large accelerated filers and an additional year compared to other registrants. We believe that this scaled and phased-in approach would help minimize the economic impact of the proposed amendments on small entities. We are not, however, proposing a complete exemption from the proposed amendments for SRCs because, due to their broad impact across industries and jurisdictions, climate-related risks may materially impact the operations and financial condition of domestic and foreign issuers, both large and small.

For similar reasons, other than the exemption for reporting Scope 3 emissions by SRCs, we are not proposing to clarify, consolidate, or simplify the proposed disclosure requirements for

small entities. A key objective of the proposed amendments is to elicit consistent, comparable and reliable information about climate-related risks across registrants. Alternative compliance requirements for small entities could undermine that goal.

The proposed amendments are primarily based on performance standards with some provisions that are more like design standards. For example, while the proposed amendments include certain concepts, such as scopes, developed by the GHG Protocol, they do not require a registrant to use the GHG Protocol's methodology when calculating its GHG emissions if another methodology better suits its circumstances. Using a performance standard for calculation of GHG emissions would provide registrants with some flexibility regarding how to comply with the proposed GHG emissions requirement while still providing useful information for investors about the various scopes of emissions. Similarly, the proposed amendments would require a registrant that is a large accelerated filer or an accelerated filer to include an attestation report covering its Scopes 1 and 2 emissions that would require the report to meet certain minimum criteria while permitting the filer, at its option, to obtain additional levels of assurance. In contrast, the proposed amendments would require all registrants, including small entities, to express their GHG emissions both disaggregated by each constituent greenhouse gas and in the aggregate, expressed in terms of carbon dioxide equivalent (CO₂e). Using a design standard for the expression of a registrant's GHG emissions would enhance the comparability of this disclosure for investors.

Request for Comment

We encourage the submission of comments with respect to any aspect of this IRFA. In particular, we request comments regarding:

- How the proposed rule and form amendments can achieve their objective while lowering the burden on small entities;
- The number of small entity companies that may be affected by the proposed rule and form amendments;
- The existence or nature of the potential effects of the proposed amendments on small entity companies discussed in the analysis;
- How to quantify the effects of the proposed amendments; and
- Whether there are any federal rules that duplicate, overlap, or conflict with the proposed amendments.

Commenters are asked to describe the nature of any effect and provide empirical data supporting the extent of that effect. Comments will be considered in the preparation of the Final Regulatory Flexibility Analysis, if the proposed rules are adopted, and will be placed in the same public file as comments on the proposed rules themselves.

VII. SMALL BUSINESS REGULATORY ENFORCEMENT FAIRNESS ACT

For purposes of the Small Business Regulatory Enforcement Fairness Act of 1996 (“SBREFA”),¹⁰⁶⁸ the Commission must advise OMB as to whether the proposed amendments constitute a “major” rule. Under SBREFA, a rule is considered “major” where, if adopted, it results in or is likely to result in:

- An annual effect on the U.S. economy of \$100 million or more;
- A major increase in costs or prices for consumers or individual industries; or
- Significant adverse effects on competition, investment, or innovation.

¹⁰⁶⁸ 5 U.S.C. 801 *et seq.*

We request comment on whether our proposal would be a “major rule” for purposes of SBREFA. In particular, we request comment and empirical data on:

- The potential effect on the U.S. economy on an annual basis;
- Any potential increase in costs or prices for consumers or individual industries; and
- Any potential adverse effect on competition, investment, or innovation.

VIII. STATUTORY AUTHORITY

The amendments contained in this release are being proposed under the authority set forth in Sections 7, 10, 19(a), and 28 of the Securities Act, as amended, and Sections 3(b), 12, 13, 15, 23(a), and 36 of the Exchange Act, as amended.

List of Subjects in 17 CFR Parts 210, 229, 232, 239, and 249

Accountants; Accounting; Administrative practice and procedure, Reporting and recordkeeping requirements, Securities.

For the reasons set out in the preamble, the Commission is proposing to amend title 17, chapter II of the Code of Federal Regulations as follows:

PART 210 – FORM AND CONTENT OF AND REQUIREMENTS FOR FINANCIAL STATEMENTS, SECURITIES ACT OF 1933, SECURITIES EXCHANGE ACT OF 1934, INVESTMENT COMPANY ACT OF 1940, INVESTMENT ADVISERS ACT OF 1940, AND ENERGY POLICY AND CONSERVATION ACT OF 1975

1. The authority citation for part 210 continues to read as follows:

Authority: 15 U.S.C. 77f, 77g, 77h, 77j, 77s, 77z-2, 77z-3, 77aa(25), 77aa(26), 77nn(25), 77nn(26), 78c, 78j-1, 78l, 78m, 78n, 78o(d), 78q, 78u-5, 78w, 78ll, 78mm, 80a-8, 80a20, 80a-29, 80a-30, 80a-31, 80a-37(a), 80b-3, 80b-11, 7202 and 7262, and sec. 102(c), Pub. L. 112-106, 126 Stat. 310 (2012), unless otherwise noted.

2. Amend § 210.8-01 by revising paragraph (b) to read as follows:

§ 210.8-01 General requirements for Article 8

* * * * *

(b) Smaller reporting companies electing to prepare their financial statements with the form and content required in Article 8 need not apply the other form and content requirements in 17 CFR part 210 (Regulation S-X) with the exception of the following:

(1) The report and qualifications of the independent accountant shall comply with the requirements of §§ 210.2-01 through 210.2-07 (Article 2); and

(2) The description of accounting policies shall comply with § 210.4-08(n);

(3) Smaller reporting companies engaged in oil and gas producing activities shall follow the financial accounting and reporting standards specified in § 210.4-10 with respect to such activities; and

(4) Sections 210.14-01 and 210.14-02 (Article 14).

* * * * *

3. Add an undesignated center heading and §§ 210.14-01 and 210.14-02 to read as follows:

Article 14 – Climate-related disclosure

§ 210.14-01 Climate-related disclosure instructions.

(a) *General.* A registrant must include disclosure pursuant to § 210.14-02 in any filing that is required to include disclosure pursuant to subpart 229.1500 of this chapter and that also requires the registrant to include its audited financial statements. The disclosure pursuant to § 210.14-02 must be included in a note to the financial statements included in such filing.

(b) *Definitions.* The definitions in § 229.1500 (Item 1500 of Regulation S-K) apply to this Article 14 of Regulation S-X.

(c) *Basis of calculation.* When calculating the metrics in this Article 14, except where otherwise indicated, a registrant must:

(1) Use financial information that is consistent with the scope of the rest of its consolidated financial statements included in the filing; and

(2) Whenever applicable, apply the same accounting principles that it is required to apply in preparation of the rest of its consolidated financial statements included in the filing.

(d) *Historical periods.* Disclosure must be provided for the registrant's most recently completed fiscal year, and for the historical fiscal year(s) included in the consolidated financial statements in the filing (*e.g.*, a registrant that is required to include balance sheets as of the end of its two most recent fiscal years and income statements and cash flow statements as of the end of its three most recent fiscal years would be required to disclose two years of the climate-related metrics that correspond to balance sheet line items and three years of the climate-related metrics that correspond to income statement or cash flow statement line items).

§ 210.14-02 Climate-related metrics.

(a) *Contextual information.* Provide contextual information, describing how each specified metric was derived, including a description of significant inputs and assumptions used, and, if applicable, policy decisions made by the registrant to calculate the specified metrics.

(b) *Disclosure thresholds.*

(1) Disclosure of the financial impact on a line item in the registrant's consolidated financial statements pursuant to paragraphs (c) and (d) of this section (including any impacts included pursuant to paragraphs (i) and (j) of this section) is not required if the sum of the

absolute values of all the impacts on the line item is less than one percent of the total line item for the relevant fiscal year.

(2) Disclosure of the aggregate amount of expenditure expensed or the aggregate amount of capitalized costs incurred pursuant to paragraphs (e) and (f) of this section (including any impacts included pursuant to paragraphs (i) and (j) of this section) is not required if such amount is less than one percent of the total expenditure expensed or total capitalized costs incurred, respectively, for the relevant fiscal year.

(c) *Financial impacts of severe weather events and other natural conditions.* Disclose the impact of severe weather events and other natural conditions, such as flooding, drought, wildfires, extreme temperatures, and sea level rise on any relevant line items in the registrant's consolidated financial statements during the fiscal years presented. Disclosure must be presented, at a minimum, on an aggregated line-by-line basis for all negative impacts and, separately, at a minimum, on an aggregated line-by-line basis for all positive impacts. Impacts may include, for example:

(1) Changes to revenues or costs from disruptions to business operations or supply chains;

(2) Impairment charges and changes to the carrying amount of assets (such as inventory, intangibles, and property, plant and equipment) due to the assets being exposed to severe weather, flooding, drought, wildfires, extreme temperatures, and sea level rise;

(3) Changes to loss contingencies or reserves (such as environmental reserves or loan loss allowances) due to impact from severe weather events; and

(4) Changes to total expected insured losses due to flooding or wildfire patterns.

(d) *Financial impacts related to transition activities.* Disclose the impact of any efforts to reduce GHG emissions or otherwise mitigate exposure to transition risks on any relevant line items in the registrant's consolidated financial statements during the fiscal years presented. Disclosure must be presented, at a minimum, on an aggregated line-by-line basis for all negative impacts and, separately, at a minimum, on an aggregated line-by-line basis for all positive impacts. Impacts may include, for example:

(1) Changes to revenue or cost due to new emissions pricing or regulations resulting in the loss of a sales contract;

(2) Changes to operating, investing, or financing cash flow from changes in upstream costs, such as transportation of raw materials;

(3) Changes to the carrying amount of assets (such as intangibles and property, plant, and equipment) due to, among other things, a reduction of the asset's useful life or a change in the asset's salvage value by being exposed to transition activities; and

(4) Changes to interest expense driven by financing instruments such as climate-linked bonds issued where the interest rate increases if certain climate-related targets are not met.

(e) *Expenditure to mitigate risks of severe weather events and other natural conditions.* Disclose separately the aggregate amount of expenditure expensed and the aggregate amount of capitalized costs incurred during the fiscal years presented to mitigate the risks from severe weather events and other natural conditions, such as flooding, drought, wildfires, extreme temperatures, and sea level rise. For example, a registrant may be required to disclose the amount of expense or capitalized costs, as applicable, to increase the resilience of assets or operations, retire or shorten the estimated useful lives of impacted assets, relocate assets or

operations at risk, or otherwise reduce the future impact of severe weather events and other natural conditions on business operations.

(f) *Expenditure related to transition activities.* Disclose separately the aggregate amount of expenditure expensed and the aggregate amount of capitalized costs incurred during the fiscal years presented to reduce GHG emissions or otherwise mitigate exposure to transition risks. For example, a registrant may be required to disclose the amount of expense or capitalized costs, as applicable, related to research and development of new technologies, purchase of assets, infrastructure, or products that are intended to reduce GHG emissions, increase energy efficiency, offset emissions (purchase of energy credits), or improve other resource efficiency. A registrant that has disclosed GHG emissions reduction targets or other climate-related commitments must disclose the expenditures and costs related to meeting its targets, commitments, and goals, if any, in the fiscal years presented.

(g) *Financial estimates and assumptions impacted by severe weather events and other natural conditions.* Disclose whether the estimates and assumptions the registrant used to produce the consolidated financial statements were impacted by exposures to risks and uncertainties associated with, or known impacts from, severe weather events and other natural conditions, such as flooding, drought, wildfires, extreme temperatures, and sea level rise. If yes, provide a qualitative description of how the development of such estimates and assumptions were impacted by such events.

(h) *Financial estimates and assumptions impacted by transition activities.* Disclose whether the estimates and assumptions the registrant used to produce the consolidated financial statements were impacted by risks and uncertainties associated with, or known impacts from, a potential transition to a lower carbon economy or any climate-related targets disclosed by the

registrant. If yes, provide a qualitative description of how the development of such estimates and assumptions were impacted by such a potential transition or the registrant's disclosed climate-related targets.

(i) *Impact of identified climate-related risks.* A registrant must also include the impact of any climate-related risks (separately by physical risks and transition risks, as defined in § 229.1500(c) of this chapter), identified by the registrant pursuant to § 229.1502(a) of this chapter, on any of the financial statement metrics disclosed pursuant to paragraphs (c) through (h) of this section.

(j) *Impact of climate-related opportunities.* A registrant may also include the impact of any opportunities arising from severe weather events and other natural conditions, any impact of efforts to pursue climate-related opportunities associated with transition activities, and the impact of any other climate-related opportunities, including those identified by the registrant pursuant to § 229.1502(a) of this chapter, on any of the financial statement metrics disclosed pursuant to paragraphs (c) through (h) of this section. If a registrant makes a policy decision to disclose the impact of an opportunity, it must do so consistently for the fiscal years presented, including for each financial statement line item and all relevant opportunities identified by the registrant.

**PART 229—STANDARD INSTRUCTIONS FOR FILING FORMS UNDER
SECURITIES ACT OF 1933, SECURITIES EXCHANGE ACT OF 1934 AND ENERGY
POLICY AND CONSERVATION ACT OF 1975—REGULATION S-K**

4. The authority citation for part 229 continues to read as follows:

Authority: 15 U.S.C. 77e, 77f, 77g, 77h, 77j, 77k, 77s, 77z-2, 77z-3, 77aa(25), 77aa(26), 77ddd, 77eee, 77ggg, 77hhh, 77iii, 77jjj, 77nnn, 77sss, 78c, 78i, 78j, 78j-3, 78l, 78m, 78n, 78n-1, 78o, 78u-5, 78w, 78ll, 78 mm, 80a-8, 80a-9, 80a-20, 80a-29, 80a-30, 80a-31(c), 80a37, 80a-

38(a), 80a-39, 80b-11 and 7201 et seq.; 18 U.S.C. 1350; sec. 953(b), Pub. L. 111-203, 124 Stat. 1904 (2010); and sec. 102(c), Pub. L. 112-106, 126 Stat. 310 (2012).

5. Add subpart 229.1500 (“Climate-Related Disclosure”) to read as follows:

Subpart 229.1500—Climate-Related Disclosure

Sec.

229.1500 (Item 1500) Definitions.

229.1501 (Item 1501) Governance.

229.1502 (Item 1502) Strategy, business model, and outlook.

229.1503 (Item 1503) Risk management.

229.1504 (Item 1504) GHG emissions metrics.

229.1505 (Item 1505) Attestation of Scope 1 and Scope 2 emissions disclosure.

229.1506 (Item 1506) Targets and goals.

229.1507 (Item 1507) Interactive data requirement.

Subpart 229.1500—Climate-Related Disclosure

§ 229.1500 (Item 1500) Definitions.

As used in this subpart, these terms have the following meanings:

(a) *Carbon offsets* represents an emissions reduction or removal of greenhouse gases (“GHG”) in a manner calculated and traced for the purpose of offsetting an entity’s GHG emissions.

(b) *Climate-related opportunities* means the actual or potential positive impacts of climate-related conditions and events on a registrant’s consolidated financial statements, business operations, or value chains, as a whole.

(c) *Climate-related risks* means the actual or potential negative impacts of climate-related conditions and events on a registrant’s consolidated financial statements, business operations, or value chains, as a whole. Climate-related risks include the following:

(1) *Physical risks* include both acute risks and chronic risks to the registrant’s business operations or the operations of those with whom it does business.

(2) *Acute risks* are event-driven and may relate to shorter term extreme weather events, such as hurricanes, floods, and tornadoes, among other events.

(3) *Chronic risks* relate to longer term weather patterns and related effects, such as sustained higher temperatures, sea level rise, drought, and increased wildfires, as well as related effects such as decreased arability of farmland, decreased habitability of land, and decreased availability of fresh water.

(4) *Transition risks* are the actual or potential negative impacts on a registrant's consolidated financial statements, business operations, or value chains attributable to regulatory, technological, and market changes to address the mitigation of, or adaptation to, climate-related risks, such as increased costs attributable to changes in law or policy, reduced market demand for carbon-intensive products leading to decreased prices or profits for such products, the devaluation or abandonment of assets, risk of legal liability and litigation defense costs, competitive pressures associated with the adoption of new technologies, reputational impacts (including those stemming from a registrant's customers or business counterparties) that might trigger changes to market behavior, consumer preferences or behavior, and registrant behavior.

(d) *Carbon dioxide equivalent* ("CO₂e") means the common unit of measurement to indicate the global warming potential ("GWP") of each greenhouse gas, expressed in terms of the GWP of one unit of carbon dioxide ("CO₂").

(e) *Emission factor* means a multiplication factor allowing actual GHG emissions to be calculated from available activity data or, if no activity data is available, economic data, to derive absolute GHG emissions. Examples of activity data include kilowatt-hours of electricity used, quantity of fuel used, output of a process, hours of operation of equipment, distance travelled, and floor area of a building.

(f) *Global warming potential* (“GWP”) means a factor describing the global warming impacts of different greenhouse gases. It is a measure of how much energy will be absorbed in the atmosphere over a specified period of time as a result of the emission of one ton of a greenhouse gas, relative to the emissions of one ton of carbon dioxide (CO₂).

(g) *Greenhouse gases* (“GHG”) means carbon dioxide (CO₂), methane (“CH₄”), nitrous oxide (“N₂O”), nitrogen trifluoride (“NF₃”), hydrofluorocarbons (“HFCs”), perfluorocarbons (“PFCs”), and sulfur hexafluoride (“SF₆”).

(h) *GHG emissions* means direct and indirect emissions of greenhouse gases expressed in metric tons of carbon dioxide equivalent (CO₂e), of which:

(1) Direct emissions are GHG emissions from sources that are owned or controlled by a registrant.

(2) Indirect emissions are GHG emissions that result from the activities of the registrant, but occur at sources not owned or controlled by the registrant.

(i) *GHG intensity* (or *carbon intensity*) means a ratio that expresses the impact of GHG emissions per unit of economic value (*e.g.*, metric tons of CO₂e per unit of total revenues, using the registrant’s reporting currency) or per unit of production (*e.g.*, metric tons of CO₂e per product produced).

(j) *Internal carbon price* means an estimated cost of carbon emissions used internally within an organization.

(k) *Location* means a ZIP code or, in a jurisdiction that does not use ZIP codes, a similar subnational postal zone or geographic location.

(l) *Operational boundaries* means the boundaries that determine the direct and indirect emissions associated with the business operations owned or controlled by a registrant.

(m) *Organizational boundaries* means the boundaries that determine the operations owned or controlled by a registrant for the purpose of calculating its GHG emissions.

(n) *Renewable energy credit or certificate (“REC”)* means a credit or certificate representing each megawatt-hour (1 MWh or 1,000 kilowatt-hours) of renewable electricity generated and delivered to a power grid.

(o) *Scenario analysis* means a process for identifying and assessing a potential range of outcomes of various possible future climate scenarios, and how climate-related risks may impact a registrant’s operations, business strategy, and consolidated financial statements over time. For example, registrants might use scenario analysis to test the resilience of their strategies under certain future climate scenarios, such as those that assume global temperature increases of 3 °C, 2 °C, and 1.5 °C above pre-industrial levels.

(p) *Scope 1 emissions* are direct GHG emissions from operations that are owned or controlled by a registrant.

(q) *Scope 2 emissions* are indirect GHG emissions from the generation of purchased or acquired electricity, steam, heat, or cooling that is consumed by operations owned or controlled by a registrant.

(r) *Scope 3 emissions* are all indirect GHG emissions not otherwise included in a registrant’s Scope 2 emissions, which occur in the upstream and downstream activities of a registrant’s value chain.

(1) Upstream activities in which Scope 3 emissions might occur include:

(i) A registrant’s purchased goods and services;

(ii) A registrant’s capital goods;

(iii) A registrant's fuel and energy related activities not included in Scope 1 or Scope 2 emissions;

(iv) Transportation and distribution of purchased goods, raw materials, and other inputs;

(v) Waste generated in a registrant's operations;

(vi) Business travel by a registrant's employees;

(vii) Employee commuting by a registrant's employees; and

(viii) A registrant's leased assets related principally to purchased or acquired goods or services.

(2) Downstream activities in which Scope 3 emissions might occur include:

(i) Transportation and distribution of a registrant's sold products, goods or other outputs;

(ii) Processing by a third party of a registrant's sold products;

(iii) Use by a third party of a registrant's sold products;

(iv) End-of-life treatment by a third party of a registrant's sold products;

(v) A registrant's leased assets related principally to the sale or disposition of goods or services;

(vi) A registrant's franchises; and

(vii) Investments by a registrant.

(s) *Transition plan* means a registrant's strategy and implementation plan to reduce climate-related risks, which may include a plan to reduce its GHG emissions in line with its own commitments or commitments of jurisdictions within which it has significant operations.

(t) *Value chain* means the upstream and downstream activities related to a registrant's operations. Upstream activities in connection with a value chain may include activities by a party other than the registrant that relate to the initial stages of a registrant's production of a good

or service (*e.g.*, materials sourcing, materials processing, and supplier activities). Downstream activities in connection with a value chain may include activities by a party other than the registrant that relate to processing materials into a finished product and delivering it or providing a service to the end user (*e.g.*, transportation and distribution, processing of sold products, use of sold products, end of life treatment of sold products, and investments).

§ 229.1501 (Item 1501) Governance.

(a)(1) Describe the board of director's oversight of climate-related risks. Include the following, as applicable:

(i) The identity of any board members or board committee responsible for the oversight of climate-related risks;

(ii) Whether any member of the board of directors has expertise in climate-related risks, with disclosure in such detail as necessary to fully describe the nature of the expertise;

(iii) The processes by which the board of directors or board committee discusses climate-related risks, including how the board is informed about climate-related risks, and the frequency of such discussion;

(iv) Whether and how the board of directors or board committee considers climate-related risks as part of its business strategy, risk management, and financial oversight; and

(v) Whether and how the board of directors sets climate-related targets or goals, and how it oversees progress against those targets or goals, including the establishment of any interim targets or goals.

(2) If applicable, a registrant may also describe the board of director's oversight of climate-related opportunities.

(b)(1) Describe management's role in assessing and managing climate-related risks.

Include the following, as applicable:

(i) Whether certain management positions or committees are responsible for assessing and managing climate-related risks and, if so, the identity of such positions or committees and the relevant expertise of the position holders or members in such detail as necessary to fully describe the nature of the expertise;

(ii) The processes by which such positions or committees are informed about and monitor climate-related risks; and

(iii) Whether and how frequently such positions or committees report to the board or a committee of the board on climate-related risks.

(2) If applicable, a registrant may also describe management's role in assessing and managing climate-related opportunities.

§ 229.1502 (Item 1502) Strategy, business model, and outlook.

(a) Describe any climate-related risks reasonably likely to have a material impact on the registrant, including on its business or consolidated financial statements, which may manifest over the short, medium, and long term. If applicable, a registrant may also disclose the actual and potential impacts of any climate-related opportunities when responding to any of the provisions in this section.

(1) Discuss such climate-related risks, specifying whether they are physical or transition risks and the nature of the risks presented.

(i) For physical risks, describe the nature of the risk, including if it may be categorized as an acute or chronic risk, and the location and nature of the properties, processes, or operations subject to the physical risk.

(A) If a risk concerns the flooding of buildings, plants, or properties located in flood hazard areas, disclose the percentage of those assets (square meters or acres) that are located in flood hazard areas in addition to their location.

(B) If a risk concerns the location of assets in regions of high or extremely high water stress, disclose the amount of assets (*e.g.*, book value and as a percentage of total assets) located in those regions in addition to their location. Also disclose the percentage of the registrant's total water usage from water withdrawn in those regions.

(ii) For transition risks, describe the nature of the risk, including whether it relates to regulatory, technological, market (including changing consumer, business counterparty, and investor preferences), liability, reputational, or other transition-related factors, and how those factors impact the registrant. A registrant that has significant operations in a jurisdiction that has made a GHG emissions reduction commitment may be exposed to transition risks related to the implementation of the commitment.

(2) Describe how the registrant defines short-, medium-, and long-term time horizons, including how it takes into account or reassesses the expected useful life of the registrant's assets and the time horizons for the registrant's climate-related planning processes and goals.

(b) Describe the actual and potential impacts of any climate-related risks identified in response to paragraph (a) of this section on the registrant's strategy, business model, and outlook.

(1) Include impacts on the registrant's:

(i) Business operations, including the types and locations of its operations;

(ii) Products or services;

(iii) Suppliers and other parties in its value chain;

(iv) Activities to mitigate or adapt to climate-related risks, including adoption of new technologies or processes;

(v) Expenditure for research and development; and

(vi) Any other significant changes or impacts.

(2) Include the time horizon for each described impact (*i.e.*, in the short, medium, or long term, as defined in response to paragraph (a) of this section).

(c) Discuss whether and how any impacts described in response to paragraph (b) of this section are considered as part of the registrant's business strategy, financial planning, and capital allocation. Provide both current and forward-looking disclosures that facilitate an understanding of whether the implications of the identified climate-related risks have been integrated into the registrant's business model or strategy, including how any resources are being used to mitigate climate-related risks. Include in this discussion how any of the metrics referenced in § 210.14-02 of this chapter and § 229.1504 or any of the targets referenced in § 229.1506 relate to the registrant's business model or business strategy. If applicable, include in this discussion the role that carbon offsets or RECs play in the registrant's climate-related business strategy.

(d) Provide a narrative discussion of whether and how any climate-related risks described in response to paragraph (a) of this section have affected or are reasonably likely to affect the registrant's consolidated financial statements. The discussion should include any of the climate-related metrics referenced in § 210.14-02 of this chapter that demonstrate that the identified climate-related risks have had a material impact on reported financial condition or operations.

(e)(1) If a registrant maintains an internal carbon price, disclose:

(i) The price in units of the registrant's reporting currency per metric ton of CO₂e;

(ii) The total price, including how the total price is estimated to change over time, if applicable;

(iii) The boundaries for measurement of overall CO₂e on which the total price is based if different from the GHG emission organizational boundary required pursuant to § 229.1504(e)(2); and

(iv) The rationale for selecting the internal carbon price applied.

(2) Describe how the registrant uses any internal carbon price described in response to paragraph (e)(1) of this section to evaluate and manage climate-related risks.

(3) If a registrant uses more than one internal carbon price, it must provide the disclosures required by this section for each internal carbon price, and disclose its reasons for using different prices.

(f) Describe the resilience of the registrant's business strategy in light of potential future changes in climate-related risks. Describe any analytical tools, such as scenario analysis, that the registrant uses to assess the impact of climate-related risks on its business and consolidated financial statements, and to support the resilience of its strategy and business model. If the registrant uses scenario analysis to assess the resilience of its business strategy to climate-related risks, disclose the scenarios considered (*e.g.*, an increase of no greater than 3 °C, 2 °C, or 1.5 °C above pre-industrial levels), including parameters, assumptions, and analytical choices, and the projected principal financial impacts on the registrant's business strategy under each scenario. The disclosure should include both qualitative and quantitative information.

§ 229.1503 (Item 1503) Risk management.

(a) Describe any processes the registrant has for identifying, assessing, and managing climate-related risks. If applicable, a registrant may also describe any processes for identifying,

assessing, and managing climate-related opportunities when responding to any of the provisions in this section.

(1) When describing any processes for identifying and assessing climate-related risks, disclose, as applicable, how the registrant:

- (i) Determines the relative significance of climate-related risks compared to other risks;
- (ii) Considers existing or likely regulatory requirements or policies, such as GHG emissions limits, when identifying climate-related risks;
- (iii) Considers shifts in customer or counterparty preferences, technological changes, or changes in market prices in assessing potential transition risks; and
- (iv) Determines the materiality of climate-related risks, including how it assesses the potential scope and impact of an identified climate-related risk, such as the risks identified in response to § 229.1502.

(2) When describing any processes for managing climate-related risks, disclose, as applicable, how the registrant:

- (i) Decides whether to mitigate, accept, or adapt to a particular risk;
 - (ii) Prioritizes whether to address climate-related risks; and
 - (iii) Determines how to mitigate any high priority risks.
- (b) Disclose whether and how any processes described in response to paragraph (a) of this section are integrated into the registrant's overall risk management system or processes. If a separate board or management committee is responsible for assessing and managing climate-related risks, a registrant should disclose how that committee interacts with the registrant's board or management committee governing risks.

(c)(1) If the registrant has adopted a transition plan as part of its climate-related risk management strategy, describe the plan, including the relevant metrics and targets used to identify and manage any physical and transition risks. To allow for an understanding of the registrant's progress to meet the plan's targets or goals over time, a registrant must update its disclosure about the transition plan each fiscal year by describing the actions taken during the year to achieve the plan's targets or goals.

(2) If the registrant has adopted a transition plan, discuss, as applicable:

(i) How the registrant plans to mitigate or adapt to any identified physical risks, including but not limited to those concerning energy, land, or water use and management;

(ii) How the registrant plans to mitigate or adapt to any identified transition risks, including the following:

(A) Laws, regulations, or policies that:

(1) Restrict GHG emissions or products with high GHG footprints, including emissions caps; or

(2) Require the protection of high conservation value land or natural assets;

(B) Imposition of a carbon price; and

(C) Changing demands or preferences of consumers, investors, employees, and business counterparties.

(3) If applicable, a registrant that has adopted a transition plan as part of its climate-related risk management strategy may also describe how it plans to achieve any identified climate-related opportunities, such as:

(i) The production of products that may facilitate the transition to a lower carbon economy, such as low emission modes of transportation and supporting infrastructure;

- (ii) The generation or use of renewable power;
 - (iii) The production or use of low waste, recycled, or other consumer products that require less carbon intensive production methods;
 - (iv) The setting of conservation goals and targets that would help reduce GHG emissions;
- and
- (v) The provision of services related to any transition to a lower carbon economy.

§ 229.1504 (Item 1504) GHG emissions metrics.

(a) *General.* Disclose a registrant's GHG emissions, as defined in § 229.1500(h), for its most recently completed fiscal year, and for the historical fiscal years included in its consolidated financial statements in the filing, to the extent such historical GHG emissions data is reasonably available.

(1) For each required disclosure of a registrant's Scopes 1, 2, and 3 emissions, disclose the emissions both disaggregated by each constituent greenhouse gas, as specified in § 229.1500(g), and in the aggregate, expressed in terms of CO₂e.

(2) When disclosing a registrant's Scopes 1, 2, and 3 emissions, exclude the impact of any purchased or generated offsets.

(b) *Scopes 1 and 2 emissions.*

(1) Disclose the registrant's total Scope 1 emissions and total Scope 2 emissions separately after calculating them from all sources that are included in the registrant's organizational and operational boundaries.

(2) When calculating emissions pursuant to paragraph (b)(1) of this section, a registrant may exclude emissions from investments that are not consolidated, are not proportionately

consolidated, or that do not qualify for the equity method of accounting in the registrant's consolidated financial statements.

(c) *Scope 3 emissions.*

(1) Disclose the registrant's total Scope 3 emissions if material. A registrant must also disclose its Scope 3 emissions if it has set a GHG emissions reduction target or goal that includes its Scope 3 emissions. Disclosure of a registrant's Scope 3 emissions must be separate from disclosure of its Scopes 1 and 2 emissions. If required to disclose Scope 3 emissions, identify the categories of upstream or downstream activities that have been included in the calculation of the Scope 3 emissions. If any category of Scope 3 emissions is significant to the registrant, identify all such categories and provide Scope 3 emissions data separately for them, together with the registrant's total Scope 3 emissions.

(2) If required to disclose Scope 3 emissions, describe the data sources used to calculate the registrant's Scope 3 emissions, including the use of any of the following:

(i) Emissions reported by parties in the registrant's value chain, and whether such reports were verified by the registrant or a third party, or unverified;

(ii) Data concerning specific activities, as reported by parties in the registrant's value chain; and

(iii) Data derived from economic studies, published databases, government statistics, industry associations, or other third-party sources outside of a registrant's value chain, including industry averages of emissions, activities, or economic data.

(3) A smaller reporting company, as defined by §§ 229.10(f)(1), 230.405, and 240.12b-2 of this chapter, is exempt from, and need not comply with, the disclosure requirements of this paragraph (c).

(d) *GHG intensity.*

(1) Using the sum of Scope 1 and 2 emissions, disclose GHG intensity in terms of metric tons of CO₂e per unit of total revenue (using the registrant's reporting currency) and per unit of production relevant to the registrant's industry for each fiscal year included in the consolidated financial statements. Disclose the basis for the unit of production used.

(2) If Scope 3 emissions are otherwise disclosed, separately disclose GHG intensity using Scope 3 emissions only.

(3) If a registrant has no revenue or unit of production for a fiscal year, it must disclose another financial measure of GHG intensity or another measure of GHG intensity per unit of economic output, as applicable, with an explanation of why the particular measure was used.

(4) A registrant may also disclose other measures of GHG intensity, in addition to metric tons of CO₂e per unit of total revenue (using the registrant's reporting currency) and per unit of production, if it includes an explanation of why a particular measure was used and why the registrant believes such measure provides useful information to investors.

(e) *Methodology and related instructions.*

(1) A registrant must describe the methodology, significant inputs, and significant assumptions used to calculate its GHG emissions. The description of the registrant's methodology must include the registrant's organizational boundaries, operational boundaries (including any approach to categorization of emissions and emissions sources), calculation approach (including any emission factors used and the source of the emission factors), and any calculation tools used to calculate the GHG emissions. A registrant's description of its approach to categorization of emissions and emissions sources should explain how it determined the

emissions to include as direct emissions, for the purpose of calculating its Scope 1 emissions, and indirect emissions, for the purpose of calculating its Scope 2 emissions.

(2) The organizational boundary and any determination of whether a registrant owns or controls a particular source for GHG emissions must be consistent with the scope of entities, operations, assets, and other holdings within its business organization as those included in, and based upon the same set of accounting principles applicable to, the registrant's consolidated financial statements.

(3) A registrant must use the same organizational boundaries when calculating its Scope 1 emissions and Scope 2 emissions. If required to disclose Scope 3 emissions, a registrant must also apply the same organizational boundaries used when determining its Scopes 1 and 2 emissions as an initial step in identifying the sources of indirect emissions from activities in its value chain over which it lacks ownership and control and which must be included in the calculation of its Scope 3 emissions. Once a registrant has determined its organizational and operational boundaries, a registrant must be consistent in its use of those boundaries when calculating its GHG emissions.

(4) A registrant may use reasonable estimates when disclosing its GHG emissions as long as it also describes the assumptions underlying, and its reasons for using, the estimates.

(i) When disclosing its GHG emissions for its most recently completed fiscal year, if actual reported data is not reasonably available, a registrant may use a reasonable estimate of its GHG emissions for its fourth fiscal quarter, together with actual, determined GHG emissions data for the first three fiscal quarters, as long as the registrant promptly discloses in a subsequent filing any material difference between the estimate used and the actual, determined GHG emissions data for the fourth fiscal quarter.

(ii) In addition to the use of reasonable estimates, a registrant may present its estimated Scope 3 emissions in terms of a range as long as it discloses its reasons for using the range and the underlying assumptions.

(5) A registrant must disclose, to the extent material and as applicable, any use of third-party data when calculating its GHG emissions, regardless of the particular scope of emissions. When disclosing the use of third-party data, it must identify the source of such data and the process the registrant undertook to obtain and assess such data.

(6) A registrant must disclose any material change to the methodology or assumptions underlying its GHG emissions disclosure from the previous fiscal year.

(7) A registrant must disclose, to the extent material and as applicable, any gaps in the data required to calculate its GHG emissions. A registrant's GHG emissions disclosure should provide investors with a reasonably complete understanding of the registrant's GHG emissions in each scope of emissions. If a registrant discloses any data gaps encountered when calculating its GHG emissions, it must also discuss whether it used proxy data or another method to address such gaps, and how its accounting for any data gaps has affected the accuracy or completeness of its GHG emissions disclosure.

(8) When determining whether its Scope 3 emissions are material, and when disclosing those emissions, in addition to emissions from activities in its value chain, a registrant must include GHG emissions from outsourced activities that it previously conducted as part of its own operations, as reflected in the financial statements for the periods covered in the filing.

(9) If required to disclose Scope 3 emissions, when calculating those emissions, if there was any significant overlap in the categories of activities producing the Scope 3 emissions, a

registrant must describe the overlap, how it accounted for the overlap, and the effect on its disclosed total Scope 3 emissions.

(f) Liability for Scope 3 emissions disclosures.

(1) A statement within the coverage of paragraph (f)(2) of this section that is made by or on behalf of a registrant is deemed not to be a fraudulent statement (as defined in paragraph (f)(3) of this section), unless it is shown that such statement was made or reaffirmed without a reasonable basis or was disclosed other than in good faith.

(2) This paragraph (f) applies to any statement regarding Scope 3 emissions that is disclosed pursuant to §§ 229.1500 through 229.1506 and made in a document filed with the Commission.

(3) For the purpose of this paragraph (f), the term fraudulent statement shall mean a statement that is an untrue statement of material fact, a statement false or misleading with respect to any material fact, an omission to state a material fact necessary to make a statement not misleading, or that constitutes the employment of a manipulative, deceptive, or fraudulent device, contrivance, scheme, transaction, act, practice, course of business, or an artifice to defraud as those terms are used in the Securities Act of 1933 or the Securities Exchange Act of 1934 or the rules or regulations promulgated thereunder.

§ 229.1505 Attestation of Scope 1 and Scope 2 emissions disclosure.

(a) Attestation.

(1) A registrant that is required to provide Scope 1 and Scope 2 emissions disclosure pursuant to § 229.1504 and that is an accelerated filer or a large accelerated filer must include an attestation report covering such disclosure in the relevant filing. For filings made by an accelerated filer or a large accelerated filer for the second and third fiscal years after the

compliance date for § 229.1504, the attestation engagement must, at a minimum, be at a limited assurance level and cover the registrant's Scope 1 and Scope 2 emissions disclosure. For filings made by an accelerated filer or large accelerated filer for the fourth fiscal year after the compliance date for § 229.1504 and thereafter, the attestation engagement must be at a reasonable assurance level and, at a minimum, cover the registrant's Scope 1 and Scope 2 emissions disclosures.

(2) Any attestation report required under this section must be provided pursuant to standards that are publicly available at no cost and are established by a body or group that has followed due process procedures, including the broad distribution of the framework for public comment. An accelerated filer or a large accelerated filer obtaining voluntary assurance prior to the first required fiscal year must comply with subparagraph (e) of this section. Voluntary assurance obtained by an accelerated filer or a large accelerated filer thereafter must follow the requirements of paragraphs (b) through (d) of this section and must use the same attestation standard as the required assurance over Scope 1 and Scope 2.

(b) *GHG emissions attestation provider.* The GHG emissions attestation report required by paragraph (a) of this section must be prepared and signed by a GHG emissions attestation provider. A GHG emissions attestation provider means a person or a firm that has all of the following characteristics:

(1) Is an expert in GHG emissions by virtue of having significant experience in measuring, analyzing, reporting, or attesting to GHG emissions. Significant experience means having sufficient competence and capabilities necessary to:

(i) Perform engagements in accordance with professional standards and applicable legal and regulatory requirements; and

(ii) Enable the service provider to issue reports that are appropriate under the circumstances.

(2) Is independent with respect to the registrant, and any of its affiliates, for whom it is providing the attestation report, during the attestation and professional engagement period.

(i) A GHG emissions attestation provider is not independent if such attestation provider is not, or a reasonable investor with knowledge of all relevant facts and circumstances would conclude that such attestation provider is not, capable of exercising objective and impartial judgment on all issues encompassed within the attestation provider's engagement.

(ii) In determining whether a GHG emissions attestation provider is independent, the Commission will consider:

(A) Whether a relationship or the provision of a service creates a mutual or conflicting interest between the attestation provider and the registrant (or any of its affiliates), places the attestation provider in the position of attesting such attestation provider's own work, results in the attestation provider acting as management or an employee of the registrant (or any of its affiliates), or places the attestation provider in a position of being an advocate for the registrant (or any of its affiliates); and

(B) All relevant circumstances, including all financial or other relationships between the attestation provider and the registrant (or any of its affiliates), and not just those relating to reports filed with the Commission.

(iii) The term "affiliates" as used in this section has the meaning provided in 17 CFR 210.2-01, except that references to "audit" are deemed to be references to the attestation services provided pursuant to this section.

(iv) The term “attestation and professional engagement period” as used in this section means both:

(A) The period covered by the attestation report; and

(B) The period of the engagement to attest to the registrant’s GHG emissions or to prepare a report filed with the Commission (“the professional engagement period”). The professional engagement period begins when the GHG attestation service provider either signs an initial engagement letter (or other agreement to attest a registrant’s GHG emissions) or begins attest procedures, whichever is earlier.

(c) *Attestation report requirements.* The GHG emissions attestation report required by paragraph (a) of this section must be included in the separately captioned “Climate-Related Disclosure” section in the filing. The form and content of the attestation report must follow the requirements set forth by the attestation standard (or standards) used by the GHG emissions attestation provider. Notwithstanding the foregoing, at a minimum the report must include the following:

(1) An identification or description of the subject matter or assertion being reported on, including the point in time or period of time to which the measurement or evaluation of the subject matter or assertion relates;

(2) An identification of the criteria against which the subject matter was measured or evaluated;

(3) A statement that identifies the level of assurance provided and describes the nature of the engagement;

(4) A statement that identifies the attestation standard (or standards) used;

(5) A statement that describes the registrant’s responsibility to report on the subject matter or assertion being reported on;

(6) A statement that describes the attestation provider’s responsibilities in connection with the preparation of the attestation report;

(7) A statement that the attestation provider is independent, as required by paragraph (a) of this section;

(8) For a limited assurance engagement, a description of the work performed as a basis for the attestation provider’s conclusion;

(9) A statement that describes significant inherent limitations, if any, associated with the measurement or evaluation of the subject matter against the criteria;

(10) The GHG emissions attestation provider’s conclusion or opinion, based on the applicable attestation standard(s) used;

(11) The signature of the attestation provider (whether by an individual or a person signing on behalf of the attestation provider’s firm);

(12) The city and state where the attestation report has been issued; and

(13) The date of the report.

(d) *Additional disclosures by the registrant.* In addition to including the GHG emissions attestation report required by paragraph (a) of this section, a large accelerated filer and an accelerated filer must disclose the following information within the separately captioned “Climate-Related Disclosure” section in the filing, after requesting relevant information from any GHG emissions attestation provider as necessary:

(1) Whether the attestation provider has a license from any licensing or accreditation body to provide assurance, and if so, identify the licensing or accreditation body, and whether the attestation provider is a member in good standing of that licensing or accreditation body;

(2) Whether the GHG emissions attestation engagement is subject to any oversight inspection program, and if so, which program (or programs); and

(3) Whether the attestation provider is subject to record-keeping requirements with respect to the work performed for the GHG emissions attestation engagement and, if so, identify the record-keeping requirements and the duration of those requirements.

(e) *Disclosure of voluntary attestation.* A registrant that is not required to include a GHG emissions attestation report pursuant to paragraph (a) of this section must disclose within the separately captioned “Climate-Related Disclosure” section in the filing the following information if the registrant’s GHG emissions disclosures were subject to third-party attestation or verification:

(1) Identify the provider of such attestation or verification;

(2) Describe the attestation or verification standard used;

(3) Describe the level and scope of attestation or verification provided;

(4) Briefly describe the results of the attestation or verification;

(5) Disclose whether the third-party service provider has any other business relationships with or has provided any other professional services to the registrant that may lead to an impairment of the service provider’s independence with respect to the registrant; and

(6) Disclose any oversight inspection program to which the service provider is subject (*e.g.*, the AICPA’s peer review program).

§ 229.1506 (Item 1506) Targets and goals.

(a)(1) A registrant must provide disclosure pursuant to this section if it has set any targets or goals related to the reduction of GHG emissions, or any other climate-related target or goal (e.g., regarding energy usage, water usage, conservation or ecosystem restoration, or revenues from low-carbon products) such as actual or anticipated regulatory requirements, market constraints, or other goals established by a climate-related treaty, law, regulation, policy, or organization.

(2) A registrant may provide the disclosure required by this section as part of its disclosure in response to § 229.1502 or § 229.1503.

(b) If the registrant has set climate-related targets or goals, disclose the targets or goals, including, as applicable, a description of:

(1) The scope of activities and emissions included in the target;

(2) The unit of measurement, including whether the target is absolute or intensity based;

(3) The defined time horizon by which the target is intended to be achieved, and whether the time horizon is consistent with one or more goals established by a climate-related treaty, law, regulation, policy, or organization;

(4) The defined baseline time period and baseline emissions against which progress will be tracked with a consistent base year set for multiple targets;

(5) Any interim targets set by the registrant; and

(6) How the registrant intends to meet its climate-related targets or goals. For example, for a target or goal regarding net GHG emissions reduction, the discussion could include a strategy to increase energy efficiency, transition to lower carbon products, purchase carbon offsets or RECs, or engage in carbon removal and carbon storage.

(c) Disclose relevant data to indicate whether the registrant is making progress toward meeting the target or goal and how such progress has been achieved. A registrant must update this disclosure each fiscal year by describing the actions taken during the year to achieve its targets or goals.

(d) If carbon offsets or RECs have been used as part of a registrant’s plan to achieve climate-related targets or goals, disclose the amount of carbon reduction represented by the offsets or the amount of generated renewable energy represented by the RECS, the source of the offsets or RECs, a description and location of the underlying projects, any registries or other authentication of the offsets or RECs, and the cost of the offsets or RECs.

§ 229.1507 (Item 1507) Interactive data requirement.

Provide the disclosure required by this Subpart 1500 in an Interactive Data File as required by § 232.405 of this chapter (Rule 405 of Regulation S-T) in accordance with the EDGAR Filer Manual.

PART 232— REGULATION S-T—GENERAL RULES AND REGULATIONS FOR ELECTRONIC FILINGS

6. The general authority citation for part 232 continues to read as follows:

Authority: 15 U.S.C. 77c, 77f, 77g, 77h, 77j, 77s(a), 77z-3, 77sss(a), 78c(b), 78l, 78m, 78n, 78o(d), 78w(a), 78ll, 80a-6(c), 80a-8, 80a-29, 80a-30, 80a-37, 7201 et seq.; and 18 U.S.C. 1350, unless otherwise noted.

* * * * *

7. Amend §232.405 by adding paragraphs (b)(1)(iii), (b)(3)(i)(C), and (b)(4) as follows:

§232.405 Interactive Data File submissions.

* * * * *

(b) * * *

(1) * * *

(iii) As applicable, the disclosure set forth in paragraph (4) of this section.

* * * * *

(3) * * *

(i) * * *

(C) The disclosure set forth in paragraph (4) of this section.

(4) An Interactive Data File must consist of the disclosure provided under 17 CFR 229 (Regulation S-K) and related provisions that is required to be tagged, including, as applicable:

(i) The climate-related information required by Subpart 1500 of Regulation S-K

(§§ 229.1500 through 229.1507 of this chapter).

* * * * *

PART 239—FORMS PRESCRIBED UNDER THE SECURITIES ACT OF 1933

8. The general authority citation for part 239 continues to read as follows:

Authority: 15 U.S.C. 77c, 77f, 77g, 77h, 77j, 77s, 77z-2, 77z-3, 77sss, 78c, 78l, 78m, 78n, 78o(d), 78o-7 note, 78u-5, 78w(a), 78ll, 78mm, 80a-2(a), 80a-3, 80a-8, 80a-9, 80a-10, 80a-13, 80a-24, 80a-26, 80a-29, 80a-30, and 80a-37; and sec. 107, Pub. L. 112-106, 126 Stat. 312, unless otherwise noted.

* * * * *

9. Amend Form S-1 (referenced in § 239.11) by adding Item 11(o) to Part I to read as follows:

Note: The text of Form S-1 does not, and these amendments will not, appear in the Code of Federal Regulations.

FORM S-1

* * * * *

PART I—INFORMATION REQUIRED IN PROSPECTUS

* * * * *

Item 11. Information with Respect to the Registrant.

* * * * *

(o) Information required by Subpart 1500 of Regulation S-K (17 CFR 229.1500 through 229.1507), in a part of the registration statement that is separately captioned as *Climate-Related Disclosure*. Pursuant to Rule 411 (17 CFR 230.411) and General Instruction VII of this form, a registrant may incorporate by reference disclosure from other parts of the registration statement (e.g., Risk Factors, Business, Management’s Discussion and Analysis, or the financial statements) or from a separately filed annual report or other periodic report into the Climate-Related Disclosure item if it is responsive to the topics specified in Items 1500 through 1507 of Regulation S-K.

* * * * *

10. Amend Form S-11 (referenced in § 239.18) by adding Item 9 to Part I to read as follows:

Note: The text of Form S-11 does not, and these amendments will not, appear in the Code of Federal Regulations.

FORM S-11

* * * * *

PART I. INFORMATION REQUIRED IN PROSPECTUS

* * * * *

Item 9. Climate-related disclosure. Provide the information required by Subpart 1500 of Regulation S-K (17 CFR 229.1500 through 229.1507), in a part of the registration statement that is separately captioned as *Climate-Related Disclosure*. Pursuant to Rule 411 (17 CFR 230.411) and General Instruction H of this form, a registrant may incorporate by reference disclosure from other parts of the registration statement (*e.g.*, Risk Factors, Management’s Discussion and Analysis, or the financial statements) or from a separately filed annual report or other periodic report into the Climate-Related Disclosure item if it is responsive to the topics specified in Items 1500 through 1507 of Regulation S-K.

* * * * *

11. Amend Form S-4 (referenced in § 239.25) by:

a. Adding paragraph (k) to Item 14 to Part I; and

b. Adding paragraph (b)(11) to Item 17 to Part I.

The additions read as follows:

Note: The text of Form S-4 does not, and these amendments will not, appear in the Code of Federal Regulations.

FORM S-4

* * * * *

PART I

INFORMATION REQUIRED IN THE PROSPECTUS

* * * * *

Item 14. Information with Respect to Registrants Other Than S-3 Registrants.

* * * * *

(k) Information required by Subpart 1500 of Regulation S-K (17 CFR 229.1500 through 229.1507), in a part of the registration statement that is separately captioned as *Climate-Related Disclosure*. Pursuant to Rule 411 (17 CFR 230.411) a registrant may incorporate by reference disclosure from other parts of the registration statement (*e.g.*, Risk Factors, Description of Business, Management’s Discussion and Analysis, or the financial statements) into the Climate-Related Disclosure item if it is responsive to the topics specified in Items 1500 through 1507 of Regulation S-K.

* * * * *

Item 17. Information with Respect to Companies Other Than S-3 Companies.

* * * * *

(b) * * *

(11) Information required by Items 1500-1507 of Regulation S-K (17 CFR § 229.1500 through § 229.1507), in a part of the registration statement that is separately captioned as *Climate-Related Disclosure of Company Being Acquired*.

* * * * *

12. Amend Form F-4 (referenced in § 239.34) by:

- a. Adding paragraph (k) to Item 14 to Part I; and
- b. Amending paragraph (3) to Item 17(b) to Part I.

The additions read as follows:

-Note: The text of Form F-4 does not, and these amendments will not, appear in the Code of Federal Regulations.

FORM F-4

* * * * *

PART I

INFORMATION REQUIRED IN THE PROSPECTUS

* * * * *

Item 14. Information With Respect to Foreign Registrants Other Than F-3 Registrants.

* * * * *

(k) Item 3.E of Form 20-F, climate-related disclosure.

* * * * *

Item 17. Information With Respect to Foreign Companies Other Than F-3 Companies.

* * * * *

(b) * * *

(3) Item 3.E of Form 20-F, climate-related disclosure;

* * * * *

PART 249—FORMS, SECURITIES EXCHANGE ACT OF 1934

13. The authority citation for part 249 continues to read as follows:

Authority: 15 U.S.C. 78a *et seq.* and 7201 *et seq.*; 12 U.S.C. 5461 *et seq.*; 18 U.S.C. 1350; Sec. 953(b) Pub. L. 111-203, 124 Stat. 1904; Sec. 102(a)(3) Pub. L. 112-106, 126 Stat. 309 (2012), Sec. 107 Pub. L. 112-106, 126 Stat. 313 (2012), Sec. 72001 Pub. L. 114-94, 129 Stat. 1312 (2015), and secs. 2 and 3 Pub. L. 116-222, 134 Stat. 1063 (2020), unless otherwise noted.

* * * * *

Section 249.220f is also issued under secs. 3(a), 202, 208, 302, 306(a), 401(a), 401(b), 406 and 407, Pub. L. 107-204, 116 Stat. 745, and secs. 2 and 3, Pub. L. 116-222, 134 Stat. 1063.

Section 249.308a is also issued under secs. 3(a) and 302, Pub. L. 107-204, 116 Stat. 745.

* * * * *

Section 249.310 is also issued under secs. 3(a), 202, 208, 302, 406 and 407, Pub. L. 107-204, 116 Stat. 745.

* * * * *

14. Amend Form 10 (referenced in § 249.210) by adding Item 3.A (“Climate-Related Disclosure”) to read as follows:

Note: The text of Form 10 does not, and these amendments will not, appear in the Code of Federal Regulations.

FORM 10

* * * * *

Item 3.A Climate-Related Disclosure. Provide the information required by Subpart 1500 of Regulation S-K (17 CFR 229.1500 through 229.1507), in a part of the registration statement that is separately captioned as *Climate-Related Disclosure*. Pursuant to Exchange Act Rule 12b-23 (17 CFR 240.12b-23) and General Instruction F of this form, a registrant may incorporate by reference disclosure from other parts of the registration statement (*e.g.*, Risk Factors, Business, Management’s Discussion and Analysis, or the financial statements) into the Climate-Related Disclosure item if it is responsive to the topics specified in Item 1500 through 1507 of Regulation S-K.

* * * * *

15. Amend Form 20-F (referenced in § 249.220f) by adding Item 3.E (“Climate-related disclosure”) to Part I to read as follows:

Note: The text of Form 20-F does not, and these amendments will not, appear in the Code of Federal Regulations.

FORM 20-F

* * * * *

PART I

* * * * *

Item 3. Key Information

* * * * *

E. Climate-related disclosure.

1. *Required disclosure.* The company must provide disclosure responsive to the topics specified in Subpart 1500 of Regulation S-K (17 CFR 229.1500 through 229.1507) in a part of the registration statement or annual report that is separately captioned as *Climate-Related Disclosure*.

2. *Incorporation by reference.* Pursuant to Rule 12b-23 (17 CFR 240.12b-23), the company may incorporate by reference disclosure from other parts of the registration statement or annual report (*e.g.*, Risk Factors, Information on the Company, Operating and Financial Review and Prospects, or the financial statements) into the Climate-Related Disclosure item if it is responsive to the topics specified in Item 1500 through 1507 of Regulation S-K.

* * * * *

16. Amend Form 6-K (referenced in § 249.306) by adding the phrase “climate-related disclosure;” before the phrase “and any other information which the registrant deems of material importance to security holders.” in the second paragraph of General Instruction B.

17. Amend Form 10-Q (referenced in § 249.308a) by adding Item 1.B (“Climate-Related disclosure”) to Part II (“Other Information”) to read as follows:

Note: The text of Form 10-Q does not, and these amendments will not, appear in the Code of Federal Regulations.

FORM 10-Q

* * * * *

Item 1B. Climate-Related Disclosure. Disclose any material changes to the disclosures provided in response to Item 6 (“Climate-related disclosure”) of Part II to the registrant’s Form 10-K (17 CFR 229.310).

* * * * *

18. Amend Form 10-K (referenced in § 249.310) by:

a. Revising paragraph (1)(g) of General Instruction J (“Use of this Form by Asset-backed Issuers”); and

b. Adding Item 6 (“Climate-Related Disclosure”) to Part II to read as follows:

The revision and addition read as follows:

Note: The text of Form 10-K does not, and these amendments will not, appear in the Code of Federal Regulations.

FORM 10-K

* * * * *

GENERAL INSTRUCTIONS

* * * * *

J. Use of this Form by Asset-Backed Issuers.

* * * * *

(1) * * *

(g) Item 6, Climate-Related Disclosure;

* * * * *

Part II

* * * * *

Item 6. Climate-Related Disclosure

Provide the disclosure required by Subpart 1500 of Regulation S-K (17 CFR 229.1500 through 229.1507) in a part of the annual report that is separately captioned as *Climate-Related Disclosure*. Pursuant to Rule 12b-23 (17 CFR 240.12b-23) and General Instruction G of this form, a registrant may incorporate by reference disclosure from other parts of the registration statement or annual report (*e.g.*, Risk Factors, Business, Management's Discussion and Analysis, or the financial statements) into the Climate-Related Disclosure item if it is responsive to the topics specified in Item 1500 through 1507 of Regulation S-K.

* * * * *

By the Commission.

Dated: March 21, 2022.

Vanessa A. Countryman,

Secretary.

Statement

Public Input Welcomed on Climate Change Disclosures



Acting Chair Allison Herren Lee

March 15, 2021

In light of demand for climate change information and questions about whether current disclosures adequately inform investors, public input is requested from investors, registrants, and other market participants on climate change disclosure.

The Securities and Exchange Commission (SEC or Commission) has periodically evaluated its regulation of climate change disclosures within the context of its integrated disclosure system. In 2010, the Commission issued an interpretive release that provided guidance to issuers as to how existing disclosure requirements apply to climate change matters.^[1] The 2010 Climate Change Guidance noted that, depending on the circumstances, information about climate change-related risks and opportunities might be required in a registrant's disclosures related to its description of business, legal proceedings, risk factors, and management's discussion and analysis of financial condition and results of operations. The release outlined certain ways in which climate change may trigger disclosure obligations under the SEC's rules. It noted legislation and regulations governing climate change, international accords, changes in market demand for goods or services, and physical risks associated with climate change.

Since 2010, investor demand for, and company disclosure of information about, climate change risks, impacts, and opportunities has grown dramatically.^[2] Consequently, questions arise about whether climate change disclosures adequately inform investors about known material risks, uncertainties, impacts, and opportunities, and whether greater consistency could be achieved. In May 2020, the SEC Investor Advisory Committee approved recommendations urging the Commission to begin an effort to update reporting requirements for issuers to include material, decision-useful environmental, social, and governance, or ESG factors.^[3] In December 2020, the ESG Subcommittee of the SEC Asset Management Advisory Committee issued a preliminary recommendation that the Commission require the adoption of standards by which corporate issuers disclose material ESG risks.^[4]

I am asking the staff to evaluate our disclosure rules with an eye toward facilitating the disclosure of consistent, comparable, and reliable information on climate change. To facilitate the staff's assessment, set forth below are questions that would be useful to consider as part of this evaluation.^[5] In addition, a [webform](#) and [email box](#) are now available for the public to provide input on these issues. Public input on the Commission's disclosure rules and guidance as they apply to climate change disclosures, and whether and how they should be modified, can include comments on existing disclosure requirements in Regulation S-K and Regulation S-X (or, for foreign private issuers, Form 20-F), potential new Commission disclosure requirements, and potential new disclosure frameworks that the Commission might adopt or incorporate in its disclosure rules. In addition to the questions set

forth below, comments generally as to how the Commission can best regulate climate change disclosures are welcomed.^[6]

I encourage commenters to submit empirical data and other information in support of their comments. Original data from respondents, including academics, data providers, and other organizations, may assist in assessing the materiality of climate-related disclosures, and the costs and benefits of different regulatory approaches to climate disclosure.

Questions for Consideration

1. How can the Commission best regulate, monitor, review, and guide climate change disclosures in order to provide more consistent, comparable, and reliable information for investors while also providing greater clarity to registrants as to what is expected of them? Where and how should such disclosures be provided? Should any such disclosures be included in annual reports, other periodic filings, or otherwise be furnished?
2. What information related to climate risks can be quantified and measured? How are markets currently using quantified information? Are there specific metrics on which all registrants should report (such as, for example, scopes 1, 2, and 3 greenhouse gas emissions, and greenhouse gas reduction goals)? What quantified and measured information or metrics should be disclosed because it may be material to an investment or voting decision? Should disclosures be tiered or scaled based on the size and/or type of registrant? If so, how? Should disclosures be phased in over time? If so, how? How are markets evaluating and pricing externalities of contributions to climate change? Do climate change related impacts affect the cost of capital, and if so, how and in what ways? How have registrants or investors analyzed risks and costs associated with climate change? What are registrants doing internally to evaluate or project climate scenarios, and what information from or about such internal evaluations should be disclosed to investors to inform investment and voting decisions? How does the absence or presence of robust carbon markets impact firms' analysis of the risks and costs associated with climate change?
3. What are the advantages and disadvantages of permitting investors, registrants, and other industry participants to develop disclosure standards mutually agreed by them? Should those standards satisfy minimum disclosure requirements established by the Commission? How should such a system work? What minimum disclosure requirements should the Commission establish if it were to allow industry-led disclosure standards? What level of granularity should be used to define industries (e.g., two-digit SIC, four-digit SIC, etc.)?
4. What are the advantages and disadvantages of establishing different climate change reporting standards for different industries, such as the financial sector, oil and gas, transportation, etc.? How should any such industry-focused standards be developed and implemented?
5. What are the advantages and disadvantages of rules that incorporate or draw on existing frameworks, such as, for example, those developed by the Task Force on Climate-Related Financial Disclosures (TCFD), the Sustainability Accounting Standards Board (SASB), and the Climate Disclosure Standards Board (CDSB)?^[7] Are there any specific frameworks that the Commission should consider? If so, which frameworks and why?
6. How should any disclosure requirements be updated, improved, augmented, or otherwise changed over time? Should the Commission itself carry out these tasks, or should it adopt or identify criteria for identifying other organization(s) to do so? If the latter, what organization(s) should be responsible for doing so, and what role should the Commission play in governance or funding? Should the Commission designate a climate or ESG disclosure standard setter? If so, what should the characteristics of such a standard setter be? Is there an existing climate disclosure standard setter that the Commission should consider?

7. What is the best approach for requiring climate-related disclosures? For example, should any such disclosures be incorporated into existing rules such as Regulation S-K or Regulation S-X, or should a new regulation devoted entirely to climate risks, opportunities, and impacts be promulgated? Should any such disclosures be filed with or furnished to the Commission?
8. How, if at all, should registrants disclose their internal governance and oversight of climate-related issues? For example, what are the advantages and disadvantages of requiring disclosure concerning the connection between executive or employee compensation and climate change risks and impacts?
9. What are the advantages and disadvantages of developing a single set of global standards applicable to companies around the world, including registrants under the Commission's rules, versus multiple standard setters and standards? If there were to be a single standard setter and set of standards, which one should it be? What are the advantages and disadvantages of establishing a minimum global set of standards as a baseline that individual jurisdictions could build on versus a comprehensive set of standards? If there are multiple standard setters, how can standards be aligned to enhance comparability and reliability? What should be the interaction between any global standard and Commission requirements? If the Commission were to endorse or incorporate a global standard, what are the advantages and disadvantages of having mandatory compliance?
10. How should disclosures under any such standards be enforced or assessed? For example, what are the advantages and disadvantages of making disclosures subject to audit or another form of assurance? If there is an audit or assurance process or requirement, what organization(s) should perform such tasks? What relationship should the Commission or other existing bodies have to such tasks? What assurance framework should the Commission consider requiring or permitting?
11. Should the Commission consider other measures to ensure the reliability of climate-related disclosures? Should the Commission, for example, consider whether management's annual report on internal control over financial reporting and related requirements should be updated to ensure sufficient analysis of controls around climate reporting? Should the Commission consider requiring a certification by the CEO, CFO, or other corporate officer relating to climate disclosures?
12. What are the advantages and disadvantages of a "comply or explain" framework for climate change that would permit registrants to either comply with, or if they do not comply, explain why they have not complied with the disclosure rules? How should this work? Should "comply or explain" apply to all climate change disclosures or just select ones, and why?
13. How should the Commission craft rules that elicit meaningful discussion of the registrant's views on its climate-related risks and opportunities? What are the advantages and disadvantages of requiring disclosed metrics to be accompanied with a sustainability disclosure and analysis section similar to the current Management's Discussion and Analysis of Financial Condition and Results of Operations?
14. What climate-related information is available with respect to private companies, and how should the Commission's rules address private companies' climate disclosures, such as through exempt offerings, or its oversight of certain investment advisers and funds?
15. In addition to climate-related disclosure, the staff is evaluating a range of disclosure issues under the heading of environmental, social, and governance, or ESG, matters. Should climate-related requirements be one component of a broader ESG disclosure framework? How should the Commission craft climate-related disclosure requirements that would complement a broader ESG disclosure standard? How do climate-related disclosure issues relate to the broader spectrum of ESG disclosure issues?

How to Provide Feedback

Members of the public interested in making their input known on these or other related matters are invited to submit that input via the webform or e-mail address linked below. To help the staff process and review your comments more efficiently, please use only one of these methods. To the extent that you are responding to a

particular question(s) above, please identify such question(s) in your submission. **Please submit comments within 90 days of the date of this statement.**

Submissions will generally be posted on www.sec.gov. Submissions received will be posted without change or redaction of personal identifying information. You should only make submissions that you wish to make available publicly.

In addition to, or in lieu of, making a written submission, staff in the Division of Corporation Finance would be happy to meet with members of the public to discuss their feedback on these and other related matters. Please contact Kristina Wyatt, Senior Special Counsel, at (202) 551-3181.

Submit Input: [Webform](#) | [E-mail](#)

[1] [Commission Guidance Regarding Disclosure Related to Climate Change](#), Release No. 33-9106 (Feb. 2, 2010) [75 FR 6290 (Feb 8, 2010)] (2010 Climate Change Guidance).

[2] See, e.g., [Managing Climate Risk in the U.S. Financial System](#), Report of the Climate-Related Market Risk Subcommittee, Market Risk Advisory Committee of the U.S. Commodity Futures Trading Commission (Sept. 2020); Business Roundtable, [Addressing Climate Change, Principles and Policies](#) (Sept. 2020); Network for Greening the Financial System, [The Macroeconomic and Financial Stability Impacts of Climate Change](#) (June 2020); [SEC Rulemaking Petition](#) (June 10, 2020); BlackRock, [Getting physical: Scenario analysis for assessing climate-related risks](#) (April 4, 2019).

[3] See [Recommendation from the Investor-as-Owner Subcommittee of the SEC Investor Advisory Committee Related to ESG Disclosure](#) (May 14, 2020).

[4] See [Potential Recommendations of the ESG Subcommittee of the SEC Asset Management Advisory Committee](#) (Dec. 1, 2020).

[5] Public input has previously been sought in this manner to inform potential rule changes. See, e.g., Chairman Jay Clayton, [Asset-Level Disclosure Requirements for Residential Mortgage-Backed Securities](#), Public Statement (Oct. 30, 2019).

[6] Last month, I issued a [Statement on the Review of Climate-Related Disclosure](#) directing the Division of Corporation Finance to review the extent to which public companies address the topics identified in the 2010 Climate Change Guidance and absorb lessons on how the market is currently managing climate-related risks. The staff will use insights from that work in considering updates to the 2010 Climate Change Guidance to take into account developments in the last decade. The review announced today, and the opening of the comment file, are meant to facilitate a broader evaluation of our disclosure rules as they relate to climate change, but may also inform the update of the 2010 Climate Change Guidance.

[7] This list is not meant to be exhaustive, and should also be construed to include potential successor organizations. See, e.g., [IIRC and SASB announce intent to merge in major step towards simplifying the corporate reporting system](#) (Nov. 25, 2020).

Related Materials

- [Comments Received](#)

- [SEC Response to Climate and ESG Risks and Opportunities](#)



Press Releases

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Secretary Haaland Announces Steps to Establish Protections for Culturally Significant Chaco Canyon Landscape

Interior Department to initiate a collaborative process to better steward the area's cultural, historic, and geologic values

11/15/2021

Date: Monday, November 15, 2021

Contact: Interior_Press@ios.doi.gov

WASHINGTON — During the Biden-Harris administration's first White House Tribal Nations Summit later today, President Biden will announce that the Department of the Interior is taking steps to protect the Chaco Canyon and the greater connected landscape with a rich Tribal and cultural legacy in northwest New Mexico.

The Bureau of Land Management (BLM) will initiate consideration of a 20-year withdrawal of federal lands within a 10-mile radius around Chaco Culture National Historical Park, which would bar new federal oil and gas leasing on those lands.

“Chaco Canyon is a sacred place that holds deep meaning for the Indigenous peoples whose ancestors lived, worked, and thrived in that high desert community,” said **Secretary Deb Haaland**. “Now is the time to consider more enduring protections for the living landscape that is Chaco, so that we can pass on this rich cultural legacy to future generations. I value and appreciate the many Tribal leaders, elected officials, and stakeholders who have persisted in their work to conserve this special area.”

In the coming weeks, the BLM intends to publish a notice in the Federal Register that will commence a two-year segregation of the federal lands while the bureau conducts an environmental analysis and seeks public comment on the proposed administrative withdrawal. BLM will also initiate formal Tribal consultation. The segregation and potential withdrawal would not affect existing valid leases or rights and would not apply to minerals owned by private, State, or Tribal entities.

Secretary Haaland also directed the Interior Department to undertake a broader assessment of the Greater Chaco cultural landscape to ensure that public land management better reflects the sacred sites, stories, and cultural resources in the region. Beginning in early 2022, the BLM and the Bureau of Indian Affairs (BIA) will co-lead discussions with Tribes, communities, elected officials, and interested parties to explore ways the Interior Department can manage existing energy development, honor sensitive areas important to Tribes, and build collaborative management frameworks toward a sustainable economic future for the region.

“Today’s announcement has been years in the making,” said **BLM Director Tracy Stone-Manning**. “We look forward to kicking off a broader regional conversation with the many people who care deeply about the Greater Chaco landscape on how we can best manage the cultural and natural values unique to this special place.”

“This important step shows the Biden-Harris administration’s commitment to protecting sacred places for Indigenous people and is a great example of how Tribally-led conservation can advance the nation’s goal of addressing climate change,” said **Assistant Secretary for Indian Affairs Bryan Newland**. In July, Assistant Secretary Newland toured the Chaco Culture National Historical Park, and met with the All Pueblo Council of Governors, Chaco Tribal Heritage

Association, Tribal leaders from the Navajo Nation, and individual Navajo allottees regarding land use in the Chaco Canyon region.

Today's announcement builds on years of efforts by the Pueblos and Tribes, local communities, advocates, and elected officials to protect the greater Chaco Canyon area. Most recently, Congress instituted a one-year pause on new federal oil and gas leasing within a 10-mile radius of the park, as well as appropriated funding for ethnographic studies in the surrounding region. The withdrawal process under consideration will be informed by the ongoing ethnographic studies. This effort also complements the existing joint BLM-BIA effort to update land management plans in the area.

Chaco Canyon is unique and is one of the world's most culturally significant landscapes. Located in the high desert of northwest New Mexico, this valley served as the center of the Chacoan culture for a roughly 400-year span, from 850 - 1250. Today, some of Chaco Canyon is protected as Chaco Culture National Historical Park, which honors the landscape of mountains, mesas, and sacred places that have deep spiritual meaning to this day. The park and related areas were designated as a UNESCO World Heritage Site in 1987, one of only two dozen sites in the United States.

More information can be found on [BLM's website](#).

###

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The United States Officially Rejoins the Paris Agreement

PRESS STATEMENT

ANTONY J. BLINKEN, SECRETARY OF STATE

FEBRUARY 19, 2021

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On January 20, on his first day in office, President Biden signed the instrument to bring the United States back into the Paris Agreement. Per the terms of the Agreement, the United States officially becomes a Party again today.

The Paris Agreement is an unprecedented framework for global action. We know because we helped design it and make it a reality. Its purpose is both simple and expansive: to help us all avoid catastrophic planetary warming and to build resilience around the world to the impacts from climate change we already see.

Now, as momentous as our joining the Agreement was in 2016 — and as momentous as our rejoining is today — what we do in the coming weeks, months, and years is even more

important.

You have seen and will continue to see us weaving climate change into our most important bilateral and multilateral conversations at all levels. In these conversations, we're asking other leaders: how can we do more together?

Climate change and science diplomacy can never again be “add-ons” in our foreign policy discussions. Addressing the real threats from climate change and listening to our scientists is at the center of our domestic and foreign policy priorities. It is vital in our discussions of national security, migration, international health efforts, and in our economic diplomacy and trade talks.

We are reengaging the world on all fronts, including at the President's April 22nd Leaders' Climate Summit. And further out, we are very much looking forward to working with the United Kingdom and other nations around the world to make COP26 a success.

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BRIEFING ROOM

Executive Order on Tackling the Climate Crisis at Home and Abroad

JANUARY 27, 2021 • PRESIDENTIAL ACTIONS

The United States and the world face a profound climate crisis. We have a narrow moment to pursue action at home and abroad in order to avoid the most catastrophic impacts of that crisis and to seize the opportunity that tackling climate change presents. Domestic action must go hand in hand with United States international leadership, aimed at significantly enhancing global action. Together, we must listen to science and meet the moment.

By the authority vested in me as President by the Constitution and the laws of the United States of America, it is hereby ordered as follows:

PART I – PUTTING THE CLIMATE CRISIS AT THE CENTER OF UNITED STATES FOREIGN POLICY AND NATIONAL SECURITY

Section 101. Policy. United States international engagement to address climate change — which has become a climate crisis — is more necessary and urgent than ever. The scientific community has made clear that the scale and speed of necessary action is greater than previously believed. There is little time left to avoid setting the world on a dangerous, potentially catastrophic, climate trajectory. Responding to the climate crisis will require both significant short-term global reductions in greenhouse gas emissions and net-zero global emissions by mid-century or before.

It is the policy of my Administration that climate considerations shall be an essential element of United States foreign policy and national security. The United States will work with other countries and partners, both bilaterally and multilaterally, to put the world on a sustainable climate pathway. The United States will also move quickly to build resilience, both at home and abroad, against the impacts of climate change that are already manifest and will continue to intensify according to current trajectories.

Sec. 102. Purpose. This order builds on and reaffirms actions my Administration has already taken to place the climate crisis at the forefront of this Nation's foreign policy and national

security planning, including submitting the United States instrument of acceptance to rejoin the Paris Agreement. In implementing — and building upon — the Paris Agreement’s three overarching objectives (a safe global temperature, increased climate resilience, and financial flows aligned with a pathway toward low greenhouse gas emissions and climate-resilient development), the United States will exercise its leadership to promote a significant increase in global climate ambition to meet the climate challenge. In this regard:

(a) I will host an early Leaders’ Climate Summit aimed at raising climate ambition and making a positive contribution to the 26th United Nations Climate Change Conference of the Parties (COP26) and beyond.

(b) The United States will reconvene the Major Economies Forum on Energy and Climate, beginning with the Leaders’ Climate Summit. In cooperation with the members of that Forum, as well as with other partners as appropriate, the United States will pursue green recovery efforts, initiatives to advance the clean energy transition, sectoral decarbonization, and alignment of financial flows with the objectives of the Paris Agreement, including with respect to coal financing, nature-based solutions, and solutions to other climate-related challenges.

(c) I have created a new Presidentially appointed position, the Special Presidential Envoy for Climate, to elevate the issue of climate change and underscore the commitment my Administration will make toward addressing it.

(d) Recognizing that climate change affects a wide range of subjects, it will be a United States priority to press for enhanced climate ambition and integration of climate considerations across a wide range of international fora, including the Group of Seven (G7), the Group of Twenty (G20), and fora that address clean energy, aviation, shipping, the Arctic, the ocean, sustainable development, migration, and other relevant topics. The Special Presidential Envoy for Climate and others, as appropriate, are encouraged to promote innovative approaches, including international multi-stakeholder initiatives. In addition, my Administration will work in partnership with States, localities, Tribes, territories, and other United States stakeholders to advance United States climate diplomacy.

(e) The United States will immediately begin the process of developing its nationally determined contribution under the Paris Agreement. The process will include analysis and input from relevant executive departments and agencies (agencies), as well as appropriate outreach to domestic stakeholders. The United States will aim to submit its nationally determined contribution in advance of the Leaders’ Climate Summit.

(f) The United States will also immediately begin to develop a climate finance plan, making strategic use of multilateral and bilateral channels and institutions, to assist developing countries in implementing ambitious emissions reduction measures, protecting critical ecosystems, building resilience against the impacts of climate change, and promoting the flow of capital toward climate-aligned investments and away from high-carbon investments. The Secretary of State and the Secretary of the Treasury, in coordination with the Special Presidential Envoy for Climate, shall lead a process to develop this plan, with the participation of the Administrator of the United States Agency for International Development (USAID), the Chief Executive Officer of the United States International Development Finance Corporation (DFC), the Chief Executive Officer of the Millennium Challenge Corporation, the Director of the United States Trade and Development Agency, the Director of the Office of Management and Budget, and the head of any other agency providing foreign assistance and development financing, as appropriate. The Secretary of State and the Secretary of the Treasury shall submit the plan to the President, through the Assistant to the President for National Security Affairs and the Assistant to the President for Economic Policy, within 90 days of the date of this order.

(g) The Secretary of the Treasury shall:

(i) ensure that the United States is present and engaged in relevant international fora and institutions that are working on the management of climate-related financial risks;

(ii) develop a strategy for how the voice and vote of the United States can be used in international financial institutions, including the World Bank Group and the International Monetary Fund, to promote financing programs, economic stimulus packages, and debt relief initiatives that are aligned with and support the goals of the Paris Agreement; and

(iii) develop, in collaboration with the Secretary of State, the Administrator of USAID, and the Chief Executive Officer of the DFC, a plan for promoting the protection of the Amazon rainforest and other critical ecosystems that serve as global carbon sinks, including through market-based mechanisms.

(h) The Secretary of State, the Secretary of the Treasury, and the Secretary of Energy shall work together and with the Export–Import Bank of the United States, the Chief Executive Officer of the DFC, and the heads of other agencies and partners, as appropriate, to identify steps through which the United States can promote ending international financing of carbon-intensive fossil fuel-based energy while simultaneously advancing sustainable development and a green recovery, in consultation with the Assistant to the President for National Security Affairs.

(i) The Secretary of Energy, in cooperation with the Secretary of State and the heads of other agencies, as appropriate, shall identify steps through which the United States can intensify international collaborations to drive innovation and deployment of clean energy technologies, which are critical for climate protection.

(j) The Secretary of State shall prepare, within 60 days of the date of this order, a transmittal package seeking the Senate's advice and consent to ratification of the Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, regarding the phasedown of the production and consumption of hydrofluorocarbons.

Sec. 103. Prioritizing Climate in Foreign Policy and National Security. To ensure that climate change considerations are central to United States foreign policy and national security:

(a) Agencies that engage in extensive international work shall develop, in coordination with the Special Presidential Envoy for Climate, and submit to the President, through the Assistant to the President for National Security Affairs, within 90 days of the date of this order, strategies and implementation plans for integrating climate considerations into their international work, as appropriate and consistent with applicable law. These strategies and plans should include an assessment of:

(i) climate impacts relevant to broad agency strategies in particular countries or regions;

(ii) climate impacts on their agency-managed infrastructure abroad (e.g., embassies, military installations), without prejudice to existing requirements regarding assessment of such infrastructure;

(iii) how the agency intends to manage such impacts or incorporate risk mitigation into its installation master plans; and

(iv) how the agency's international work, including partner engagement, can contribute to addressing the climate crisis.

(b) The Director of National Intelligence shall prepare, within 120 days of the date of this order, a National Intelligence Estimate on the national and economic security impacts of climate change.

(c) The Secretary of Defense, in coordination with the Secretary of Commerce, through the Administrator of the National Oceanic and Atmospheric Administration, the Chair of the Council on Environmental Quality, the Administrator of the Environmental Protection Agency, the Director of National Intelligence, the Director of the Office of Science and Technology

Policy, the Administrator of the National Aeronautics and Space Administration, and the heads of other agencies as appropriate, shall develop and submit to the President, within 120 days of the date of this order, an analysis of the security implications of climate change (Climate Risk Analysis) that can be incorporated into modeling, simulation, war-gaming, and other analyses.

(d) The Secretary of Defense and the Chairman of the Joint Chiefs of Staff shall consider the security implications of climate change, including any relevant information from the Climate Risk Analysis described in subsection (c) of this section, in developing the National Defense Strategy, Defense Planning Guidance, Chairman's Risk Assessment, and other relevant strategy, planning, and programming documents and processes. Starting in January 2022, the Secretary of Defense and the Chairman of the Joint Chiefs of Staff shall provide an annual update, through the National Security Council, on the progress made in incorporating the security implications of climate change into these documents and processes.

(e) The Secretary of Homeland Security shall consider the implications of climate change in the Arctic, along our Nation's borders, and to National Critical Functions, including any relevant information from the Climate Risk Analysis described in subsection (c) of this section, in developing relevant strategy, planning, and programming documents and processes. Starting in January 2022, the Secretary of Homeland Security shall provide an annual update, through the National Security Council, on the progress made in incorporating the homeland security implications of climate change into these documents and processes.

Sec. 104. Reinstatement. The Presidential Memorandum of September 21, 2016 (Climate Change and National Security), is hereby reinstated.

PART II – TAKING A GOVERNMENT-WIDE APPROACH TO THE CLIMATE CRISIS

Sec. 201. Policy. Even as our Nation emerges from profound public health and economic crises borne of a pandemic, we face a climate crisis that threatens our people and communities, public health and economy, and, starkly, our ability to live on planet Earth. Despite the peril that is already evident, there is promise in the solutions — opportunities to create well-paying union jobs to build a modern and sustainable infrastructure, deliver an equitable, clean energy future, and put the United States on a path to achieve net-zero emissions, economy-wide, by no later than 2050.

We must listen to science — and act. We must strengthen our clean air and water protections. We must hold polluters accountable for their actions. We must deliver environmental justice in communities all across America. The Federal Government must drive assessment, disclosure, and mitigation of climate pollution and climate-related risks in every sector of our

economy, marshaling the creativity, courage, and capital necessary to make our Nation resilient in the face of this threat. Together, we must combat the climate crisis with bold, progressive action that combines the full capacity of the Federal Government with efforts from every corner of our Nation, every level of government, and every sector of our economy.

It is the policy of my Administration to organize and deploy the full capacity of its agencies to combat the climate crisis to implement a Government-wide approach that reduces climate pollution in every sector of the economy; increases resilience to the impacts of climate change; protects public health; conserves our lands, waters, and biodiversity; delivers environmental justice; and spurs well-paying union jobs and economic growth, especially through innovation, commercialization, and deployment of clean energy technologies and infrastructure.

Successfully meeting these challenges will require the Federal Government to pursue such a coordinated approach from planning to implementation, coupled with substantive engagement by stakeholders, including State, local, and Tribal governments.

Sec. 202. White House Office of Domestic Climate Policy. There is hereby established the White House Office of Domestic Climate Policy (Climate Policy Office) within the Executive Office of the President, which shall coordinate the policy-making process with respect to domestic climate-policy issues; coordinate domestic climate-policy advice to the President; ensure that domestic climate-policy decisions and programs are consistent with the President's stated goals and that those goals are being effectively pursued; and monitor implementation of the President's domestic climate-policy agenda. The Climate Policy Office shall have a staff headed by the Assistant to the President and National Climate Advisor (National Climate Advisor) and shall include the Deputy Assistant to the President and Deputy National Climate Advisor. The Climate Policy Office shall have such staff and other assistance as may be necessary to carry out the provisions of this order, subject to the availability of appropriations, and may work with established or ad hoc committees or interagency groups.

All agencies shall cooperate with the Climate Policy Office and provide such information, support, and assistance to the Climate Policy Office as it may request, as appropriate and consistent with applicable law.

Sec. 203. National Climate Task Force. There is hereby established a National Climate Task Force (Task Force). The Task Force shall be chaired by the National Climate Advisor.

(a) Membership. The Task Force shall consist of the following additional members:

- (i) the Secretary of the Treasury;
- (ii) the Secretary of Defense;

- (iii) the Attorney General;
- (iv) the Secretary of the Interior;
- (v) the Secretary of Agriculture;
- (vi) the Secretary of Commerce;
- (vii) the Secretary of Labor;
- (viii) the Secretary of Health and Human Services;
- (ix) the Secretary of Housing and Urban Development;
- (x) the Secretary of Transportation;
- (xi) the Secretary of Energy;
- (xii) the Secretary of Homeland Security;
- (xiii) the Administrator of General Services;
- (xiv) the Chair of the Council on Environmental Quality;
- (xv) the Administrator of the Environmental Protection Agency;
- (xvi) the Director of the Office of Management and Budget;
- (xvii) the Director of the Office of Science and Technology Policy;
- (xviii) the Assistant to the President for Domestic Policy;
- (xix) the Assistant to the President for National Security Affairs;
- (xx) the Assistant to the President for Homeland Security and Counterterrorism; and
- (xxi) the Assistant to the President for Economic Policy.

(b) Mission and Work. The Task Force shall facilitate the organization and deployment of a Government-wide approach to combat the climate crisis. This Task Force shall facilitate planning and implementation of key Federal actions to reduce climate pollution; increase resilience to the impacts of climate change; protect public health; conserve our lands, waters,

oceans, and biodiversity; deliver environmental justice; and spur well-paying union jobs and economic growth. As necessary and appropriate, members of the Task Force will engage on these matters with State, local, Tribal, and territorial governments; workers and communities; and leaders across the various sectors of our economy.

(c) **Prioritizing Actions.** To the extent permitted by law, Task Force members shall prioritize action on climate change in their policy-making and budget processes, in their contracting and procurement, and in their engagement with State, local, Tribal, and territorial governments; workers and communities; and leaders across all the sectors of our economy.

USE OF THE FEDERAL GOVERNMENT'S BUYING POWER AND REAL PROPERTY AND ASSET MANAGEMENT

Sec. 204. **Policy.** It is the policy of my Administration to lead the Nation's effort to combat the climate crisis by example — specifically, by aligning the management of Federal procurement and real property, public lands and waters, and financial programs to support robust climate action. By providing an immediate, clear, and stable source of product demand, increased transparency and data, and robust standards for the market, my Administration will help to catalyze private sector investment into, and accelerate the advancement of America's industrial capacity to supply, domestic clean energy, buildings, vehicles, and other necessary products and materials.

Sec. 205. **Federal Clean Electricity and Vehicle Procurement Strategy.** (a) The Chair of the Council on Environmental Quality, the Administrator of General Services, and the Director of the Office of Management and Budget, in coordination with the Secretary of Commerce, the Secretary of Labor, the Secretary of Energy, and the heads of other relevant agencies, shall assist the National Climate Advisor, through the Task Force established in section 203 of this order, in developing a comprehensive plan to create good jobs and stimulate clean energy industries by revitalizing the Federal Government's sustainability efforts.

(b) The plan shall aim to use, as appropriate and consistent with applicable law, all available procurement authorities to achieve or facilitate:

(i) a carbon pollution-free electricity sector no later than 2035; and

(ii) clean and zero-emission vehicles for Federal, State, local, and Tribal government fleets, including vehicles of the United States Postal Service.

(c) If necessary, the plan shall recommend any additional legislation needed to accomplish these objectives.

(d) The plan shall also aim to ensure that the United States retains the union jobs integral to and involved in running and maintaining clean and zero-emission fleets, while spurring the creation of union jobs in the manufacture of those new vehicles. The plan shall be submitted to the Task Force within 90 days of the date of this order.

Sec. 206. Procurement Standards. Consistent with the Executive Order of January 25, 2021, entitled, “Ensuring the Future Is Made in All of America by All of America’s Workers,” agencies shall adhere to the requirements of the Made in America Laws in making clean energy, energy efficiency, and clean energy procurement decisions. Agencies shall, consistent with applicable law, apply and enforce the Davis-Bacon Act and prevailing wage and benefit requirements. The Secretary of Labor shall take steps to update prevailing wage requirements. The Chair of the Council on Environmental Quality shall consider additional administrative steps and guidance to assist the Federal Acquisition Regulatory Council in developing regulatory amendments to promote increased contractor attention on reduced carbon emission and Federal sustainability.

Sec. 207. Renewable Energy on Public Lands and in Offshore Waters. The Secretary of the Interior shall review siting and permitting processes on public lands and in offshore waters to identify to the Task Force steps that can be taken, consistent with applicable law, to increase renewable energy production on those lands and in those waters, with the goal of doubling offshore wind by 2030 while ensuring robust protection for our lands, waters, and biodiversity and creating good jobs. In conducting this review, the Secretary of the Interior shall consult, as appropriate, with the heads of relevant agencies, including the Secretary of Defense, the Secretary of Agriculture, the Secretary of Commerce, through the Administrator of the National Oceanic and Atmospheric Administration, the Secretary of Energy, the Chair of the Council on Environmental Quality, State and Tribal authorities, project developers, and other interested parties. The Secretary of the Interior shall engage with Tribal authorities regarding the development and management of renewable and conventional energy resources on Tribal lands.

Sec. 208. Oil and Natural Gas Development on Public Lands and in Offshore Waters. To the extent consistent with applicable law, the Secretary of the Interior shall pause new oil and natural gas leases on public lands or in offshore waters pending completion of a comprehensive review and reconsideration of Federal oil and gas permitting and leasing practices in light of the Secretary of the Interior’s broad stewardship responsibilities over the public lands and in offshore waters, including potential climate and other impacts associated with oil and gas activities on public lands or in offshore waters. The Secretary of the Interior shall complete that review in consultation with the Secretary of Agriculture, the Secretary of Commerce, through the National Oceanic and Atmospheric Administration, and the

Secretary of Energy. In conducting this analysis, and to the extent consistent with applicable law, the Secretary of the Interior shall consider whether to adjust royalties associated with coal, oil, and gas resources extracted from public lands and offshore waters, or take other appropriate action, to account for corresponding climate costs.

Sec. 209. Fossil Fuel Subsidies. The heads of agencies shall identify for the Director of the Office of Management and Budget and the National Climate Advisor any fossil fuel subsidies provided by their respective agencies, and then take steps to ensure that, to the extent consistent with applicable law, Federal funding is not directly subsidizing fossil fuels. The Director of the Office of Management and Budget shall seek, in coordination with the heads of agencies and the National Climate Advisor, to eliminate fossil fuel subsidies from the budget request for Fiscal Year 2022 and thereafter.

Sec. 210. Clean Energy in Financial Management. The heads of agencies shall identify opportunities for Federal funding to spur innovation, commercialization, and deployment of clean energy technologies and infrastructure for the Director of the Office of Management and Budget and the National Climate Advisor, and then take steps to ensure that, to the extent consistent with applicable law, Federal funding is used to spur innovation, commercialization, and deployment of clean energy technologies and infrastructure. The Director of the Office of Management and Budget, in coordination with agency heads and the National Climate Advisor, shall seek to prioritize such investments in the President's budget request for Fiscal Year 2022 and thereafter.

Sec. 211. Climate Action Plans and Data and Information Products to Improve Adaptation and Increase Resilience. (a) The head of each agency shall submit a draft action plan to the Task Force and the Federal Chief Sustainability Officer within 120 days of the date of this order that describes steps the agency can take with regard to its facilities and operations to bolster adaptation and increase resilience to the impacts of climate change. Action plans should, among other things, describe the agency's climate vulnerabilities and describe the agency's plan to use the power of procurement to increase the energy and water efficiency of United States Government installations, buildings, and facilities and ensure they are climate-ready. Agencies shall consider the feasibility of using the purchasing power of the Federal Government to drive innovation, and shall seek to increase the Federal Government's resilience against supply chain disruptions. Such disruptions put the Nation's manufacturing sector at risk, as well as consumer access to critical goods and services. Agencies shall make their action plans public, and post them on the agency website, to the extent consistent with applicable law.

(b) Within 30 days of an agency's submission of an action plan, the Federal Chief Sustainability Officer, in coordination with the Director of the Office of Management and Budget, shall review the plan to assess its consistency with the policy set forth in section 204 of this order and the priorities issued by the Office of Management and Budget.

(c) After submitting an initial action plan, the head of each agency shall submit to the Task Force and Federal Chief Sustainability Officer progress reports annually on the status of implementation efforts. Agencies shall make progress reports public and post them on the agency website, to the extent consistent with applicable law. The heads of agencies shall assign their respective agency Chief Sustainability Officer the authority to perform duties relating to implementation of this order within the agency, to the extent consistent with applicable law.

(d) To assist agencies and State, local, Tribal, and territorial governments, communities, and businesses in preparing for and adapting to the impacts of climate change, the Secretary of Commerce, through the Administrator of the National Oceanic and Atmospheric Administration, the Secretary of Homeland Security, through the Administrator of the Federal Emergency Management Agency, and the Director of the Office of Science and Technology Policy, in coordination with the heads of other agencies, as appropriate, shall provide to the Task Force a report on ways to expand and improve climate forecast capabilities and information products for the public. In addition, the Secretary of the Interior and the Deputy Director for Management of the Office of Management and Budget, in their capacities as the Chair and Vice-Chair of the Federal Geographic Data Committee, shall assess and provide to the Task Force a report on the potential development of a consolidated Federal geographic mapping service that can facilitate public access to climate-related information that will assist Federal, State, local, and Tribal governments in climate planning and resilience activities.

EMPOWERING WORKERS THROUGH REBUILDING OUR INFRASTRUCTURE FOR A SUSTAINABLE ECONOMY

Sec. 212. Policy. This Nation needs millions of construction, manufacturing, engineering, and skilled-trades workers to build a new American infrastructure and clean energy economy. These jobs will create opportunities for young people and for older workers shifting to new professions, and for people from all backgrounds and communities. Such jobs will bring opportunity to communities too often left behind – places that have suffered as a result of economic shifts and places that have suffered the most from persistent pollution, including low-income rural and urban communities, communities of color, and Native communities.

Sec. 213. Sustainable Infrastructure. (a) The Chair of the Council on Environmental Quality and the Director of the Office of Management and Budget shall take steps, consistent with applicable law, to ensure that Federal infrastructure investment reduces climate pollution, and to require that Federal permitting decisions consider the effects of greenhouse gas emissions and climate change. In addition, they shall review, and report to the National Climate Advisor on, siting and permitting processes, including those in progress under the auspices of the Federal Permitting Improvement Steering Council, and identify steps that can be taken, consistent with applicable law, to accelerate the deployment of clean energy and transmission projects in an environmentally stable manner.

(b) Agency heads conducting infrastructure reviews shall, as appropriate, consult from an early stage with State, local, and Tribal officials involved in permitting or authorizing proposed infrastructure projects to develop efficient timelines for decision-making that are appropriate given the complexities of proposed projects.

EMPOWERING WORKERS BY ADVANCING CONSERVATION, AGRICULTURE, AND REFORESTATION

Sec. 214. Policy. It is the policy of my Administration to put a new generation of Americans to work conserving our public lands and waters. The Federal Government must protect America's natural treasures, increase reforestation, improve access to recreation, and increase resilience to wildfires and storms, while creating well-paying union jobs for more Americans, including more opportunities for women and people of color in occupations where they are underrepresented. America's farmers, ranchers, and forest landowners have an important role to play in combating the climate crisis and reducing greenhouse gas emissions, by sequestering carbon in soils, grasses, trees, and other vegetation and sourcing sustainable bioproducts and fuels. Coastal communities have an essential role to play in mitigating climate change and strengthening resilience by protecting and restoring coastal ecosystems, such as wetlands, seagrasses, coral and oyster reefs, and mangrove and kelp forests, to protect vulnerable coastlines, sequester carbon, and support biodiversity and fisheries.

Sec. 215. Civilian Climate Corps. In furtherance of the policy set forth in section 214 of this order, the Secretary of the Interior, in collaboration with the Secretary of Agriculture and the heads of other relevant agencies, shall submit a strategy to the Task Force within 90 days of the date of this order for creating a Civilian Climate Corps Initiative, within existing appropriations, to mobilize the next generation of conservation and resilience workers and maximize the creation of accessible training opportunities and good jobs. The initiative shall aim to conserve and restore public lands and waters, bolster community resilience, increase

reforestation, increase carbon sequestration in the agricultural sector, protect biodiversity, improve access to recreation, and address the changing climate.

Sec. 216. Conserving Our Nation's Lands and Waters. (a) The Secretary of the Interior, in consultation with the Secretary of Agriculture, the Secretary of Commerce, the Chair of the Council on Environmental Quality, and the heads of other relevant agencies, shall submit a report to the Task Force within 90 days of the date of this order recommending steps that the United States should take, working with State, local, Tribal, and territorial governments, agricultural and forest landowners, fishermen, and other key stakeholders, to achieve the goal of conserving at least 30 percent of our lands and waters by 2030.

(i) The Secretary of the Interior, the Secretary of Agriculture, the Secretary of Commerce, through the Administrator of the National Oceanic and Atmospheric Administration, and the Chair of the Council on Environmental Quality shall, as appropriate, solicit input from State, local, Tribal, and territorial officials, agricultural and forest landowners, fishermen, and other key stakeholders in identifying strategies that will encourage broad participation in the goal of conserving 30 percent of our lands and waters by 2030.

(ii) The report shall propose guidelines for determining whether lands and waters qualify for conservation, and it also shall establish mechanisms to measure progress toward the 30-percent goal. The Secretary of the Interior shall subsequently submit annual reports to the Task Force to monitor progress.

(b) The Secretary of Agriculture shall:

(i) initiate efforts in the first 60 days from the date of this order to collect input from Tribes, farmers, ranchers, forest owners, conservation groups, firefighters, and other stakeholders on how to best use Department of Agriculture programs, funding and financing capacities, and other authorities, and how to encourage the voluntary adoption of climate-smart agricultural and forestry practices that decrease wildfire risk fueled by climate change and result in additional, measurable, and verifiable carbon reductions and sequestration and that source sustainable bioproducts and fuels; and

(ii) submit to the Task Force within 90 days of the date of this order a report making recommendations for an agricultural and forestry climate strategy.

(c) The Secretary of Commerce, through the Administrator of the National Oceanic and Atmospheric Administration, shall initiate efforts in the first 60 days from the date of this order to collect input from fishermen, regional ocean councils, fishery management councils,

scientists, and other stakeholders on how to make fisheries and protected resources more resilient to climate change, including changes in management and conservation measures, and improvements in science, monitoring, and cooperative research.

EMPOWERING WORKERS THROUGH REVITALIZING ENERGY COMMUNITIES

Sec. 217. Policy. It is the policy of my Administration to improve air and water quality and to create well-paying union jobs and more opportunities for women and people of color in hard-hit communities, including rural communities, while reducing methane emissions, oil and brine leaks, and other environmental harms from tens of thousands of former mining and well sites. Mining and power plant workers drove the industrial revolution and the economic growth that followed, and have been essential to the growth of the United States. As the Nation shifts to a clean energy economy, Federal leadership is essential to foster economic revitalization of and investment in these communities, ensure the creation of good jobs that provide a choice to join a union, and secure the benefits that have been earned by workers.

Such work should include projects that reduce emissions of toxic substances and greenhouse gases from existing and abandoned infrastructure and that prevent environmental damage that harms communities and poses a risk to public health and safety. Plugging leaks in oil and gas wells and reclaiming abandoned mine land can create well-paying union jobs in coal, oil, and gas communities while restoring natural assets, revitalizing recreation economies, and curbing methane emissions. In addition, such work should include efforts to turn properties idled in these communities, such as brownfields, into new hubs for the growth of our economy. Federal agencies should therefore coordinate investments and other efforts to assist coal, oil and gas, and power plant communities, and achieve substantial reductions of methane emissions from the oil and gas sector as quickly as possible.

Sec. 218. Interagency Working Group on Coal and Power Plant Communities and Economic Revitalization. There is hereby established an Interagency Working Group on Coal and Power Plant Communities and Economic Revitalization (Interagency Working Group). The National Climate Advisor and the Assistant to the President for Economic Policy shall serve as Co-Chairs of the Interagency Working Group.

(a) Membership. The Interagency Working Group shall consist of the following additional members:

- (i) the Secretary of the Treasury;
- (ii) the Secretary of the Interior;

- (iii) the Secretary of Agriculture;
- (iv) the Secretary of Commerce;
- (v) the Secretary of Labor;
- (vi) the Secretary of Health and Human Services;
- (vii) the Secretary of Transportation;
- (viii) the Secretary of Energy;
- (ix) the Secretary of Education;
- (x) the Administrator of the Environmental Protection Agency;
- (xi) the Director of the Office of Management and Budget;
- (xii) the Assistant to the President for Domestic Policy and Director of the Domestic Policy Council; and
- (xiii) the Federal Co-Chair of the Appalachian Regional Commission.

(b) Mission and Work.

(i) The Interagency Working Group shall coordinate the identification and delivery of Federal resources to revitalize the economies of coal, oil and gas, and power plant communities; develop strategies to implement the policy set forth in section 217 of this order and for economic and social recovery; assess opportunities to ensure benefits and protections for coal and power plant workers; and submit reports to the National Climate Advisor and the Assistant to the President for Economic Policy on a regular basis on the progress of the revitalization effort.

(ii) As part of this effort, within 60 days of the date of this order, the Interagency Working Group shall submit a report to the President describing all mechanisms, consistent with applicable law, to prioritize grantmaking, Federal loan programs, technical assistance, financing, procurement, or other existing programs to support and revitalize the economies of coal and power plant communities, and providing recommendations for action consistent with the goals of the Interagency Working Group.

(c) Consultation. Consistent with the objectives set out in this order and in accordance with applicable law, the Interagency Working Group shall seek the views of State, local, and Tribal officials; unions; environmental justice organizations; community groups; and other persons it identifies who may have perspectives on the mission of the Interagency Working Group.

(d) Administration. The Interagency Working Group shall be housed within the Department of Energy. The Chairs shall convene regular meetings of the Interagency Working Group, determine its agenda, and direct its work. The Secretary of Energy, in consultation with the Chairs, shall designate an Executive Director of the Interagency Working Group, who shall coordinate the work of the Interagency Working Group and head any staff assigned to the Interagency Working Group.

(e) Officers. To facilitate the work of the Interagency Working Group, the head of each agency listed in subsection (a) of this section shall assign a designated official within the agency the authority to represent the agency on the Interagency Working Group and perform such other duties relating to the implementation of this order within the agency as the head of the agency deems appropriate.

SECURING ENVIRONMENTAL JUSTICE AND SPURRING ECONOMIC OPPORTUNITY

Sec. 219. Policy. To secure an equitable economic future, the United States must ensure that environmental and economic justice are key considerations in how we govern. That means investing and building a clean energy economy that creates well-paying union jobs, turning disadvantaged communities – historically marginalized and overburdened – into healthy, thriving communities, and undertaking robust actions to mitigate climate change while preparing for the impacts of climate change across rural, urban, and Tribal areas. Agencies shall make achieving environmental justice part of their missions by developing programs, policies, and activities to address the disproportionately high and adverse human health, environmental, climate-related and other cumulative impacts on disadvantaged communities, as well as the accompanying economic challenges of such impacts. It is therefore the policy of my Administration to secure environmental justice and spur economic opportunity for disadvantaged communities that have been historically marginalized and overburdened by pollution and underinvestment in housing, transportation, water and wastewater infrastructure, and health care.

Sec. 220. White House Environmental Justice Interagency Council. (a) Section 1-102 of Executive Order 12898 of February 11, 1994 (Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations), is hereby amended to read as follows:

“(a) There is hereby created within the Executive Office of the President a White House Environmental Justice Interagency Council (Interagency Council). The Chair of the Council on Environmental Quality shall serve as Chair of the Interagency Council.

“(b) Membership. The Interagency Council shall consist of the following additional members:

- (i) the Secretary of Defense;
- (ii) the Attorney General;
- (iii) the Secretary of the Interior;
- (iv) the Secretary of Agriculture;
- (v) the Secretary of Commerce;
- (vi) the Secretary of Labor;
- (vii) the Secretary of Health and Human Services;
- (viii) the Secretary of Housing and Urban Development;
- (ix) the Secretary of Transportation;
- (x) the Secretary of Energy;
- (xi) the Chair of the Council of Economic Advisers;
- (xii) the Administrator of the Environmental Protection Agency;
- (xiii) the Director of the Office of Management and Budget;
- (xiv) the Executive Director of the Federal Permitting Improvement Steering Council;
- (xv) the Director of the Office of Science and Technology Policy;
- (xvi) the National Climate Advisor;
- (xvii) the Assistant to the President for Domestic Policy; and
- (xviii) the Assistant to the President for Economic Policy.

“(c) At the direction of the Chair, the Interagency Council may establish subgroups consisting exclusively of Interagency Council members or their designees under this section, as appropriate.

“(d) Mission and Work. The Interagency Council shall develop a strategy to address current and historic environmental injustice by consulting with the White House Environmental Justice Advisory Council and with local environmental justice leaders. The Interagency Council shall also develop clear performance metrics to ensure accountability, and publish an annual public performance scorecard on its implementation.

“(e) Administration. The Office of Administration within the Executive Office of the President shall provide funding and administrative support for the Interagency Council, to the extent permitted by law and within existing appropriations. To the extent permitted by law, including the Economy Act (31 U.S.C. 1535), and subject to the availability of appropriations, the Department of Labor, the Department of Transportation, and the Environmental Protection Agency shall provide administrative support as necessary.

“(f) Meetings and Staff. The Chair shall convene regular meetings of the Council, determine its agenda, and direct its work. The Chair shall designate an Executive Director of the Council, who shall coordinate the work of the Interagency Council and head any staff assigned to the Council.

“(g) Officers. To facilitate the work of the Interagency Council, the head of each agency listed in subsection (b) shall assign a designated official within the agency to be an Environmental Justice Officer, with the authority to represent the agency on the Interagency Council and perform such other duties relating to the implementation of this order within the agency as the head of the agency deems appropriate.”

(b) The Interagency Council shall, within 120 days of the date of this order, submit to the President, through the National Climate Advisor, a set of recommendations for further updating Executive Order 12898.

Sec. 221. White House Environmental Justice Advisory Council. There is hereby established, within the Environmental Protection Agency, the White House Environmental Justice Advisory Council (Advisory Council), which shall advise the Interagency Council and the Chair of the Council on Environmental Quality.

(a) Membership. Members shall be appointed by the President, shall be drawn from across the political spectrum, and may include those with knowledge about or experience in

environmental justice, climate change, disaster preparedness, racial inequity, or any other area determined by the President to be of value to the Advisory Council.

(b) **Mission and Work.** The Advisory Council shall be solely advisory. It shall provide recommendations to the White House Environmental Justice Interagency Council established in section 220 of this order on how to increase the Federal Government's efforts to address current and historic environmental injustice, including recommendations for updating Executive Order 12898.

(c) **Administration.** The Environmental Protection Agency shall provide funding and administrative support for the Advisory Council to the extent permitted by law and within existing appropriations. Members of the Advisory Council shall serve without either compensation or reimbursement of expenses.

(d) **Federal Advisory Committee Act.** Insofar as the Federal Advisory Committee Act, as amended (5 U.S.C. App.), may apply to the Advisory Council, any functions of the President under the Act, except for those in section 6 of the Act, shall be performed by the Administrator of the Environmental Protection Agency in accordance with the guidelines that have been issued by the Administrator of General Services.

Sec. 222. Agency Responsibilities. In furtherance of the policy set forth in section 219:

(a) The Chair of the Council on Environmental Quality shall, within 6 months of the date of this order, create a geospatial Climate and Economic Justice Screening Tool and shall annually publish interactive maps highlighting disadvantaged communities.

(b) The Administrator of the Environmental Protection Agency shall, within existing appropriations and consistent with applicable law:

(i) strengthen enforcement of environmental violations with disproportionate impact on underserved communities through the Office of Enforcement and Compliance Assurance; and

(ii) create a community notification program to monitor and provide real-time data to the public on current environmental pollution, including emissions, criteria pollutants, and toxins, in frontline and fenceline communities — places with the most significant exposure to such pollution.

(c) The Attorney General shall, within existing appropriations and consistent with applicable law:

- (i) consider renaming the Environment and Natural Resources Division the Environmental Justice and Natural Resources Division;
 - (ii) direct that division to coordinate with the Administrator of the Environmental Protection Agency, through the Office of Enforcement and Compliance Assurance, as well as with other client agencies as appropriate, to develop a comprehensive environmental justice enforcement strategy, which shall seek to provide timely remedies for systemic environmental violations and contaminations, and injury to natural resources; and
 - (iii) ensure comprehensive attention to environmental justice throughout the Department of Justice, including by considering creating an Office of Environmental Justice within the Department to coordinate environmental justice activities among Department of Justice components and United States Attorneys' Offices nationwide.
- (d) The Secretary of Health and Human Services shall, consistent with applicable law and within existing appropriations:
- (i) establish an Office of Climate Change and Health Equity to address the impact of climate change on the health of the American people; and
 - (ii) establish an Interagency Working Group to Decrease Risk of Climate Change to Children, the Elderly, People with Disabilities, and the Vulnerable as well as a biennial Health Care System Readiness Advisory Council, both of which shall report their progress and findings regularly to the Task Force.
- (e) The Director of the Office of Science and Technology Policy shall, in consultation with the National Climate Advisor, within existing appropriations, and within 100 days of the date of this order, publish a report identifying the climate strategies and technologies that will result in the most air and water quality improvements, which shall be made public to the maximum extent possible and published on the Office's website.

Sec. 223. Justice40 Initiative. (a) Within 120 days of the date of this order, the Chair of the Council on Environmental Quality, the Director of the Office of Management and Budget, and the National Climate Advisor, in consultation with the Advisory Council, shall jointly publish recommendations on how certain Federal investments might be made toward a goal that 40 percent of the overall benefits flow to disadvantaged communities. The recommendations shall focus on investments in the areas of clean energy and energy efficiency; clean transit; affordable and sustainable housing; training and workforce development; the remediation and reduction of legacy pollution; and the development of critical clean water infrastructure. The

recommendations shall reflect existing authorities the agencies may possess for achieving the 40-percent goal as well as recommendations on any legislation needed to achieve the 40-percent goal.

(b) In developing the recommendations, the Chair of the Council on Environmental Quality, the Director of the Office of Management and Budget, and the National Climate Advisor shall consult with affected disadvantaged communities.

(c) Within 60 days of the recommendations described in subsection (a) of this section, agency heads shall identify applicable program investment funds based on the recommendations and consider interim investment guidance to relevant program staff, as appropriate and consistent with applicable law.

(d) By February 2022, the Director of the Office of Management and Budget, in coordination with the Chair of the Council on Environmental Quality, the Administrator of the United States Digital Service, and other relevant agency heads, shall, to the extent consistent with applicable law, publish on a public website an annual Environmental Justice Scorecard detailing agency environmental justice performance measures.

PART III — GENERAL PROVISIONS

Sec. 301. General Provisions. (a) Nothing in this order shall be construed to impair or otherwise affect:

- (i) the authority granted by law to an executive department or agency or the head thereof; or
- (ii) the functions of the Director of the Office of Management and Budget, relating to budgetary, administrative, or legislative proposals.

(b) This order shall be implemented consistent with applicable law and subject to the availability of appropriations.

(c) This order is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or in equity by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.

JOSEPH R. BIDEN JR.

THE WHITE HOUSE,

January 27, 2021.

BRIEFING ROOM

EXECUTIVE SUMMARY: U.S. International Climate Finance Plan

APRIL 22, 2021 • STATEMENTS AND RELEASES

President Biden's Executive Order on *Tackling the Climate Crisis at Home and Abroad* (E.O. 14008, signed January 27, 2021) called for the preparation of a Climate Finance Plan (herein "Plan"). This Plan – the first of its kind in the U.S. government – focuses on international climate finance. For the purposes of this Plan, "climate finance" refers in part to the provision or mobilization of financial resources to assist developing countries to reduce and/or avoid greenhouse gas emissions and build resilience and adapt to the impacts of climate change.

1. Scaling-Up International Climate Finance and Enhancing its Impact

The Administration is embracing ambitious but attainable goals regarding the quantity of public climate finance provided by the United States, recognizing the urgency of the climate crisis, confronting the sharp drop in U.S. international climate finance during the FY 2018-2021 period, and understanding the need to re-establish U.S. leadership in international climate diplomacy.

The United States intends to double, by 2024, our annual public climate finance to developing countries relative to the average level during the second half of the Obama-Biden Administration (FY 2013-2016). As part of this goal, the United States intends to triple our adaptation finance by 2024. The Biden Administration will work closely with Congress to meet these goals.

U.S. agencies, working with development partners, will prioritize climate in public investments, enhance technical assistance and long-term capacity, align support with country needs and priorities, and boost investments in adaptation and resilience. For example, the U.S. Agency for International Development (USAID) will release a new Climate Change Strategy in November 2021, at the 26th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP26). The U.S. International Development Finance Corporation (DFC) will update its development strategy to not only include climate for the first time, but also to make investments in climate mitigation and adaptation a top priority. The Millennium Challenge Corporation (MCC) will adopt a new Climate Strategy in April 2021, centered on investing in climate-smart development and sustainable infrastructure, and

aims to have more than 50 percent of its program funding go to climate-related investments over the next five years. Treasury will direct U.S. executive directors in multilateral development banks (MDBs) to help ensure MDBs set and apply ambitious climate finance targets and policies, in partnership with other shareholders.

U.S. departments and agencies will enhance strategic coordination on providing and mobilizing international climate finance and technical assistance to ensure the complementarity of agency efforts, instruments, and expertise. Departments and agencies will increase collaboration and adopt best practices on incorporating climate considerations into their international work and investments, such as screening all projects for climate-related risks to ensure they are resilient.

2. Mobilizing Private Finance Internationally

Public interventions, including public finance, must also mobilize private capital. Several efforts will help mobilize more private finance. For example, MCC will expand partnerships and the use of blended finance to catalyze private capital for climate projects. DFC will increase its climate-related investments beginning in FY 2023, so that at least one-third of its new investments are linked to addressing the climate crisis. The Export-Import Bank of the United States (EXIM) will identify ways to significantly increase, as per its mandate, its support for environmentally beneficial, renewable energy, energy efficiency, and energy storage exports from the United States. U.S. agencies, including DFC, U.S. Trade and Development Agency, EXIM, the Department of State, MCC, and USAID will work together to build a strong investable project pipeline.

3. Ending International Official Financing for Carbon-Intensive Fossil Fuel Based Energy

Scaling back public investments in carbon-intensive fossil fuel-based energy is the necessary corollary to increasing investments in climate-friendly activities. Departments and agencies will seek to end international investments in and support for carbon-intensive fossil fuel-based energy projects. Departments and agencies will work with other countries, through bilateral and multilateral fora, to promote the flow of capital toward climate-aligned investments and away from high-carbon investments. Treasury, in partnership with other Organisation for Economic Co-operation and Development (OECD) countries and other U.S. government departments and agencies, will spearhead efforts to modify disciplines on official export financing provided by OECD export credit agencies, to reorient financing away from carbon-intensive activities.

4. Making Capital Flows Consistent with Low-Emissions, Climate-Resilient Pathways

Financial markets are increasingly demanding investment opportunities that are consistent with low greenhouse gas (GHG) emissions and climate-resilient pathways Supporting the flow

of capital toward activities that are consistent with those pathways involves building an ecosystem of data, information, practices, and procedures that enable financial market actors to internalize climate-related considerations into their decisions. This concept is embodied in the Paris Agreement's Article 2.1(c) and has been widely embraced by financial policy makers and regulators around the world. The Treasury Department, in coordination with other U.S. agencies and regulatory bodies, as appropriate, will continue to promote improving information on climate-related risks and opportunities; identifying climate-aligned investments; managing climate-related financial risks; and aligning portfolios and strategies with climate objectives.

5. Defining, Measuring, and Reporting U.S. International Climate Finance

Drawing on over a decade of experience in tracking climate finance, the United States intends to ensure that our future reporting is on the cutting edge of transparency and evolves along with our strategic approach to climate finance. This will include more detailed reporting, tracking finance for vulnerable populations, and enhanced reporting on mobilization and impact.

The National Security Council staff will conduct a review of this Plan in FY 2023 to take stock of progress and assess whether changes are needed to increase ambition and impact.

To view the U.S. International Climate Finance Plan in your browser, click [here](#).



U.S. DEPARTMENT OF
ENERGY

2021 Climate Adaptation and Resilience Plan



Report to the White House
National Climate Task Force and
Federal Chief Sustainability Officer
August 2021

U.S. Department of Energy
2021 Climate Adaptation and Resilience Plan

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Cover photo credits (left to right): TOP ROW - Thunderstorm near Cuero, TX [Lance Cheung, United States Department of Agriculture (USDA)]. MIDDLE ROW - Western Area Power Administration’s tower after a storm [WAPA], Camillo Fire in Coconino National Forest [Liza Simmons, USDA Forest Service], inundated oil distribution equipment [DOE/Strategic Petroleum Reserve]. BOTTOM ROW - Selective undergrounding of overhead power lines [Consolidated Edison Inc.], National Renewable Energy Laboratory’s 1.5MW wind turbine behind a 450kW photovoltaic array [NREL], elevated substation [Entergy Corporation].

I. Climate Adaptation Policy Statement

This Climate Adaptation Policy Statement affirms the Department of Energy's (DOE) commitment to lead by example in Federal efforts to manage the short and long-term effects of climate change on the Department's mission, policies, programs, and operations. It also reaffirms the Department's goal to address the challenges in President Biden's Executive Order (E.O.) 14008 *Tackling the Climate Crisis at Home and Abroad*, as well as the focus on identifying the physical risks from climate change across government operations in Executive Order (E.O.) 14030, *Executive Order on Climate-Related Financial Risk*, by making climate adaptation and resilience an essential element of the work the Department does.

The mission of DOE is to ensure America's security and prosperity by addressing its energy, environmental, and nuclear challenges through transformative science and technology solutions. DOE works on the frontiers of scientific understanding and technical innovation to address the impacts of climate change by researching, developing, and deploying innovative and promising sustainable and resilient clean energy technologies.

DOE understands its mission is performed in an already changing climate. The Fourth National Climate Assessment reports that the nation will increasingly experience more frequent, intense, and longer duration extreme weather events across all regions of the country, including extreme temperature and precipitation events, stronger hurricanes and storm surge, and droughts and wildfires. The National Oceanic and Atmospheric Administration (NOAA) reports that damage costs are already significant. The year 2020 set an historic record, with 22 separate events each costing over a billion dollars in damages, and a cumulative cost exceeding \$95 billion dollars. For far too long, communities of color and low-income communities have borne the brunt of pollution to the air, water, and soil they rely on to live and raise their families; and under-served communities across the U.S. will be the hardest hit by climate impacts like extreme weather events. The transition to a clean economy must lift up these communities that have been left behind, and make sure those who have suffered the most are the first to benefit.

DOE remains committed to taking every available action to mitigate greenhouse gas (GHG) emissions to reduce the impacts of climate change. Further, we understand that we must adapt to these impacts and increase departmental resilience. Sustaining DOE's mission in this changing environment is dependent on DOE's ability to successfully identify aspects of climate change likely to impact its mission and operations, as well as its ability to respond strategically.

DOE will lead by example to achieve the President's mandate to both mitigate and adapt to climate change by setting ambitious goals, developing aggressive plans, and acting with urgency to execute those plans. The Department's plans will be informed by the best science and technical information to effectively translate these into actions. Climate change adaptation is a crucial component of a comprehensive response to climate change and DOE will – through this plan – develop approaches that ensure its mission, programs, policies, and operations remain effective for the American people in current and future climate conditions. In addition, the DOE Sustainability Plan will outline actions DOE will take to mitigate climate change through emissions reductions.

The Department's climate actions support the President's goals, including those articulated in E.O. 14008. The Department's approach will comprise of several adaptation strategies, such as reducing energy demand and increasing energy efficiency, increasing site and grid hardening and modernization, and enhancing the deployment of microgrids, distributed energy resources, and storage. In addition, sites and offices will conduct climate vulnerability assessments and develop resilience plans no later than one year from issuance of the Climate Adaptation and Resilience Plan and update these documents at least every four years.

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The Department's adaptation and resilience path forward will be shaped by the following guiding principles:

- Protecting DOE assets from climate change impacts by assessing its vulnerabilities, taking action to adapt to the changing environment, and making resilience a cornerstone of operations to ensure DOE has climate-ready sites.
- Using the scientific expertise and world-class research and development capabilities of DOE's National Laboratories to demonstrate promising adaptation technologies at DOE sites.
- Partnering with local communities so we may share in the benefits of DOE's climate adaptation, resilience, and energy and environmental justice initiatives.
- Leveraging DOE's purchasing power in collaboration with other Federal agencies to spur innovation, identify and reduce climate-related financial risk, enhance resilience, and expand the market for U.S. manufactured sustainable products and services, and promote well-paying union jobs on the path to a clean energy economy.

In addition to these guiding principles, the Department commits to implementing the performance goals and actions that are included in the Department's Climate Adaptation and Resilience Plan, and the Sustainability Plan which will be issued in the future. The Department will incorporate these actions, guiding principles and goals in our planning, operations, and budget processes, including where appropriate, identifying opportunities to realign resources and needs for new resources.

Furthermore, the Department will engage and share best practices with other Federal agencies through the National Climate Task Force, interagency working groups, and by joining or forging new collaborations with other agencies and stakeholders, as appropriate. DOE will continue to leverage its unique modeling, climate science expertise, policy, and engineering capabilities in collaboration with other agencies and institutions, to continuously improve our adaptation and resilience strategies. The Climate Adaptation and Resilience Plan will be updated as needed to capture new understandings and any mission changes in order for the Department to effectively address the climate crisis.

I am designating Ingrid Kolb, DOE's Chief Sustainability Officer as the senior level official responsible for coordinating implementation of the Climate Adaptation and Resilience Plan, and directing the Sustainability Steering Committee (SSC), comprised of senior leaders from the DOE program and staff offices, to coordinate implementation of this policy, identify and propose solutions to barriers, and provide any necessary guidance. Quarterly updates on our progress will be provided to DOE senior leadership.



Jennifer Granholm
Secretary of Energy

08/25/21

Date

II. Introduction

DOE recognizes that our country and the world are facing a climate crisis. DOE's mission of ensuring America's security and prosperity by addressing energy, environmental, and nuclear challenges through transformative science and technology solutions is vital to the nation's economic and national security. As outlined in E.O. 14008, *Tackling the Climate Crisis at Home and Abroad*, this Climate Adaptation and Resilience Plan, and Climate Adaptation Policy Statement build upon prior DOE actions taken to bolster adaptation and increase the resilience of DOE facilities and operations.

DOE works on the frontiers of scientific understanding and technological innovation to reduce GHG emissions and mitigate the impacts of climate change by researching, developing, and deploying innovative and promising clean energy technologies. With approximately 50 active sites, DOE has a variety of missions including environmental cleanup, scientific research and development, national nuclear security, power marketing, and more. DOE can only succeed in its mission if it can successfully identify risks, hazards, and vulnerabilities from climate change that have the potential to impact operations, as well as effectively define and implement appropriate adaptation and mitigation actions.¹

This plan addresses both climate adaptation and mitigation, which are complementary actions necessary for DOE to become more resilient, adapt to a changing climate, and reduce GHG emissions. This forward-looking plan identifies and prioritizes the Department's adaptation and resilience efforts to ensure DOE continues to achieve its mission. The actions described in this plan apply to all programs and facilities and will be updated as needed to capture any mission changes and reaffirm the Department's commitment to address the climate crisis.

DOE has identified five priority adaptation actions in this plan: (1) Assess Vulnerabilities and Implement Resilience Solutions at DOE Sites, (2) Enhance Climate Adaptation and Mitigation Co-benefits at DOE Sites, (3) Institutionalize Climate Adaptation and Resilience Across DOE Policies, Directives, and Processes, (4) Provide Climate Adaptation Tools, Technical Support, and Climate Science Information, and (5) Advance Deployment of Emerging Climate Technologies. In addition, this plan describes DOE's current and planned actions for the following specific topic areas: (1) Climate Vulnerability Assessments, (2) Climate Literacy in DOE's Management Workforce, (3a) Climate Resilience for Climate-Ready Sites and Facilities, and (3b) Climate-Ready Supply of Products and Services. The Department commits to incorporate these actions into our planning, operations, and budget processes, including where appropriate, identifying opportunities to realign resources and needs for new resources.

DOE has designated DOE's Chief Sustainability Officer as the senior level official responsible for coordinating implementation of the Climate Adaptation and Resilience Plan. The designee will work with other senior level officials within each organization and influence the Department's top priorities to ensure that all actions detailed in this plan are implemented. They will also coordinate with the White House Federal Chief Sustainability Officer, Interagency Environmental Justice Working Council, Interagency Sustainability Working Group, and others as appropriate to assist in the planning of and

¹ The DOE Climate Adaptation and Resilience Plan addresses adaptation, and emissions mitigation actions that have adaptation and resilience co-benefits. In addition, the DOE Sustainability Plan will outline actions that the Department will take to mitigate climate change through emissions reductions.

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reporting on DOE's climate-related actions. DOE will submit annual progress reports on implementation efforts to the National Climate Task Force and the Federal Chief Sustainability Officer.

III. Priority Adaptation Actions

This section of the plan provides a description of DOE's five priority actions including implementation, methods, challenges, timeline, and examples. Through the implementation of these priority actions throughout DOE's mission, programs, operations, and management of procurement, real property, public lands and waters, and financial programs, DOE will strive to ensure that climate change adaptation and resilience is achieved Department-wide.

PRIORITY ACTION 1: Assess Vulnerabilities and Implement Resilience Solutions at DOE Sites

Taking a proactive approach to climate change adaptation and resilience, DOE will reevaluate its vulnerability assessment processes, conduct and update site-level assessments, as well as develop and implement resilience plans. In this effort, each DOE site will identify its vulnerabilities by utilizing the latest climate science data and consulting stakeholders, and as needed develop resilience solutions that will roll up to the Departmental level to inform resource allocation and decision-making. This process will not only create a more climate resilient and adaptive Department but will in some cases enhance the resilience of neighboring communities.

IMPLEMENTATION METHODS

Review and Conduct Vulnerability Assessments: DOE will continue its efforts to understand potential climate-related impacts on its mission and operations and develop a framework to standardize the vulnerability assessment process. Thus far, DOE has completed screenings and assessments at 51 percent of sites. For instance, the Office of Legacy Management (LM), which performs long-term surveillance and maintenance of over 100 prior Manhattan Project and Cold War nuclear legacy sites in 36 states, is working with Lawrence Berkeley National Laboratory (LBNL) to perform a comprehensive analysis of climate change impacts and design/sustainment strategies to mitigate these impacts. LM's understanding of climate change risks and mitigation strategies related to its long-term mission is essential for the protection of current and future LM sites as well as the minimization of DOE's long-term environmental liability.

As noted in the Climate Adaptation Policy Statement, Program Offices will be required to conduct or update assessments and develop resilience plans at their respective sites within one year of issuance of the Climate Adaptation and Resilience Plan. These assessments and plans will be revised on at least a four-year cycle to include updated information, such as data from the latest National Climate Assessment (NCA). The Office of Asset Management's Sustainability Performance Division (SPD) will monitor progress and report to the lead Climate Official, Chief Sustainability Officer, and SSC.

To conduct vulnerability assessments, sites should utilize DOE's 2021 Vulnerability Assessment and Resilience Plan (VARP) guidance and related guidance such as DOE's 2017 screening guidance, *Climate Change Vulnerability Screenings* and 2015 assessment guidance, *Practical Strategies for Climate Change Vulnerability Assessments*. SPD will provide technical assistance during the assessment process, and at the end of this cycle of assessments, will update the guidance documents based on program feedback, including the incorporation of lessons learned. Throughout this process, SPD will work closely with the Program Offices to enable continuous learning by identifying common challenges and potential cost-effective resilience approaches, and sharing best practices and lessons learned.

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Within the VARP process, sites will account for a range of climate hazards for which they may be at risk. Detailed vulnerability assessments will consider multiplier effects (e.g., wildfires creating more hydrophobic soil) from compounding threats and the extent that vulnerabilities affect mission critical functions and operations. Assessments will be integrated with other site or laboratory planning documents, procedures, and policies. Throughout this process sites will evaluate the potential costs and consequences of inaction, both to DOE sites and external communities, including the assessment of energy and environmental justice communities' impacts. Sites will leverage community partnerships with utility providers, neighboring municipalities, external emergency response entities, tribal stakeholders, and others.

Plan, Prioritize, and Implement Resilience Solutions: As part of the VARP process, Program Offices and/or sites will develop resilience plans that identify site level resilience solutions. Resilience solutions should prioritize implementation by considering the number of key vulnerabilities mitigated, mission impact, and capital and operational costs and savings. For example, the Strategic Petroleum Reserve (SPR) conducted a Risk and Resilience Assessment that included an analysis of identified resilience solutions such as elevating equipment vulnerable to storm surge flooding, and SPR linked these vulnerabilities to their Life Extension – Phase II project, which supports actions to extend key equipment and infrastructure capabilities for another 25 years.

DOE sites continue to deploy a variety of resilience solutions addressing a range of climate threats. For example:

- Bonneville Power Administration (BPA) and Western Area Power Administration (WAPA) have developed Wildfire Mitigation Plans to address the risk of wildfires in the Pacific Northwest, Western, and Midwestern United States on electricity transmission lines they operate. These resilience plans help BPA and WAPA prepare and proactively manage the vegetation on their rights-of-way as well as monitor and maintain equipment to mitigate wildfire risks.
- The Office of Environmental Management (EM), which addresses the nation's Cold War environmental legacy through the largest environmental clean-up program in the world, is working to modernize the Savannah River Site's (SRS) electrical distribution system to improve resilience to power outages from extreme heat and storm events by updating and building more resilient transformers and associated equipment, insulator upgrades, pole replacements, grounding, transmission lines, and support towers.
- EM also worked with the Hanford Site on integrating procedures that call for work/rest protocols for extreme heat, limited off-road vehicle use during red flag days, and alert systems for storms/high wind events. The Hanford Site also continues to plant wildfire-tolerant vegetation and fire barriers, including adding firebreaks and performing additional dry tinder removal.
- The Office of Nuclear Energy (NE), which advances nuclear science and technology, is addressing threats of increased drought and higher summer temperatures at Idaho National Laboratory (INL) by undertaking major renovation efforts for laboratories to reduce energy usage by modernizing HVAC control systems and replacing old constant air volume hoods with variable air volume hoods. These efforts improve control of the pressure and temperature within each of the lab spaces, which enhances energy savings and personnel safety.
- The Office of Fossil Energy and Carbon Management (FECM), which is responsible for research and development of programs involving carbon-based fuels, direct air capture, and carbon

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capture and storage, is addressing the issues of energy and water resilience at its National Energy Technology Laboratory (NETL) through a variety of solutions including cooling tower renovations, boiler and chiller replacements, lighting upgrades, electrical vehicle charging stations expansion, and building upgrades for energy efficiency. With sites in Oregon, West Virginia and Pennsylvania, NETL operations are potentially vulnerable to a range of climate threats including drought, heat waves, and intense storms that can impact electricity demand and supply.

- The National Nuclear Security Administration (NNSA) is modernizing its infrastructure to be more resilient and to provide the capabilities and capacities for meeting the national security mission. Achieving this requires an array of complementary strategies including construction, short-term leases, and timely disposition of excess facilities. Revitalization efforts, energy efficiency measures, and standardized designs that incorporate resilience measures that address threats to NNSA’s national security mission.
- The Office of Energy Efficiency and Renewable Energy’s Water Power Technologies Office (WPTO) enables research, development, and testing of emerging technologies to advance next-generation hydropower and pumped storage systems for a flexible, reliable grid. WPTO, in coordination with Oak Ridge National Laboratory (ORNL) and Pacific Northwest National Laboratory (PNNL), oversees the development and release of an assessment and report to Congress in examining the potential effects of climate change on water available for hydropower at Federal facilities. WPTO’s 9505 Secure Water Analysis (SWA) is a response to Section 9505 of the SECURE Water Act of 2009 (*Omnibus Public Lands Act, Pub. L. No 111-11, Subtitle F*), which requested that the Department assess the effects of and risks from global climate change on water supplies for Federal hydroelectric power generating and marketing practice of the Federal Power Marketing Administrations (PMAs). WPTO is currently conducting a third nationwide assessment—on both the PMAs and non-Federal hydropower entities—to effectively develop tools that bridge climate science to actionable system intelligence. This study aims to assess future vulnerability and risk from drought, decreased snowpack, elevated river temperatures, and flooding. In the future, this work will form a baseline climate assessment to inform climate resilient Federal hydropower.

The Office of Sustainable Environmental Stewardship, within DOE’s Office of Environment, Health, Safety and Security, will continue to partner with SPD, the Program Offices, and sites to develop a sustainable and climate-ready sites initiative to recognize DOE sites that demonstrate leadership by improving performance in natural resource management, climate adaptation, resilience, and sustainability.

CHALLENGES & RISKS

DOE recognizes the importance of implementing resilience solutions to ensure that the Department can continue to fulfill its mission. DOE has a wide variety of sites located in varying geographic locations, each with a unique set of missions and environmental considerations. Some unique mission facilities may have safety requirements and operational demands that could complicate implementation of resilience solutions and will require further analysis to ensure optimal operations under changing climate conditions.

Many sites may not have staff with the knowledge to conduct an in-depth climate vulnerability assessment and develop resilience plans. To address gaps, DOE will provide technical guidance and

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support, advance climate literacy training, and use the best available tools to identify cost-effective resilience solutions. DOE has a well-established hazard assessment and adaptation process focused on its high-hazard nuclear facilities. This process ensures that the most critical facilities are well protected from climate risks, but this formal hazard assessment process is complex and costly. A challenge for DOE is leveraging its existing, robust system to improve the implementation of tailored risk adaptation and resilience across the Department. Another risk is the challenges of implementing resilience solutions. To address this, DOE will integrate the implementation of resilience solutions into the budgeting and contracting processes and assess the performance of deployed solutions to inform decision-making.

Conducting assessments, updating DOE guidance documents, and identifying and implementing resilience solutions will require thoughtful and strategic budgeting for resources. While DOE recognizes that the upfront cost of planning for and implementing resilience solutions may prevent future costs from climate-related damage, the execution of these activities is dependent on existing budgeting and contracting processes. DOE sites are primarily government owned and contractor operated through complex management and operations contracts. Within available resources, sites and operations deemed critical to DOE's mission and national security will be given priority.

PERFORMANCE TRACKING & COORDINATION

Initial metrics include characterizing presence or absence of climate hazards (e.g., coastal flooding, riverine flooding, heat, drought, land degradation, wildfire, and historical extreme weather events). Metrics will also measure whether site vulnerability assessments have been performed and if results are incorporated in planning, including site resilience plans. The Program Offices will be responsible for ensuring the quality of assessment processes and resilience plans at their sites and SPD and the Office of Sustainable Environmental Stewardship will provide technical assistance, as needed. SPD will track the percentage of sites that complete vulnerability assessments and resilience plans. Additionally, DOE sites and programs will track the implementation of resilience solutions as identified in the resilience plans. SPD will report on appropriate metrics to the lead Climate Official, the Chief Sustainability Officer, and SSC. Throughout the assessment and implementation process, DOE will coordinate with other Federal agencies to identify and share resilience solutions, lessons learned, and best practices. DOE will coordinate with tribal, state, and local governments, as well as other partners to plan and implement resilience solutions that may affect neighboring communities.

PRIORITY ACTION 2: Enhance Climate Adaptation and Mitigation Co-benefits at DOE Sites

DOE recognizes that climate change mitigation is a crucial complement to adaptation and resilience to successfully meet its research, environmental management, and nuclear security missions. The more that can be done to reduce GHG emissions, the less adaptation will be required. Many adaptation and resilience actions have mitigation co-benefits. For example, the deployment of renewable energy resources, such as solar photovoltaic electric systems, in combination with microgrids and storage can reduce vulnerabilities from power outages, while also reducing GHG emissions. Similarly, reductions in energy demand for site operations reduces vulnerability to reductions in power supply from extreme storm events, droughts and wildfires, and other climate risks, but also reduces GHG emissions. DOE will need to pursue a dual climate strategy that leverages the co-benefits of adaptation and mitigation actions, and ensures its mission, programs, policies, and operations remain effective in current and future climate conditions.

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DOE is committed to leverage the co-benefits of adaptation and mitigation actions to both enhance resilience and achieve net-zero GHG emissions. DOE will accomplish this through comprehensive operational planning, implementation of strategic projects, use of DOE procurement mechanisms to purchase low carbon footprint products, and ongoing monitoring of progress. 85 percent of DOE's Scope 1² and 2³ GHG emissions are from energy use in facilities and the rest are from industrial processes, fugitive sources, and fuel use in fleet vehicles and equipment. Plans to manage these sources will drive operational changes as well as resource allocation across DOE. Adaptation/mitigation strategies include reducing energy and water use, transitioning to clean on-site energy sources and microgrids, electrifying DOE's fleet and facilities, reusing on-site water resources, and managing DOE lands and property to retain water and preserve carbon-storing vegetation, enhancing the use of green infrastructure, and minimizing risk to energy transmission, distribution, and support systems.

In addition, DOE will pursue enhanced electrification in an integrated manner with other objectives such as improving site and grid resilience. Furthermore, DOE will identify approaches to enhance electrification with carbon pollution-free electricity while also decreasing energy use and reducing GHG emissions. DOE's planning efforts will account for both current conditions and evolving future conditions due to climate change. Within one year, the Program Offices will prioritize energy efficiency and identify net-zero emission on-site projects.

IMPLEMENTATION METHODS

DOE has already reduced its Scope 1 and 2 GHG emissions by 52 percent from FY 2008 through aggressive energy management and has identified further opportunities for the reduction of Scope 1, 2, and 3 emissions. DOE will focus on four key implementation strategies to enhance climate adaptation and mitigation efforts.

Reduce Energy and Water Use in Facilities: To carry out facility related energy and water reductions, DOE will take a strategic approach that includes optimizing DOE's facility footprint to support a flexible workforce, prioritizing the implementation of energy and water efficiency and conservation measures (ECMs), focusing on grid-interactive and net-zero emission buildings, and transforming a diverse set of DOE sites into net-zero emission testbeds. DOE recognizes that it may need to increase electricity use to replace site-delivered fossil fuels and will pursue on-site generation, efficiency, and electrification as pillars of an adaptation and decarbonization strategy. To optimize space for a flexible workforce, DOE will consolidate buildings where feasible and reconfigure space to support alternative workspace solutions. DOE will prioritize ECMs that upgrade legacy HVAC, lighting, and control systems, particularly for energy-intensive operations. DOE will work to expand initiatives such as the Smart Labs Accelerator⁴, creating re-tuning training, and increasing the number of net-zero emission buildings (e.g., National Renewable Energy Laboratory's Research Support Facility) to accelerate progress toward the Administration's and DOE's goals.

One facility exemplifying energy reduction is LBNL's Integrative Genomics Building, a sustainable laboratory built to utilize 70 percent less energy than its predecessor facility. This building includes

² Scope 1 emissions are direct GHG emissions that occur from owned or controlled sources (e.g., on-site electricity generation, fugitive emissions, owned vehicles).

³ Scope 2 emissions are indirect GHG emissions associated with purchased energy (e.g., purchased electricity, heat, or steam).

⁴ The Smart Labs Accelerator is a FEMP and Better Buildings initiative that helps optimize energy, water, and waste use in laboratories.

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passive design strategies such as electric heating systems with air and waterside heat recovery, which reduces the carbon footprint for heating by about half compared to a natural gas boiler system, while also enhancing resilience by lowering both the energy and water footprint, thereby reducing vulnerability to power outages and drought related water restrictions.

Deploy Clean Energy Sources and Modernized Infrastructure: DOE will accelerate its recapitalization programs to modernize its energy infrastructure and facilities to enhance resilience and reduce GHG emissions. The Office of Electricity (OE), which ensures the delivery of secure, resilient, and reliable energy across the nation, will continue to lead the effort to strengthen, transform, and improve energy infrastructure so consumers, including DOE, have access to resilient, secure, and clean sources of electricity. In addition, the Department's Grid Modernization Initiative, which coordinates electric grid-related research and development across the offices of OE, FECM, NE, Energy Efficiency and Renewable Energy (EERE) and Cybersecurity, Energy Security, and Emergency Response, will be updated within the year. The strategy includes an all-hazards approach to characterize and implement system resilience by considering infrastructure interdependencies, diversity in generation sources, and supply chains against emerging multifaceted threats (i.e., physical, cyber, extreme weather, pandemic, wildfire, geomagnetic disturbance, and earthquake). Outcomes include a full threat-to-consequence characterization of various resilience tradeoffs; a value-based approach to resilience decision-making that serves the U.S. government, private sector, and other stakeholders; and software tools that identify and quantify the costs and benefits of proposed resilience investments.

Within one year, the Program Offices, with support from SPD as needed, will finalize priority sites for large-scale distributed energy deployment and recapitalization plans. Furthermore, DOE will ramp up the installation of on-site clean distributed energy resources for both electric and thermal needs by:

- Installing on-site renewable energy sources, such as Lawrence Livermore National Laboratory's (LLNL) 3.3 megawatt (MW) Solar Center, as well as expanding deployment of systems that integrate renewable generation and storage that both lower GHG emissions and enhance resilience.
- Assessing, and where appropriate, reenergizing existing partnerships (e.g., DOE's Partnership for Energy Sector Climate Resilience) with utilities that are committed to addressing climate adaptation and mitigation opportunities as well as interested in collaborating with DOE to identify and deploy approaches to enhance climate resilience of DOE programs and site operations, as well as transition DOE sites to carbon pollution-free electricity use, with adaptation co-benefits (e.g., use of site-based distributed renewable energy technologies in combination with storage and microgrids to allow operations during central power outages).
- Partnering with utility providers to expand large-scale renewable and carbon-free energy systems using power purchase agreements and other procurement mechanisms. For example, the Northern California Electric Power Consortium and WAPA are creating a 50 MW solar power purchase contract, which will increase use of on-site clean pollution-free electricity, and provide off-grid electricity supply to enhance resilience to power outages.
- Assessing the potential to deploy small modular reactors (SMRs) and microreactors to decarbonize DOE's electricity supply, and power large energy consuming facilities. NE will develop and demonstrate technologies to improve the flexibility of these reactors. Distributed networks powered by SMRs or microreactors could provide reliable clean electricity to sites and

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surrounding communities, while transitioning away from fossil fuel resources, and avoiding the intermittent nature of certain renewable energy technologies.

Improve Ecological and Land Use Management: E.O. 14008 requires that Federal agencies identify strategies that will encourage broad participation in the goal of conserving 30 percent of the Nation’s lands and waters by 2030. DOE manages over two million acres of land, over half of which is comprised of vegetated or forested land. In these areas, DOE will continue to advance its ecological and land use management practices as a tool to enhance resilience (e.g., reduce wildfires) and to mitigate GHG emissions (e.g., provide additional carbon storage benefits). A significant portion of DOE land is either withdrawn Federal land or borders land held by Federal or state governments and natural resource-management agencies. DOE will coordinate with these stakeholders as well as tribes to promote effective management of ecosystems on contiguous lands, and to collaborate and share knowledge.

Implementation will prioritize the preservation and restoration of ecosystem appropriate forest cover, native grasses and forbs, and other indigenous plants to reduce fire risks to DOE sites and to encourage longer-term storage of carbon in biomass and soils, which also have the benefits of controlling destructive invasive species and providing wildfire protection. One example of improved ecological land management is ORNL’s certified arboretum. The arboretum spans 26 acres of ORNL’s west campus and contains 52 different species of trees native to Eastern Tennessee. These native trees have adapted to the landscape and require less water than non-native species, promoting resilience. Another example of beneficial land use management is LM and the University of Wyoming’s 3-year Regenerative Grazing Study, which supports optimizing land use for grazing across LM sites and demonstrates that healthy land management practices, such as regenerative grazing, allow soils to capture more carbon as well as promote healthier vegetation and ecological systems. By optimizing grazing practices, LM is advancing long-term stewardship of the land and improving habitats for local species, helping promote site resilience.

The Office of Sustainable Environmental Stewardship will monitor and report progress on restoration and maintenance plans based on site provided Annual Site Environmental Reports and other sources as well as recognize high-performing DOE sites through the Sustainable Climate-Ready Sites Program. Within one year, Program Offices and sites will update site-level land management plans to include carbon storage considerations and initiate regular reporting on restoration and maintenance.

CHALLENGES & RISKS

The main challenges to implementing this priority action are funding prioritizations, energy-intensive mission growth and related operational processes, and Federal infrastructure development timelines. Significant and sustained capital investments will be required to upgrade building systems and infrastructure and deploy resilient energy and water technologies. Performance contracts will be leveraged where possible but are not always cost-effective due to low utility costs at most DOE sites. DOE has various energy-intensive loads that are driven by mission and operational requirements (e.g., supercomputers, particle accelerators, waste treatment facilities) and relies significantly on off-site electricity providers that employ a range of energy sources, including coal and natural gas. DOE will need to collaborate with these utilities to transition to carbon pollution-free energy sources. Finally, it can be difficult to forecast deployment timelines for large-scale infrastructure projects to increase on-site energy and water resilience and reduce GHG emissions due to uncertainties in the regulatory processes, funding cycles, and the need to integrate the energy and environmental justice concerns of neighboring communities, tribes, and other relevant stakeholders. The key to managing this action

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includes effective and thoughtful planning approaches, streamlining processes where possible, and sharing lessons learned across DOE and with other agencies.

Climate change poses a risk to DOE with the potential to hinder the Department's mission and substantially increase the operational costs. For example, higher average temperatures in some regions have the potential to increase energy use for HVAC systems and strain transmission and distribution infrastructure. The implementation of effective climate strategies must not only increase the resilience of DOE sites to climate impacts but also reduce the Department's GHG emissions. New on-site distributed energy systems and ECMs that optimize energy use will enhance resilience against utility disruptions. New facility and infrastructure will be designed and sited to account for increased exposure to hazards, such as wildfires. Institutionalizing a clear and consistent approach to resilience planning will help ensure that DOE's programs are prepared to manage these risks.

PERFORMANCE TRACKING & COORDINATION

Performance metrics will be reviewed and updated to reflect evolving understanding of observed and anticipated climate impacts to enhance climate adaptation and mitigation co-benefits at DOE sites. Metrics will track progress in enhancing resilience as a co-benefit of reducing energy and water use, enhancing use of carbon pollution-free electricity, and improving land management. Program Offices will take the lead in planning, prioritizing, and implementing strategies at their respective sites to achieve the Department's goals. Performance will be tracked by the SPD using tools such as the Sustainability Dashboard. The Department will emphasize continuous learning by identifying common challenges and potential cost-effective approaches and sharing best practices and lessons learned. DOE is a national leader in energy technology, research, and policy, and will both leverage this expertise in its own operations and share best practices across DOE and with other agencies. DOE will also rely on lessons learned from its sites and other agencies to avoid duplication of effort and to accelerate deployment. For example, DOE will leverage space management and employee travel reduction strategies from the General Services Administration (GSA) as well as carbon storage and land management expertise from the Department of Agriculture and Department of Interior. DOE will consult with the Department of Defense (DoD) for lessons learned through DoD's Energy Resilience and Conservation Investment Program.

PRIORITY ACTION 3: Institutionalize Climate Adaptation and Resilience Across DOE Policies, Directives, and Processes

To ensure the Department operates in a consistent and efficient manner, DOE orders, directives, and policies must be updated to institutionalize climate adaptation and resilience actions across the complex while also addressing energy and environmental justice impacts. DOE commits to integrate climate information that reflects the current understanding of global climate change into its mission, programs, and management functions and decision points for managing its procurement, real property, public lands and waters, and financial programs including where appropriate, identifying opportunities to realign resources and needs for new resources. DOE will accomplish this through comprehensive operational planning, implementation of strategic projects, use of DOE procurement mechanisms to purchase products and services that are resilient and have a low carbon footprint, and ongoing monitoring of progress. DOE will map out entry points of climate information into management functions and responsibilities that effect funding or contracts. DOE will identify opportunities to incorporate climate criteria in grant and loan program solicitations. DOE will establish formal standards

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and processes to ensure that policies and directives are implemented in a comprehensive and consistent way that integrates climate adaptation and resilience into Departmental guidance for standard operating procedures, including clear direction to DOE operating contractors.

DOE's facilities face an increasing risk of disruption to programs, operations and damage to real property due to a changing climate. Institutionalizing clear and consistent requirements for assessing and addressing these risks will help ensure that everyone at DOE understands the actions they need to take and are held accountable for implementing those actions. This will help with establishing and institutionalizing a common, Department-wide climate action approach to programs and operations, and allow for the sharing of tools, techniques, and success stories across the complex.

IMPLEMENTATION METHODS

DOE will institutionalize and integrate climate action into its culture by incorporating requirements and responsibilities into all appropriate orders, directives, policies, and processes.

Implement Building Standards and Codes: DOE's Office of Project Management Oversight and Assessment (PM) will develop a requirement that all new construction and major renovation projects meet or exceed the latest building standards and codes as set by ASHRAE 90.1, where appropriate. DOE will also review the new Federal building codes expected in summer of 2021, as well as other building energy standards and codes, such as the International Energy Conservation Code and International Building Code, to further promote climate action and determine the feasibility of making those codes mandatory for all new building construction at DOE. As an example, DOE is currently using the 2013 version of ASHRAE Standard 90.1, as required by Federal energy efficiency performance standards (10 CFR §433) and will consider accelerating the adoption of ASHRAE Standard 90.1 for new DOE buildings. By September 2021, PM will examine the feasibility of mandating the most recent ASHRAE standard for new construction, and if appropriate, will work through DOE's Directives Review Board (DRB) to institute any necessary changes by December 2021.

Develop Climate-Oriented Procurement Clauses: DOE's Office of Acquisition Management will lead the effort to review standard contract procurement clauses (e.g., "H" clauses) and identify opportunities to add or modify boiler plate contract language to establish clear climate action requirements (i.e., to be consistent with the Climate Adaptation Policy Statement). This includes requirements for contractors and suppliers to employ climate resilience and carbon footprint considerations, increased energy efficiency, use of carbon pollution-free electricity, and transition away from fossil fuel usage. The Office of Acquisition Management will work with other DOE offices to develop viable language for these "H" clauses, as necessary, by March 2022.

Integrate Climate Action Requirements into Established DOE Processes: SPD will partner with the Office of Sustainable Environmental Stewardship to integrate climate action requirements or standards into existing and applicable management systems and processes (e.g., DOE's 50001 Ready Program⁵, ISO 14001⁶, resilience and hazard assessment processes). In addition, DOE will integrate climate action

⁵ The 50001 Ready Program is a free, self-guided approach based on the principles of the ISO 50001, an international standard for managing and improving energy use.

⁶ ISO 14001 is a framework used to set up an effective environmental management system that ensures environmental impacts are being measured and improved. DOE requires the use of ISO 14001 certified or compliant processes at all of its operating facilities.

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considerations into the Department's planning, programming, budgeting, and evaluation process and guidance.

Update DOE Directives and Technical Standards: By leveraging the Office of Sustainable Environmental Stewardship's Directives Resilience Gap Analysis report, the Office of Asset Management will lead the review of DOE directives and technical standards to identify areas to incorporate climate action requirements, including updates to contractor requirements. The Office of Sustainable Environmental Stewardship will provide support, as needed. They will then collaborate with each directive/technical standard's proponent office and DRB to establish proposed climate action language and develop timelines for updates. The directives to be reviewed will include, at a minimum, DOE Orders 150.1A (*Continuity Programs*), 413.3B (*Program and Project Management for the Acquisition of Capital Assets*), 430.1C (*Real Property Asset Management*), 436.1 (*Departmental Sustainability*), and 483.1B (*DOE Cooperative Research and Development Agreements*). The Office of Asset Management and Office of Sustainable Environmental Stewardship will work to identify additional DOE directives appropriate for incorporating climate action by September 2021 and will work with DRB to incorporate such updates by December 2022.

Define and Communicate Resilience Roles and Responsibilities: DOE will ensure that management has clearly defined and communicated organizational roles and responsibilities regarding who is responsible and accountable for assessing vulnerabilities of climate risks to site infrastructure and operations, as well as providing oversight and accountability for achieving resilience goals. DOE will pursue management practices that include: (1) Ensuring that management's roles, responsibilities, and accountability for resilience are clearly defined, communicated and understood; (2) Embedding resilience considerations into policies and risk management systems to guide day-to-day decision-making; and (3) Approaching management decisions with full consideration of the impacts of disruptions to operations and infrastructure from climate change risks. To further integrate climate action into management functions, DOE will require Program Offices and sites to assign senior level managers to ensure the execution and integration of the Climate Adaptation and Resilience Plan, and Climate Adaptation Policy Statement initiatives into programs and operations.

CHALLENGES & RISKS

Establishing an ambitious and reasonable schedule for incorporating climate action requirements into all appropriate directives/orders will require close coordination with the DRB, which manages this process and sets priorities and timelines determining when directives can be updated. Revising multiple updates may be a challenge as each directive will undergo a formal process involving extensive coordination and concurrence. Another challenge will be the potential for competition/conflicts between climate-related provisions and other requirements, and operational drivers, which DOE will need to address in contract deliverables and performance tracking.

While the primary action of modifying policies, directives, and processes will involve extensive coordination across many DOE organizations, this can be accomplished using established in-house personnel and resources. However, as climate action requirements are institutionalized, DOE will need to consider how to balance desired outcomes with available funding and personnel resources.

PERFORMANCE TRACKING & COORDINATION

Performance metrics will be reviewed and updated to reflect evolving understanding of observed and reasonably foreseeable climate impacts and the need to modify and institutionalize climate adaptation and resilience across DOE policies, directives, and processes, as well as ensure accountability through

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DOE's leadership chain. DOE anticipates coordinating with other Federal agencies to exchange information on relevant climate-related policies, directives, and best practices to use for reference. DOE will define the work to be accomplished and create milestones to track progress on a quarterly basis.

PRIORITY ACTION 4: Provide Climate Adaptation Tools, Technical Support, and Climate Science Information

The Department will increase access to adaptation tools, technical support, and climate science for DOE sites and their surrounding communities, as well as other Federal agencies and tribal and local governments, to improve climate readiness and overall resilience posture. These strategies build upon existing efforts to disseminate available resources and develop and distribute additional tools, resources, and training. In addition, efforts to increase adaptation and resilience of surrounding communities enhances the resilience of DOE's operations by ensuring the safety and health of the workforce that lives in nearby communities, encouraging employees to consider resilience in their personal lives, developing emergency preparedness plans, as well as adopting other practices that can contribute to enhanced resilience.

IMPLEMENTATION METHODS

Building Codes for Resilience: DOE's Building Technologies Office (BTO) and the Federal Energy Management Program (FEMP) will provide technical assistance to DOE sites in the adoption of updated building codes that increase energy efficiency and resilience requirements. Specific areas of focus will vary by climate hazard risks drawn from DOE's vulnerability assessment tools. BTO and FEMP will coordinate with GSA and other Federal agencies to ensure a standardized definition and consistent approach are used across DOE sites regarding resilient building codes for Federal buildings. In addition, as directed by the Energy Conservation and Production Act (42 U.S.C. § 6834), FEMP will update Federal standards based on model code revisions to align with BTO's life-cycle cost-effectiveness methodology. FEMP will utilize model code updates to continually improve Federal energy efficiency standards, which is consistent with the Administration's goal to increase the energy efficiency of Federal buildings. More efficient buildings are less vulnerable to anticipated temperature fluctuations due to climate change.

BTO's Building Energy Codes Program (BECF) will assist DOE sites and surrounding communities with the adoption of the latest building codes and the implementation of code improvements. With support from the PNNL, BECF currently tracks state building energy codes adoption across the nation and is exploring opportunities to encourage building code adoption within cities and local jurisdictions, which could be used to assess progress.

High Performance Computing (HPC) Systems for Climate Simulations and Local Adaptation Planning: To address climate risks, DOE must ensure that sites have actionable and localized climate science data. Argonne National Laboratory (ANL) will adapt a high resolution dynamically downscaled climate model using its own HPC resources. The downscaled climate dataset covers the entire North American continent and has been used for studies on climate hazards and impacts. ANL will develop demonstration assessments for a few DOE facilities that can be used as a template for the rest of the DOE complex. ANL will also establish an online platform for sharing this data across DOE so that other sites can model climate vulnerabilities and impacts and identify local adaptation and resilience solutions.

DOE Climate Vulnerability Assessment Tools, Resources, and Training for Sites and Local Communities: FEMP will continue to provide support for its publicly available tools and resources, including the Technical Resilience Navigator (TRN). The TRN provides a systematic approach for sites to identify

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energy and water resilience gaps, develop and prioritize solutions that reduce risks, and meet climate change adaptation and resilience goals. For example, PNNL utilized the TRN to identify risks to energy and water loads serving mission critical functions from vulnerability assessments and hazard assessments for its Richland campus. FEMP will provide pilot applications, cohort support, and workshops beginning in 2021 to help sites implement the TRN and identify and mitigate mission critical risks. This effort will leverage the localized climate data from ANL and FEMP and help ensure that DOE sites are aware of additional resources, such as REopt Lite⁷ and 50001 Ready Program. The progress of DOE's TRN cohort will be evaluated based on the identified risks and solutions to address any resilience gaps for each site. Once measures to address these gaps have been implemented, the improvement in site resilience posture can be evaluated.

DOE's OE provides tools (e.g., Dynamic Contingency Analysis Tool⁸) and training related to grid infrastructure resiliency. OE will work with DOE sites and local communities to advance climate threat-based risk assessment and prioritization methods for grid planning processes, improve asset management practices, and pilot or validate these approaches at a DOE site. Additionally, mechanisms to incorporate climate risk assessment into the utility planning process are currently being analyzed by DOE and other parties. OE will partner with the PMAs, which operate and transmit energy of Federal hydroelectric dams, and DOE sites to establish a standardized process to assess the risk of drought and other extreme weather events to Federal operations and grid infrastructure which will take two or more years to develop and institutionalize.

The Office of Asset Management and Office of Sustainable Environmental Stewardship will lead the development of virtual and in person training for sustainable acquisition, fleet electrification, environmental management systems, climate change threats and solutions, and other sustainability topics in FY 2022. They will also work with DOE sites to ensure they are aware of the tools and resources available to assist with resilience planning.

Provide Adaptation and Resilience Support for Energy and Environmental Justice Communities Near DOE Sites: For far too long, communities of color and low-income communities have borne the brunt of pollution to the air, water, and soil they rely on to live and raise their families. The clean energy revolution must lift up these communities that have been left behind, and make sure those who have suffered the most are the first to benefit. By providing climate adaptation and resilience support for energy and environmental justice communities near DOE sites, the Department will advance priorities related to climate resilience, equity, and energy and environmental justice. In addition to ongoing efforts by EM and LM, the Office of Economic Impact and Diversity (ED) will collaborate with local leadership and stakeholders, and provide technical assistance and training deemed most critical by the energy and environmental justice community. DOE will develop a process for sharing relevant tools and resources that ED will use to facilitate impactful discussions with energy and environmental justice community stakeholders.

The progress of efforts to support energy and environmental justice communities in advancing climate adaptation and mitigation measures will be analyzed through feedback from community leaders and stakeholders. In addition, DOE will utilize metrics such as the number of projects completed and

⁷ REopt Lite is a tool to assist with identifying the optimal mix of renewable energy, conventional generation, and energy storage technologies for buildings campuses and microgrids.

⁸ The Dynamic Contingency Analysis Tool assists with assessing the impact and likelihood of extreme contingencies and potential cascading events across power systems and interconnections.

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stakeholders impacted and analyze the enhanced resilience posture to demonstrate the efficacy of efforts. Analyses of health and economic benefits will also be performed to enable a broader understanding of the project's impact.

CHALLENGES & RISKS

The challenges related to the implementation of tools and training include the identification and engagement of appropriate stakeholders, development of an outreach plan to help sites take the time during these processes to foster trust with local communities, and the availability and time commitment of participants. Additionally, climate data training is needed to inform decision-making on climate impacts and adaptation.

Mission disruptions may occur due to climate hazards and could result in disruptions to infrastructure and information, such as specialized scientific facilities, data holdings, HPC/data centers, LM sites, national laboratories, and energy/water systems. By providing climate adaptation tools, technical support, and climate science information on adaptation and resilience, DOE sites and surrounding communities can better understand, manage, and mitigate climate risks.

Within available resources, DOE will update and share climate adaptation and resilience methods and tools, with DOE sites, local communities, tribal and local governments. For example, the initial TRN cohort of DOE sites is planned as part of the existing budget; however, implementation of the TRN across the DOE complex will require additional resources or strategic prioritization of available resources. Furthermore, DOE will evaluate resource needs to develop an online platform to deliver the localized climate dataset to the respective DOE site assessment teams, to analyze models and to develop demonstration assessment studies.

PERFORMANCE TRACKING & COORDINATION

To advance this priority action, DOE will create metrics to track performance on a quarterly basis. Metrics will allow tracking of progress in developing and providing climate adaptation tools, as well as providing technical support and climate science information for adaptation and mitigation. DOE will coordinate with tribal, state, and local governments, as well as with other Federal agencies, such as the National Aeronautics and Space Administration and NOAA for climate and extreme weather information, to provide communities near DOE sites with the information and resources necessary to implement climate adaptation and mitigation measures. DOE will explore the use of various Federal mechanisms for sharing information, such as the Federal Climate Resilience Toolkit, as potential vehicles to increase access to DOE climate adaptation tools, technical support, and climate science information.

PRIORITY ACTION 5: Advance Deployment of Emerging Climate Resilient Technologies

DOE will increase climate adaptation and resilience across its sites by demonstrating and deploying cost-effective climate resilient and carbon pollution-free energy technologies. In addition, DOE will assess practices to enhance the purchase of low carbon footprint products and services. The Department is currently advancing research and development programs for climate technologies at its national laboratories and identifying opportunities to use its sites to demonstrate the effectiveness of these innovative technologies and practices. DOE could increase climate performance at its sites by leveraging research, development, and demonstration programs being pursued at the Department. In addition, using DOE sites as testbeds can accelerate the deployment of these technologies and practices throughout the Federal government and private sector.

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DOE will partner with stakeholders such as local and state governments, universities, and community organizations to ensure these technologies are made available nationwide, including for disadvantaged communities and populations. The dissemination of technologies beyond the DOE complex will help increase accountability through more robust climate change adaptation and mitigation actions and efforts to elevate, support, and increase access for disadvantaged communities and populations, such as black, indigenous, and people of color (BIPOC). By scaling up the development and deployment of the resilient and clean energy technologies of the future, DOE will help put Americans in construction, skilled trades, and engineering to work—building a new clean energy infrastructure and economy, while making sure that every American worker and community can benefit from and see their future in reliable, resilient, clean energy solutions.

IMPLEMENTATION METHODS

Develop, Demonstrate, and Deploy Innovative Climate Technologies: DOE will use its sites as testbeds to pilot innovative climate adaptation and mitigation technologies that improve both grid and climate change resilience as well as reduce GHG emissions. These demonstration projects will involve the advancement of climate technologies with site-specific energy/water resilience components such as new microgrids, power delivery systems, microreactors, water reuse systems, and gray water systems for landscaping. For instance, EERE will use the National Renewable Energy Laboratory (NREL) as a testbed for electric vehicles with a goal of electrifying 100 percent of NREL’s fleet within two years—contributing to both reductions in transportation fossil fuel use, as well as enhanced site resilience by leveraging electric vehicle battery storage as a backup power source. NREL will draft a report, using the information gathered from this pilot, to help other DOE sites and Federal agencies prepare for fleet electrification by understanding potential issues. The Waste Isolation Pilot Plant (WIPP) is working to convert all underground vehicles to be electric. This will provide a showcase for electric vehicle conversion for industrial vehicles, while simultaneously increasing underground air quality, worker safety, and operational efficiency, as well as potentially increasing resilience by leveraging the battery storage capacity for backup generation. WIPP will also investigate the possibility of electric long-haul trucks for its waste transportation fleet. Another example is that DOE’s Energy Assurance for Critical Infrastructure program and SNL are looking to deploy a microgrid in collaboration with Kirtland Air Force Base.

DOE will pursue the resilient net-zero challenge with demonstration projects at sites with a variety of missions, geographical diversity, and different energy sources. The goal of this approach will be to develop and demonstrate innovative, regionally dependent carbon-neutral and climate resilient solutions at varying scales and operating conditions that result in adaptation and mitigation benefits. The demonstration projects will develop a common framework for addressing the net-zero challenge, leverage lessons learned and best practices, and expand opportunities for technology and information transfer across the DOE complex and private sector to advance zero-emission deployment in the marketplace. Transitioning to zero emissions, using technologies such as on-site distributed renewable energy generation as well as the use of more energy efficient equipment will not only reduce energy consumption and emissions, but also reduce impacts from climate change on energy demand and supply. NE is advancing technologies to improve the flexibility of nuclear plants, including SMRs and microreactors, and provide energy resources that contribute to enhanced adaptation and mitigation. Additionally, NETL will assess opportunities for climate technologies that could be deployed at their campuses and could hold on-site demonstrations for technology transfer. Furthermore, working with the responsible Program Offices, ED will assess the feasibility of using DOE sites as resilient hubs for

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disadvantaged communities, in partnership with relevant stakeholders, including community organizations, minority serving institutions, and governmental authorities. For instance, these hubs will provide a safe space for DOE employees and the surrounding community when faced with severe climate threats. Once completed, successful solutions from these demonstration projects will be deployed at other DOE sites. DOE Program Offices managing site locations will track progress toward their respective technology demonstration and deployment projects.

Increase Awareness of Cost-effective Resilient Technologies: To promote energy and environmental justice, DOE will increase awareness at its sites and neighboring environmental justice communities on carbon neutral and cost-effective resilient technologies as well as affordable clean energy solutions. For example, LANL is already working with DOE science and energy programs to create economic opportunities for surrounding communities. Additionally, DOE will create an entrepreneurial pipeline to accelerate the development of emerging climate change technologies within energy and environmental justice communities by providing educational opportunities such as internships. ED will identify communication strategies and assess existing opportunities for resources and internships for neighboring energy and environmental justice communities and BIPOC by September 2022.

CHALLENGES & RISKS

Technology demonstration and deployment can take years to successfully mature. Additionally, demonstration and deployment projects can be resource and budget intensive. Throughout the demonstration process, various DOE programs and offices must coordinate to address challenges. Challenges to establishing an entrepreneurial pipeline for neighboring energy and environmental justice communities and BIPOC include engaging with a large set of communities, defining, and identifying who fits in this space.

Demonstrating innovative climate technologies and conducting educational activities will be a lengthy process. Additionally, developing demonstration projects will require resources including facilities, time, and availability of employees. For certain demonstration projects, new facilities and modifications to existing facilities will be necessary.

PERFORMANCE TRACKING

To track the progress of deployment and demonstration projects, DOE will measure the number of tests or demonstrations initiated, technological advancements in climate readiness, impact of stakeholder outreach, and improvements in the resilience of DOE sites to anticipate climate change impacts as a result of innovative facility and infrastructure projects. For example, over the next five to seven years, NE will build several nuclear demonstration projects and nuclear test beds. As DOE works to develop the entrepreneurial pipeline, DOE will assess metrics such as the number of people gaining access/assistance, number of educational opportunities, number of connecting events (e.g., ARPA-E Energy Innovation Summit), dollars provided to support development of climate change technologies, and number of weighted opportunities to support BIPOC technology development.

IV. Specific Topic Areas

SPECIFIC TOPIC 1: Update Climate Vulnerability Assessments

Climate change can result in cascading events, disrupting supply chain transportation routes, causing energy and water system shutdowns, resulting in less-suitable conditions, and so much more. These potential impacts put DOE's mission and physical assets at risk. DOE has identified its top five vulnerabilities to be the following: (1) workforce, (2) supply chain and distribution, (3) energy and water systems, (4) mission specific operations and equipment, and (5) real property and physical assets. Multiple factors were considered in identifying these vulnerabilities, including the types of climate change hazards and the associated vulnerabilities to critical DOE infrastructure and operations, scaling considerations associated with DOE-wide hazards and vulnerabilities, and likelihood or severity of damage of disruption given a climate event. To address these vulnerabilities, DOE will implement a Department-wide approach to ensure that the overall mission is not impacted and SPD will work with the Program Offices to identify major vulnerabilities. Conducting vulnerability assessments and the development of resilience plans will ensure that site-level vulnerabilities are identified and addressed. These activities will be completed within one year of the issuance of this Climate Adaptation and Resilience Plan.

DOE'S TOP FIVE VULNERABILITIES

Workforce: Regardless of region, DOE's workforce must adapt to rising temperatures, extreme weather events, and a rising number of epidemics and pandemics. These climate hazards can affect employee health and result in workforce inefficiencies, site evacuations, and inability to perform daily operations. If left unaddressed, DOE may experience a decline in productivity or an inability to perform mission critical tasks. DOE's outdoor workforce is particularly vulnerable to the climate hazards identified above. Within vulnerability assessments, sites with an outdoor workforce will identify policies and actions to increase employee health and safety, and limit workers' exposure to extreme conditions. The Office of Environment, Health, Safety and Security will assist with integrating climate-related risks into existing health and safety protocols and processes.

To address these types of challenges and modifications to worker health and safety conditions, DOE will coordinate with workers and site unions. Additionally, Program Offices and sites will procure equipment to increase workforce health and safety, reducing the effects of outdoor exposure, as needed. At DOE's Hanford Site, ice vests are utilized to increase employee comfort and reduce heat stress. Barriers to these proposed adaptation strategies include prioritization of equipment procurement or work schedule changes, workforce opposition to shifting schedules, and potentially impractical operation schedules for the work and logistics performed at the site.

Supply Chain and Distribution: Extreme weather events (e.g., hurricanes and extreme storm events) or events associated with a warming climate (e.g., wildfires and sea level rise) can impact transportation and manufacturing infrastructure and result in supply chain disruptions of mission critical supplies. Failure to address these climate hazards can result in work disruptions and inhibit mission critical operations. To reduce the risks of climate hazards on supply chains, sites will identify vulnerabilities related to transportation and distribution disruptions within their vulnerability assessments. These vulnerability assessments will also identify alternative procurement opportunities to diversify supply chain sources and alternative distribution routes for site access. Once these risks are identified, Program Offices will work with sites to assist with the resilience implementation process, as needed.

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These strategies will both reduce site operational risks from climate change and help sites adapt to climate hazards. Barriers to implementing these actions include prioritization and challenges with identifying and implementing alternative contracts.

Energy and Water Systems: DOE has seen the impacts of extreme weather, wildfires, and flooding on the Department's energy infrastructure and supply chain. These events have resulted in downed power lines, failed transformers, and disrupted power distribution. Rising temperatures and extreme weather conditions also threaten the availability of water or can lead to an overabundance of water. For example, drought affects the water supply and the production of hydropower at DOE's PMAs, which operationally exposes them to the risk of significant market price shocks in purchasing additional power when they cannot independently meet full contractual power delivery requirements to customers during extreme weather events. In contrast, storm-related flooding impacts operations at the SPR. Heat and drought-related electricity spikes further exacerbate the energy and water feedback loop. The interdependence of energy and water must be considered when addressing DOE's climate change readiness.

DOE sites are taking steps to increase energy system resilience. At INL, wildfires were identified as a threat to power supply, and subsequently, 3,000 transmission and distribution poles were painted with fire-retardant to protect against brush fires. When the 100,000-acre Sheep Fire hit in 2019, INL's treated assets remained intact and power kept flowing. A regional utility on the INL property did not implement this same tactic and lost many poles and lines, suffered impacted power delivery, and faced significant repair costs. LANL is planning a 6-8 MW photovoltaic electric generating station to increase its energy resilience. To increase water resilience, DOE sites will prioritize water reuse and conservation, particularly in the western region of the United States where potable water resources are in high demand. The Nevada National Security Site is considering a remote groundwater sensing demonstration project to detect the presence and levels of groundwater in the desert. This effort would pilot remote monitoring and pave the way for transition to comprehensive remote monitoring on the heavily secured and remote site.

Mission Specific Operations and Equipment: DOE's mission utilizes specialized facilities that require significant water and energy resources. As a result, mission specific equipment such as particle accelerators, bio-refinery pilot plants, supercomputers, and waste processing facilities face disruptions due to drought or extreme weather. DOE's nuclear security mission is critical to national security and is also largely conducted at DOE sites that are vulnerable to extreme weather conditions and climate events. DOE's environmental mission could also experience disruptions if facilities dedicated to radioactive waste processing and disposal are impacted by climate hazards or if groundwater remediation systems are impacted by droughts. Failure to react to climate threats could result in the interruption of processes and lead to a significant loss of time and research.

All DOE sites are required by DOE Order 150.1A to maintain plans that identify mission essential assets and mission essential functions. Sites will also be asked to identify mission critical operations and equipment in vulnerability assessments, which are to be updated every four years. Once climate impacts on mission specific operations and equipment have been identified, Program Offices will work with sites to ensure that applicable cost-effective strategies are implemented. Unfortunately, some identified risks may have a low adaptive capacity or backup of critical systems, and the cost of identifying and implementing an alternative process is high. In addition, when seeking to establish new/expanded programs and projects, climate threats such as reduced water supplies due to climate

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change and droughts should be taken into consideration. Proposed projects with a significant water need in drought-prone regions may be less feasible going forward.

Real Property and Physical Assets: Prolonged droughts coupled with warmer weather have resulted in increased wildfires, affecting DOE property in the western region of the United States. Increased precipitation and severe storms have also impacted DOE sites. As these climate threats become more prevalent, DOE's property and physical assets may face damages that could impede site operations. Since all DOE sites may be impacted by climate change, sites must identify climate hazards that impact facilities within their climate vulnerability assessments as well as develop resilience plans to address the vulnerabilities and increase the resilience of existing facilities. Examples of cost-effective hardening strategies as resilience solutions include the installation of berms or bioswales to protect against storm surge, elevating equipment such as substation systems to avoid flooding, undergrounding of power lines, usage of vegetation management, and usage of fire-retardant paint. When highly vulnerable properties are identified without identified cost-effective actions to reduce risks, sites will collaborate with their Program Office to determine feasible resilience solutions.

SPECIFIC TOPIC 2: Enhance Climate Literacy in DOE's Management Workforce

DOE recognizes that a climate-ready organization requires a workforce that can safely and successfully adapt to climate change related challenges, identify, and take advantage of new opportunities, and foster a culture of innovation. A resilient workforce requires knowledge of climate impacts on-site operations, DOE communities, and worker health and safety. Employees should be aware of climate vulnerabilities as well as tools, technology, and guidance available to address those risks. To ensure climate literacy, all DOE employees will be required to take training on climate adaptation and mitigation. This training will help employees develop the skills and climate knowledge necessary to manage and protect the Department's physical assets and its workforce in a changing climate.

IMPLEMENTATION METHODS

Climate Change Training and Resource Hub: DOE plans to improve the climate literacy of its workforce by creating a hub for climate change resources, which will include tools, technical resources, climate science information, and on-demand climate awareness training. DOE will develop a required high-level general introductory course on climate change for all employees (i.e., current and new employees). The course will address the latest climate trends associated with issues such as sea level rise, extreme temperatures, precipitation, flooding, and drought, the variation of climate threats on a temporal and spatial basis, and the potential impact climate trends will have on DOE's mission and operations. This mandatory training will also discuss potential adaptation and mitigation strategies to address these climate threats. DOE will capitalize on existing training and resources when compiling and developing training. To further improve climate literacy within the Department, DOE will identify appropriate DOE job classifications that require additional tailored annual climate trainings. Existing training will be utilized as appropriate and will be updated with new information and case studies each year. The Office of the Chief Human Capital Officer will also explore the recruitment of climate expertise with programs and examine the potential use of direct hire authority for these disciplines.

DOE's Office of the Chief Human Capital Officer will partner with FEMP to take the lead in tracking progress toward these actions. These offices will work to identify specific DOE organizations for the implementation of each action, and SPD and the Office of Sustainable Environmental Stewardship will

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assist as needed. The Department will begin this effort immediately and will identify metrics to identify progress in deployment of training and enhance climate literacy.

CHALLENGES & RISKS

Developing, updating, and maintaining training requires time, staffing, and funding. Fortunately, DOE can utilize several existing webinars and resources to build a more comprehensive training that is applicable to DOE field sites and Headquarters. In terms of risks, new climate technologies, climate science information, and evolving policies means that the training and resources must be updated regularly. Frequent communication of new climate-related information and findings will also provide employees with important information to assist with their daily activities. The preparation of training materials and creation of a hub that is easily accessible will involve extensive coordination across many DOE organizations but can be accomplished using established in-house personnel and resources.

PERFORMANCE TRACKING & COORDINATION

To objectively assess progress, DOE will not only track the number of DOE employees required to receiving climate training and those who receive the training, but also the effectiveness of this training. DOE will coordinate with other government organizations, such as the Environmental Protection Agency, NOAA, DoD, GSA, the United States Global Change Research Program, and others to implement this effort.

SPECIFIC TOPIC 3a: Enhance Climate Resilience for Climate-Ready Sites and Facilities

DOE plans to integrate climate readiness into its facilities and infrastructure asset management program and has identified the Department's approach to incorporate climate change adaptation and mitigation efforts into its management of real property (i.e., reduce facility related energy and water usage, employ resilience enhancing land use planning and management principles, and use sustainable and resilient remediation options). These efforts not only improve sites' climate readiness by reducing reliance on energy and water resources, but also reduce the effects of climate change by conserving resources and reducing GHG emissions. The Department's approach focuses on two main areas of facility management, which are (1) design and construction and (2) operations and maintenance.

IMPLEMENTATION METHODS

Design and Construction: This aspect of facility management focuses on planning and involves the integration of climate-ready measures into the early stages of building design. DOE has a well-established decision-making process for developing facility construction projects from concept to completion. This process is included in DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*; the order defines Critical Decision phases/milestones for large-scale construction projects from preliminary and conceptual design options through acceptance of the constructed facility. Each of these milestones contain requirements for incorporating the Guiding Principles for Sustainable Federal Buildings (Guiding Principles) into the design, or in the case of acceptance of the constructed facility, documenting how the facility meets sustainable design goals. Currently, under the Guiding Principles, projects must assess localized risks and incorporate design features to enhance the resilience of the building design and operations. In addition, DOE Order 413.3B requires that, "At a minimum, all new construction and major building renovations must meet U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Gold certification absent an approved waiver."

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DOE will direct sites to update their vulnerability assessments and develop resilience plans within one year of issuance of the Climate Adaptation and Resilience Plan. DOE will develop guidance to assist sites with developing location specific design criteria for new facilities and non-occupied building infrastructure projects (i.e., utilities and other supporting infrastructure). This will ensure that climate vulnerabilities and climate-ready solutions are incorporated into these projects.

DOE plans to review Order 413.3B and determine the feasibility of setting design criteria that address climate action as a baseline requirement for all new construction projects covered by the Order. Under such a policy, building features and design elements intended to address climate change through adaptation and resilience would be standard requirements rather than building enhancements from a financial perspective. After reviewing Order 413.3B, DOE will pursue these changes while complying with applicable legal and regulatory requirements that may prohibit the Department from establishing climate-related design elements as baseline requirements.

Operations and Maintenance (O&M): This aspect of facility operations involves activities required to keep the facility in working order and able to perform its mission. Facility managers must routinely repair broken equipment, renovate aging systems, and perform preventive maintenance to prolong the life of building equipment. O&M activities consume significant energy and water resources and require continual attention to keep consumption to a minimum.

DOE conducts comprehensive energy and water evaluations at each of its covered facilities every four years. The evaluations identify operations that regularly consume energy and water resources, identify opportunities to eliminate or reduce consumption, and analyze the cost-effectiveness of implementing those opportunities. After evaluations are complete, sites should consider the life-cycle cost-effective opportunities as stand-alone projects or bundle multiple conservation measures into directly funded projects or alternatively financed projects, such as Energy Savings Performance Contracts (ESPCs) and Utility Energy Service Contracts (UESCs).

Conducting high-quality energy and water evaluations is dependent on obtaining reliable energy and water consumption data for each facility and requires accurate building-level metering. Metering data will also help sites measure and verify the effectiveness of the conservation measures they have implemented. FEMP is currently updating guidance to help Federal facilities improve their energy metering and include water metering. The Office of Asset Management will develop a Department-wide metering plan to reflect this guidance and expand its own metering efforts by the summer 2022.

In addition, the Department will update DOE Order 430.1C, *Real Property Asset Management*, to include a requirement for sites to consider the results of their energy and water evaluations when conducting their asset functionality assessments and incorporate life-cycle cost-effective ECMs into facility modernization efforts. This will add depth to the current DOE requirement that each site must conduct a functionality assessment every five years to identify modernization needs.

Finally, DOE will direct sites to review environmental aspects and emergency operation scenarios of O&M activities to determine if changes are needed to address climate vulnerabilities. This includes evaluations to confirm long-term environmental remediation activities and long-term legacy site maintenance activities will be adequate given any projected vulnerabilities. Sites using the TRN will complete a vulnerability assessment as part of the process and will identify O&M activities that need adjusting to address identified climate risks.

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CHALLENGES & RISKS

While DOE expects that its sites will successfully conduct energy and water assessments to identify opportunities for increasing climate resilience, the Department also believes sites will encounter challenges in prioritizing the necessary resources to implement those opportunities relative to other Departmental funding priorities. Pursuing performance contracting (e.g., ESPCs) is an avenue many sites can use to reduce large, up-front implementation costs. However, since many sites have already implemented low-cost, high payback opportunities, it will remain a challenge to bundle projects in a way that allows such performance contracts to properly demonstrate cost savings.

PERFORMANCE TRACKING & COORDINATION

The Department will track site-level data relating to when each DOE site has conducted a climate vulnerability assessment and developed a resilience plan. In addition, DOE will track facility-level data relating to when sites have conducted energy evaluations, water evaluations, and functionality analyses. DOE will use the Sustainable Climate-Ready Sites initiative to recognize leaders and encourage progress, through sharing lessons learned and best practices in sustainable and resilient facility and land management.

SPECIFIC TOPIC 3b: Ensure a Climate-Ready Supply of Products and Services

The Department depends upon a strong, resilient, sustainable, and secure supply chain to ensure our mission and operations are successful. The availability of critical manufacturing capacity, raw materials, and essential goods and services can be threatened by extreme weather events, biological impacts (e.g., pandemics), and other climate-related conditions. DOE will ensure a climate-ready supply of products and services by conducting a supply chain analysis for critical items while also exploring options to require products that are sustainable, from underrepresented businesses, and Made in America, as appropriate. This will improve mission execution across the Department while addressing energy and environmental justice concerns and reducing carbon impacts. DOE will also explore approaches to use its procurement authority to purchase products and services with a low carbon footprint. This effort will build upon the requirement in E.O. 14017, *America's Supply Chains*, which requires the Secretary of Energy to submit a report within 100 days of issuance of the E.O. that identifies supply chain risks for high-capacity batteries (e.g., electric vehicle batteries) and provides policy recommendations to address these risks. The E.O. also requires agencies to identify key supply chain risks relating to semiconductors, batteries, and strategic minerals, which are all critical to the energy sector.

DOE will explore approaches to develop a more resilient, sustainable, secure, and diverse supply chain, such as implementing approaches to encompass greater domestic production as well as identifying and diversifying supply chain sources, while simultaneously supporting small businesses, and encouraging economic growth in neighboring environmental justice communities.

IMPLEMENTATION METHODS

DOE plans to integrate the evaluation of climate-related acquisition and procurement efforts into its daily operations and culture as well as request that each site conduct an analysis of their supply chain risks and vulnerabilities.

Climate-Ready Purchasing Preference: When evaluating purchases, DOE will give preference for various types of vendors, products, and services to ensure DOE is climate-ready. DOE will give preference for the Buy American Act and consider U.S. based vendors to the maximum extent practicable. DOE will

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also give preference for small business concerns, especially disadvantaged, women owned, and historically underutilized businesses (HUBZones). Additionally, DOE will give preference for sustainable products or locally sourced products (e.g., including an energy and environmental justice consideration), as well as products with a reduced carbon footprint. To carry out these climate-ready purchasing preferences, DOE will leverage its existing acquisition and financial assistance authorities and will evaluate what changes are needed for appropriately including climate considerations in the procurement decision process.

Supply Chain Analysis: Each DOE site will conduct a supply chain analysis to determine the reliability and vulnerability of their critical supply chains, and the carbon footprint of its suppliers. This analysis will be incorporated into their vulnerability assessment process and the results will be used to identify critical items that are most at risk to ensure the Department can continue its mission. Options will be identified to address both site specific and Department-wide risks. This risk analysis will consider factors such as gaps in domestic manufacturing capabilities, supply chains with limited suppliers, physical location of key suppliers with climate vulnerabilities, resilience actions taken by suppliers, and availability of alternative sources.

DOE's Office of Acquisition Management will take the overall lead in tracking the Department's progress toward these actions and will work to identify specific offices to serve as the primary lead for implementation. DOE will begin this effort immediately and will establish timelines to review quarterly progress for each priority action based on percentage of activity completed by the targeted timeline.

CHALLENGES & RISKS

The Federal Acquisition Regulations (FAR) and the Department of Energy Acquisition Regulations (DEAR) may need to be updated to create specific preferences. Across the DOE complex, the sites perform a variety of missions and are likely to identify a multitude of critical items that may require different risk adaptation approaches. It may be a challenge to determine a select few critical products and services when the breadth of DOE's mission is considered. It also may be a challenge to characterize the carbon footprint of its suppliers. In terms of risks, updating the FAR and DEAR along with educating Contracting Officers will take time. While DOE plans to accomplish these actions using established in-house personnel and resources, there may be limited options available to address certain critical materials.

PERFORMANCE TRACKING & COORDINATION

DOE will establish quantitative measures to objectively track progress. Based on site input, the Department will identify and track agency-wide progress on critical items, services, and adaptation strategies. DOE will coordinate with other government agencies, such as GSA and others to implement this effort as well as share best practices.

V. Conclusion

The Climate Adaptation and Resilience Plan provides a pathway for the Department to adapt to current and projected impacts of climate change while also leveraging the co-benefits of reducing energy demand and GHG emissions. The actions described in this plan will assist the Department in better understanding current and future climate risks that may impact DOE's mission and operations. These actions will also help to characterize DOE's climate vulnerabilities as well as develop the climate science and resilience tools needed to adapt and respond to climate hazards. By assessing vulnerabilities, providing adaptation tools, prioritizing funding, and institutionalizing climate requirements and literacy throughout the workforce, DOE will be able to develop and deploy climate resilient technologies, tools, and practices throughout the DOE complex and within surrounding communities.

Successful implementation of this plan will require collaboration and coordination across DOE, with other Federal agencies, and with non-Federal stakeholders. The priority actions and activities discussed within the specific topic areas of this plan will be incorporated into DOE's planning, operations, and budget development processes. The incorporation into DOE's planning processes includes integration within other departmental plans, such as DOE's Sustainability Plan and laboratory planning documents, to ensure consistency of planned resilience and climate goals as well as tracking year over year progress. Furthermore, the Department will collaborate with other Federal agencies as appropriate through the National Climate Task Force and interagency working groups, as well as investigate new opportunities for collaboration as appropriate. DOE will continue to leverage its unique modeling, climate science expertise, and engineering capabilities in collaboration with other agencies and institutions to continuously improve its understanding of climate change impacts and identify appropriate adaptation and mitigation strategies. Substantial progress can be achieved with the formation of strong partnerships to increase resilience of DOE and create more resilient communities.

This plan and the Climate Adaptation Policy Statement provide guidance for DOE to incorporate climate change adaptation and mitigation into daily business operations at Headquarters and each DOE site. DOE will review and revise the Climate Adaptation and Resilience Plan to acknowledge successes and lessons learned as well as continue to set ambitious goals. By creating a more climate resilient Department, DOE can then build a more climate-ready energy system that ensures clean, affordable, and reliable energy, and promotes energy and environmental justice and well-paying jobs. Thereby, increasing the nation's energy security and helping to create a sustainable clean energy economy.

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United States, European Union, and Partners Formally Launch Global Methane Pledge to Keep 1.5C Within Reach

MEDIA NOTE

OFFICE OF THE SPOKESPERSON

NOVEMBER 2, 2021

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Over 100 countries representing 70% of the global economy have now joined the Pledge

Today, the United States, the European Union, and partners formally launched the Global Methane Pledge, an initiative to reduce global methane emissions to keep the goal of limiting warming to 1.5 degrees Celsius within reach. A total of over 100 countries representing 70% of the global economy and nearly half of anthropogenic methane emissions have now signed onto the pledge.

The strong global support for the Pledge illustrates growing momentum to swiftly reduce

methane emissions—widely regarded as the single most effective strategy to reduce global warming. Countries joining the Global Methane Pledge commit to a collective goal of reducing global methane emissions by at least 30 percent from 2020 levels by 2030 and moving towards using best available inventory methodologies to quantify methane emissions, with a particular focus on high emission sources. The countries who have joined the Pledge represent all regions of the world and include representatives from developed and developing nations.

The U.S. and EU are also proud to announce a significant expansion of financial and technical support to assist implementation of the Pledge. **Global philanthropies have committed \$328 million in funding to support scale up of these types of methane mitigation strategies worldwide.** The European Bank for Reconstruction and Development, the European Investment Bank, and the Green Climate Fund have committed to support the Pledge through both technical assistance and project finance. The International Energy Agency will also serve as an implementation partner.

Delivering on the Global Methane Pledge would reduce warming by at least 0.2 degrees Celsius by 2050, providing a crucial foundation for global climate change mitigation efforts. In addition, according to the Global Methane Assessment from the Climate and Clean Air Coalition (CCAC) and the United Nations Environment Programme (UNEP), achieving the 2030 goal would prevent over 200,000 premature deaths, hundreds of thousands of asthma-related emergency room visits, and over 20 million tons of crop losses a year by 2030.

The supporters of the Global Methane Pledge include the U.S., the EU, and the following 103 countries:

1. Albania
2. Andorra
3. Argentina
4. Armenia
5. Barbados
6. Belgium
7. Belize
8. Benin

9. Bosnia and Herzegovina
10. Brazil
11. Bulgaria
12. Burkina Faso
13. Canada
14. Central African Republic
15. Chile
16. Colombia
17. Republic of the Congo
18. Cameroon
19. Costa Rica
20. Cote D'Ivoire
21. Croatia
22. Cyprus
23. Democratic Republic of the Congo
24. Denmark
25. Djibouti
26. Dominican Republic
27. Ecuador
28. El Salvador
29. Estonia
30. Ethiopia
31. Federated States of Micronesia
32. Fiji
33. Finland

34. France
35. Gabon
36. Gambia
37. Georgia
38. Germany
39. Ghana
40. Greece
41. Grenada
42. Guatemala
43. Guyana
44. Honduras
45. Iceland
46. Indonesia
47. Iraq
48. Ireland
49. Israel
50. Italy
51. Jamaica
52. Japan
53. Jordan
54. Korea
55. Kyrgyzstan
56. Kuwait
57. Liberia
58. Libya
59. Luxembourg

60. Malawi
61. Mali
62. Malta
63. Marshall Islands
64. Mexico
65. Monaco
66. Montenegro
67. Morocco
68. Nauru
69. Netherlands
70. Nepal
71. New Zealand
72. Nigeria
73. Niue
74. North Macedonia
75. Norway
76. Pakistan
77. Palau
78. Panama
79. Papua New Guinea
80. Peru
81. Philippines
82. Portugal
83. Rwanda
84. Saudi Arabia
85. Senegal

- 86. Serbia
 - 87. Singapore
 - 88. Slovenia
 - 89. Spain
 - 90. St. Kitts & Nevis
 - 91. Suriname
 - 92. Sweden
 - 93. Switzerland
 - 94. Togo
 - 95. Tonga
 - 96. Tunisia
 - 97. Ukraine
 - 98. United Arab Emirates
 - 99. United Kingdom
 - 100. Uruguay
 - 101. Vanuatu
 - 102. Vietnam
 - 103. Zambia
-

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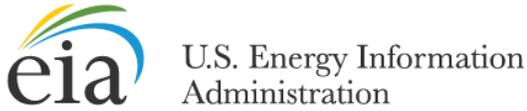
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- [U.S. Gasoline and Diesel Retail Prices](#)

View History: Weekly Monthly Annual

[Download Data \(XLS File\)](#)

Weekly U.S. All Grades All Formulations Retail Gasoline Prices

DOWNLOAD

Dollars per Gallon



Source: U.S. Energy Information Administration

Chart Tools

no analysis applied

This series is available through the EIA open data API and can be downloaded to Excel or embedded as an interactive chart or map on your website.

Weekly U.S. All Grades All Formulations Retail Gasoline Prices (Dollars per Gallon)

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
1993-Apr	04/05	1.068	04/12	1.079	04/19	1.079	04/26	1.086		
1993-May	05/03	1.086	05/10	1.097	05/17	1.106	05/24	1.106	05/31	1.107
1993-Jun	06/07	1.104	06/14	1.101	06/21	1.095	06/28	1.089		
1993-Jul	07/05	1.086	07/12	1.081	07/19	1.075	07/26	1.069		
1993-Aug	08/02	1.062	08/09	1.060	08/16	1.059	08/23	1.065	08/30	1.062
1993-Sep	09/06	1.055	09/13	1.051	09/20	1.045	09/27	1.047		
1993-Oct	10/04	1.092	10/11	1.090	10/18	1.093	10/25	1.092		
1993-Nov	11/01	1.084	11/08	1.075	11/15	1.064	11/22	1.058	11/29	1.051
1993-Dec	12/06	1.036	12/13	1.018	12/20	1.003	12/27	0.999		
1994-Jan	01/03	0.992	01/10	0.995	01/17	1.001	01/24	0.999	01/31	1.005
1994-Feb	02/07	1.007	02/14	1.016	02/21	1.009	02/28	1.004		
1994-Mar	03/07	1.007	03/14	1.005	03/21	1.007	03/28	1.012		
1994-Apr	04/04	1.011	04/11	1.028	04/18	1.033	04/25	1.037		
1994-May	05/02	1.040	05/09	1.045	05/16	1.046	05/23	1.050	05/30	1.056
1994-Jun	06/06	1.065	06/13	1.073	06/20	1.079	06/27	1.095		
1994-Jul	07/04	1.097	07/11	1.103	07/18	1.109	07/25	1.114		
1994-Aug	08/01	1.130	08/08	1.157	08/15	1.161	08/22	1.165	08/29	1.161
1994-Sep	09/05	1.156	09/12	1.150	09/19	1.140	09/26	1.129		
1994-Oct	10/03	1.120	10/10	1.114	10/17	1.106	10/24	1.107	10/31	1.121
1994-Nov	11/07	1.123	11/14	1.122	11/21	1.113	11/28	1.117		
1994-Dec	12/05	1.127	12/12	1.131	12/19	1.134	12/26	1.125		
1995-Jan	01/02	1.127	01/09	1.134	01/16	1.126	01/23	1.132	01/30	1.131
1995-Feb	02/06	1.124	02/13	1.121	02/20	1.115	02/27	1.121		
1995-Mar	03/06	1.123	03/13	1.116	03/20	1.114	03/27	1.121		
1995-Apr	04/03	1.133	04/10	1.149	04/17	1.163	04/24	1.184		

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
1995-May	05/01	1.194	05/08	1.216	05/15	1.226	05/22	1.244	05/29	1.246
1995-Jun	06/05	1.246	06/12	1.243	06/19	1.236	06/26	1.229		
1995-Jul	07/03	1.222	07/10	1.212	07/17	1.200	07/24	1.191	07/31	1.179
1995-Aug	08/07	1.174	08/14	1.172	08/21	1.171	08/28	1.163		
1995-Sep	09/04	1.160	09/11	1.158	09/18	1.157	09/25	1.156		
1995-Oct	10/02	1.151	10/09	1.144	10/16	1.133	10/23	1.125	10/30	1.115
1995-Nov	11/06	1.112	11/13	1.109	11/20	1.106	11/27	1.107		
1995-Dec	12/04	1.108	12/11	1.110	12/18	1.124	12/25	1.128		
1996-Jan	01/01	1.129	01/08	1.139	01/15	1.145	01/22	1.138	01/29	1.133
1996-Feb	02/05	1.130	02/12	1.126	02/19	1.133	02/26	1.153		
1996-Mar	03/04	1.170	03/11	1.171	03/18	1.181	03/25	1.210		
1996-Apr	04/01	1.223	04/08	1.248	04/15	1.287	04/22	1.301	04/29	1.318
1996-May	05/06	1.321	05/13	1.323	05/20	1.330	05/27	1.321		
1996-Jun	06/03	1.315	06/10	1.307	06/17	1.302	06/24	1.289		
1996-Jul	07/01	1.279	07/08	1.276	07/15	1.273	07/22	1.272	07/29	1.263
1996-Aug	08/05	1.253	08/12	1.248	08/19	1.249	08/26	1.253		
1996-Sep	09/02	1.242	09/09	1.247	09/16	1.250	09/23	1.251	09/30	1.245
1996-Oct	10/07	1.239	10/14	1.248	10/21	1.249	10/28	1.260		
1996-Nov	11/04	1.268	11/11	1.272	11/18	1.282	11/25	1.289		
1996-Dec	12/02	1.287	12/09	1.287	12/16	1.283	12/23	1.278	12/30	1.274
1997-Jan	01/06	1.272	01/13	1.287	01/20	1.287	01/27	1.284		
1997-Feb	02/03	1.282	02/10	1.280	02/17	1.273	02/24	1.270		
1997-Mar	03/03	1.261	03/10	1.253	03/17	1.246	03/24	1.250	03/31	1.246
1997-Apr	04/07	1.248	04/14	1.244	04/21	1.245	04/28	1.240		
1997-May	05/05	1.238	05/12	1.238	05/19	1.247	05/26	1.255		
1997-Jun	06/02	1.258	06/09	1.251	06/16	1.242	06/23	1.232	06/30	1.226
1997-Jul	07/07	1.222	07/14	1.219	07/21	1.222	07/28	1.216		
1997-Aug	08/04	1.237	08/11	1.272	08/18	1.274	08/25	1.288		
1997-Sep	09/01	1.287	09/08	1.288	09/15	1.281	09/22	1.269	09/29	1.255
1997-Oct	10/06	1.254	10/13	1.248	10/20	1.238	10/27	1.228		
1997-Nov	11/03	1.221	11/10	1.222	11/17	1.213	11/24	1.207		
1997-Dec	12/01	1.197	12/08	1.187	12/15	1.176	12/22	1.167	12/29	1.158
1998-Jan	01/05	1.148	01/12	1.140	01/19	1.129	01/26	1.112		
1998-Feb	02/02	1.108	02/09	1.101	02/16	1.085	02/23	1.090		
1998-Mar	03/02	1.075	03/09	1.065	03/16	1.055	03/23	1.047	03/30	1.077
1998-Apr	04/06	1.074	04/13	1.072	04/20	1.075	04/27	1.086		
1998-May	05/04	1.095	05/11	1.109	05/18	1.109	05/25	1.108		
1998-Jun	06/01	1.104	06/08	1.113	06/15	1.104	06/22	1.096	06/29	1.096
1998-Jul	07/06	1.097	07/13	1.092	07/20	1.097	07/27	1.088		
1998-Aug	08/03	1.077	08/10	1.072	08/17	1.065	08/24	1.058	08/31	1.053
1998-Sep	09/07	1.046	09/14	1.042	09/21	1.053	09/28	1.053		
1998-Oct	10/05	1.059	10/12	1.063	10/19	1.058	10/26	1.055		
1998-Nov	11/02	1.050	11/09	1.048	11/16	1.037	11/23	1.030	11/30	1.015
1998-Dec	12/07	0.996	12/14	0.987	12/21	0.986	12/28	0.979		
1999-Jan	01/04	0.977	01/11	0.982	01/18	0.985	01/25	0.977		
1999-Feb	02/01	0.971	02/08	0.968	02/15	0.960	02/22	0.949		
1999-Mar	03/01	0.955	03/08	0.963	03/15	1.017	03/22	1.056	03/29	1.121
1999-Apr	04/05	1.158	04/12	1.179	04/19	1.175	04/26	1.171		
1999-May	05/03	1.176	05/10	1.180	05/17	1.180	05/24	1.166	05/31	1.151
1999-Jun	06/07	1.152	06/14	1.148	06/21	1.163	06/28	1.153		
1999-Jul	07/05	1.165	07/12	1.182	07/19	1.208	07/26	1.232		
1999-Aug	08/02	1.234	08/09	1.246	08/16	1.275	08/23	1.273	08/30	1.273
1999-Sep	09/06	1.282	09/13	1.290	09/20	1.307	09/27	1.302		
1999-Oct	10/04	1.296	10/11	1.290	10/18	1.277	10/25	1.277		
1999-Nov	11/01	1.271	11/08	1.274	11/15	1.292	11/22	1.309	11/29	1.315
1999-Dec	12/06	1.313	12/13	1.315	12/20	1.310	12/27	1.314		
2000-Jan	01/03	1.312	01/10	1.304	01/17	1.318	01/24	1.354	01/31	1.355
2000-Feb	02/07	1.364	02/14	1.394	02/21	1.443	02/28	1.458		
2000-Mar	03/06	1.539	03/13	1.566	03/20	1.569	03/27	1.549		
2000-Apr	04/03	1.543	04/10	1.516	04/17	1.486	04/24	1.478		
2000-May	05/01	1.461	05/08	1.495	05/15	1.531	05/22	1.566	05/29	1.579
2000-Jun	06/05	1.599	06/12	1.664	06/19	1.711	06/26	1.691		
2000-Jul	07/03	1.661	07/10	1.630	07/17	1.586	07/24	1.562	07/31	1.514
2000-Aug	08/07	1.504	08/14	1.489	08/21	1.508	08/28	1.521		
2000-Sep	09/04	1.568	09/11	1.598	09/18	1.599	09/25	1.586		
2000-Oct	10/02	1.563	10/09	1.541	10/16	1.578	10/23	1.588	10/30	1.584
2000-Nov	11/06	1.565	11/13	1.562	11/20	1.550	11/27	1.549		
2000-Dec	12/04	1.526	12/11	1.490	12/18	1.462	12/25	1.453		
2001-Jan	01/01	1.446	01/08	1.465	01/15	1.513	01/22	1.511	01/29	1.500
2001-Feb	02/05	1.483	02/12	1.515	02/19	1.489	02/26	1.471		
2001-Mar	03/05	1.457	03/12	1.453	03/19	1.444	03/26	1.445		
2001-Apr	04/02	1.482	04/09	1.540	04/16	1.610	04/23	1.658	04/30	1.665
2001-May	05/07	1.739	05/14	1.748	05/21	1.724	05/28	1.739		
2001-Jun	06/04	1.715	06/11	1.688	06/18	1.644	06/25	1.583		
2001-Jul	07/02	1.520	07/09	1.484	07/16	1.459	07/23	1.440	07/30	1.428
2001-Aug	08/06	1.419	08/13	1.434	08/20	1.467	08/27	1.523		

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
2001-Sep	09/03	1.579	09/10	1.562	09/17	1.564	09/24	1.522		
2001-Oct	10/01	1.455	10/08	1.393	10/15	1.351	10/22	1.307	10/29	1.277
2001-Nov	11/05	1.249	11/12	1.224	11/19	1.208	11/26	1.168		
2001-Dec	12/03	1.149	12/10	1.136	12/17	1.101	12/24	1.113	12/31	1.137
2002-Jan	01/07	1.152	01/14	1.152	01/21	1.146	01/28	1.142		
2002-Feb	02/04	1.157	02/11	1.148	02/18	1.157	02/25	1.157		
2002-Mar	03/04	1.185	03/11	1.262	03/18	1.328	03/25	1.382		
2002-Apr	04/01	1.412	04/08	1.454	04/15	1.446	04/22	1.446	04/29	1.435
2002-May	05/06	1.437	05/13	1.431	05/20	1.439	05/27	1.429		
2002-Jun	06/03	1.433	06/10	1.417	06/17	1.419	06/24	1.425		
2002-Jul	07/01	1.433	07/08	1.423	07/15	1.435	07/22	1.451	07/29	1.447
2002-Aug	08/05	1.437	08/12	1.435	08/19	1.434	08/26	1.444		
2002-Sep	09/02	1.436	09/09	1.437	09/16	1.442	09/23	1.436	09/30	1.455
2002-Oct	10/07	1.480	10/14	1.481	10/21	1.499	10/28	1.485		
2002-Nov	11/04	1.489	11/11	1.480	11/18	1.451	11/25	1.423		
2002-Dec	12/02	1.408	12/09	1.404	12/16	1.407	12/23	1.443	12/30	1.484
2003-Jan	01/06	1.487	01/13	1.496	01/20	1.502	01/27	1.515		
2003-Feb	02/03	1.569	02/10	1.649	02/17	1.701	02/24	1.699		
2003-Mar	03/03	1.726	03/10	1.752	03/17	1.768	03/24	1.732	03/31	1.692
2003-Apr	04/07	1.673	04/14	1.639	04/21	1.618	04/28	1.600		
2003-May	05/05	1.556	05/12	1.534	05/19	1.539	05/26	1.528		
2003-Jun	06/02	1.514	06/09	1.530	06/16	1.558	06/23	1.537	06/30	1.528
2003-Jul	07/07	1.530	07/14	1.563	07/21	1.566	07/28	1.558		
2003-Aug	08/04	1.576	08/11	1.611	08/18	1.668	08/25	1.787		
2003-Sep	09/01	1.786	09/08	1.758	09/15	1.739	09/22	1.686	09/29	1.635
2003-Oct	10/06	1.617	10/13	1.611	10/20	1.612	10/27	1.584		
2003-Nov	11/03	1.577	11/10	1.547	11/17	1.540	11/24	1.554		
2003-Dec	12/01	1.533	12/08	1.519	12/15	1.509	12/22	1.528	12/29	1.521
2004-Jan	01/05	1.552	01/12	1.603	01/19	1.637	01/26	1.664		
2004-Feb	02/02	1.660	02/09	1.681	02/16	1.690	02/23	1.730		
2004-Mar	03/01	1.758	03/08	1.780	03/15	1.767	03/22	1.785	03/29	1.800
2004-Apr	04/05	1.822	04/12	1.827	04/19	1.853	04/26	1.853		
2004-May	05/03	1.884	05/10	1.979	05/17	2.055	05/24	2.104	05/31	2.092
2004-Jun	06/07	2.075	06/14	2.029	06/21	1.981	06/28	1.965		
2004-Jul	07/05	1.939	07/12	1.959	07/19	1.971	07/26	1.948		
2004-Aug	08/02	1.930	08/09	1.920	08/16	1.917	08/23	1.926	08/30	1.909
2004-Sep	09/06	1.893	09/13	1.889	09/20	1.908	09/27	1.959		
2004-Oct	10/04	1.980	10/11	2.035	10/18	2.077	10/25	2.074		
2004-Nov	11/01	2.076	11/08	2.045	11/15	2.014	11/22	1.992	11/29	1.989
2004-Dec	12/06	1.956	12/13	1.893	12/20	1.861	12/27	1.838		
2005-Jan	01/03	1.824	01/10	1.837	01/17	1.863	01/24	1.896	01/31	1.953
2005-Feb	02/07	1.952	02/14	1.941	02/21	1.948	02/28	1.969		
2005-Mar	03/07	2.040	03/14	2.098	03/21	2.149	03/28	2.194		
2005-Apr	04/04	2.258	04/11	2.321	04/18	2.280	04/25	2.279		
2005-May	05/02	2.277	05/09	2.231	05/16	2.206	05/23	2.169	05/30	2.141
2005-Jun	06/06	2.159	06/13	2.173	06/20	2.204	06/27	2.257		
2005-Jul	07/04	2.268	07/11	2.369	07/18	2.360	07/25	2.333		
2005-Aug	08/01	2.335	08/08	2.410	08/15	2.592	08/22	2.654	08/29	2.653
2005-Sep	09/05	3.117	09/12	3.002	09/19	2.835	09/26	2.851		
2005-Oct	10/03	2.975	10/10	2.896	10/17	2.775	10/24	2.652	10/31	2.528
2005-Nov	11/07	2.424	11/14	2.342	11/21	2.247	11/28	2.200		
2005-Dec	12/05	2.191	12/12	2.228	12/19	2.255	12/26	2.241		
2006-Jan	01/02	2.281	01/09	2.371	01/16	2.366	01/23	2.382	01/30	2.402
2006-Feb	02/06	2.388	02/13	2.331	02/20	2.286	02/27	2.298		
2006-Mar	03/06	2.373	03/13	2.408	03/20	2.548	03/27	2.542		
2006-Apr	04/03	2.631	04/10	2.727	04/17	2.828	04/24	2.960		
2006-May	05/01	2.966	05/08	2.955	05/15	2.992	05/22	2.938	05/29	2.913
2006-Jun	06/05	2.937	06/12	2.951	06/19	2.917	06/26	2.914		
2006-Jul	07/03	2.979	07/10	3.017	07/17	3.033	07/24	3.048	07/31	3.050
2006-Aug	08/07	3.083	08/14	3.047	08/21	2.971	08/28	2.893		
2006-Sep	09/04	2.777	09/11	2.670	09/18	2.549	09/25	2.429		
2006-Oct	10/02	2.360	10/09	2.310	10/16	2.274	10/23	2.255	10/30	2.264
2006-Nov	11/06	2.246	11/13	2.278	11/20	2.285	11/27	2.292		
2006-Dec	12/04	2.342	12/11	2.340	12/18	2.366	12/25	2.387		
2007-Jan	01/01	2.382	01/08	2.354	01/15	2.280	01/22	2.216	01/29	2.213
2007-Feb	02/05	2.237	02/12	2.287	02/19	2.341	02/26	2.428		
2007-Mar	03/05	2.551	03/12	2.605	03/19	2.623	03/26	2.655		
2007-Apr	04/02	2.753	04/09	2.848	04/16	2.922	04/23	2.917	04/30	3.017
2007-May	05/07	3.097	05/14	3.143	05/21	3.258	05/28	3.250		
2007-Jun	06/04	3.200	06/11	3.122	06/18	3.057	06/25	3.029		
2007-Jul	07/02	3.005	07/09	3.026	07/16	3.092	07/23	3.005	07/30	2.926
2007-Aug	08/06	2.888	08/13	2.821	08/20	2.832	08/27	2.796		
2007-Sep	09/03	2.840	09/10	2.862	09/17	2.835	09/24	2.860		
2007-Oct	10/01	2.838	10/08	2.821	10/15	2.813	10/22	2.873	10/29	2.921
2007-Nov	11/05	3.060	11/12	3.158	11/19	3.148	11/26	3.147		
2007-Dec	12/03	3.113	12/10	3.053	12/17	3.050	12/24	3.032	12/31	3.104

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
2008-Jan	01/07	3.159	01/14	3.119	01/21	3.070	01/28	3.030		
2008-Feb	02/04	3.030	02/11	3.011	02/18	3.092	02/25	3.180		
2008-Mar	03/03	3.212	03/10	3.273	03/17	3.332	03/24	3.310	03/31	3.339
2008-Apr	04/07	3.381	04/14	3.438	04/21	3.557	04/28	3.653		
2008-May	05/05	3.663	05/12	3.771	05/19	3.840	05/26	3.986		
2008-Jun	06/02	4.026	06/09	4.090	06/16	4.134	06/23	4.131	06/30	4.146
2008-Jul	07/07	4.165	07/14	4.164	07/21	4.118	07/28	4.010		
2008-Aug	08/04	3.935	08/11	3.864	08/18	3.794	08/25	3.738		
2008-Sep	09/01	3.733	09/08	3.701	09/15	3.887	09/22	3.772	09/29	3.687
2008-Oct	10/06	3.543	10/13	3.213	10/20	2.974	10/27	2.718		
2008-Nov	11/03	2.462	11/10	2.284	11/17	2.132	11/24	1.952		
2008-Dec	12/01	1.870	12/08	1.758	12/15	1.716	12/22	1.710	12/29	1.670
2009-Jan	01/05	1.737	01/12	1.835	01/19	1.898	01/26	1.890		
2009-Feb	02/02	1.944	02/09	1.978	02/16	2.016	02/23	1.963		
2009-Mar	03/02	1.988	03/09	1.993	03/16	1.964	03/23	2.014	03/30	2.097
2009-Apr	04/06	2.090	04/13	2.104	04/20	2.112	04/27	2.102		
2009-May	05/04	2.129	05/11	2.290	05/18	2.360	05/25	2.485		
2009-Jun	06/01	2.572	06/08	2.673	06/15	2.722	06/22	2.743	06/29	2.695
2009-Jul	07/06	2.666	07/13	2.584	07/20	2.519	07/27	2.557		
2009-Aug	08/03	2.610	08/10	2.700	08/17	2.691	08/24	2.682	08/31	2.667
2009-Sep	09/07	2.642	09/14	2.632	09/21	2.607	09/28	2.554		
2009-Oct	10/05	2.523	10/12	2.543	10/19	2.626	10/26	2.727		
2009-Nov	11/02	2.746	11/09	2.720	11/16	2.684	11/23	2.694	11/30	2.684
2009-Dec	12/07	2.689	12/14	2.655	12/21	2.645	12/28	2.662		
2010-Jan	01/04	2.718	01/11	2.804	01/18	2.793	01/25	2.760		
2010-Feb	02/01	2.717	02/08	2.707	02/15	2.664	02/22	2.709		
2010-Mar	03/01	2.756	03/08	2.804	03/15	2.841	03/22	2.870	03/29	2.851
2010-Apr	04/05	2.877	04/12	2.909	04/19	2.911	04/26	2.901		
2010-May	05/03	2.950	05/10	2.958	05/17	2.918	05/24	2.842	05/31	2.784
2010-Jun	06/07	2.780	06/14	2.756	06/21	2.795	06/28	2.809		
2010-Jul	07/05	2.779	07/12	2.771	07/19	2.775	07/26	2.801		
2010-Aug	08/02	2.788	08/09	2.835	08/16	2.798	08/23	2.759	08/30	2.736
2010-Sep	09/06	2.735	09/13	2.772	09/20	2.775	09/27	2.747		
2010-Oct	10/04	2.784	10/11	2.871	10/18	2.887	10/25	2.870		
2010-Nov	11/01	2.861	11/08	2.917	11/15	2.944	11/22	2.931	11/29	2.912
2010-Dec	12/06	3.013	12/13	3.035	12/20	3.037	12/27	3.106		
2011-Jan	01/03	3.124	01/10	3.142	01/17	3.158	01/24	3.163	01/31	3.155
2011-Feb	02/07	3.185	02/14	3.193	02/21	3.243	02/28	3.435		
2011-Mar	03/07	3.572	03/14	3.621	03/21	3.617	03/28	3.650		
2011-Apr	04/04	3.737	04/11	3.843	04/18	3.896	04/25	3.932		
2011-May	05/02	4.014	05/09	4.018	05/16	4.014	05/23	3.904	05/30	3.848
2011-Jun	06/06	3.833	06/13	3.767	06/20	3.708	06/27	3.631		
2011-Jul	07/04	3.634	07/11	3.695	07/18	3.736	07/25	3.754		
2011-Aug	08/01	3.766	08/08	3.730	08/15	3.662	08/22	3.638	08/29	3.682
2011-Sep	09/05	3.727	09/12	3.715	09/19	3.657	09/26	3.568		
2011-Oct	10/03	3.492	10/10	3.476	10/17	3.533	10/24	3.520	10/31	3.511
2011-Nov	11/07	3.482	11/14	3.495	11/21	3.427	11/28	3.368		
2011-Dec	12/05	3.350	12/12	3.346	12/19	3.290	12/26	3.317		
2012-Jan	01/02	3.358	01/09	3.441	01/16	3.451	01/23	3.450	01/30	3.500
2012-Feb	02/06	3.542	02/13	3.584	02/20	3.652	02/27	3.780		
2012-Mar	03/05	3.849	03/12	3.884	03/19	3.923	03/26	3.973		
2012-Apr	04/02	3.996	04/09	3.997	04/16	3.980	04/23	3.929	04/30	3.889
2012-May	05/07	3.849	05/14	3.814	05/21	3.773	05/28	3.728		
2012-Jun	06/04	3.671	06/11	3.629	06/18	3.589	06/25	3.494		
2012-Jul	07/02	3.415	07/09	3.469	07/16	3.485	07/23	3.554	07/30	3.568
2012-Aug	08/06	3.702	08/13	3.779	08/20	3.803	08/27	3.837		
2012-Sep	09/03	3.903	09/10	3.907	09/17	3.939	09/24	3.889		
2012-Oct	10/01	3.866	10/08	3.914	10/15	3.886	10/22	3.756	10/29	3.638
2012-Nov	11/05	3.563	11/12	3.518	11/19	3.497	11/26	3.505		
2012-Dec	12/03	3.463	12/10	3.419	12/17	3.324	12/24	3.328	12/31	3.369
2013-Jan	01/07	3.373	01/14	3.377	01/21	3.386	01/28	3.427		
2013-Feb	02/04	3.604	02/11	3.677	02/18	3.812	02/25	3.851		
2013-Mar	03/04	3.826	03/11	3.779	03/18	3.764	03/25	3.746		
2013-Apr	04/01	3.714	04/08	3.676	04/15	3.611	04/22	3.603	04/29	3.587
2013-May	05/06	3.602	05/13	3.665	05/20	3.729	05/27	3.704		
2013-Jun	06/03	3.705	06/10	3.715	06/17	3.689	06/24	3.645		
2013-Jul	07/01	3.567	07/08	3.563	07/15	3.706	07/22	3.751	07/29	3.716
2013-Aug	08/05	3.701	08/12	3.633	08/19	3.622	08/26	3.623		
2013-Sep	09/02	3.678	09/09	3.658	09/16	3.619	09/23	3.567	09/30	3.499
2013-Oct	10/07	3.441	10/14	3.430	10/21	3.435	10/28	3.372		
2013-Nov	11/04	3.343	11/11	3.274	11/18	3.298	11/25	3.372		
2013-Dec	12/02	3.353	12/09	3.350	12/16	3.321	12/23	3.351	12/30	3.409
2014-Jan	01/06	3.411	01/13	3.406	01/20	3.376	01/27	3.375		
2014-Feb	02/03	3.372	02/10	3.388	02/17	3.457	02/24	3.520		
2014-Mar	03/03	3.553	03/10	3.584	03/17	3.619	03/24	3.622	03/31	3.651

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
2014-Apr	04/07	3.670	04/14	3.725	04/21	3.758	04/28	3.788		
2014-May	05/05	3.761	05/12	3.746	05/19	3.743	05/26	3.750		
2014-Jun	06/02	3.765	06/09	3.749	06/16	3.760	06/23	3.778	06/30	3.778
2014-Jul	07/07	3.753	07/14	3.712	07/21	3.671	07/28	3.617		
2014-Aug	08/04	3.595	08/11	3.582	08/18	3.549	08/25	3.532		
2014-Sep	09/01	3.536	09/08	3.534	09/15	3.485	09/22	3.432	09/29	3.434
2014-Oct	10/06	3.382	10/13	3.292	10/20	3.205	10/27	3.139		
2014-Nov	11/03	3.077	11/10	3.025	11/17	2.978	11/24	2.907		
2014-Dec	12/01	2.864	12/08	2.767	12/15	2.643	12/22	2.496	12/29	2.392
2015-Jan	01/05	2.308	01/12	2.232	01/19	2.157	01/26	2.133		
2015-Feb	02/02	2.154	02/09	2.276	02/16	2.358	02/23	2.415		
2015-Mar	03/02	2.556	03/09	2.570	03/16	2.537	03/23	2.538	03/30	2.531
2015-Apr	04/06	2.499	04/13	2.494	04/20	2.570	04/27	2.656		
2015-May	05/04	2.749	05/11	2.776	05/18	2.827	05/25	2.857		
2015-Jun	06/01	2.863	06/08	2.863	06/15	2.918	06/22	2.895	06/29	2.885
2015-Jul	07/06	2.877	07/13	2.920	07/20	2.888	07/27	2.833		
2015-Aug	08/03	2.779	08/10	2.720	08/17	2.803	08/24	2.726	08/31	2.602
2015-Sep	09/07	2.532	09/14	2.471	09/21	2.425	09/28	2.418		
2015-Oct	10/05	2.415	10/12	2.432	10/19	2.374	10/26	2.326		
2015-Nov	11/02	2.322	11/09	2.335	11/16	2.281	11/23	2.198	11/30	2.165
2015-Dec	12/07	2.159	12/14	2.144	12/21	2.133	12/28	2.141		
2016-Jan	01/04	2.135	01/11	2.104	01/18	2.022	01/25	1.965		
2016-Feb	02/01	1.932	02/08	1.870	02/15	1.834	02/22	1.837	02/29	1.887
2016-Mar	03/07	1.943	03/14	2.062	03/21	2.109	03/28	2.169		
2016-Apr	04/04	2.185	04/11	2.173	04/18	2.240	04/25	2.265		
2016-May	05/02	2.342	05/09	2.325	05/16	2.345	05/23	2.403	05/30	2.440
2016-Jun	06/06	2.482	06/13	2.499	06/20	2.455	06/27	2.432		
2016-Jul	07/04	2.396	07/11	2.359	07/18	2.336	07/25	2.289		
2016-Aug	08/01	2.267	08/08	2.256	08/15	2.256	08/22	2.299	08/29	2.341
2016-Sep	09/05	2.329	09/12	2.310	09/19	2.333	09/26	2.334		
2016-Oct	10/03	2.354	10/10	2.381	10/17	2.367	10/24	2.353	10/31	2.341
2016-Nov	11/07	2.345	11/14	2.298	11/21	2.269	11/28	2.268		
2016-Dec	12/05	2.321	12/12	2.347	12/19	2.375	12/26	2.419		
2017-Jan	01/02	2.485	01/09	2.496	01/16	2.467	01/23	2.436	01/30	2.408
2017-Feb	02/06	2.405	02/13	2.418	02/20	2.414	02/27	2.427		
2017-Mar	03/06	2.452	03/13	2.434	03/20	2.433	03/27	2.428		
2017-Apr	04/03	2.471	04/10	2.534	04/17	2.546	04/24	2.559		
2017-May	05/01	2.522	05/08	2.484	05/15	2.481	05/22	2.510	05/29	2.516
2017-Jun	06/05	2.525	06/12	2.479	06/19	2.433	06/26	2.404		
2017-Jul	07/03	2.376	07/10	2.411	07/17	2.392	07/24	2.426	07/31	2.467
2017-Aug	08/07	2.492	08/14	2.497	08/21	2.474	08/28	2.513		
2017-Sep	09/04	2.794	09/11	2.800	09/18	2.750	09/25	2.701		
2017-Oct	10/02	2.682	10/09	2.622	10/16	2.605	10/23	2.594	10/30	2.602
2017-Nov	11/06	2.673	11/13	2.706	11/20	2.683	11/27	2.648		
2017-Dec	12/04	2.617	12/11	2.601	12/18	2.568	12/25	2.589		
2018-Jan	01/01	2.637	01/08	2.639	01/15	2.673	01/22	2.684	01/29	2.723
2018-Feb	02/05	2.753	02/12	2.724	02/19	2.676	02/26	2.666		
2018-Mar	03/05	2.679	03/12	2.677	03/19	2.716	03/26	2.764		
2018-Apr	04/02	2.817	04/09	2.811	04/16	2.863	04/23	2.914	04/30	2.961
2018-May	05/07	2.960	05/14	2.949	05/21	2.999	05/28	3.039		
2018-Jun	06/04	3.018	06/11	2.989	06/18	2.958	06/25	2.913		
2018-Jul	07/02	2.924	07/09	2.937	07/16	2.943	07/23	2.911	07/30	2.924
2018-Aug	08/06	2.930	08/13	2.921	08/20	2.900	08/27	2.906		
2018-Sep	09/03	2.903	09/10	2.912	09/17	2.921	09/24	2.923		
2018-Oct	10/01	2.947	10/08	2.984	10/15	2.961	10/22	2.925	10/29	2.896
2018-Nov	11/05	2.840	11/12	2.773	11/19	2.700	11/26	2.630		
2018-Dec	12/03	2.544	12/10	2.511	12/17	2.460	12/24	2.413	12/31	2.358
2019-Jan	01/07	2.329	01/14	2.338	01/21	2.340	01/28	2.343		
2019-Feb	02/04	2.341	02/11	2.361	02/18	2.400	02/25	2.471		
2019-Mar	03/04	2.502	03/11	2.549	03/18	2.625	03/25	2.701		
2019-Apr	04/01	2.770	04/08	2.826	04/15	2.912	04/22	2.926	04/29	2.972
2019-May	05/06	2.983	05/13	2.954	05/20	2.939	05/27	2.909		
2019-Jun	06/03	2.893	06/10	2.821	06/17	2.759	06/24	2.741		
2019-Jul	07/01	2.798	07/08	2.827	07/15	2.860	07/22	2.833	07/29	2.798
2019-Aug	08/05	2.772	08/12	2.710	08/19	2.684	08/26	2.661		
2019-Sep	09/02	2.651	09/09	2.638	09/16	2.640	09/23	2.741	09/30	2.737
2019-Oct	10/07	2.742	10/14	2.727	10/21	2.735	10/28	2.692		
2019-Nov	11/04	2.702	11/11	2.711	11/18	2.688	11/25	2.672		
2019-Dec	12/02	2.667	12/09	2.652	12/16	2.627	12/23	2.621	12/30	2.658
2020-Jan	01/06	2.665	01/13	2.657	01/20	2.625	01/27	2.595		
2020-Feb	02/03	2.546	02/10	2.511	02/17	2.518	02/24	2.555		
2020-Mar	03/02	2.514	03/09	2.468	03/16	2.343	03/23	2.217	03/30	2.103
2020-Apr	04/06	2.022	04/13	1.951	04/20	1.910	04/27	1.870		
2020-May	05/04	1.883	05/11	1.941	05/18	1.969	05/25	2.049		
2020-Jun	06/01	2.064	06/08	2.123	06/15	2.185	06/22	2.216	06/29	2.260
2020-Jul	07/06	2.265	07/13	2.283	07/20	2.275	07/27	2.265		

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
2020-Aug	08/03	2.266	08/10	2.256	08/17	2.256	08/24	2.272	08/31	2.311
2020-Sep	09/07	2.302	09/14	2.274	09/21	2.259	09/28	2.259		
2020-Oct	10/05	2.262	10/12	2.257	10/19	2.240	10/26	2.234		
2020-Nov	11/02	2.204	11/09	2.188	11/16	2.202	11/23	2.194	11/30	2.211
2020-Dec	12/07	2.246	12/14	2.247	12/21	2.311	12/28	2.330		
2021-Jan	01/04	2.336	01/11	2.403	01/18	2.464	01/25	2.478		
2021-Feb	02/01	2.495	02/08	2.548	02/15	2.588	02/22	2.717		
2021-Mar	03/01	2.796	03/08	2.857	03/15	2.940	03/22	2.954	03/29	2.941
2021-Apr	04/05	2.945	04/12	2.939	04/19	2.945	04/26	2.962		
2021-May	05/03	2.981	05/10	3.051	05/17	3.118	05/24	3.112	05/31	3.119
2021-Jun	06/07	3.128	06/14	3.161	06/21	3.153	06/28	3.185		
2021-Jul	07/05	3.216	07/12	3.227	07/19	3.247	07/26	3.232		
2021-Aug	08/02	3.256	08/09	3.269	08/16	3.272	08/23	3.243	08/30	3.237
2021-Sep	09/06	3.273	09/13	3.262	09/20	3.280	09/27	3.271		
2021-Oct	10/04	3.285	10/11	3.360	10/18	3.416	10/25	3.476		
2021-Nov	11/01	3.484	11/08	3.505	11/15	3.495	11/22	3.493	11/29	3.478
2021-Dec	12/06	3.440	12/13	3.414	12/20	3.395	12/27	3.375		
2022-Jan	01/03	3.381	01/10	3.394	01/17	3.404	01/24	3.421	01/31	3.464
2022-Feb	02/07	3.538	02/14	3.581	02/21	3.624	02/28	3.701		
2022-Mar	03/07	4.196	03/14	4.414	03/21	4.343	03/28	4.334		
2022-Apr	04/04	4.274	04/11	4.196						

-- = No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data.

Release Date: 4/11/2022
Next Release Date: 4/18/2022

Referring Pages:

- [Retail Prices for Gasoline, All Grades](#)
- [U.S. Gasoline and Diesel Retail Prices](#)



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White House Environmental Justice Advisory Council; Notification of Virtual Public Meeting

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Content

Action

Notification for a public meeting.

Summary

Pursuant to the Federal Advisory Committee Act (FACA), the U.S. Environmental Protection Agency (EPA) hereby provides notice that the White House Environmental Justice Advisory Council (WHEJAC) will meet on the dates and times described below. The meeting is open to the public. Members of the public are encouraged to provide comments relevant to the beta version of the Climate and Economic Justice Screening Tool that was developed by the Council on Environmental Quality (CEQ) and comments relevant to federal government agencies' implementation of the Justice40 Initiative. For additional information about registering to attend the meetings or to provide public comment, please see “ *Registration* ” under SUPPLEMENTARY INFORMATION . Pre-registration is required.

Dates

The WHEJAC will hold a virtual public meeting on Wednesday, March 30, 2022, and Thursday, March 31, 2022, from approximately 3:00 p.m.-7:00 p.m., Eastern Time each day. A public comment period relevant to the beta version of the Climate and Economic Justice Screening Tool and federal government agencies' implementation of the Justice40 Initiative will be considered by the WHEJAC during the meeting on March 30, 2022. (see SUPPLEMENTARY INFORMATION). Members of the public who wish to participate during the public comment period must pre-register by 11:59 p.m., Eastern Time, March 23, 2022.

For Further Information Contact

Karen L. Martin, WHEJAC Designated Federal Officer, U.S. EPA; email: whejac@epa.gov; telephone: (202) 564-0203. Additional information about the WHEJAC is available at <https://www.epa.gov/environmentaljustice/white-house-environmental-justice-advisory-council>.

Supplementary Information

The meeting discussion will focus on the beta version of the Climate and Economic Justice Screening Tool developed by the CEQ and WHEJAC draft recommendations on the implementation of the Justice40 Initiative. These two charges were established through Executive Order 14008, “Tackling the Climate Crisis at Home and Abroad.”

The Charter of the WHEJAC states that the advisory committee will provide independent advice and recommendations to the Chair of the CEQ and to the White House Environmental Justice Interagency Council (IAC). The WHEJAC will provide advice and recommendations about broad cross-cutting issues, related but not limited to, issues of environmental justice and pollution reduction, energy, climate change mitigation and resiliency, environmental health, and racial inequity. The WHEJAC's efforts will include a broad range of strategic, scientific, technological, regulatory, community engagement, and economic issues related to environmental justice.

Registration: Individual registration is required for the virtual public meeting. Information on how to register is located at <https://www.epa.gov/environmentaljustice/white-house-environmental-justice-advisory-council>. Registration for the meeting is available through the scheduled end time of the meeting. Registration to speak during the public comment period will close 11:59 p.m., Eastern Time, on March 23, 2022. When registering, please provide your name, organization, city and state, and email address for follow up. Please also indicate whether you would like to provide public comment during the meeting, and whether you are submitting written comments at the time of registration.

A. Public Comment

The WHEJAC is interested in receiving public comments relevant to the beta version of the Climate and Economic Justice Screening Tool that was developed by the CEQ and federal government agencies' implementation of the Justice40 Initiative. Every effort will be made to hear from as many registered public commenters during the time specified on the agenda. Individuals or groups providing remarks during the public comment period will be limited to three (3) minutes. Please be prepared to briefly describe your comments and recommendations on what you want the WHEJAC to advise CEQ and IAC to do regarding the beta version of the Climate and Economic Justice Screening Tool and federal government agencies' implementation of the Justice40 Initiative. Submitting written comments for the record are strongly encouraged. You can submit your written comments in three different ways, 1. by creating comments in the Docket ID No. EPA-HQ-OA-2022-0050 at <http://www.regulations.gov>, 2. by using the webform at <https://www.epa.gov/environmentaljustice/white-house-environmental-justice-advisory-council#whejacmeeting>, and 3. by sending comments via email to wheja@epa.gov. Written comments can be submitted through April 14, 2022.

B. Information About Services for Individuals With Disabilities or Requiring English Language Translation Assistance

For information about access or services for individuals requiring assistance, please contact Karen L. Martin, via email at whejac@epa.gov or contact by phone at (202) 564-0203. To request special accommodations for a disability or other assistance, please submit your request at least seven (7) working days prior to the meeting, to give EPA sufficient time to process your request. All requests should be sent to the email listed in the FOR FURTHER INFORMATION CONTACT section.

Matthew Tejada,
 Director for the Office of Environmental Justice.
 [FR Doc. 2022-05180 Filed 3-10-22; 8:45 am]
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EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

April 27, 2021
(Senate Floor)

STATEMENT OF ADMINISTRATION POLICY

S.J. Res. 14 – A joint resolution providing for congressional disapproval under chapter 8 of title 5, United States Code, of the rule submitted by the Environmental Protection Agency relating to “Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources Review”

(Sen. Heinrich, D-NM, and 23 cosponsors)

The Administration supports passage of S.J. Res. 14, a joint resolution providing for congressional disapproval of the rule “Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources Review,” published at 85 Fed. Reg. 57018 (September 14, 2020). This action would ensure that this rule, which eliminated pollution standards for methane emissions from the oil and gas sector and eliminated all emission standards for the transmission and storage segments of that sector, will have no force or effect and reinstate the pollution reduction requirements established under the Clean Air Act in 2012 and 2016.

Addressing methane leaks through detection and repair by using already cost-effective technologies can spur the creation of good-paying jobs fixing leaking equipment and pipelines – all while minimizing waste and reducing this powerful source of pollution. Today, the oil and gas sector is the largest industrial source of methane emissions – a potent climate-disrupting greenhouse gas that is responsible for approximately one-third of the global warming and the resulting climate disruption we are already experiencing from climate change. In order to effectively mitigate climate change, addressing methane pollution from this and other sectors is an urgent and essential step.

Every American has a fundamental right to breathe clean air and drink clean water. These methane emissions – leaking during oil and gas production, transmission, and distribution activities – also contribute to the formation of smog, or ground-level ozone, which is harmful to both human health and agriculture. Oil and gas production is also a significant emitter of carcinogenic and smog-forming volatile organic compounds into frontline communities. These communities, as well as children, the elderly, outdoor workers, and individuals with respiratory conditions, are at higher risk of experiencing harmful health outcomes due to exposure to such pollution. Oil and gas pollution can also be carried by the wind and intensify air pollution problems in communities along that path, including across state boundaries.

The Clean Air Act authorizes the Environmental Protection Agency (EPA) to protect Americans from dangerous air pollution, including methane and volatile organic compounds. Nonetheless, the rule that this resolution disapproves of took four harmful actions that *increased* the amount of

harmful pollution to which Americans are exposed: (1) the elimination of pollution standards for methane emissions from the oil and gas sector; (2) the elimination of all air pollution standards for the transmission and storage segments of the oil and gas sector; (3) removal of the predicate that establishes EPA's obligation to address the extensive methane pollution emitted by existing sources; and (4) establishment of a new, non-statutory requirement that EPA make an additional, pollutant-specific finding of significant contribution to endangerment before addressing harmful air pollution from a sector already regulated under the Clean Air Act. All four of these actions would be reversed by the passage and signature of the resolution.

S.J. Res. 14 will restore robust Clean Air Act pollution standards for this sector, protecting American communities. The resolution will also clear the pathway for EPA to evaluate opportunities to promulgate even stronger standards under section 111 of the Clean Air Act to address dangerous methane and other pollution from both new and existing sources across the oil and gas sector. The Administration looks forward to working with the Congress to restore these critically important pollution standards.

* * * * *

1 (b) EFFECTIVE DATE.—The amendments made by
2 this section shall apply to taxable years of specified foreign
3 corporations beginning after November 30, 2021.

4 (c) TRANSITION RULE.—A taxpayer’s first taxable
5 year beginning after November 30, 2021, shall end at the
6 same time as the first required year (within the meaning
7 of section 898(c)(1) of the Internal Revenue Code of
8 1986) ending after such date.

9 **SEC. 138123. MODIFICATIONS OF FOREIGN TAX CREDIT**
10 **RULES APPLICABLE TO CERTAIN TAXPAYERS**
11 **RECEIVING SPECIFIC ECONOMIC BENEFITS.**

12 (a) IN GENERAL.—Section 901 is amended by redес-
13 ignating subsection (n) as subsection (o) and by inserting
14 after subsection (m) the following new subsection:

15 “(n) SPECIAL RULES RELATING TO DUAL CAPACITY
16 TAXPAYERS.—

17 “(1) GENERAL RULE.—Notwithstanding any
18 other provision of this chapter, any amount paid or
19 accrued by a dual capacity taxpayer to a foreign
20 country or possession of the United States for any
21 period shall not be considered a tax—

22 “(A) if, for such period, the foreign coun-
23 try or possession does not impose a generally
24 applicable income tax, or

1 “(B) to the extent such amount exceeds
2 the amount which would be paid or accrued by
3 such dual capacity taxpayer under the generally
4 applicable income tax imposed by such country
5 or possession if such taxpayer were not a dual
6 capacity taxpayer.

7 Nothing in this paragraph shall be construed to
8 imply the proper treatment of any such amount
9 not in excess of the amount determined under
10 subparagraph (B).

11 “(2) DUAL CAPACITY TAXPAYER.—For pur-
12 poses of this subsection, the term ‘dual capacity tax-
13 payer’ means, with respect to any foreign country or
14 possession of the United States, a person who—

15 “(A) is subject to a levy of such country or
16 possession, and

17 “(B) receives (or will receive) directly or
18 indirectly a specific economic benefit from such
19 country or possession.

20 “(3) GENERALLY APPLICABLE INCOME TAX.—
21 For purposes of this subsection, the term ‘generally
22 applicable income tax’ means an income tax (or a se-
23 ries of income taxes) which is generally imposed
24 under the laws of a foreign country or possession of
25 the United States on residents of such foreign coun-

1 as amended by the preceding provisions of this Act, is
2 amended by inserting after the item relating to section
3 36C the following new item:

“Sec. 36D. Previously-owned qualified plug-in electric drive motor vehicles.”.

4 (d) **EFFECTIVE DATE.**—The amendments made by
5 this section shall apply to vehicles acquired after Decem-
6 ber 31, 2021.

7 **SEC. 136403. QUALIFIED COMMERCIAL ELECTRIC VEHI-**
8 **CLES.**

9 (a) **IN GENERAL.**—Subpart D of part IV of sub-
10 chapter A of chapter 1 is amended by adding at the end
11 the following new section:

12 **“SEC. 45Y. CREDIT FOR QUALIFIED COMMERCIAL ELEC-**
13 **TRIC VEHICLES.**

14 “(a) **IN GENERAL.**—For purposes of section 38, the
15 qualified commercial electric vehicle credit for any taxable
16 year is an amount equal to the sum of the credit amounts
17 determined under subsection (b) with respect to each
18 qualified commercial electric vehicle placed in service by
19 the taxpayer during the taxable year.

20 “(b) **PER VEHICLE AMOUNT.**—The amount deter-
21 mined under this subsection with respect to any qualified
22 commercial electric vehicle shall be equal to 30 percent
23 of the basis of such vehicle.

1 “(c) QUALIFIED COMMERCIAL ELECTRIC VEHI-
2 CLE.—For purposes of this section, the term ‘qualified
3 commercial electric vehicle’ means any vehicle which—

4 “(1) meets the requirements of subparagraphs
5 (A) and (C) of section 36C(e)(1) without regard to
6 any gross vehicle weight rating, and is acquired for
7 use or lease by the taxpayer and not for resale,

8 “(2) either—

9 “(A) meets the requirements of subpara-
10 graph (D) of section 36C(e)(1), or

11 “(B) is mobile machinery, as defined in
12 section 4053(8),

13 “(3) is primarily propelled by an electric motor
14 which draws electricity from a battery which—

15 “(A) has a capacity of not less than 30 kil-
16 owatt hours,

17 “(B) is capable of being recharged from an
18 external source of electricity,

19 “(C) is not powered or charged by an in-
20 ternal combustion engine, or

21 “(D) is a new qualified fuel cell motor ve-
22 hicle described in subparagraphs (A) and (B) of
23 section 30B(b)(3), and

24 “(4) is of a character subject to the allowance
25 for depreciation.

1 “(d) SPECIAL RULES.—

2 “(1) IN GENERAL.—Rules similar to the rules
3 under subsection (f) of section 36C shall apply for
4 purposes of this section.

5 “(2) PROPERTY USED BY TAX-EXEMPT ENTI-
6 TY.—In the case of a vehicle the use of which is de-
7 scribed in paragraph (3) or (4) of section 50(b) and
8 which is not subject to a lease, the person who sold
9 such vehicle to the person or entity using such vehi-
10 cle shall be treated as the taxpayer that placed such
11 vehicle in service, but only if such person clearly dis-
12 closes to such person or entity in a document the
13 amount of any credit allowable under subsection (a)
14 with respect to such vehicle.

15 “(e) VIN NUMBER REQUIREMENT.—No credit shall
16 be determined under subsection (a) with respect to any
17 vehicle unless the taxpayer includes the vehicle identifia-
18 tion number of such vehicle on the return of tax for the
19 taxable year.

20 “(f) TERMINATION.—No credit shall be determined
21 under this section with respect to any vehicle acquired
22 after December 31, 2031.”.

23 (b) CONFORMING AMENDMENTS.—

24 (1) Section 38(b) is amended by striking para-
25 graph (30) and inserting the following:

1 “(30) the qualified commercial electric vehicle
2 credit determined under section 45Y,”.

3 (2) Section 6213(g)(2), as amended by the pre-
4 ceding provisions of this Act, is amended—

5 (A) in subparagraph (T), by striking
6 “and” at the end,

7 (B) in subparagraph (U), by striking the
8 period at the end and inserting “, and”, and

9 (C) by adding at the end the following:

10 “(V) an omission of a correct vehicle iden-
11 tification number required under section 45Y(e)
12 (relating to commercial electric vehicle credit)
13 to be included on a return.”.

14 (3) The table of sections for subpart D of part
15 IV of subchapter A of chapter 1 is amended by add-
16 ing at the end the following new item:

“Sec. 45Y. Qualified commercial electric vehicle credit.”.

17 (c) EFFECTIVE DATE.—The amendments made by
18 this section shall apply to vehicles acquired after Decem-
19 ber 31, 2021.

20 **SEC. 136404. QUALIFIED FUEL CELL MOTOR VEHICLES.**

21 (a) IN GENERAL.—Section 30B(k)(1) is amended by
22 striking “December 31, 2021” and inserting “December
23 31, 2031”.

24 (b) NEW QUALIFIED FUEL CELL MOTOR VEHI-
25 CLE.—Section 30B(b) is amended by striking “and” at

1 the end of subparagraph (D), by striking the period at
2 the end of subparagraph (E) and inserting “, and”, and
3 by adding at the end the following new subparagraph:

4 “(F) which is not property of a character
5 subject to an allowance for depreciation.”.

6 (c) EFFECTIVE DATE.—The amendments made by
7 this section shall apply to property placed in service after
8 December 31, 2021.

9 **SEC. 136405. ALTERNATIVE FUEL REFUELING PROPERTY**
10 **CREDIT.**

11 (a) IN GENERAL.—Section 30C(g) is amended by
12 striking “December 31, 2021” and inserting “December
13 31, 2031”.

14 (b) ADDITIONAL CREDIT FOR CERTAIN ELECTRIC
15 CHARGING PROPERTY.—

16 (1) IN GENERAL.—Section 30C(a) is amend-
17 ed—

18 (A) by striking “equal to 30 percent” and
19 inserting the following: “equal to the sum of—
20 “(1) 30 percent”,

21 (B) by striking the period at the end and
22 inserting “, plus”, and

23 (C) by adding at the end the following new
24 paragraph:

1 “(2) 20 percent of so much of such cost as ex-
2 ceeds the limitation under subsection (b)(1) that
3 does not exceed the amount of cost attributable to
4 qualified alternative vehicle refueling property (de-
5 termined without regard to subsection (c)(1) and as
6 if only electricity, and fuel at least 85 percent of the
7 volume of which consists of hydrogen, were treated
8 as clean-burning fuels for purposes of section
9 179A(d)) which—

10 “(A) is intended for general public use
11 with no associated fee or payment arrangement,

12 “(B) is intended for general public use and
13 accepts payment via a credit card reader, in-
14 cluding a credit card reader that uses
15 contactless technology, or

16 “(C) is intended for use exclusively by
17 fleets of commercial or governmental vehicles.”.

18 (2) CONFORMING AMENDMENT.—Section
19 30C(b) is amended—

20 (A) by striking “The credit allowed under
21 subsection (a)” and inserting “The amount of
22 cost taken into account under subsection
23 (a)(1)”,

24 (B) by striking “\$30,000” and inserting
25 “\$100,000”, and

1 (C) by striking “\$1,000” and inserting
2 “\$3,333.33”.

3 (3) BIDIRECTIONAL CHARGING EQUIPMENT IN-
4 CLUDED AS QUALIFIED ALTERNATIVE FUEL VEHI-
5 CLE REFUELING PROPERTY.—Section 30C(e) is
6 amended—

7 (A) by striking “For purposes of this sec-
8 tion, the term” and inserting “For purposes of
9 this section—

10 “(1) IN GENERAL.—The term”, and

11 (B) by adding at the end the following new
12 paragraph:

13 “(2) BIDIRECTIONAL CHARGING EQUIPMENT.—
14 Property shall not fail to be treated as qualified al-
15 ternative vehicle refueling property solely because
16 such property—

17 “(A) is capable of charging the battery of
18 a motor vehicle propelled by electricity, and

19 “(B) allows discharging electricity from
20 such battery to an electric load external to such
21 motor vehicle.”.

22 (c) CERTAIN ELECTRIC CHARGING STATIONS IN-
23 CLUDED AS QUALIFIED ALTERNATIVE FUEL VEHICLE
24 REFUELING PROPERTY.—Section 30C is amended by re-
25 designating subsections (f) and (g) as subsections (g) and

1 (h), respectively, and by inserting after subsection (e) the
2 following:

3 “(f) SPECIAL RULE FOR ELECTRIC CHARGING STA-
4 TIONS FOR CERTAIN VEHICLES WITH 2 OR 3 WHEELS.—
5 For purposes of this section—

6 “(1) IN GENERAL.—The term ‘qualified alter-
7 native fuel vehicle refueling property’ includes any
8 property described in subsection (c) for the re-
9 charging of a motor vehicle described in paragraph
10 (2) that is propelled by electricity, but only if the
11 property—

12 “(A) meets the requirements of subsection
13 (a)(2), and

14 “(B) is of a character subject to deprecia-
15 tion.

16 “(2) MOTOR VEHICLE.—A motor vehicle is de-
17 scribed in this paragraph if the motor vehicle—

18 “(A) is manufactured primarily for use on
19 public streets, roads, or highways (not including
20 a vehicle operated exclusively on a rail or rails),
21 and

22 “(B) has at least 2, but not more than 3,
23 wheels.”.

24 (d) WAGE AND APPRENTICESHIP REQUIREMENTS.—
25 Section 30C, as amended by this section, is further

1 amended by redesignating subsections (g) and (h) as sub-
2 sections (h) and (i) and by inserting after subsection (f)
3 the following new subsection:

4 “(g) WAGE AND APPRENTICESHIP REQUIRE-
5 MENTS.—

6 “(1) BASE CREDIT AMOUNT AND INCREASED
7 CREDIT AMOUNT.—

8 “(A) IN GENERAL.—In the case of any
9 qualified alternative fuel vehicle refueling prop-
10 erty which does not satisfy the requirements of
11 subparagraph (B), the amount of the credit de-
12 termined under subsection (a) shall be 20 per-
13 cent of such amount (determined without re-
14 gard to this sentence).

15 “(B) INCREASED CREDIT FOR CERTAIN
16 QUALIFIED ALTERNATIVE FUEL VEHICLE RE-
17 FUELING PROPERTY MEETING PROJECT RE-
18 QUIREMENTS.—

19 “(i) IN GENERAL.—In the case of any
20 qualified alternative fuel vehicle refueling
21 property which meets the project require-
22 ments of this subparagraph, subparagraph
23 (A) shall not apply.

1 “(ii) PROJECT REQUIREMENTS.—A
2 project meets the requirements of this sub-
3 paragraph if it is one of the following:

4 “(I) A project which commences
5 construction prior to the date of the
6 enactment of this paragraph.

7 “(II) A project which satisfies
8 the requirements of paragraphs (2)
9 and (3).

10 “(2) PREVAILING WAGE REQUIREMENTS.—

11 “(A) IN GENERAL.—The requirements de-
12 scribed in this subparagraph with respect to
13 any qualified alternative fuel vehicle refueling
14 property are that the taxpayer shall ensure that
15 any laborers and mechanics employed by con-
16 tractors and subcontractors in the construction
17 of such property shall be paid wages at rates
18 not less than the prevailing rates for construc-
19 tion, alteration, or repair of a similar character
20 in the locality as most recently determined by
21 the Secretary of Labor, in accordance with sub-
22 chapter IV of chapter 31 of title 40, United
23 States Code.

24 “(B) CORRECTION AND PENALTY RELATED
25 TO FAILURE TO SATISFY WAGE REQUIRE-

1 MENTS.—In the case of any taxpayer which
2 fails to satisfy the requirement under subpara-
3 graph (A) with respect to such qualified alter-
4 native fuel vehicle refueling property, rules
5 similar to the rules of section 45(b)(8)(B) shall
6 apply for purposes of this paragraph.

7 “(3) APPRENTICESHIP REQUIREMENTS.—The
8 requirements described in this subparagraph with re-
9 spect to the construction of any qualified alternative
10 fuel vehicle refueling property are as follows:

11 “(A) LABOR HOURS.—

12 “(i) PERCENTAGE OF TOTAL LABOR
13 HOURS.—All contractors and subcontrac-
14 tors engaged in the performance of con-
15 struction on any project shall, subject to
16 subparagraph (B), ensure that not less
17 than the applicable percentage of the total
18 labor hours of such work be performed by
19 qualified apprentices.

20 “(ii) APPLICABLE PERCENTAGE.—For
21 purposes of paragraph (1), the applicable
22 percentage shall be—

23 “(I) in the case of any applicable
24 project the construction of which be-

1 gins before January 1, 2023, 5 per-
2 cent,

3 “(II) in the case of any applica-
4 ble project the construction of which
5 begins after December 31, 2022, and
6 before January 1, 2024, 10 percent,
7 and

8 “(III) in the case of any applica-
9 ble project the construction of which
10 begins after December 31, 2023, 15
11 percent.

12 “(B) APPRENTICE TO JOURNEYWORKER
13 RATIO.—The requirement under subparagraph
14 (A)(i) shall be subject to any applicable require-
15 ments for apprentice-to-journeyworker ratios of
16 the Department of Labor or the applicable
17 State apprenticeship agency.

18 “(C) PARTICIPATION.—Each contractor
19 and subcontractor who employs 4 or more indi-
20 viduals to perform construction, alteration, or
21 repair work on an applicable project shall em-
22 ploy 1 or more qualified apprentices to perform
23 such work.

24 “(D) EXCEPTION.—

1 “(i) IN GENERAL.—Notwithstanding
2 any other provision of this paragraph, this
3 paragraph shall not apply in the case of a
4 taxpayer who—

5 “(I) demonstrates a lack of avail-
6 ability of qualified apprentices in the
7 geographic area of the construction,
8 alteration, or repair work, and

9 “(II) makes a good faith effort to
10 comply with the requirements of this
11 paragraph.

12 “(ii) GOOD FAITH EFFORT.—For pur-
13 poses of clause (i), a taxpayer shall be
14 deemed to have satisfied the requirements
15 under such paragraph with respect to an
16 applicable project if such taxpayer has re-
17 quested qualified apprentices from a reg-
18 istered apprenticeship program, as defined
19 in section 3131(e)(3)(B), and such request
20 has been denied, provided that such denial
21 is not the result of a refusal by the con-
22 tractors or subcontractors engaged in the
23 performance of construction, alteration, or
24 repair work on such applicable project to
25 comply with the established standards and

1 requirements of such apprenticeship pro-
2 gram.

3 “(E) DEFINITIONS.—For purposes of this
4 paragraph—

5 “(i) LABOR HOURS.—The term ‘labor
6 hours’ has the meaning given such term in
7 section 45(b)(9)(E)(i).

8 “(ii) QUALIFIED APPRENTICE.—The
9 term ‘qualified apprentice’ has the mean-
10 ing given such term in section
11 45(b)(9)(E)(ii).

12 “(4) REGULATIONS AND GUIDANCE.—The Sec-
13 retary shall issue such regulations or other guidance
14 as the Secretary determines necessary or appropriate
15 to carry out the purposes of this subsection.”.

16 (e) EFFECTIVE DATE.—The amendment made by
17 this section shall apply to property placed in service after
18 December 31, 2021.

19 **SEC. 136406. REINSTATEMENT AND EXPANSION OF EM-**
20 **PLOYER-PROVIDED FRINGE BENEFITS FOR**
21 **BICYCLE COMMUTING.**

22 (a) REPEAL OF SUSPENSION OF EXCLUSION FOR
23 QUALIFIED BICYCLE COMMUTING BENEFITS.—Section
24 132(f) is amended by striking paragraph (8).

1 (4) REDETERMINATION OF FOREIGN TAXES
2 AND RELATED CLAIMS.—The amendments made by
3 subsection (g) shall take effect on the date which is
4 60 days after the date of the enactment of this Act.

5 (i) REGULATIONS.—The Secretary shall prescribe
6 rules providing for the application of subsection (e) of sec-
7 tion 904 of the Internal Revenue Code of 1986, as added
8 by this section, to any amounts carried over under sub-
9 section (c) of such section from a taxable year with respect
10 to which such subsection (e) did not apply to a taxable
11 year with respect to which such subsection (e) does apply.

12 **SEC. 138125. FOREIGN OIL AND GAS EXTRACTION INCOME**
13 **AND FOREIGN OIL RELATED INCOME TO IN-**
14 **CLUDE OIL SHALE AND TAR SANDS.**

15 (a) IN GENERAL.—Paragraphs (1)(A) and (2)(A) of
16 section 907(c) are each amended by inserting “(or oil
17 shale or tar sands)” after “oil or gas wells”.

18 (b) EFFECTIVE DATE.—The amendments made by
19 this section shall apply to taxable years of foreign corpora-
20 tions beginning after December 31, 2021, and to taxable
21 years of United States shareholders in which or with which
22 such taxable years of foreign corporations end.

DOL Proposes Rule to Support ESG Funds in Retirement Plans

The administration says climate change presents financial risks to plan participants

By Stephen Miller, CEBS

October 25, 2021

This article has been updated.

The U.S. Department of Labor (DOL) has proposed removing barriers put in place by the prior administration that would have limited plan fiduciaries' ability to consider climate change and other environmental, social and governance (ESG) issues as risk factors affecting workers' financial security when fiduciaries select retirement plan investments and exercise shareholder proxy voting rights.

Some analysts are questioning whether the proposal, as currently worded, could *require* fiduciaries to consider the economic effects of climate change and other ESG factors when evaluating funds for retirement plans.

The proposed rule, Prudence and Loyalty in Selecting Plan Investments and Exercising Shareholder Rights (<https://www.federalregister.gov/documents/2021/10/14/2021-22263/prudence-and-loyalty-in-selecting-plan-investments-and-exercising-shareholder-rights>), would apply to investments included in 401(k) and other defined contribution plans, as well as to defined benefit pension plans. The proposal, published in the *Federal Register* on Oct. 14, follows an executive order signed in May by President Joe Biden directing the federal government to treat climate change as a threat to workers' retirement savings (<https://www.whitehouse.gov/briefing-room/presidential-actions/2021/05/20/executive-order-on-climate-related-financial-risk/>).

In 2020, the administration of former President Donald Trump had issued a final rule (www.shrm.org/ResourcesAndTools/hr-topics/benefits/pages/final-rule-limits-401ks-from-picking-funds-based-on-nonfinancial-factors.aspx), subsequently blocked by the Biden administration, that would have required sponsors of investment-based employee plans to strictly apply the fiduciary duties of prudence under the Employee Retirement Income Security Act (ERISA) when considering plan investments that promote nonfinancial objectives, such as reducing carbon emissions. A separate Trump administration final rule (www.shrm.org/ResourcesAndTools/hr-topics/benefits/Pages/DOL-final-rule-limits-proxy-voting-by-retirement-plan-fiduciaries.aspx) would have barred retirement plan fiduciaries from casting corporate-shareholder proxy votes in favor of social or political positions that don't advance the financial interests of retirement plan participants.

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Duties of Prudence and Loyalty

Under the Biden administration, the DOL takes the position that ESG factors, and climate change issues in particular, pose financial risks that plan sponsors should consider as prudent fiduciaries.

According to a DOL fact sheet (<https://www.dol.gov/files/EBSA/about-ebbsa/our-activities/resource-center/fact-sheets/notice-of-proposed-rule-making-prudence-and-loyalty-in-selecting-plan-investments-and-exercising-shareholder-rights.pdf>), the proposed rule "retains the core principle that the duties of prudence and loyalty require ERISA plan fiduciaries to focus on material risk-return factors and not subordinate the interests of participants and beneficiaries (such as by sacrificing investment returns or taking on additional investment risk) to objectives unrelated to the provision of benefits under the plan," a position similar to the prior guidance.

The proposed rule, however, also "addresses the [DOL's] concern that the 2020 [Trump administration] rules have created uncertainty and are having the undesirable effect of discouraging ERISA fiduciaries' consideration of climate change and other ESG factors in investment decisions, even in cases when it is in the financial interest of plans to take such considerations into account."

Acting Assistant Secretary for the Employee Benefits Security Administration Ali Khawar said the new proposal "will bolster the resilience of workers' retirement savings and pensions by removing the artificial impediments—and chilling effect on environmental, social and governance investments—caused by the prior administration's rules."

He added, "A principal idea underlying the proposal is that climate change and other ESG factors can be financially material, and, when they are, considering them will inevitably lead to better long-term risk-adjusted returns, protecting the retirement savings of America's workers."

A 'Significant Change'

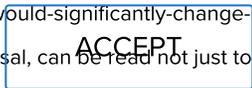
According to R. Sterling Perkinson, a partner in the Raleigh, N.C., office of law firm Kilpatrick Townsend, the proposed regulations "represent a significant change in the DOL's viewpoint of fiduciary duties that relate to ESG factors and shareholder activism (<https://www.kilpatricktownsend.com/en/Blog/ERISA/2021/10/DOL-Proposes-Rules-Regarding-ESG-Factors-and-Proxy-Voting>), but they do not fundamentally alter the fiduciary duties to make investment decisions and to vote proxies and exercise shareholder rights to enhance investment returns. They may nevertheless have an impact by removing potential barriers from selecting funds that, for example, take into account climate change impacts or corporate governance practices as part of their investment strategies."

Looking ahead, Perkinson noted, "It remains to be seen whether the DOL will go a step further in final regulations by mandating consideration of certain ESG factors, or whether they will maintain a more neutral position that they are no different than other traditional investment criteria."

Along those lines, retirement plan consultancy October Three highlighted the section of the proposal stating that a fiduciary, when evaluating a plan investment, must generally give appropriate consideration to:

"The projected return of the portfolio relative to the funding objectives of the plan, *which may often require an evaluation of the economic effects of climate change and other environmental, social, or governance factors* on the particular investment or investment course of action. [Emphasis added.]"

The firm advised (<https://www.octoberthree.com/dol-proposes-new-esg-and-proxy-voting-regulation-would-significantly-change-rules-adopted-by-the-trump-dol-at-the-end-of-2020/>) that "the italicized language, added by this new proposal, can be read not just to authorize consideration of ESG factors but to require it 'often.' "



William D. Jewett, a partner at law firm Verrill Dana in Boston, recommended that "fiduciaries should proceed with caution (<https://www.verrill-law.com/benefits-law-update/thoughts-on-the-dols-proposed-esg-regulation/>) until the DOL's back-and-forth on ESG has settled into a durable set of rules. The partisan reactions to the proposed regulation that have appeared to date suggest that the back-and-forth is far from over."

ESG Default Investments

The proposed rule reverses the prior rule's prohibition on using ESG funds as qualified default investment alternatives. We use cookies to make our site work, to improve your experience, and we use our information and data to help us develop our products and services. [Cookie Policy](#) for more information and how to disable them. By clicking accept, or closing the message option-where-blackrock-and-natixis-have-products) (QDIAs), which are types of mutual funds that plan sponsors can select as the default option in automatic enrollment 401(k)-type defined contribution plans.

QDIAs can be target-date retirement funds, which automatically reset their asset mix to become less risky as the specified target retirement year nears. Mutual fund companies have begun marketing target-date funds made up of investments that meet their ESG criteria.

"This will be a huge win, if the final rule ends up looking like the proposal, for some asset managers who rolled out ESG target-date funds over the past few years," Jason Roberts, CEO of the Pension Resource Institute consultancy in San Diego, told RIABiz, an online publication for investment advisors.

Proxy Voting by Plan Fiduciaries

Shareholder proxy votes have increasingly focused on ESG corporate issues, including climate change policies. The former ESG rule barred plan fiduciaries (www.shrm.org/ResourcesAndTools/hr-topics/benefits/pages/dol-final-rule-limits-proxy-voting-by-retirement-plan-fiduciaries.aspx) from casting corporate-shareholder proxy votes in favor of social or political positions that didn't advance the financial interests of retirement plan participants.

As regards fiduciaries voting on behalf of plan participants in shareholder proxy initiatives, attorneys at law firm Seyfarth explained that the DOL's proposed rule "eliminates several provisions that were couched as 'safe harbors' in the [Trump administration's] rule (<https://www.beneficiallyyours.com/2021/10/25/feeling-like-a-yo-yo-latest-swing-in-esg-investments-and-erisas-fiduciary-duties/>) based on the DOL's concern that they were being construed as permission for fiduciaries to abstain [from proxy voting] without properly considering the plan's interests."

The newly proposed rule also "prohibits a fiduciary from following the recommendations of a proxy advisory firm or other service provider unless the fiduciary determines that its proxy voting guidelines are consistent with the guidance in the proposal," Seyfarth noted.

Comments Sought

The comment period for the proposed rule will run through Dec. 13, 2021. Comments can be submitted at <https://www.regulations.gov/> (<https://www.regulations.gov/>).

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Conflicting Views on ESG Funds

In *Wall Street Journal* opposing opinion columns (https://www.wsj.com/articles/should-esg-funds-be-in-retirement-plans-11631729292?st=5qefupdt4x4tvtat&reflink=desktopwebshare_permalink) last month, two economics professors at Northwestern University's Kellogg School of Management in Evanston, Ill., squared off over the appropriateness of ESG funds in retirement plans.

Aaron Yoon, an assistant professor of accounting and information management, wrote that "Offering employees the option of investing in [ESG] funds in their 401(k) retirement-savings plans is essential. If individuals are making clear that they want the option to invest this way, there is no good reason to deny them the opportunity to do so in their 401(k) accounts."

He wrote that research he conducted (<https://meridian.allenpress.com/accounting-review/article-abstract/91/6/1697/99330/Corporate-Sustainability-First-Evidence-on?redirectedFrom=fulltext>) with colleagues showed companies with good ESG ratings relevant to the sector in which the company operates delivered superior stock returns.

In a counter-argument, Phillip Braun, a clinical professor of finance and associate chairman of the finance department at the Kellogg School of Management, wrote that ESG funds "tend to be more expensive than other funds"—and that according to a Morningstar study (<https://www.morningstar.com/content/dam/marketing/shared/pdfs/Research/annual-us-fund-fee-study-updated.pdf>), the asset-weighted average expense ratio of U.S. ESG funds was 0.61 percent in 2020, compared with 0.41 percent for all U.S. open-end mutual funds and 0.12 percent for traditional index funds. He noted that higher fund fees are correlated over time with lower returns on dollars invested, compared to similar funds with lower fees.

"Determining whether a stock or a fund is truly advancing ESG goals is difficult because the investment industry lacks a comprehensive ESG measurement framework," Braun added. "Even those who are willing to pay extra to support sustainability and a 'green' agenda cannot be sure that ESG funds deliver on that either."

[Update]

ESG Proposals Generate Strong Responses



The DOL's proposed rule garnered responses (<https://www.regulations.gov/docket/EBSA-2021-0013/comments>) on both sides of the issue, as did a related Securities and Exchange Commission (SEC) request for public input on climate change disclosures (<https://www.sec.gov/news/public-statement/lee-climate-change-disclosures>) by public companies.

While proponents of ESG investments favor removing barriers they see as needlessly preventing fiduciaries from offering funds that reflect plan participants' values in 401(k)-type plans, critics have questioned whether ESG funds are a marketing ploy by investment companies.

Below are excerpts from two comment letters on ESG investments:

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change in this letter, we believe that ERISA fiduciaries should be able to consider other ESG factors as well. As the DOL observed in its rule package, there are studies showing the positive correlation between social factors like workforce diversity and treatment of employees, on the one hand, and company success on the other.

-- A comment letter (<https://www.napa-net.org/sites/napa-net.org/files/1448000-1448320-comment%20letter%20iso%20dol%20proposed%20rule.pdf>) on the proposed DOL rule signed by attorney generals from California, Connecticut, Delaware, the District of Columbia, Maryland, Massachusetts, Minnesota, New Mexico, New York, North Carolina, Oregon and Vermont.

IN OPPOSITION:

My main worry with ESG disclosures is that they would give credence to the army of asset managers currently promoting ESG investing to retail and institutional investors as a way to "make money by doing good."... Recent ESG research by the [Center for Retirement Research at Boston College] finds that the major state and local government pension plans that have incorporated ESG factors into their investment policies underperformed those that did not. The study also finds that most retail ESG funds have higher fees and worse performance than similar index funds. At worst, ESG investing is a marketing ploy by financial services firms to repackage actively managed investments—which were becoming increasingly less appealing—in a trendy wrapper.

-- A comment letter (<https://www.sec.gov/comments/climate-disclosure/cl12-8922481-245102.pdf>) on the SEC's request for public input by Jean-Pierre Aubry, assistant director of research, the Center for Retirement Research at Boston College.

Related SHRM Articles:

401(k) 'Windows' Reconsidered as Portals for ESG Investments (www.shrm.org/ResourcesAndTools/hr-topics/benefits/pages/401k-windows-reconsidered-as-portals-for-esg-investments.aspx), *SHRM Online*, July 2021

DOL Won't Enforce Rules Limiting 401(k) Plans' Use of Nonfinancial Factors (www.shrm.org/ResourcesAndTools/hr-topics/benefits/pages/dol-wont-enforce-rules-on-401k-plans-use-of-esg-factors.aspx), *SHRM Online*, March 2021

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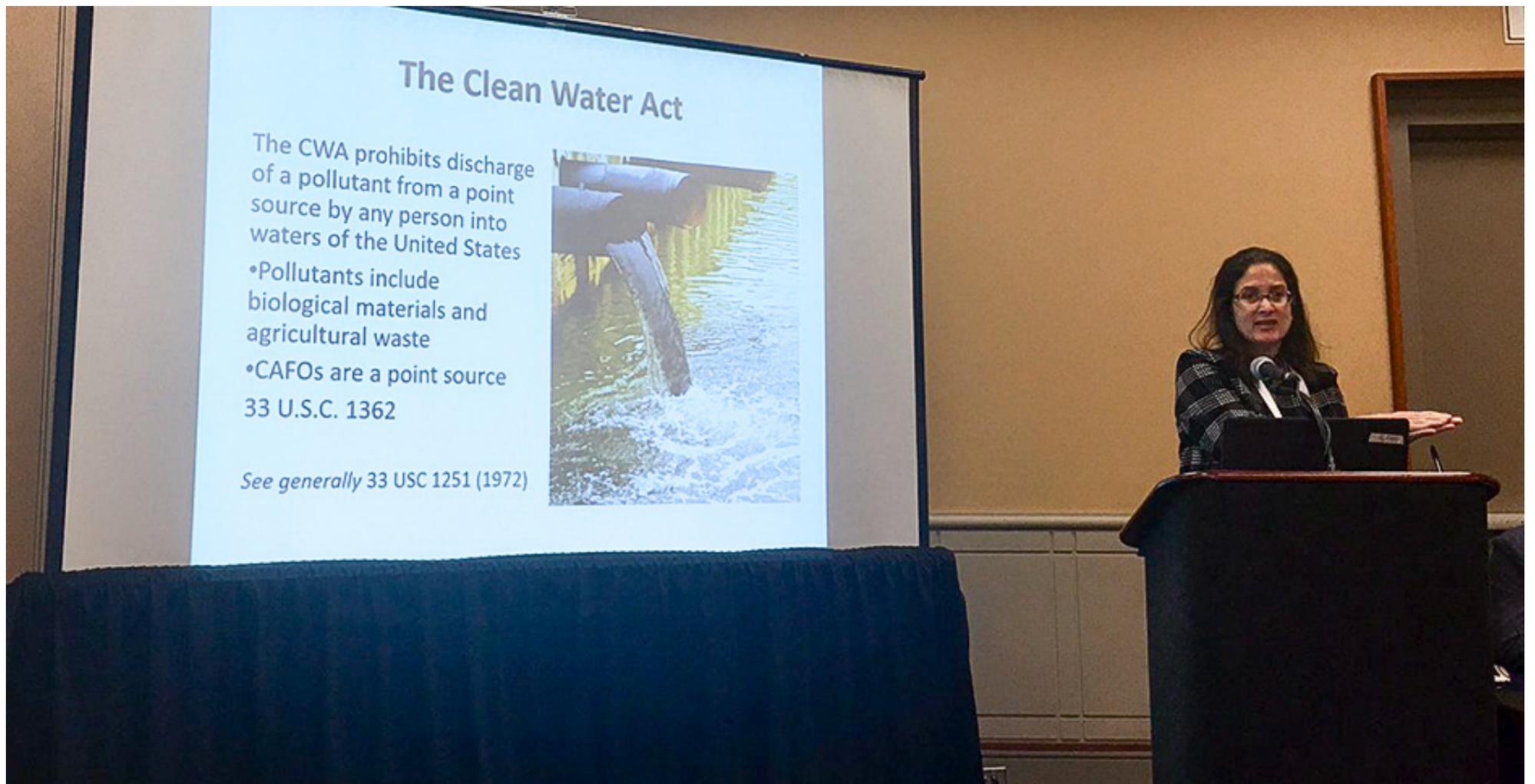
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Biden picks leading civil rights attorney for EPA

By Hannah Northey, Jeremy P. Jacobs | 02/02/2021 01:35 PM EST



Marianne Engelman-Lado giving a talk in 2019. @livablefuture/Twitter

One of the country's leading experts on environmental civil rights started serving yesterday as EPA's deputy general counsel for environmental initiatives, a move viewed as a step toward President Biden's commitment to environmental justice.

Marianne Engelman-Lado is one of three newly appointed political deputy general counsels slated to serve under EPA's Office of General Counsel, the agency's chief legal adviser. She joins Melissa Hoffer, who is serving as principal deputy general counsel and acting general counsel, and Dimple Chaudhary, EPA's deputy general counsel for nationwide resource protection programs (*Greenwire* (<https://subscriber.politicopro.com/eenews/article/eenews/1063723315>), Jan. 22).

EPA confirmed Engelman-Lado's hiring, which was outlined in an internal agency [email](https://www.eenews.net/assets/2021/02/02/document_gw_04.pdf) (https://www.eenews.net/assets/2021/02/02/document_gw_04.pdf) E&E News obtained.

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In a statement, Engelman-Lado said Biden is the "first president that has really committed their platform to addressing issues of inequality in the environmental sector and this is the moment to bring higher visibility to those who have been negatively impacted by environmental injustices."

Her appointment arrives on the heels of Biden's far-reaching executive order to impose a governmentwide approach to elevate environmental justice and address the disproportionate pollution burdens faced by many communities of color.

That includes the creation of an interagency council on environmental justice at the White House and a refocusing of the Justice Department on EJ issues (*Greenwire* (<https://subscriber.politicopro.com/eenews/article/eenews/1063723815>), Jan. 28).

Engelman-Lado has dedicated her career to environmental civil rights.

She has filed multiple complaints to EPA under Title VI of the Civil Rights Act, which is supposed to prohibit discrimination by entities that receive federal funds.

In theory, Title VI would be a key mechanism for communities facing disproportionate pollution burdens to seek remedies. But EPA has historically failed to take action on Title VI complaints, leading to sharp criticism — including from Engelman-Lado.

EPA has "one of the worst civil rights enforcement offices in the U.S. government," she told E&E News last year.

President Trump sought to further weaken Title VI at the Justice Department before leaving office (*Greenwire* (<https://subscriber.politicopro.com/eenews/article/eenews/1063722025>), Jan. 7).

Engelman-Lado has been a key lawyer in filing Title VI complaints stemming from power plant pollution in Michigan, as well as coal ash dumps and landfills in Alabama. And she has represented local communities in suing the agency when it didn't take action on those complaints.

Engelman-Lado is now a professor at Vermont Law School, and has previously worked at Yale Law School, Earthjustice, and the NAACP Legal Defense and Educational Fund. Vermont Law School praised her appointment yesterday in a statement, including noting that she established the school's Environmental Justice Clinic.

"Marianne is the perfect person at the perfect time to get EPA's EJ program on the right track," said Vermont Law School professor Pat Parenteau. "She is an accomplished civil rights lawyer with deep expertise in environmental law. She has earned the respect of the EJ communities by spending time with them, listening to their concerns, understanding their priorities, and designing strategies to achieve their objectives through the law."

Engelman-Lado and others sent the Biden transition team a [list](https://www.eenews.net/assets/2021/02/02/document_gw_03.pdf) (https://www.eenews.net/assets/2021/02/02/document_gw_03.pdf) of executive and legislative recommendations before the presidential inauguration to reverse Trump administration policies and "move the nation closer to the constitutionally-guaranteed promise of equal protection before the law to achieve environmental justice."

The groups are calling on the Biden administration to take concrete steps to support community-based monitoring in fence-line communities, ensure that resources are reaching the communities most affected and overhaul civil rights enforcement.

For example, federal agencies must develop robust policy and enforcement strategies to implement environmental justice, expand federal grants and cross-agency coordination, and conduct meaningful analyses of EJ protections in permitting and policymaking.

"Communities of Black, Indigenous, and People of Color (BIPOC), as well as low-income communities, are confronting the cumulative impacts of public health and economic crises, on top of environmental and climate risks and perpetual state-sanctioned violence," they wrote.

Reporter Kevin Bogardus contributed.

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EPA launches civil rights revamp

By Kelsey Brugger, Hannah Northey | 12/14/2021 01:46 PM EST



Lilian Dorka is director of EPA's Office of External Civil Rights Compliance. Eric Vance/EPA via AP

EPA will soon move to revamp internal policies for handling civil rights complaints across the nation, marking the agency's first steps toward tackling an issue it has all but flouted for decades.

The upcoming changes to EPA's Office of Civil Rights, tucked into the agency's strategic agenda, could mark a notable shift in agency policy.

Despite facing a backlog of civil rights complaints for decades, the office made its first and only formal finding of discrimination in 2017 on the last day of the Obama administration. The case, tied to air pollution complaints from a Michigan power plant, was initially filed more than two decades prior.

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But now the agency says it is taking Title VI civil rights complaints much more seriously.

“Under this administration our investigations are more rigorous, and our enforcement is more vigorous,” Lilian Dorka, EPA’s director of the External Civil Rights Compliance Office, or ECRCO, told E&E News in a recent interview. “We are going to use all of our regulatory authority,”

Dorka — who worked on civil rights for nearly three decades at the Department of Education — started at EPA in 2014 when the civil rights office lagged behind other agencies’ ability to respond to external Title VI complaints.

For years, the agency’s civil rights office had been plagued with a sizable backlog, and it largely rejected complaints (https://www.epa.gov/system/files/documents/2021-11/complaints-received-in-fy-2022-to-date-11-12-2021-thru-fy2014_0.pdf) from marginalized communities that have long faced disproportional environmental perils.

“Communities wanted the agency to do better,” said Mustafa Santiago Ali, a former environmental justice senior adviser. “When it came to environmental utilization, [the civil rights office] continued to fall short of the needs and expectations inside environmental justice communities.”

Ali said difficulties surrounding staffing and the office’s level of authority contributed to the problem.

The agency is now on the brink of a number of changes. The first is a deadline by the end of the month to issue guidance to create new requirements for how EPA grants must be used in a nondiscriminatory way.

Second, in the coming weeks, EPA says it will be opening an agency-initiated investigation known as a “compliance review” to focus on “substantive high priority issues affecting overburdened and disadvantaged communities.”

And within a year, the agency will issue guidance that clarifies existing law on how to address civil rights in the permitting context — particularly how the agency handles cumulative impacts, a key question that the administrator has been asked lately in the context of environmental justice (*E&E News PM* (<https://subscriber.politicopro.com/article/eenews/2020/09/28/ig-calls-for-more-civil-rights-oversight-010370>), (<https://subscriber.politicopro.com/article/eenews/2020/09/28/ig-calls-for-more-civil-rights-oversight-010370>) Sept. 28, 2020).

Dorka called the new focus on civil rights “incredible.”

“For me, after 34 years in civil rights enforcement, it is incredibly significant that there is a goal in the agency’s strategic plan for advancing EJ and civil rights and specific agencywide commitment,” she said.

Response to IG

EPA’s planned changes stem in part from a blistering inspector general report last September that found the civil rights office had failed to fully implement an oversight system to ensure the \$4 billion in funds doled out each year prevents racial discrimination.

The office is currently housed within EPA’s Office of General Counsel, according to the report, and has about a dozen full-time employees.

While the public can lodge complaints of alleged discrimination by recipients of EPA funding, the office has authority to withdraw financial assistance to compel the recipient to comply.

The IG found (https://www.epa.gov/sites/default/files/2020-09/documents/_epaoig_20200928-20-e-0333.pdf) ECRCO was not proactively conducting reviews to ensure recipients of federal funding were complying with the Civil Rights Act of 1964, which prohibits any recipient from discriminating based on race, color or national origin when carrying out programs for the government.

Further, the watchdog found the EPA office wasn't collecting data from funding recipients to target programs with weaknesses outside the investigation process. The IG also found some states needed more training and guidance to help them address discrimination complaints tied to permits and cumulative impacts.

The IG did, however, note that the office had moved to tackle a backlog of complaints since taking responsibility for external civil rights in the waning days of the Obama administration. Before then, such functions were housed in the Office of the Administrator, according to the report.

Since taking over in December 2016, the office had resolved a backlog of 61 cases from fiscal years 2017 through 2019, according to the report.

But the IG emphasized that improved oversight could prevent future case backlogs at EPA and help ensure funding recipients comply with Title VI.

“Despite elimination of the case backlog, additional improvements in the EPA’s oversight of Title VI funding recipients could prevent discrimination,” the IG wrote.

The IG called on EPA’s Office of the Administrator to develop a cross-agency plan and to develop guidance on permitting and cumulative impacts.

The watchdog also laid out a number of steps for the civil rights office to take to ensure it was collecting the right data from states in a systematic manner, training state staff and ensuring programs were nondiscriminatory.

Ali, now a vice president at the National Wildlife Federation, said he always advocated for a senior adviser for civil rights who could communicate directly with the administrator.

In June, EPA Administrator Michael Regan said he would soon name an environmental justice adviser but to date has made no formal announcement. Separately, President Biden’s budget proposal calls for the creation of an environmental justice assistant administrator, a post that would require congressional funding ([Greenwire \(https://subscriber.politicopro.com/article/eenews/2021/06/25/regan-unveils-50m-in-grants-with-eye-on-environmental-justice-000232\)](https://subscriber.politicopro.com/article/eenews/2021/06/25/regan-unveils-50m-in-grants-with-eye-on-environmental-justice-000232), June 25).

‘It’s long overdue’

Environmental advocates and residents who have filed civil rights complaints — and waited years for a response — say the agency’s potential reforms are a step in the right direction.

In Michigan alone, three such complaints have been filed this year, and environmental groups and residents are eagerly waiting to see what EPA decides.

Those complaints focus on the state’s approval of permits for facilities that have been tied to odors and other violations, including an automobile plant in Detroit, a cardboard recycling plant in the city of Kalamazoo and a hot mix asphalt plant in the city of Flint, which is still reeling from lead contamination of drinking water there.

Nick Leonard, executive director of the Great Lakes Environmental Law Center, said there’s no legal recourse if EPA rejects a case — that under Supreme Court precedent, advocates cannot sue to enforce civil rights regulations. That, he said, makes it even more important that EPA’s work to tackle racism is successful.

“It’s long overdue, to take a comprehensive look at how that office is doing the work of ensuring states are complying with nondiscriminatory regulations,” he said. “It’s very clear that the system we have right now, which is largely based on advocates submitting a complaint to EPA, and EPA conducting an investigation, that framework is not working.”

Leonard said EPA needs to figure out how to proactively ensure compliance and explain to states what compliance with anti-discriminatory regulations means.

Environmental justice concerns, he added, are only going to continue to emerge in the wake of Democrats’ vows to address environmental inequity and that advocates are pushing for permanent reforms.

“I think it’s happening a lot in Michigan because you have a governor and now a presidential administration that has said environmental justice is a priority,” he said. “Advocates are trying to put meat on the bone.”

But Leonard added that there’s also little relief under the current system because EPA’s office isn’t proactive, and advocates can only lodge a complaint after a facility is built and pollution is affecting nearby communities.

Biden Administration Halts New Drilling in Legal Fight Over Climate Costs

The Interior Department is pausing new federal oil and gas leases and permits after a judge blocked the government from weighing the cost of climate damage in decisions.



By Lisa Friedman

Published Feb. 20, 2022 Updated Feb. 22, 2022

WASHINGTON — The Biden administration is indefinitely freezing decisions about new federal oil and gas drilling as part of a legal brawl with Republican-led states that could significantly impact President Biden's plans to tackle climate change.

The move, which came Saturday, was a response to a recent federal ruling that blocked the way the Biden administration was calculating the real cost of climate change, a figure that guides a range of government decisions, from pollution regulation to whether to permit new oil, gas or coal extraction on public lands and in federal waters.

Climate Fwd There's an ongoing crisis — and tons of news. Our newsletter keeps you up to date. [Get it in your inbox.](#)

Under President Barack Obama, the government estimated that the damage from wildfires, floods and rising sea levels was \$51 for every ton of carbon dioxide generated by burning fossil fuels. President Donald J. Trump lowered that number considerably, setting it at \$7 or less per ton. Upon taking office, Mr. Biden revived the \$51 level and set about updating it further — work that is underway.

Known as the “social cost of carbon,” the metric is designed to underline the potential economic threats from greenhouse gas emissions so they can be compared to the economic benefits from acts like oil drilling. Economists and climate scientists say it is needed because climate-fueled heat waves, storms, wildfires and flooding already cost the United States billions of dollars annually but those costs are often not taken into account by policymakers. Factoring in those costs could make it harder for fossil fuel projects to win federal approval.

But 10 Republican-led states sued the government, and on Feb. 11, Judge James D. Cain Jr. of the U.S. District Court for the Western District of Louisiana found that the Biden administration's calculations “artificially increase the cost estimates” of oil and gas drilling.

Judge Cain, a Trump appointee, said using the social cost of carbon in decision-making would harm his native Louisiana and other energy producing states. He issued an injunction preventing the administration from considering the metric. The Justice Department said it intends to appeal.

In an ironic twist, the fallout from the judge's ruling — at least initially — is that the federal government has stopped work on new oil and gas leases, as well as permits to drill on federal lands and waters.

“Work surrounding public-facing rules, grants, leases, permits and other projects has been delayed or stopped altogether so that agencies can assess whether and how they can proceed,” the Department of Justice wrote in a legal filing late Saturday asking the court to stay the injunction against using a climate metric.

Melissa Schwartz, a spokeswoman for the Interior Department, added in a statement that “delays are expected in permitting and leasing for the oil and gas programs.” She said the agency “is committed to ensuring its programs account for climate impacts.”

That has angered states with significant oil and gas drilling on federal land.

Most immediately, it means a lease sale for drilling across 179,001 acres in Wyoming will not happen any time soon. The Bureau of Land Management missed a deadline last week for announcing that sale. The environmental assessment for the lease sale had incorporated the social cost of carbon metric.

The Petroleum Association of Wyoming accused the Biden administration of “a dereliction of duty” by delaying a sale that could be worth millions of dollars in revenue to the state. Senator Cynthia Lummis, Republican of Wyoming, called the missed deadline “a conscious decision to continue to attack Wyoming and our domestic energy industry in favor of progressive, unrealistic climate policies.”



Senator Cynthia Lummis's home state of Wyoming could lose revenue due to the delayed sale of drilling sites. Erin Scott for The New York Times

Senator Lummis said in a statement that Mr. Biden “has prioritized the agenda of radical environmentalists in his administration over the needs of people in Wyoming and the rest of the country.”

Neither the Petroleum Association Wyoming nor the American Petroleum Institute responded to a request for comment.

Mr. Biden has vowed to cut U.S. greenhouse gas emissions by at least 50 percent from 2005 levels by the end of this decade. Fossil fuel extraction on public land and in federal waters accounts for 25 percent of the greenhouse gases generated by the United States. Global emissions must be cut in half by 2030 to avoid catastrophic impacts from a warming planet, scientists say.

Environmental activists said they were pleased by the pause in new leases and permits but worried that Judge Cain’s ruling would ultimately weaken the administration’s ability to issue aggressive climate policies.

“It’s a mixed bag,” said Brett Hartl, director of government affairs for the nonprofit Center for Biological Diversity. “They will have to issue the leases at some point, and they won’t be able to use the social cost of carbon.”

The Louisiana attorney general, Jeff Landry, who has called the social cost of carbon “voodoo economics,” argued that Mr. Biden exceeded his authority by applying the social cost of carbon to decision-making. He was joined by the attorneys general of Alabama, Florida, Georgia, Kentucky, Mississippi, South Dakota, Texas, West Virginia and Wyoming.

Judge Cain sided with the Republican attorneys general, arguing that using a social cost of carbon is unconstitutional because Congress never passed legislation authorizing it.

Yet Congress has passed virtually no legislation addressing how an administration should conduct economic analyses, something it has done for decades. In a statement mocked by some legal experts, the judge cited a “separation of powers clause” in the Constitution. There is no such clause.

“That term in the opinion is one of the most embarrassing parts of a highly embarrassing opinion,” said Amit Narang, an expert on federal regulatory issues with the government watchdog group Public Citizen. He called the judge’s opinion “a partisan political hit job dressed up as a legal opinion.”

In the meantime, the decision has put an abrupt stop to the administration’s work. The interagency working group that was updating the social cost of carbon is on hold, according to an email from the Environmental Protection Agency, and the Justice Department warned other policies could also be delayed. An organization opposed to addressing climate change, the Competitive Enterprise Institute, wants the E.P.A. to revoke a new regulation of vehicle tailpipe emissions, arguing that the analysis using the social cost of carbon is now flawed based on Judge Cain’s ruling.

“Pending rulemakings in separate agencies throughout the government — none of which were actually challenged here — will now be delayed,” the Justice Department wrote.

The Biden administration accused Judge Cain of “judicial micromanagement,” particularly since the metric being blocked is only an interim one. “Other agency actions may now be abandoned due to an inability to redo related environmental analyses in time to meet mandatory deadlines,” it added.

The legal spat is one in a barrage of conflicting rulings facing the administration over the issue of oil and gas drilling on public lands and in federal waters.

When he first took office, Mr. Biden suspended new federal oil and gas leases. Mr. Landry and other Republican-led states challenged the ban, and a different Louisiana federal judge ruled in their favor — forcing the Biden administration to move forward with lease sales. It complied, opening more than 80 million acres in the Gulf of Mexico to oil and gas drilling, a record amount.

Then environmental groups sued to block that lease sale in a different federal court and won. In that ruling, a judge in the U.S. District Court for the District of Columbia said the Biden administration did not do enough to account for the impacts of drilling on climate change and invalidated the sale and the leases.



WHITE HOUSE

Raskin withdraws as Biden's Fed nominee

Sarah Bloom Raskin had been stuck in the Senate Banking Committee amid a GOP boycott of a committee vote on her nomination.



Raskin, whom the president tapped to be the Fed's vice chair for supervision, faced fierce resistance from the oil and gas industry over her position on how the central bank should do more to help tackle climate change. Her nomination had been stuck in the Senate Banking Committee after a GOP boycott of a vote, effectively blocking her confirmation from advancing to the floor of the chamber.

Four other nominees, including Fed Chair Jerome Powell, were also being held up because of the impasse over Raskin. Powell, chosen by Biden for a second term, is now serving as chair on an acting basis.

Sen. Joe Manchin (D-W.Va.), who hails from the second-biggest coal-producing state in the country, and moderate Republicans Susan Collins and Lisa Murkowski had said Monday they would not support Raskin's nomination, all but dooming her chances of confirmation. Raskin's withdrawal was first reported by the New Yorker.

Raskin, a former Fed governor and deputy Treasury secretary during the Obama administration, had been confirmed twice before for those posts with no opposition from Republicans. But she faced blowback this time from GOP lawmakers and Manchin over her calls for regulators to more closely scrutinize bank lending to fossil fuel companies and help mitigate climate-related risks to the financial system.

"Their point of contention was my frank public discussion of climate change and the economic costs associated with it," she wrote in a letter to Biden obtained by POLITICO. "It was – and is – my considered view that the perils of climate change must be added to the list of serious risks that the Federal Reserve considers as it works to ensure the stability and resiliency of our economy and financial system."

AD

While the financial industry raised no public objections to Raskin's nomination, Republicans such as Sen. Pat Toomey of Pennsylvania expressed fear that she might pursue measures that would make it more expensive for banks to lend to oil companies. She wrote in an op-ed last September that regulators should "ask themselves how their existing instruments can be used to incentivize a rapid, orderly, and just transition away from high-emission and biodiversity-destroying investments."

Sen. Sherrod Brown (D-Ohio), the chair of the Senate Banking Committee, in a statement Tuesday said "too many of my colleagues" ignored the wide, bipartisan support Raskin enjoyed, and instead "fell for talking points written by the oil and gas industry."

"Republicans engaged in a disingenuous smear campaign, distorting Ms. Raskin's views beyond recognition and made unsubstantiated attacks on her character," he said.

Toomey, the top Republican on the committee, said many Democrats are pushing for the central bank to go far beyond its role. The "bipartisan rejection" of Raskin's nomination "sends a powerful message to the Fed, and to all financial regulators, that it is not their job to allocate capital or stray from their mission to pursue extraneous or politically charged campaigns."

"The Biden administration should nominate in her place an individual who will focus exclusively on implementing the Fed's statutory mandates of stable prices, full employment, and supervision of bank holding companies," he said in the statement.

Raskin's withdrawal is a further blow to the president's efforts to fill financial regulatory jobs. Saule Omarova, Biden's nominee to be the comptroller of the currency, which regulates national banks, withdrew last year following a bitter and at times nasty nomination fight that ended after several moderate

Democrats made clear they could not support her confirmation. The agency is being run by Acting Comptroller Michael Hsu, and the White House has no immediate plans to announce a new nominee.

AD

Progressives had high hopes for Raskin but may now be forced to choose between a more moderate nominee or risk being unable to fill the job at all if Republicans take back the Senate next year.

In the near term, Raskin's withdrawal also likely breaks the logjam on Biden's remaining Fed nominees at a critical time for the central bank, which is set to begin raising interest rates this week in a bid to fight surging inflation.

Powell's first term as chair officially expired in February. Fed board member Lael Brainard is waiting to be confirmed to a promotion as Powell's No. 2, while two other candidates — Lisa Cook and Philip Jefferson — would fill vacant seats.

Biden urged the Senate to swiftly confirm the other Fed nominees. Brown said the committee would vote on the remaining four picks, but did not announce when.

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U.S. agrees to end fossil fuel financing abroad

By Sara Schonhardt | 11/04/2021 07:06 AM EDT



Climate envoy John Kerry talks with President Biden at COP 26 on Monday. The U.S. and other nations said today they will stop providing public financing for fossil fuel projects. Erin Schaff/The New York Times via AP

This story was updated at 10:40 a.m. EDT.

The United States committed today with other countries to stop financing fossil fuel projects abroad by the end of next year, in a seismic shift that could stem the construction of natural gas and oil facilities in lower-income nations.

The pledge, announced at the global climate summit in Glasgow, Scotland, could take billions of dollars away from future fossil fuel production and redistribute it to low-carbon energy projects such as wind and solar. The agreement covers “unabated” projects, which generally refers to fossil fuel facilities that don’t capture carbon dioxide emissions.

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“The signing of this statement represents a step forward very much in the right direction,” said Jonathan Wilkinson, Canada’s minister of natural resources.

The announcement goes beyond a separate agreement by the world’s largest economies last weekend to end public financing for international coal power development.

But the organizers of today’s commitment failed to attract every nation in the Group of 20, meaning some of the biggest financiers of fossil fuels, including Japan, South Korea and China, could continue building oil and gas infrastructure abroad.

And it only covers new investments, so projects already in the pipeline would continue to be built. The pledge does not include liquefied natural gas that countries produce domestically and export to be burned outside of their borders. U.S. exports of LNG have surged in recent years.

In addition to the U.S. and U.K., signatories include Costa Rica, Denmark, Canada, Italy and Mali. Several development banks also signed the agreement, including the East African Development Bank and the European Investment Bank.

Natural gas is considered a lower-carbon fuel than coal and proponents argue that it can serve as a bridge fuel in countries that are trying to bring more clean energy online as they expand electricity access to populations without it. Environmentalists say burning any fossil fuel is harmful, and fails to abide by the commitments countries made to limit global warming.

That the pledge was embraced by developing countries sends a message that renewable energy can help poorer nations strengthen their economies, said Maria Pastukhova, a senior political adviser at E3G in Berlin.

“It’s just a very powerful signal that a prerequisite and a priority for sustainable growth and economic development are really not investments in fossil fuels but investments in clean energy,” she said.

Justin Guay, director for global climate strategy at the Sunrise Project, said it’s one of the more meaningful announcements he has seen amid a flurry of pledges and agreements rolled out at the annual climate conference, known as COP 26.

“Given how important public finance is for de-risking and crowding in private capital for fossil fuel projects, especially in emerging markets, it’s quite a big deal,” he said.

Between 2018 and 2020, G-20 countries and the multilateral development banks they support provided \$63 billion a year on average in public finance for international fossil fuel projects, according to a recent [report \(http://priceofoil.org/2021/10/28/new-report-g20-governments-have-bankrolled-more-than-188-billion-in-fossil-fuels-since-2018/\)](http://priceofoil.org/2021/10/28/new-report-g20-governments-have-bankrolled-more-than-188-billion-in-fossil-fuels-since-2018/) by two environmental groups, Friends of the Earth and Oil Change International. About half of that went to gas projects.

The top four financiers — Canada, Japan, Korea and China — provided nearly half of that amount. The United States was fifth.

The U.S. has been a large contributor to oil and gas projects historically, said Guay. Recently, its investments have been smaller because the Export-Import Bank — the official U.S. export credit agency — has been prevented from funding fossil fuel projects overseas because it lacks a quorum.

That means there’s a backlog of projects that won’t be funded following this announcement, he noted.

A preliminary estimate from Oil Change International found that the deal could shift around \$15 billion in fossil fuel finance to clean energy. That might look modest compared to what has been channeled into fossil fuels, said Pastukhova of E3G.

“But this is a start – and a much-needed start.”

Sidestepping Manchin

Today's announcement expands on an Obama-era policy to end public international coal financing. At the time, there was no global consensus that coal had to go, Guay said.

"Fast forward to today and every other announcement in Glasgow feels like it's about retiring coal, phasing out coal, moving beyond coal," he added. "When you think about it with that lens, I think this is an important start to the process that will lead to the world moving beyond oil and gas."

The U.S. has made gradual moves to end financing for fossil fuel development outside its borders. In August, the Treasury Department issued guidance for multilateral development banks that was aimed at squeezing off fossil fuel financing except in certain circumstances (*Climatewire* (<https://subscriber.politicopro.com/article/eenews/2021/08/17/treasury-seeks-to-curb-fossil-fuel-financing-by-world-bank-279662>), Aug. 17).

At the same time, the Biden administration has come under scrutiny in Glasgow for not having passed the landmark climate legislation it has been touting. Guay said joining today's agreement may have been seen as one of the few place where the U.S. could unilaterally act without the support of lawmakers like Sen. Joe Manchin (D-W.Va.), who has slowed Biden's legislative agenda in Congress.

It may not be without geopolitical implications, said Pastukhova, from E3G. A lot of U.S. government financing for oil and gas goes to middle-income countries in Eastern Europe, as a way to reduce Russian gas imports, she said.

The announcement comes as Denmark and Costa Rica launch the Beyond Oil and Gas Alliance, and as more countries and financial institutions sign up to an alliance to phase out coal globally (*see related story* (<https://subscriber.politicopro.com/article/eenews/2021/11/04/cop-26-bankers-join-climate-fight-skepticism-abounds-282813>)).

A separate initiative launched by the U.K. this morning commits members to end all investment — domestic and international — in new coal power.

The Global Coal to Clean Power Transition covers a coalition of 190 countries and organizations, including 23 nations that committed today to phase out coal power. Indonesia, the world's largest coal exporter, and Poland, the E.U.'s major coal-powered economy, were among them.

"This announcement moves the goal posts of ambition from 'no new coal' to 'phasing out coal' altogether," said Dave Jones, an analyst at climate and energy think tank Ember, in a statement.

Ending fossil fuel subsidies is seen as another move that could help contain global warming. But that's trickier. Despite pledges to move toward net zero by midcentury, G-20 countries have continued to subsidize fossil fuel production and consumption.

A report (<https://assets.bbhub.io/professional/sites/24/BloombergNEF-Climate-Policy-Factbook-COP26-Edition.pdf>) by BloombergNEF found that G-20 nations provided nearly \$600 billion in fossil fuel subsidies and other financial support in 2020. The countries also allocated more than \$100 billion in stimulus funding to oil, gas and coal projects.

In the past, when governments adjusted gasoline prices or lowered electricity subsidies, "that's when you're most likely to have people showing up in the streets in yellow vests," said Ethan Zindler, head of the Americas at BloombergNEF. "Because they so obviously affect consumers' pocketbooks, they're often the most difficult to scale back."

In addition to phasing out support for fossil fuels, countries will also need to put a price on carbon emissions and disclose their climate risks, the report said.

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Who Gets Hit by the Book Minimum Tax?

November 18, 2021

Cody Kallen

The current version of the reconciliation bill—the Build Back Better Act—attempts to walk a fine (politically imposed) line: raising hundreds of billions of dollars from higher corporate taxes without raising the corporate tax rate. The centerpiece of this effort is the book minimum tax, a new alternative minimum tax applied to the financial statement income (i.e., book income) that companies report to their investors.

Recent Tax Foundation analyses considered some of the problems created by the structure of the proposed minimum tax. But in addition to these problems, it will have disproportionate effects on specific industries, including its ineffectiveness as a stable revenue raiser, its distortionary impacts on investment, and apparently unintended penalties for various company- and industry-specific expenses ranging from spectrum leases to pension plans. As such, it is important to understand how the book minimum tax would impact different industries.

Utilizing Compustat financial statement data on public companies and incorporating intermediate results from Tax Foundation's Multinational Tax Model, we are able to identify the different industry effects of the book minimum tax and refine our earlier estimate for the aggregate impact.

While the book tax itself raises hundreds of billions of dollars over the 10-year budget window, a substantial portion of that revenue is offset by the prior year minimum tax credit (for previous book tax liability, which can be used to reduce ordinary corporate income tax liability). On net, the book minimum tax increases firms' tax liabilities by \$219.4 billion over the budget window, although part of this revenue is offset by reduced revenue from the capital gains and dividend taxes paid by owners of these firms.

However, the burden of this tax is not spread evenly across industries. Table 1 presents the net tax raised from 30 industries, both in dollar terms and as a share of the total pretax income of firms required to calculate the tax.

Net Tax Hikes by Industry from the Build Back Better Book Minimum Tax over the Budget Window

Industry	\$ millions	% of income
Coal	60	7.2
Automobiles and Trucks	10,817	5.1
Utilities	43,348	4.4
Everything Else	32,291	3.9
Construction and Construction Materials	2,865	3.4
Tobacco Products	12,017	2.5
Recreation	991	2.3
Printing and Publishing	353	2.3
Communication	30,581	2.3
Beer & Liquor	3,780	2.2
Wholesale	3,241	2
Transportation	11,019	1.7
Healthcare, Medical Equipment, Pharmaceutical Products	11,129	1
Textiles	44	0.9
Steel Works, etc.	91	0.8
Banking, Insurance, Real Estate, Trading	24,278	0.8
Business Equipment	12,368	0.7
Fabricated Products and Machinery	1,552	0.6
Petroleum and Natural Gas	9,250	0.6
Food Products	1,833	0.4
Aircraft, ships, and railroad equipment	1,161	0.4
Business Supplies and Shipping Containers	407	0.3
Retail	3,743	0.3
Apparel	74	0.1
Personal and Business Services	1914	0.1
Restaurants, Hotels, Motels	81	0
Chemicals	57	0
Consumer Goods	49	0
Electrical Equipment	0	0
Precious Metals, Non-Metallic, and Industrial Metal Mining	0	0

Source: Author calculations.

Notes: Industry classifications follow the Fama-French 30-industry classification system. The first column displays the net tax hike in the industry, as book minimum tax liabilities less prior year minimum tax credits. The second column presents the net tax hike as a share of total pretax income of the affected firms. Consistent with the legal definition in the proposed minimum tax, a firm is considered affected by the tax if its adjusted financial statement income averaged over the previous three years exceeds \$1 billion; once the firm becomes affected by the tax, it remains affected for all subsequent years. The book minimum tax computations are stacked on top of international tax changes in the Build Back Better Act.

Industry	\$ millions	% of income
Total	219,394	1.3

Source: Author calculations.

Notes: Industry classifications follow the Fama-French 30-industry classification system. The first column displays the net tax hike in the industry, as book minimum tax liabilities less prior year minimum tax credits. The second column presents the net tax hike as a share of total pretax income of the affected firms. Consistent with the legal definition in the proposed minimum tax, a firm is considered affected by the tax if its adjusted financial statement income averaged over the previous three years exceeds \$1 billion; once the firm becomes affected by the tax, it remains affected for all subsequent years. The book minimum tax computations are stacked on top of international tax changes in the Build Back Better Act.

As a share of its income, the coal industry faces the heaviest burden of the book minimum tax, facing a net tax hike of 7.2 percent of its pretax book income, followed by automobile and truck manufacturing, which faces a 5.1 percent tax hike. In dollar terms, the industries that would account for the largest book minimum tax liabilities are utilities, at \$43.3 billion, followed by communication at \$30.6 billion.

These industries are especially heavily impacted because they are at the intersection of the different book-tax gaps targeted by the book minimum tax: permanent discrepancies between the two measures from firms paying low taxes (the intended target); temporary timing differences between financial and taxable income; deliberate tax incentives created by Congress (e.g., bonus depreciation); and special items that show up in one income definition but not the other, such as amortizing investment in spectrum or mark-to-market accounting for pensions.

The book minimum tax affects industries very differently, some of which may be unintended, reflecting a tax proposal that has not been fully vetted. Before introducing a new tax on book income, and asking the IRS to administer it and taxpayers to comply with it, lawmakers should consider whether these disparate impacts by industry are consistent with their tax policy goals.

December 17th update: An updated version of the Build Back Better plan modifies the book minimum tax to exempt mark-to-market pension accounting adjustments. The analysis above refers to the House Build Back Better Act originally passed on November 19th.



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TRENDING: BIDENFLATION UKRAINE WAR OPEN BORDER DEM-CITY CRIME WAVE TRANSANITY MASTERS OF THE

JOE BIDEN PROMISES ENVIRONMENTALIST: 'LOOK INTO MY EYES; I GUARANTEE YOU, WE ARE GOING TO END FOSSIL FUEL'



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by HANNAH BLEAU · 7 Sep 2019 · 7,173



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3:07

Democrat frontrunner Joe Biden (D) told a concerned activist in New Hampshire Friday that he guarantees that “we are going to end fossil fuel.”

Biden took questions from a group in New Castle, New Hampshire, Friday. One woman associated with the environmental group 350 New Hampshire Action, Rebecca Beaulieu, asked Biden how voters can trust him if he continues to associate himself with fossil fuel executives.

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“How can we trust that you’re going to act on climate — on the climate crisis — if you’re still attending fundraisers that fossil fuel executives are attending?” Beaulieu [asked](#), according to the *Daily Mail*.

Video shows Biden walking over to the woman, taking her hand, and making a solemn promise to “end fossil fuel ... before 2050, God willing.”

“Kiddo, I want you to just take a look. I want you to look into my eyes,” Biden began.

“I guarantee you, I guarantee you, we are going to end fossil fuel, and I am not going to cooperate with them. Before 2050, God willing,” Biden continued, adding that 2030 is not a realistic goal:

No it can't be done by 2030. No, not one single person is arguing it can be done by that. But it can be done by 2050. Maybe 2045? And as the science increases, we may be able to move more quickly. But we have to we can fundamentally change things in the next 10 years, though, so that we set a path? I promise you, I promise you. OK.

Biden: “I Guarantee You We’re Going To End Fossil F...



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“Just a little patronizing, because I want to be an adult at the table when it comes to conversations about climate, and what we’re going to do about it, and I don’t want to be like someone who’s sitting on the sidelines waiting for other people to act,” she [said](#), according to the *Daily Mail*.

“I’m also like actively doing something to try to combat this climate crisis as it stands. Being called a kid is a little patronizing when I’m trying to do so much work,” she added.

She also said she was unsatisfied with Biden’s refusal to bend his 2050 goal.

“But I hope that he takes the climate crisis as seriously as he tried to make it seem and that if he’s going to keep moving forward with his plans, he needs to reevaluate because 2050 is too late,” she said.

Biden recently came under fire for [attending](#) a fundraiser hosted by Andrew Goldman, a founder of the natural gas company Western LNG. The former vice president dismissed concerns, telling viewers of CNN’s climate change town hall Wednesday that Goldman is “not a fossil fuel executive.”

“He is not a fossil fuel executive,” Biden [said](#). “And the fact of the matter is that — what we talk about is, what are we going to do about those corporations? What have we done?”

“And everywhere along the way — for example, I’ve argued and pushed for us suing those executives who are engaged in pollution, those companies engaged in pollution,” he added. “I’ve never walked away from that.”

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ENERGY & ENVIRONMENT

Appeals court revives key climate measure rejected by Trump judge

The judges also rejected the argument that states can demonstrate the social cost of carbon figures caused any injury or could be redressed via an injunction.



EPA Administrator Michael Regan is pictured. The stay allows EPA, among other federal agencies, to resume using the interim social cost of carbon figures in rulemakings and other decisions. | Kevin Dietsch/Getty Images

By **ALEX GUILLÉN**

03/16/2022 08:13 PM EDT

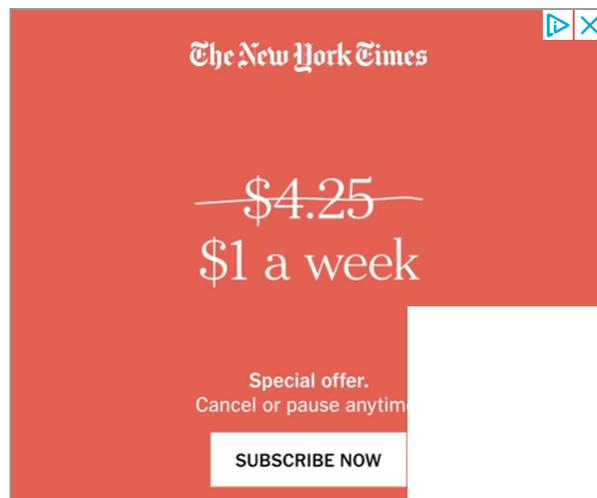
Updated: 03/16/2022 08:07 PM EDT



The 5th Circuit Court of Appeals on Wednesday stayed a district judge's injunction against President Joe Biden's social cost of carbon, reinstating the metric used to measure the climate impacts of rulemakings and projects.

The social cost of carbon, which is used by the federal government when issuing regulations, approving infrastructure projects or taking other actions, is an estimate of the present and future damages resulting from emitting one ton of the greenhouse gas into the atmosphere. Climate activists hope a higher estimate will significantly increase the value assigned to pollution reductions, which in turn will help justify stronger climate regulations.

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The Biden administration warned of mass chaos caused by the injunction, including delayed or derailed rulemakings, project approvals, grant funds and even oil and gas lease sales.

While the stay is technically temporary, the three-judge panel's order cast serious doubt on the underlying lawsuit brought by Louisiana and other red states.

Details: In a nine-page order, the panel rejected the legal arguments made by Louisiana that the interim social cost of carbon metric could cause them a real injury.

“The Plaintiff States’ claimed injury is ‘increased regulatory burdens’ that *may* result from the consideration of [the social cost of greenhouse gases], and the Interim Estimates specifically. This injury, however, hardly meets the standards for [constitutional] standing because it is, at this point, merely hypothetical,” wrote Judges Leslie Southwick, a George W. Bush appointee, and James E. Graves Jr. and Gregg Costa, both Barack Obama appointees.

At a 3 percent discount rate, the social cost of carbon dioxide was set at \$51 per ton, or the same as the Obama administration’s adjusted for inflation, as well as higher figures for methane and nitrous oxide.

The judges also rejected the argument that the states can demonstrate the SCC figures caused any injury or could be redressed via an injunction.

AD

“The increased regulatory burdens the Plaintiff States fear will come from the Interim Estimates appear untraceable because agencies consider a great

number of other factors in determining when, what, and how to regulate or take agency action (and the Plaintiff States do not challenge a specific regulation or action),” they wrote.

The claims amount to a “generalized grievance” about the Biden administration’s policies — which doesn’t meet the constitutional requirements for standing, they concluded.

The panel also took aim at the preliminary injunction issued in February by Judge James Cain of the U.S. District Court for the Western District of Louisiana, a Trump appointee.

Even if the states had standing to challenge the interim estimates, the panel wrote it was “unclear” how that justified stopping the Interagency Working Group from completing work on a broader update, as Cain did.

“All of this effectively stops or delays agencies in considering SC-GHG in the manner the current administration has prioritized within the bounds of applicable law,” they wrote. “The preliminary injunction’s directive for the current administration to comply with prior administrations’ policies on regulatory analysis absent a specific agency action to review also appears outside the authority of the federal courts.”

Ultimately, the states are too early in bringing a legal challenge, they wrote.

“In sum, the Plaintiff States’ claims are based on a generalized grievance of the use of Interim Estimates in cost-benefit analyses of regulations and agency action. But their claimed injury does not stem from the Interim Estimates themselves, it stems from any forthcoming, speculative, and unknown regulation that *may* place increased burdens on them and *may* result from consideration of SC-GHG,” they wrote. “We conclude the standing inquiry shows the Government Defendants’ likelihood of success on the merits in this appeal, and the other factors, including the public interest, favor granting a stay of the injunction.”

AD

The White House, Department of Justice and Louisiana attorney general who led the challenge could not be immediately reached for comment.

Context: The stay allows EPA, the Departments of the Interior, Energy and Transportation and other federal agencies to resume using the interim SCC figures in rulemakings and other decisions. At least one major rule, regarding emissions from heavy-duty trucks, Reg. 2060-AU41, was published without quantifying its climate benefits because of the injunction.

What's next: The stay is pending a fuller appeal of the injunction, but the order issued on Wednesday indicates the appellate court is not amenable to Louisiana's arguments.

FILED UNDER: COURTS, JOE BIDEN, JOE BIDEN 2020, DONALD TRUMP, 

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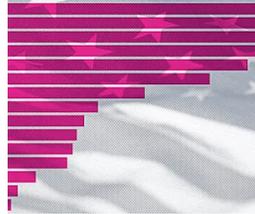
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OPINION | REVIEW & OUTLOOK

'We Want Them to Go Bankrupt'

Biden's nominee for Comptroller has an idea on climate change.

By [The Editorial Board](#) [Follow](#)

Nov. 15, 2021 6:53 pm ET



Saule Omarova in 2018.

PHOTO: SENATE COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS

Saule Omarova continues to make the case against her nomination to be Comptroller of the Currency, as critics need only to quote her own words. The latest example is a video interview she gave in February in which the Cornell professor opined on “the case for a U.S. national investment authority.”

The conversation at one point turned to climate change and its impact on fossil-fuel producers, and Ms. Omarova was on the case. “A lot of the smaller players in that industry are going to, probably, go bankrupt in short order—at least, we want them to go bankrupt if we want to tackle climate change,” she said in the [session](#) that was part of the Jain Family Institute’s “Social Wealth Seminar” series.

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She went on to say “that creates a lot of this sort of loss of jobs, a lot of displacement, and economic fallback that we cannot afford, really,” which is nice of her to concede.

Bankruptcy isn’t painless, especially when the government drives you out of business.

But then she adds that the response would be to set up a National Capital Management Corporation that would “become a kind of equity investor at that point, taking over management of those companies and basically leading them through restructuring to a new technological basis and to a new technological business model.”

So first put private companies out of business “in short order,” then put government central planners to work to restructure them as the political class wants. Give Ms. Omarova credit for candor. Most progressives disguise their real intentions.

All of this matters because as Comptroller Ms. Omarova would have enormous authority to regulate banks. It’s clear from this interview that one of her policy ambitions is to deny capital to certain companies that she wants to go bankrupt. Senators will have to decide if they want the Comptroller to be a one-person systemic risk to the banking system.

Appeared in the November 16, 2021, print edition.

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ENERGY & ENVIRONMENT

Biden administration won't appeal invalidation of offshore oil leases

BY RACHEL FRAZIN - 03/01/22 1:36 PM ET

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In a new court filing, the administration said it would not appeal the ruling. The decision was not a surprise, since the administration has argued that it was compelled to sell the leases in the first place by a different court order.

Other parties, namely the state of Louisiana and oil and gas lobbying group the American Petroleum Institute, have indicated that they would appeal. But they won't have the federal government behind them.

In its new filing, the Biden administration also argued that if the decision to vacate the leases sold in Lease Sale 257 is reversed, it had wide discretion on whether to dole out the leases that would enable companies to drill in the Gulf of Mexico.

“Interior agrees with the other parties that, in the event this Court reverses the district court’s vacatur, the expiration of the five year program on June 30, 2022, does not prevent Interior from awarding leases pursuant to Lease Sale 257 after that date—although, as discussed herein ... Interior has the authority to decline to award the leases at that juncture,” it said in the filing.

In November, Interior held the sale, and companies purchased the rights to drill on up to 1.7 million acres in the Gulf.

In January, Judge Rudolph Contreras vacated the sale, saying that Trump-era calculations behind it “arbitrarily” excluded the impacts the sale would have on foreign energy consumption when calculating its greenhouse gas emissions.

The Interior Department has indicated that it would like to make changes to the current system, including through higher fees on companies and greater efforts to account for climate change impacts.

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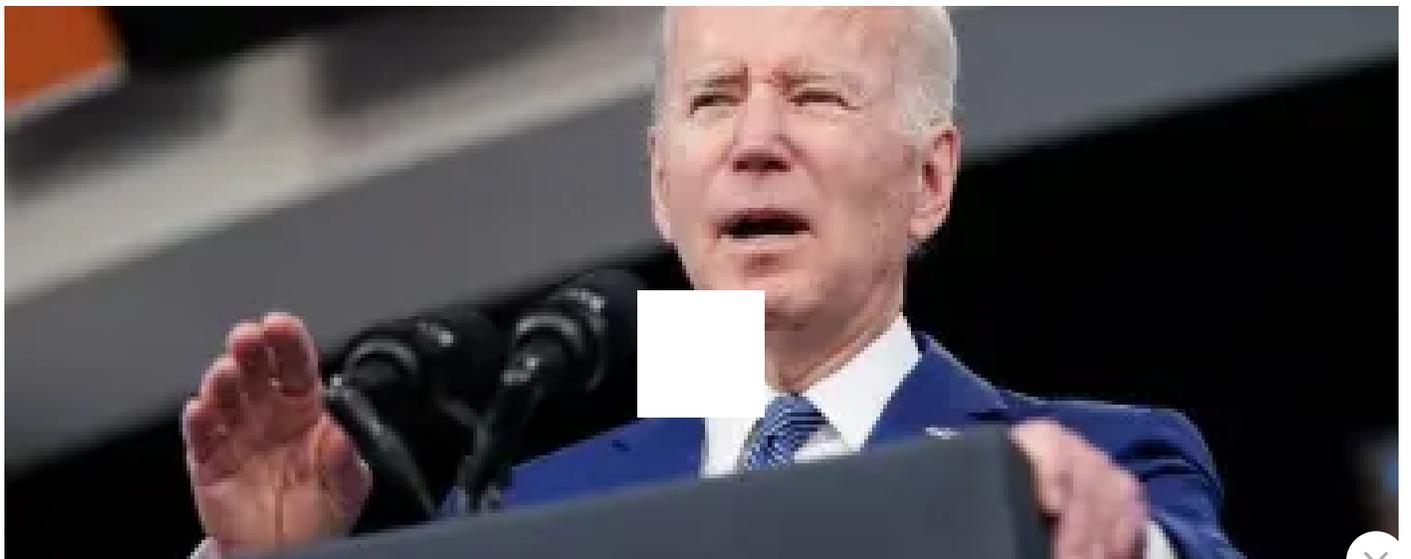
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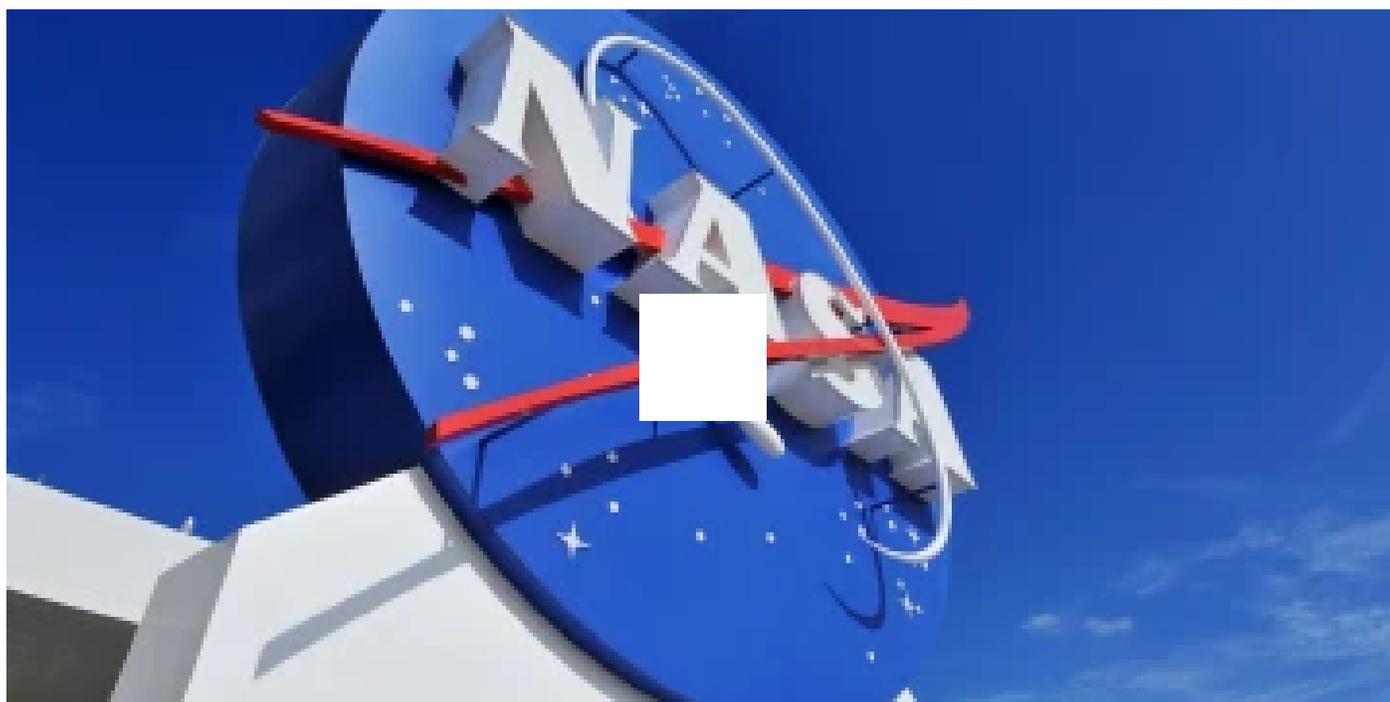
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Trump revokes waiver for California to set higher auto emissions standards

By [Kevin Liptak](#) and [Gregory Wallace](#), CNN

Updated 5:09 PM EDT, Wed September 18, 2019

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been updated to correctly spell Jeff Alson's name.

Washington (CNN) — President [Donald Trump](#) announced Wednesday he was revoking California's authority to set its own vehicle emission standards, the latest move in the Trump administration's ongoing fight with the Golden State and attempts to chip away at former President Barack Obama's environmental legacy.

"The Trump Administration is revoking California's Federal Waiver on emissions in order to produce far less expensive cars for the consumer, while at the same time making the cars substantially SAFER," [Trump tweeted](#).

The President made the announcement while visiting California for fundraisers. He was in his hotel in Los Angeles when he sent the tweets.

California's waiver under the Clean Air Act allowed it to set standards tighter than the federal standards, which have been adopted by more than a dozen states and became the de-facto nationwide standard, because automakers do not design different sets of vehicles to meet different standards in different states.

The Trump administration has long been at odds with California, especially on environmental issues. Talks between California environmental regulators and the administration broke down earlier this year. Yet this summer, the state negotiated an agreement with several automakers to design cars to meet standards higher than those set by the federal government.

Gov. Gavin Newsom, a Democrat, said on Tuesday the Trump administration "has abdicated its responsibility to the rest of the world on cutting emissions and fighting global warming" and is acting "on a political vendetta."

The state's attorney general threatened a lawsuit if the administration goes through with the plan.

Attorney General Xavier Becerra said at a news conference following the announcement that the administration's plan is "desperate."

The Trump administration is also working on replacing Obama-era federal vehicle-emission standards.

"This will lead to more production because of this pricing and safety advantage, and also due to the fact that older, highly polluting cars, will be replaced by new, extremely environmentally friendly cars," Trump wrote in an additional tweet. "There will be very little difference in emissions between the California Standard and the new U.S. Standard, but the cars will be far safer and much less expensive."

"Many more cars will be produced under the new and uniform standard, meaning significantly more JOBS, JOBS, JOBS! Automakers should seize this opportunity because without this alternative to California, you will be out of business," he added.



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Trump's rollback of climate change regulations will be felt far beyond his presidency

"We embrace federalism and the role of the states, but federalism does not mean that one state can dictate standards for the nation," Environmental Protection Agency Administrator Andrew Wheeler said Tuesday.

The Auto Alliance, an industry group that contends the Obama-era standards were unrealistic, said it would take a closer look at the Trump administration's approach.

"Automakers support year-over-year increases in fuel economy standards that align with marketplace realities, and we support one national program as the best path to preserve good auto jobs, keep new vehicles affordable for more Americans and avoid a marketplace with different standards," said Dave Schwieter, the group's interim CEO and president.

Jeff Alson, who spent four decades at the EPA including in the Office of Transportation and Air Quality, said "there is no legal basis" for revoking the waiver.

"If the courts allow this unprecedented reversal, and the Trump EPA massively rolls back the federal Clean Car Standards, then President Trump will have done more to destroy the planet than any other president in history," said Alson, who is now with the Environmental Protection Network, a group of former agency employees.

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