

**UNLEASHING THE GOLDEN AGE OF
AMERICAN ENERGY DOMINANCE**

OVERSIGHT HEARING

BEFORE THE

SUBCOMMITTEE ON OVERSIGHT AND
INVESTIGATIONS

OF THE

COMMITTEE ON NATURAL RESOURCES
U.S. HOUSE OF REPRESENTATIVES

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HOUSE COMMITTEE ON
NATURAL RESOURCES
CHAIRMAN BRUCE WESTERMAN

To: House Committee on Natural Resources Republican Members
From: Subcommittee on Oversight and Investigations Staff, Michelle Lane (Michelle.Lane@mail.house.gov) and Lucas Drill (Lucas.Drill@mail.house.gov) x5-0500
Date: March 31, 2025
Subject: Oversight Hearing titled “Unleashing the Golden Age of American Energy Dominance”

The Subcommittee on Oversight and Investigations will hold an oversight hearing titled “Unleashing the Golden Age of American Energy Dominance” on **Wednesday, April 2, 2025, at 10 a.m. in 1324 Longworth House Office Building.**

Member offices are requested to notify Andrew Bambrick (Andrew.Bambrick@mail.house.gov) by 4:30 p.m. on April 1 if their Member intends to participate in the hearing.

I. KEY MESSAGES

- The United States possesses abundant natural resources, many of which are available for energy exploration and production.
- Although the federal government owns 61 percent of America’s onshore and offshore mineral estate, only 25 percent of domestic oil and 11 percent of domestic natural gas come from federal lands and waters.
- Domestic energy exploration and production, particularly on federal lands and waters, is crucial to America’s social and economic future.
- For decades, the Congressional Budget Office (CBO) has consistently underestimated the broad economic benefits of domestic energy exploration and production.
- A recent economic model created by the Heritage Foundation indicates that a 50% increase in domestic oil and gas production would result in \$25 trillion in GDP growth by 2050. Given available and emerging technology, and federal policy decisions that expand production on federal lands and waters, this figure is well within America’s reach.¹
- Under Republican leadership and working with President Trump, Congress has the opportunity to enact policies that will truly unleash America’s energy dominance.

II. WITNESSES

- **Mr. Matthew Jensen**, Director, Office for Fiscal and Regulatory Analysis, America First Policy Institute, Washington, D.C.
- **Mr. Glen Sweetnam**, Distinguished Fellow, Energy Policy Research Foundation, Washington, D.C.
- **Dr. Kevin Dayaratna**, Acting Director, Chief Statistician, and Senior Research Fellow, Center for Data Analysis, The Heritage Foundation, Washington, D.C.

- **Ms. Megan Gibson**, Senior Attorney, Southern Environmental Law Center, Washington, D.C. [*Minority witness*]

III. BACKGROUND

Unleashing American Energy

Domestic energy exploration and production, particularly on federal lands and waters, is critical to America's social and economic future. Effectively capitalizing on America's natural resources not only powers our nation by increasing access to dependable and affordable energy, but also encourages the expansion of America's infrastructure and industries that rely on energy resources.² Put simply, unleashing American energy both directly fills the nation's coffers and energizes nearly all other economic activity.³



Composite satellite imagery of the continental United States illuminated at night.⁴

Recognizing this reality, Republicans in Congress have advocated for policies to reform the National Environmental Policy Act (NEPA) permitting processes⁵ lower energy costs by increasing American energy production, conduct offshore lease sales in the Gulf of America's Outer Continental Shelf,⁶ provide for oil and gas leases on federal lands in Alaska,⁷ promote energy exports, build critical infrastructure, and increase domestic critical minerals mining processing.⁸



An image of Downtown Midland, Texas. Growth of cities like Midland is fueled by oil, gas, and other energy production activity.⁹

Reinforcing the work advanced by Congressional Republicans, on the first day of his second term, January 20, 2025, President Trump issued a series of executive orders and presidential actions emphasizing the need to unleash American energy.¹⁰ These presidential directives, in part, instructed agencies to review all existing regulatory barriers to identifying, developing, and using domestic energy resources; declared a national energy emergency enabling acceleration of project approval timelines; reversed Biden administration policies that restricted energy production

in Alaska; withdrew the United States from the Paris international climate agreement; and directed federal agencies to actively work to reduce high costs of living driven by energy prices. President Trump also established the National Energy Dominance Council to standardize and implement these energy policies across the Executive Branch.¹¹

Measuring the Economic Growth Potential of Increased Domestic Energy

The key to understanding the economic effects of expanding energy exploration and production in the United States on federal lands and in federal waters depends on accurate economic modeling and cost estimates.

CBO Scorekeeping

On Capitol Hill, cost estimates are prepared by the Congressional Budget Office (CBO). These estimates are commonly known as “scores.”¹² CBO scores are purely advisory.¹³ CBO traditionally employs static scoring techniques, which, unlike dynamic scoring, ignore a policy’s macroeconomic impacts.¹⁴ Dynamic scoring, which includes macroeconomic analysis, often offers a more accurate representation of how a policy proposal not only influences federal spending related to a particular project, but also that project’s widespread economic impact.

For example, in the context of constructing a hypothetical oil or natural gas pipeline, a static score would consider only the costs incurred by the federal government for the project, leading to the conclusion that the proposal increases spending. A dynamic score, however, would include many of the external economic benefits of the pipeline project, such as decreased energy costs, job creation, and returned revenues, that not only offset the building costs but also return a profit to the government. This return decreases overall spending and increases America’s Gross Domestic Product (GDP).¹⁵

Although CBO is empowered to score dynamically, these more accurate cost estimates are rare because they are “complicated and often time-consuming.”¹⁶ Because dynamic scoring is more difficult, “most [CBO] cost estimates do not reflect the macroeconomics.”¹⁷ Accordingly, CBO scores often underestimate the true economic benefits of policy proposals, especially those related to domestic energy exploration and production. Additionally, because CBO does not release its specific scoring methodology nor publish its economic models, verifying and replicating the cost estimates proves challenging.

Underestimating Positive Impacts of Energy Production is an Unfortunate Trend

Unfortunately, CBO is not alone in underestimating the benefits of increasing energy exploration and production. In fact, researchers have long underestimated both the economic impact of domestic energy and America’s domestic energy supply itself.¹⁸ This is especially true in the context of oil and natural gas.

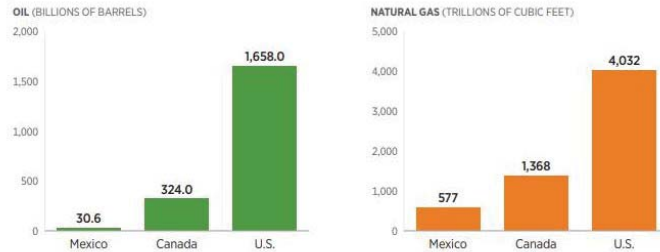
For example, one of the oldest and most popular natural resource production prediction methods is known as the Hubbert methodology. Studies have found that the most reliable feature of this model is, in fact, is unreliability, given the method’s failure to account for the impacts of innovation and technological advancement.¹⁹ Studies looking at this method ultimately concluded that “there is often a substantial lag between changes in our knowledge and changes in our methods and models” and that “[m]ethodologists and modelers become so enamored with the aesthetic properties of their creations that they focus all their attention and effort on polishing existing methods and models, instead of developing new and more relevant ones.”²⁰

This hearing will engage experts using modern and more transparent modelling techniques to understand better the economic growth potential of increasing domestic energy exploration and production.

Measuring the True Economic Growth Potential of Unleashing American Energy

It is indisputable that the United States possesses abundant natural resources, including energy resources.²¹ According to the Institute for Energy Research, the United States has 1.66 trillion barrels of technically recoverable oil, 4.03 quadrillion cubic feet of technically recoverable natural gas, and 470 billion short tons of technically recoverable coal.²² At current consumption levels, this supply can power the United States for centuries.²³ Astonishingly, as technology improves, new resources are located, and novel extraction techniques are developed to increase technically recoverable resources, centuries may become millennia.²⁴

North America Is Abundant in Technically Recoverable Oil and Natural Gas



Graph compiled by The Heritage Foundation
based on data from the Institute for Energy Research.²⁵

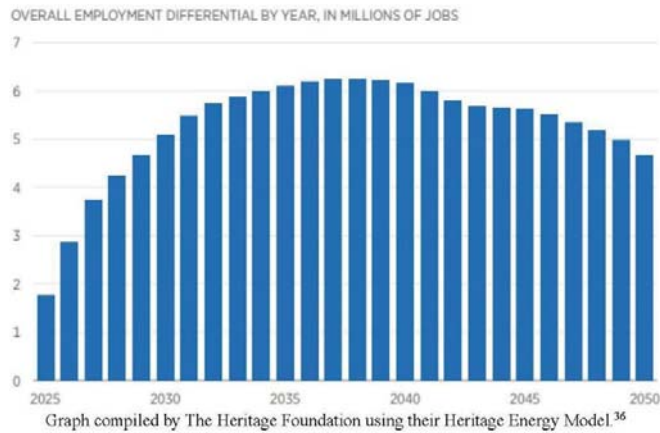
Even more bewildering is that, despite the federal government owning 61 percent of America's onshore and offshore mineral estate, only 25 percent of domestic oil and 11 percent of domestic natural gas come from these federal lands and waters.²⁶ Spurred on by burdensome federal regulations, this disproportionate ratio leaves significant leasing, revenue, and energy production opportunities neglected.²⁷

Nevertheless, oil, natural gas, and coal together provide approximately 80% of American energy.²⁸ In 2020 alone, the oil and gas industry provided 12.3 million American jobs and generated \$1.6 trillion in federal and state tax revenues.²⁹ On the flip side, limiting oil and gas production, particularly on federal lands and in federal waters, could shrink the U.S. GDP by \$700 billion, and force U.S. consumers to spend \$19 billion more on energy, by 2030.³⁰

According to the White House Council on Economic Advisors, from 2007 to 2019, increased domestic energy productivity led to a "45 percent decrease in the wholesale price of electricity."³¹ This price decrease saved U.S. families \$203 billion annually.³²

However, the economic impact of increased domestic energy production extends beyond direct energy cost savings. As the Institute for Energy Research concluded, "[i]n addition to the STEM jobs modern energy exploration, development, production, and transportation produce, lower energy prices act as 'fertilizer' driving roots deep into the economic soil of the country."³³ Essentially, "[t]he need for skilled jobs on-site and all the equipment required means more Ford Super Duty trucks, Carhartt clothing, Caterpillar and John Deere equipment, as well as 18-wheeler trucks, trailers, and train cars, and more."³⁴ Further, "[a]ll those new employees require housing, groceries, and services of all kinds including medical, dental, and personal care, creating even more jobs for Americans."³⁵ This dynamic economy is built on the back of unleashing American energy.

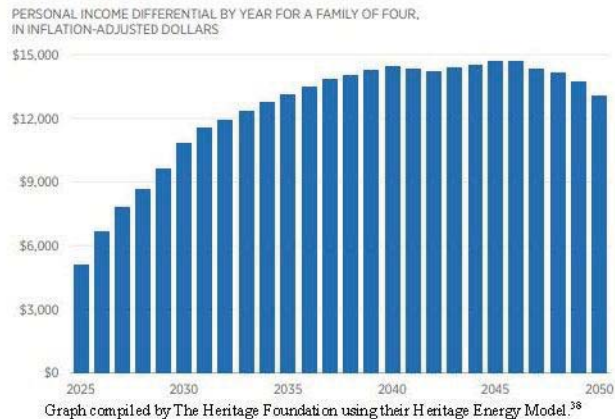
How Unleashing America's Energy Abundance Would Affect U.S. Jobs



According to a model built by The Heritage Foundation based on the U.S. Energy Information Administration's National Energy Modeling System, just a 50 percent increase in domestic oil and gas production by 2050, achievable through regulatory and permitting reform, would result in:

- an average annual increase of more than 5.27 million jobs;
- a peak employment increase of more than 6 million jobs;
- an average annual increase in income of \$12,418 for a family of 4; and
- an aggregate GDP increase of more than \$25 trillion.³⁷

How Unleashing America's Energy Abundance Would Affect Family Income



Another economic model, which analyzes the immediate resumption of quarterly onshore federal oil and gas leases, new offshore lease sales through 2035, and new leases in Alaska's Arctic National Wildlife Refuge and National Petroleum Reserve, by the Energy Policy Research Foundation (EPRINC), yields similarly robust estimates. EPRINC estimates that these activities, even without considering dynamic analysis, would yield additional federal budgetary receipts of \$124,566,229,711 over

the next 10 years.³⁹ These leasing activities would also generate approximately 200,000 short-term construction jobs and 7,500 long-term operation jobs.⁴⁰

Moreover, EPRINC’s analysis makes clear that not only would increasing domestic energy production directly grow America’s GDP, but it would also limit the Organization of the Petroleum Exporting Countries’ (OPEC) market power, further fueling American growth and energy dominance.⁴¹ In fact, just a 0.1 rate increase in U.S. oil supply elasticity⁴² yields a U.S. GDP increase of \$823 billion in 10 years.⁴³

Yet another model, built by the America First Policy Institute (AFPI), shows that increasing offshore leasing alone can lead to an additional \$271 billion in federal revenue over a 10-year period.⁴⁴

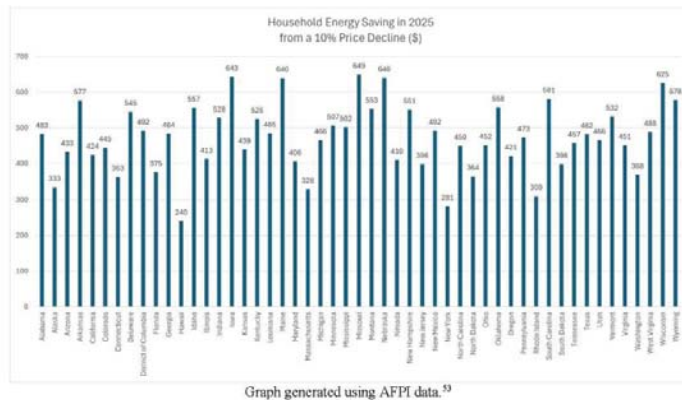
Coal and Mineral Extraction

Like oil and natural gas production, the extraction of coal and critical minerals is essential to American energy dominance and substantial economic growth. The United States has the world’s largest coal reserves.⁴⁵ However, effective coal extraction is heavily dependent on the regulatory environment, even more so than for the oil and gas sector.⁴⁶ Whereas oil and gas reserves are found on federal, state, and private lands, coal is almost exclusively located on lands owned by the federal government.⁴⁷ Accordingly, “federal policies can more easily impact coal production and consumption,” both to America’s detriment and advantage, depending on the federal government’s policies toward coal.⁴⁸

According to a November 2022 report published by the National Mining Association, mining in the United States generated over 1.2 million jobs and contributed \$194.4 billion to the U.S. economy’s GDP in 2021.⁴⁹ Coal mining accounted for \$45.8 billion of that annual GDP growth.⁵⁰ Further, the U.S. Geological Survey estimates that in 2021, “mineral commodities were transformed into \$3.3 trillion worth of goods and services,” which equals “nearly 15 percent of the total U.S. GDP.”⁵¹ By streamlining the federal permitting process and increasing opportunities for mining coal and other minerals, the United States can further secure energy and economic security and dominance.

State-Based Data

Unleashing American energy also has a direct impact on the prosperity of individual states. According to AFPI economic modelling focused on state-specific data, even a 10% decline in energy prices would result in hundreds of dollars in savings per household this year alone.⁵²



If energy prices fall by 50%, annual household savings across every state would average in the thousands.⁵⁴ For example, the average cost of energy consumption per capita in 2023 in the state of Arkansas was \$1,794.⁵⁵ Were energy prices to fall by 50%, the average household in the state of Arkansas would save \$2,883 in 2025.⁵⁶

Moreover, Texas’s 2024 Annual Energy & Economic Impact Report revealed that the state’s oil and natural gas industry paid a record-setting \$27.3 billion in state and local taxes and state royalties.⁵⁷ \$2.92 billion went directly to Texas Independent School Districts, and counties in the state received \$1.03 billion in property taxes from oil and natural gas production, pipelines, and utilities.⁵⁸ The state of New Mexico was the second-highest producer of oil and gas in the United States in 2024, with state officials reporting revenue of more than \$2.5 billion last

fiscal year.⁵⁹ In 2024, revenue from oil and gas sales in the State of New Mexico paid out over \$1 billion for monies for the states' schools, universities, and other beneficiaries.⁶⁰ This data can, and should, be extrapolated to highlight the gains the federal government can expect to receive by expanding leases on federal lands and in federal waters.

Conclusion

Economic analysis highlights the importance of unleashing American energy. By expanding energy resource exploration and production, the United States stands to not only cement its position as the world's leading energy superpower but also grow its GDP by trillions of dollars. The Trump administration has made clear that energy production is a top priority, and now it is up to Congress to enact policies that usher in the golden age of American energy dominance.

¹ *Time for U.S. Energy Dominance: Unlocking America's Oil and Gas Potential through Innovation and Policy*, THE HERITAGE FOUNDATION BACKGROUNDER, JAN. 20, 2025, <https://www.heritage.org/energy/report/time-us-energy-dominance-unlocking-americas-oil-and-gas-potential-through-innovation>.

² See Kevin D. Dayaratna et al., *Time for U.S. Energy Dominance: Unlocking America's Oil and Gas Potential through Innovation and Policy*, THE HERITAGE FOUNDATION (Jan. 20, 2025), https://www.heritage.org/sites/default/files/2025-01/BJG3888_0.pdf. Examples of infrastructure and industries dependent on accessible and reliable energy include hospitals, schools, transportation, grocery stores, restaurants, housing, retail centers, commerce, and more.

³ *See Id.*

⁴ Earth Observatory, *City Lights of the United States 2012*, NAT'L. AERONAUTICS AND SPACE ADMIN. (2012), <https://earthobservatory.nasa.gov/images/29800/city-lights-of-the-united-states-2012>.

⁵ *See Western Statement on Permitting Reform*, HOUSE COMM. ON NATURAL RESOURCES (Dec. 18, 2024), <https://naturalresources.house.gov/news/documentsingle.aspx?DocumentID=416786>; *Modernizing NEPA Through Permitting Reform*, HOUSE COMM. ON NATURAL RESOURCES (Sept. 11, 2024), <https://naturalresources.house.gov/news/documentsingle.aspx?DocumentID=416501>.

⁶ See BRIDGE Production Act of 2023, H.R. 5616, 118th Cong. (2023).

⁷ See Alaska's Right to Produce Act of 2023, H.R. 6285, 118th Cong. (2023).

⁸ See Lower Energy Costs Act, H.R. 1, 118th Cong. (2023).

⁹ *7 Top Reasons to Explore Trends: Downtown Midland*, VISIT MIDLAND (2025), <https://www.visitmidland.com/7-top-reasons-to-explore-trends-downtown-midland/>.

¹⁰ See Exec. Order No. 14154, 90 Fed. Reg. 8353 (Jan. 20, 2025), <https://www.federalregister.gov/documents/2025/01/29/2025-01956/unleashing-american-energy>; Exec. Order No. 14156, 90 Fed. Reg. 8433 (Jan. 20, 2025), <https://www.federalregister.gov/documents/2025/01/29/2025-02003/declaring-a-national-energy-emergency>; Exec. Order No. 14153, 90 Fed. Reg. 8347 (Jan. 20, 2025), <https://www.federalregister.gov/documents/2025/01/29/2025-01955/unleashing-alaskas-extraordinary-resource-potential>; Exec. Order No. 14162, 90 Fed. Reg. 8455 (Jan. 20, 2025), <https://www.federalregister.gov/documents/2025/01/30/2025-02010/jointly-announcing-america-first-in-informational-environmental-assessments>.

¹¹ Presidential Memorandum on Delivering Emergency Price Relief for American Families and Defeating the Cost-of-Living Crisis, 90 Fed. Reg. 8245 (Jan. 20, 2025), <https://www.federalregister.gov/documents/2025/01/28/2025-01904/delivering-emergency-price-relief-for-american-families-and-defeating-the-cost-of-living-crisis>.

¹² Exec. Order No. 14213, 90 Fed. Reg. 9945 (Feb. 14, 2025), <https://www.federalregister.gov/documents/2025/02/20/2025-02928/establishing-the-national-energy-dominance-council>.

¹³ See, e.g., *CBO Explains Budgetary Scorekeeping Guidelines*, CONG. BUDGET OFF. (Jan. 2021), <https://www.cbo.gov/system/files/2021-01/56507-scorekeeping.pdf>; CBO Describes Its Cost-Estimating Process, CONG. BUDGET OFF. (Apr. 2023), https://www.cbo.gov/system/files/2023-04/59003-cost_estimate_primer.pdf.

¹⁴ *CBO Describes Its Cost-Estimating Process*, CONG. BUDGET OFF. (Apr. 2023), https://www.cbo.gov/system/files/2023-04/59003-cost_estimate_primer.pdf.

¹⁵ *See Id.*; see also Wendy Edelberg, *Dynamic Analysis at CBO*, CONG. BUDGET OFF. (Mar. 7, 2016), <https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/recorders/S1286-presentation.pdf>.

¹⁶ See generally Tim Callen, *Gross Domestic Product: An Economy's All, BUT NOT MONETARY FRIEND*, <https://www.imf.org/en/Publications/fandd/issues/Series/Back-to-Basics/gross-domestic-product-GDP>.

¹⁷ *CBO Describes Its Cost-Estimating Process*, CONG. BUDGET OFF. (Apr. 2023), https://www.cbo.gov/system/files/2023-04/59003-cost_estimate_primer.pdf.

¹⁸ *Id.*

¹⁹ Richard Nehring, *Does the Hubbert Method Provide a Reliable Means of Predicting Future Oil Production?*, ENERGY POL'Y RESEARCH FOUND. (2006) (republished 2023 with a forward by Lucian Pughiares).

²⁰ *Id.*

²¹ *Id.*

²² See, e.g., Kevin D. Dayaratna et al., *Time for U.S. Energy Dominance: Unlocking America's Oil and Gas Potential through Innovation and Policy*, THE HERITAGE FOUNDATION (Jan. 20, 2025), https://www.heritage.org/sites/default/files/2025-01/BJG3888_0.pdf.

²³ *2024 North American Energy Inventory*, INST. FOR ENERGY RESEARCH (May 2024), <https://www.instituteforenergyresearch.org/wp-content/uploads/2024/05/2024-North-American-Energy-Inventory.pdf>.

²⁴ *Id.*

²⁵ *Id.*

²⁶ See *Id.*

²⁷ Kevin D. Dayaratna et al., *Time for U.S. Energy Dominance: Unlocking America's Oil and Gas Potential through Innovation and Policy*, THE HERITAGE FOUNDATION (Jan. 20, 2025), https://www.heritage.org/sites/default/files/2025-01/BJG3888_0.pdf.

²⁸ *2024 North American Energy Inventory*, INST. FOR ENERGY RESEARCH (May 2024), <https://www.instituteforenergyresearch.org/wp-content/uploads/2024/05/2024-North-American-Energy-Inventory.pdf>.

²⁹ *Id.*

³⁰ *The Economic Benefits of Oil & Gas*, U.S. DEPT. OF ENERGY (2020), <https://www.energy.gov/articles/economic-impact-oil-and-gas>.

³¹ *Id.*

³⁰ *A Federal Leasing and Development Ban Threatens America's Energy Security and Economic Growth, Undermines Environmental Progress*, AMERICAN PETROLEUM INSTITUTE (2020), <https://www.api.org/news-policy-and-issues/exploration-and-production/federal-leasing-and-development-ban-study>.

³¹ *2024 North American Energy Inventory*, INST. FOR ENERGY RSCH. (May 2024), <https://www.instituteforenergyresearch.org/wp-content/uploads/2024/05/2024-North-American-Energy-Inventory.pdf>.

³² *Id.*

³³ *Id.*

³⁴ *Id.*

³⁵ *Id.*

³⁶ Kevin D. Dayaratna et al., *Time for U.S. Energy Dominance: Unlocking America's Oil and Gas Potential through Innovation and Policy*, THE HERITAGE FOUNDATION (Jan. 20, 2025), https://www.heritage.org/sites/default/files/2025-01/BG3888_0.pdf.

³⁷ *Id.*

³⁸ *Id.*

³⁹ Data from EPRINC on file with the Committee.

⁴⁰ *Id.*

⁴¹ *Id.*

⁴² Price elasticity of supply refers to how supply quantity interacts with price. For example, a supply elasticity rate of 0.5 means that a 10 percent price increase results in a 5 percent supply increase.

⁴³ Data from EPRINC on file with the Committee.

⁴⁴ Data from AFPI on file with the Committee. \$271 billion reflects the most aggressive tested scenario, with a combined baseline (6 years), and 6-time increase in leased acres and a 20-time increase in number of lease sales (4 years).

⁴⁵ *2024 North American Energy Inventory*, INST. FOR ENERGY RSCH. (May 2024), <https://www.instituteforenergyresearch.org/wp-content/uploads/2024/05/2024-North-American-Energy-Inventory.pdf>.

⁴⁶ *Id.*

⁴⁷ *Id.*

⁴⁸ *Id.*

⁴⁹ The Economic Contributions of U.S. Mining, 2021, NATIONAL MINING ASSOCIATION (Nov. 2022), <https://nma.org/wp-content/uploads/2021/02/Economic-Contributions-of-Mining-in-2021.pdf>.

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² Data for every state from AFPI on file with the Committee.

⁵³ *Id.*

⁵⁴ *Id.*

⁵⁵ *Id.*

⁵⁶ *Id.*

⁵⁷ *2024 Annual Energy & Economic Impact Report*, TEXAS OIL & GAS ASSOCIATION (Jan. 7, 2025), <https://www.tocga.org/2024eair/>.

⁵⁸ *Id.*

⁵⁹ Danielle Prokop, *New Mexico reports more than \$2B in revenue for the third year in a row*, SOURCE NEW MEXICO (Dec. 5, 2024), <https://sourcenm.com/briefs/new-mexico-reports-more-than-2b-in-revenue-for-the-third-year-in-a-row/>.

⁶⁰ *Id.*

OVERSIGHT HEARING ON UNLEASHING THE GOLDEN AGE OF AMERICAN ENERGY DOMINANCE

Wednesday, April 2, 2025
U.S. House of Representatives
Subcommittee on Oversight and Investigations
Committee on Natural Resources
Washington, D.C.

The Subcommittee met, pursuant to notice, at 10:02 a.m. in Room 1324, Longworth House Office Building, Hon. Mike Collins [Member of the Subcommittee] presiding.

Present: Representatives Collins, Begich, Westerman; Dexter, and Hernández.

Also present: Representatives Moore of WV and Stauber.

Mr. COLLINS. The Subcommittee on Oversight and Investigations will come to order.

Without objection, the Chair is authorized to declare a recess of the Subcommittee at any time.

The Subcommittee is meeting today to hear testimony on unleashing the golden age of American energy dominance.

Under the Committee Rule 4(f), any oral opening statements at hearings are limited to the Chairman and the Ranking Member. I therefore ask unanimous consent that all other Members' statements be made part of the hearing record if they are submitted in accordance with Committee Rule 3(o).

Without objection, so ordered.

I ask unanimous consent the following Members be allowed to sit and participate in today's hearing: the gentleman from Minnesota, Mr. Stauber; and the gentleman from West Virginia, Mr. Moore.

Without objection, so ordered.

I now recognize myself for an opening statement.

STATEMENT OF THE HON. MIKE COLLINS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF GEORGIA

Mr. COLLINS. Good morning, everyone. I want to thank our witnesses for being here today. I am excited about the opportunity to have a conversation about unleashing the golden age of American energy dominance.

Now, while we may have some disagreements across the aisle about the best path forward for making energy in America great again, I do think we can agree that making energy prices more affordable for all Americans is something we can all get behind.

With that being said, the Biden administration's unprecedented 4-year war on American energy made it nearly impossible to produce domestic energy on public lands, and was nothing short of catastrophic. This catastrophe was made even worse by frivolous and vexatious litigation intended to not only slow energy

exploration and production to a halt, but also drive the cost of energy projects up by millions of dollars.

Right now we have a great opportunity to unlock the vast potential of all American energy sources, from onshore and offshore oil and gas leases to permitting new mines right here in America to investing in natural gas projects, including in my home State of Georgia. These are important steps that work not only to drive down the cost of energy for households, but also to provide a reliable source of income for both State and Federal Governments.

For example, the projected cost of energy consumption in Georgia per capita in 2025 is \$1,614. By enacting policies that produce more energy here in the United States, energy prices will begin to go down. According to some estimates, households in Georgia could save \$484 per year, with a 10 percent decline in energy cost. With a 50 percent price decline in energy cost that number goes up to \$2,420 per household. Now, these are real numbers in the pockets of Georgia citizens, and these numbers are achievable.

Another interesting example: Georgians will spend \$17.8 billion in total energy consumption this year. Enacting more proactive domestic energy policies would drive down the cost of energy for families at home in Georgia, cutting costs by as much as \$8.9 billion.

Now, if we look at both onshore and offshore lease sales and the impact of these leases on the Federal revenue, the numbers are incredible. For example, a scenario in which we lease just two times the number of baseline sales, which is not much, that increases the receipts of the Federal Government by \$44 billion. Now, as we continue to expand the number of those onshore and offshore leases, that number could go up as much as \$271 billion. Again, this is a very achievable scenario.

Increasing revenue to the Federal Government isn't limited to the production of oil and gas. Minerals play a critical role here, as well. Georgia's natural resources include dozens of industrial mines, each of which have thousands of uses. And though minerals are mined in 133 of Georgia's 159 counties, demand for minerals will continue to rapidly outstrip supply and production, absent major change. This is fueled by regular market growth, as well as investments in new technologies and data centers. With the amount of State and Federal land available throughout the United States, including in my home State of Georgia, we have a great opportunity to invest in sustainable, environmentally-friendly mining practices here at home in a way that will also fortify our Federal estate.

Now is the time to prioritize permitting these critical mining, oil, and gas investments here at home, which will allow not only a great return on Federal revenue, but also provide for a more dependable and robust energy supply chain upon which we depend on every day. I hope today that we can have a robust and insightful discussion from those whose lives are impacted daily by decisions that have been made here in Washington, and look forward to working with the new Administration on policies that improve the lives and pocketbooks of all Americans in the future.

With that I yield to the Ranking Member for her opening statement.

STATEMENT OF THE HON. MAXINE DEXTER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OREGON

Dr. DEXTER. Thank you, Mr. Chair, and thank you to all our witnesses for being here today.

Today's hearing on so-called energy dominance presents us with a clear choice: We double down on fossil fuels that pollute our communities and drive up costs for working Americans, or invest in a clean energy future that creates jobs, strengthens national security, and lowers household energy bills.

For decades the fossil fuel industry has devastated frontline communities, leaving them with exorbitant health costs and environmental cleanup bills. Pollution disproportionately harms low-income and minority communities, leading to higher rates of asthma, cancer, and other life-threatening illnesses. And as a pulmonary critical care physician who has taken care of these folks, I can attest that this is not made-up fantasy; this is real and experienced every day across this country.

In Louisiana's cancer alley, a predominantly Black community, cancer risks are nearly 50 times the national average, due to the concentration of oil refineries and chemical plants. Indigenous lands are eroding from pipeline infrastructure, and historic Black neighborhoods have been abandoned due to toxic contamination. And these are exactly the kinds of costs that are ignored by most economic models that are supposed to estimate the financial impact of oil and gas extraction.

The majority's witnesses are plugging unrealistic numbers backed by rosy assumptions into economic models to tell a story about how digging up all the oil and gas under public lands will be great for this country. Their economic models do not consider the costs of causing or exacerbating extreme weather events like Hurricane Helene. They ignore the rising health care costs from pollution-related illnesses. They fail to account for the fact that industries, consumers, and global markets are shifting toward clean energy not out of ideology, but because it is increasingly the more affordable, stable, and secure option. They sidestep the fact that the volume of increases in extraction of oil and gas that they plug into the model are not even feasible for a host of reasons that have nothing to do with the policies they are asking for.

Don't take my word for it. This is the CEO of ExxonMobil, Darren Woods, in November 2024: "Their economic models do not consider the costs of causing or exacerbating extreme events." Yes, sorry. His quote, sorry. "I don't think the level of production in the U.S. is being constrained by external restrictions. I am not sure how drill, baby, drill translates into policy. Certainly we wouldn't see a change based on a political change, but more on an economic environment. I don't think there is anybody out there that is developing a business strategy to respond to a political agenda." That is the end of his quote.

Why the emphasis on these models ahead of a massive reconciliation bill? This Subcommittee is trying to inflate the economic impact of unrestrained drilling on our most cherished lands. They want the Congressional Budget Office, who estimates how much our legislation will cost, to think their estimates are real. If the CBO can be convinced that drilling would make a lot of money

for the Federal Government, Republicans would be allowed to give even more of your hard-earned taxpayer dollars to big oil.

Even the promise of fossil-fuel-driven job growth rings hollow. Over the past decade U.S. oil and gas employment has declined by approximately 40 percent. At the same time, taxpayers are footing the bill for big oil. The fossil fuel industry receives \$15 billion in subsidies each year. And what do we get in return? Price manipulation, collusion with foreign cartels, and rising energy costs for American families.

The Trump administration's energy policies have cost America dearly. Since Trump's election over 50,000 clean energy jobs have been lost, delayed, or threatened, along with \$56.3 billion in new investments.

And House Republicans are working to gut the Inflation Reduction Act's clean energy tax credits, the very incentives that have spurred a clean energy manufacturing boom creating over 400,000 jobs and saving Americans \$8.4 billion in energy costs in just 1 year. And we are already seeing the consequences. Utility companies in 16 States have hiked rates, some by as much as \$32 per month, due to the uncertainties surrounding clean energy investments. If Republicans succeed in rolling back these tax credits, energy bills will increase by \$32 billion over the next decade, costing families over \$100 per year, on average.

There is a better way. Investing in clean energy strengthens national security, drives economic growth, and delivers real savings for consumers. In 2023 global clean energy investments surpassed \$1.7 trillion, outpacing fossil fuel investments for the first time. The American people deserve real solutions, not more handouts to the oil and gas industry.

Thank you, Mr. Chair. I yield back.

Mr. COLLINS. I now recognize the Full Committee Chair, Mr. Westerman, for an opening statement.

STATEMENT OF THE HON. BRUCE WESTERMAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ARKANSAS

Mr. WESTERMAN. Thank you, Mr. Chairman, and thank you to the witnesses for being here today.

You know, the importance of our natural resources and the role they play in America's energy supply is no surprise to my colleagues here who are in this room and, I would say, to really anybody that is in this room, and we all know that the demand for power is only growing. We are seeing 5-year growth load projections increasing by a staggering 550 percent since 2022. And I think if you looked at this data objectively, you could see that we are facing an energy crisis if we don't do something different from what we have been doing.

We need an all-hands-on approach to producing as much new energy as we can. This explosion is being driven by data processing, by AI, and by manufacturing here in the United States. We cannot risk falling behind other countries such as China as we compete in these growing sectors. It is amazing, the amount of energy that some of this data processing takes. And quite frankly, I am for renewable energy, I am for any kind of energy we can put

on the grid, but it has to be in sufficient amounts that we can meet our needs and not drive the cost so high that the American consumers can't afford energy anymore. It is foundational to our economic growth and to our national security.

We do have a solution, and part of that solution is the fact that we have abundant natural resources here that we can use to grow the energy sector. And the benefits of releasing American energy exploration and production definitely extends to our economy. There are some current economic models that indicate that domestic energy production using emerging technologies and sound Federal policy decisions could result in \$25 trillion U.S. GDP growth by 2050 and the annual creation of more than 5 million jobs.

And I will remind everybody that since the 1960s the Federal revenue coming from taxes is about 17.5 percent of the GDP. So if you see a \$25 trillion increase in economic activity, that means there is going to be more money flowing into the Federal Government to help balance the budget.

There is a debate: what is going to happen with prices as energy production increases? And it all comes back to that simple supply and demand curve. How much energy can we produce for the demand that is out there? And if we don't keep up with the demand, obviously the price is going to go higher. So there is a lot of economic data that has been presented in the testimonies today. I look forward to hearing that, and to debating it, and using that to help drive the policies that we will be looking at in the Natural Resources Committee as we look at different ways to bolster new energy production and ways to meet the demand that keeps America competitive, that keeps energy prices reasonable for consumers, and that really looks out for the best interest of our country and for the future of the global economy and our national security.

So again, thank you to the witnesses for being here today. I look forward to the discussions.

And I yield back.

Mr. COLLINS. Thank you. I will now introduce our witnesses.

We have Mr. Matthew Jensen, who is Director of Office for Fiscal and Regulatory Analysis for the America First Policy Institute in Washington, D.C.; Mr. Glen Sweetnam, Distinguished Fellow, Energy Policy Research Foundation in Washington, D.C.; Ms. Megan Gibson, Senior Attorney, Southern Environmental Law Center here in Washington; and Dr. Kevin Dayaratna, Acting Director, Chief Statistician, and Senior Research Fellow with the Heritage Foundation here in Washington, D.C.

Let me remind the witnesses that, under Committee Rules, you must limit your oral statement to 5 minutes, but your entire statement will appear in the hearing record.

To begin your testimony, please press the "on" button with the microphone.

We use timing lights. When you begin the light will turn green, and at the end of 5 minutes it will turn red and I will ask you to please complete your statement.

The Chair now recognizes Mr. Jensen for 5 minutes.

STATEMENT OF MATTHEW JENSEN, DIRECTOR, OFFICE FOR FISCAL AND REGULATORY ANALYSIS, AMERICA FIRST POLICY INSTITUTE, WASHINGTON, D.C.

Mr. JENSEN. Chairman Collins, Chairman Westerman, Ranking Member Dexter, members of the Committee, thank you for inviting me.

Let's begin today by confronting what is a hard economic reality of our current circumstances, which is that after 4 years of the prior Administration's policies, many Americans are still finding that everything they buy is far too expensive.

Yes, the 12-month core inflation rate fell below 3 percent in February 2025 data. And yes, core inflation reached the lowest level since May 2021. But the level of prices, not the rate of increase, is still more than 20 percent above where it was in January 2021 when President Biden took office.

Affordability for the American public demands and is receiving serious attention from the second Trump administration and this 119th Congress. Where we can bring down the prices of energy and other essential inputs to daily life, those opportunities should be pursued with vigor. President Trump has targeted a major reduction in energy prices for consumers, and energy prices are baked into just about every good, product, and service that Americans consume. A reduction in energy prices would lead to strong downward pressures across all the prices in the economy. It takes energy to get seed into the ground, to get grains and machines to the factory, and to get your Cheerios to the grocery store.

A study from Dr. Aparna Mathur indicates an indirect energy cost multiplier of nearly two. So for every dollar of direct energy costs that families face, they bear another dollar in indirect costs. A BCG study puts that multiplier at three. What does this all mean for the American family? Let's look at the numbers if energy prices come down by 10 or 50 percent, compared to the baseline, starting with just the direct costs. In Arizona, reducing energy costs by 10 percent would mean statewide household savings of \$1.7 billion. In Colorado the number is \$1.4 billion. In Oregon it is \$1 billion. The average household would save \$700 in Arizona, \$720 in Colorado, and \$650 in Oregon. That is every year. And what if we reduced energy costs by 50 percent? The average household would save \$3,500 in Arizona, \$3,600 in Colorado and, \$3,300 in Oregon. Indirect savings from energy price reductions could double to triple these estimates.

Now let's turn to the fiscal effects of onshore and offshore oil and gas leasing. And here I rely on a modeling framework developed by Dr. James Broughel, an economist, energy expert, and author of the excellent book, "Regulation and Economic Growth." It has been applied by my colleague, Dr. Weifeng Zhong, an economist with the Office for Fiscal and Regulatory Analysis. The model is freely available on GitHub. You can access it, you can interrogate it, you can use it for your own estimates.

Starting from an appropriate baseline of the previous Administration's activities, the model shows that increasing onshore leasing to the past decade high and offshore leasing to three sales per year could raise up to \$58 billion over 10 years. A more aggressive reform to increase onshore leasing to 2 times the past

decade high and offshore leasing to 10 sales per year could raise up to \$173 billion over 10 years. Any realistic but more aggressive still reform to increase onshore leasing to 4 times the past decade high and offshore leasing to 20 sales per year could raise up to \$350 billion over 10 years. Those are just the effects for the Federal Government, and don't include the very significant benefits to State and local governments. These estimates are in line with CBO's estimating principles, and don't rely on dynamic effects, although dynamic modeling would show likely more significant benefits.

Additionally, the Trump administration has undertaken significant actions that should increase the value of Federal leases, but are not fully captured in these modeling results. This could mean even greater benefits. Some of the Administration's early actions relate to energy specifically. Others are broader. But all should increase the value of onshore and offshore Federal oil and gas leases, resulting bonus payments, and direct fiscal effects.

Beyond writing key provisions into statute, Congress has an opportunity to lock in savings through proposals such as the REINS Act, which would provide congressional review of regulatory actions with significant negative effects, preventing future administrations from rolling back the fiscally positive actions of this one. The REINS Act could easily provide hundreds of billions to over \$1 trillion of direct fiscal savings, based on my estimates. The Foundation for Government Accountability found REINS could have saved taxpayers at least \$844 billion if in place during the last Administration.

And as a final note, I encourage this Committee to review mining and resource use regulations more broadly. The more critical a resource, for instance, potash for agriculture or rare earth minerals for electronics, the more important it is to identify regulatory and statutory barriers to domestic production to eliminate those barriers through legislation.

Thank you. I welcome your questions and discussion.

[The prepared statement of Mr. Jensen follows:]

PREPARED STATEMENT OF MATTHEW JENSEN, DIRECTOR, OFFICE FOR FISCAL AND
REGULATORY ANALYSIS, AMERICA FIRST POLICY INSTITUTE



CONGRESSIONAL TESTIMONY

Unleashing the Golden Age of American Energy Dominance.

April 2, 2025

Testimony before

United States House of Representatives
Committee on Natural Resources
Subcommittee on Oversight and Investigations

Testimony by

Matthew Jensen
Director, Office for Fiscal and Regulatory Analysis
America First Policy Institute

*The views expressed in this testimony are those of the author alone and do not necessarily
reflect those of the America First Policy Institute*

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The full document is available for viewing at:

<https://docs.house.gov/meetings/II/II15/20250402/118088/HHRG-119-II15-Wstate-JensenM-20250402.pdf>

Mr. COLLINS. Thank you. The Chair now recognizes Mr. Sweetnam for 5 minutes.

**STATEMENT OF GLEN SWEETNAM, DISTINGUISHED FELLOW,
ENERGY POLICY RESEARCH FOUNDATION, WASHINGTON, D.C.**

Mr. SWEETNAM. Thank you. Chairman Westerman, Chairman Collins, Ranking Member Dexter, and distinguished members of the Committee, I am honored to be able to participate in this hearing today. I have prepared some slides, and I am hoping each of you have a copy in front of you.

The U.S. oil and gas industry is the most dynamic, price-responsive, efficient, and technically capable in the world. Although this has been true for many decades, probably since the start of the modern oil industry in the 18th century, the superiority was clearly demonstrated in the last 15 years.

If you look at slide two, we show the level of oil production from the U.S. and from the rest of the world relative to its level in 2010. During this period global oil production, including condensates and natural gas liquids, increased 13 million barrels a day. U.S. oil production increased, as shown in blue. The rest of the world increases are shown in orange. We display the data this way so it is very clear to see the U.S. contribution to the increase in world oil production, and the U.S. industry accounted for 90 percent of that 13 million barrels since 2010.

We can also see that in 2020 and 2023 the rest of the world's oil production actually went negative relative to 2010, and I will return a little later to this issue of curtailing production.

Slide three shows the story for natural gas, and it is basically the same. The U.S. accounted for just over 50 percent of the world's increase in natural gas productions from 2010 to 2023, and this meant an increase. By 2023 America was producing a quarter of the world's natural gas.

The U.S. industry is able to outperform the rest of the world for a variety of reasons, but an important aspect is the competitiveness. It is intense competition that forces U.S. companies to continually become more productive. Slide four shows this phenomenon of increased development and efficiency in the gas industry over the last 16 years.

In 2008 U.S. gas producers was less than 60 billion cubic feet a day, and we had almost 1,600 rigs running. Since then, rig rates have continued to decline and employment, as the Ranking Member mentioned, has declined. And yet U.S. gas production has increased from under 60 to almost 100 billion cubic feet a day, and we are running rigs at only 100 rigs per day and sustaining that growth in production.

In order to estimate the benefits of increased oil and gas leasing in prospective Federal lands, two of my colleagues at EPRINC, Max Pyziur and Matthew Sawoski, undertook a comprehensive analysis of prospective Federal lands in four regions. Slide five shows the results of that analysis in terms of incremental oil and gas production. The analysis is based on representative oil and gas projects in each of four regions: the OCS in the Gulf of America; the Naval Petroleum Reserve in Alaska; the lower 48s; and Arctic National Wildlife Reserve.

Slide six shows the results of the analysis in terms of incremental revenues from bonus bids, royalties, corporate taxes, and individual taxes. And even though oil and gas production doesn't peak until 2039 from these projects, the slide summarizes Federal revenues only during the first 10 years. And using that approach, we estimate incremental Federal revenues of \$122 billion dollars.

Now, that is a single point estimate, and it is really important to recognize the range of uncertainty in estimating future oil and gas production. Slide seven summarizes a landmark study by Richard Nehring.

Now, the increased production is important, but actually what is most important is the flexibility and the responsiveness of the U.S. industry. And in the following slides I show how, as we increase the responsiveness, what economists call the price elasticity of supply, we actually reduce the profitability of OPEC to make more money by cutting production. They are currently cutting production 6 million barrels a day, which has an effect of raising oil prices about \$10 a barrel. If we make the U.S. industry more elastic, more responsive to price changes, we can cut that incentive to restrict production, and OPEC will have less this power.

I am happy to answer questions, look forward to the discussion.

[The prepared statement of Mr. Sweetnam follows:]

PREPARED STATEMENT OF GLEN SWEETNAM, DISTINGUISHED FELLOW, ENERGY
POLICY RESEARCH FOUNDATION



Statement before the House of Representatives Committee on Natural Resources
Subcommittee on Oversight and Investigations

***“Unleashing the Golden Age of
American Energy Dominance”***

Testimony by:

Glen E. Sweetnam

Distinguished Fellow
Energy Policy Research Foundation, Inc.

Senior Vice President
Asia Pacific Energy Research Centre

Wednesday, April 2, 2025

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<https://docs.house.gov/meetings/II/II15/20250402/118088/HHRG-119-II15-Wstate-SweetnamG-20250402.pdf>

Mr. COLLINS. Thank you. The Chair now recognizes Ms. Gibson for 5 minutes.

STATEMENT OF MEGAN GIBSON, SENIOR ATTORNEY, SOUTHERN ENVIRONMENTAL LAW CENTER, WASHINGTON, D.C.

Ms. GIBSON. Chairman Collins, Chairman Westerman, Ranking Member Dexter, and distinguished members of the Subcommittee and Committee, thank you for the opportunity to testify here today. My name is Megan Gibson. I serve as a Senior Attorney at the Southern Environmental Law Center. We are a non-profit rooted in the South, committed to ensuring clean air, clean water, and a livable climate for all.

If we are serious about ushering in a new era of American energy dominance, one that benefits every American household and business, we must not look backward to fossil fuels, but forward to technologies of the future. And the future is renewable.

Renewables are no longer a distant ideal; they are the engine of American energy growth. In 2024 over 90 percent of new utility-scale capacity came from renewables: solar, wind, battery storage. These technologies are now the cheapest, fastest-to-deploy sources of power. They are creating jobs, they are lowering bills, and delivering resilience in the face of extreme weather.

In Texas, long seen as a fossil fuel stronghold, renewables are transforming the grid, making it more reliable, more resilient. During last summer's record-breaking heat wave, solar and storage supplied over 25,000 megawatts in Texas, keeping the lights on for millions. In North Carolina, after Hurricane Helene knocked out the grid, solar microgrids powered entire communities when nothing else could. These are not hypotheticals. These are real, lifesaving results right here, right now.

Clean energy isn't just reliable and resilient, it is also an economic powerhouse. In 2023 alone, 149,000 new clean energy jobs were added nationwide. These are good-paying, accessible jobs. Most don't require a 4-year degree, and they are lifting up communities across the country, especially in rural areas.

In North Carolina, solar has increased property tax revenue without burdening local infrastructure. In Texas, renewables and storage are expected to deliver nearly \$50 billion that is with a B, billion dollars in lifetime payments to local governments and landowners.

At the same time, fossil fuels are faltering under their own weight. Today 99 percent of coal plants cost more to run than it would cost to build a new wind or solar facility nearby. In the Southeast, uneconomic coal generation alone costs customers \$5.3 billion.

And natural gas, at best, it is a gamble. Price spikes like those we saw in 2022 hit families and businesses hard. One utility in the Carolinas saw its fuel costs jump by nearly \$1 billion, and those costs get passed on to people.

True energy dominance is about reliability, affordability, and security for Americans, not what more fossil fuel reliance will bring us: fuel price shocks, stranded assets, blackout risks. It is about modernizing the grid so clean power flows freely, efficiently across regions and within them. But right now, our outdated, fragmented

transmission system is holding us back. We need to triple or quadruple our transmission capacity to meet rising demand, unlock clean energy's full potential.

Fortunately, smart programs like the Department of Energy's CITAP program, an initiative that streamlines Federal transmission permitting, could help us do just that. But we need more strong Federal coordination, support, and the use of existing tools like the National Interest Electric Transmission Corridor designations, or full use of the Federal Energy Regulatory Commission's "backstop siting authority" to help get us there.

Let me be clear. Leading the world in energy isn't about drilling more wells or building more pipelines. It is about developing and owning the technologies that will define the 21st century. China is racing ahead in clean energy production. If we slow down now, we risk ceding American leadership in the very industries that will power the global economy.

We are at a crossroads. We can cling to the fossil-fueled past and call it dominance, or we can invest in the clean, modern, resilient energy system our future demands. This is our moment to lead, not more of the same polluting, uneconomic systems, but in wind, solar, batteries, high-voltage transmission lines that will serve as the backbone of a resilient modern grid and American innovation.

Let's build an America where no family is left in the dark during a storm, where no family has to live next to a facility that spews pollution or send their children to school where they go outside and struggle to breathe. Instead, let's continue to build an America where electricity is cheap, clean, home-grown, where we are not only energy independent, but clean energy dominant.

Thank you. I look forward to your questions.

[The prepared statement of Ms. Gibson follows:]

PREPARED STATEMENT OF MEGAN GIBSON, SENIOR ATTORNEY, SOUTHERN
ENVIRONMENTAL LAW CENTER

Testimony Before the United States House of Representatives
Committee on Natural Resources
Subcommittee on Oversight and Investigations
Unleashing the Golden Age of American Energy Dominance

Testimony of Megan C. Gibson, Senior Attorney of the Southern Environmental Law Center

April 2, 2025



The full document is available for viewing at:
<https://docs.house.gov/meetings/II/II15/20250402/118088/HHRG-119-II15-Wstate-GibsonM-20250402.pdf>

QUESTIONS SUBMITTED FOR THE RECORD TO MS. MEGAN GIBSON, SENIOR ATTORNEY,
SOUTHERN ENVIRONMENTAL LAW CENTER

Questions Submitted by Representative Dexter

Question 1. During the hearing, Dr. Dayaratna claimed that even a full transition to renewables would result in only a 0.2°C decrease in global temperatures—suggesting this isn’t worth the cost. But isn’t 0.2°C in fact significant in climate terms? Can you expand on the climate stakes of even seemingly small global temperature changes, and how the IPCC frames those figures?

Answer. Our country’s economy and public health have much to gain from climate action within our own borders, even if the impact on the global temperature change seems deceptively slight. Research from Duke University, NASA, and Columbia University has shown that even if the U.S. acts alone in reducing emissions, this would still avoid tens of thousands of premature deaths caused by air pollution and heat exposure each year—adding up to millions of avoided premature deaths over the next 50 years. (Schindell et al., 2021, *Temporal and spatial distribution of health, labor, and crop benefits of climate change mitigation in the United States*, PNAS, <https://doi.org/10.1073/pnas.2104061118>) With global action to keep warming under 2°C, things get even better. In this scenario the United States would see 4.5 million fewer premature deaths, 1.4 million fewer hospitalizations and emergency room visits, 300 million fewer lost workdays, 1.7 million fewer incidences of dementia, and 440 million tons fewer of crop losses over the next 50 years. But even if you just consider the benefits from the U.S. decarbonizing the energy sector, the country still realizes two-thirds of the benefits it would see under a global decarbonization. Looking at a shorter timeline, serious emissions reductions in the US could reduce air pollution deaths by 40% within just a decade. (Schindell et al., 2021).

Moreover, even adopting Dr. Dayaratna’s generous assumptions, a few tenths of a degree of global warming can carry profound consequences. The preeminent body of climate science, the Intergovernmental Panel on Climate Change, makes clear that every increment of warming intensifies multiple hazards and risks (IPCC, 2023: *Climate Change 2023: Synthesis Report*. Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, doi:10.59327/IPCC/AR6-9789291691647). What might sound like a “small” 0.2°C difference is actually quite significant: it can mean substantially more frequent and severe heatwaves, heavier downpours, and other extreme events. For example, limiting warming to 1.5°C instead of 1.7°C or 1.8°C could avoid exposing millions more people to life-threatening heat. The IPCC emphasizes that risks are higher at 1.5°C than they are today, and increase further at 2°C (IPCC AR6 Synthesis Report, 2023)—so an additional few tenths of a degree translates into markedly more significant damage to lives, infrastructure, and ecosystems. In climate science terms, 0.2°C can be the difference between manageable impacts and truly dangerous ones.

Question 2. You testified that “American energy dominance” should be measured by abundance, affordability, and energy security for all. Can you elaborate on what that vision looks like in practice—particularly the role of high-voltage transmission and renewables in securing long-term U.S. energy leadership?

Answer. True American energy dominance isn’t about drilling or burning more fossil fuels—it’s about ensuring abundant, affordable, and secure energy for every American through clean, modern resources. In practice, this means aggressively expanding renewable energy sources like solar and wind (along with battery storage) and building the high-voltage transmission infrastructure needed to deliver that clean power where it is needed. Renewables are already demonstrating their value: in 2024, over 90% of new utility-scale electric capacity added in the U.S. came from solar, wind, and batteries and are projected to do the same in 2025. (<https://www.npr.org/2025/03/12/nx-s1-5319056/trump-clean-energy-electricity-climate-change>, 2024 percentages calculated from figures in the article). This rapid growth in clean energy is driving down costs for consumers and improving grid reliability. We’re seeing local economies benefit from new clean energy jobs, which grew at a rate of 4.9% or more than twice the rate of the overall U.S. labor market (2%) (<https://www.energy.gov/policy/us-energy-employment-jobs-report-user>; see also <https://www.forbes.com/sites/energyinnovation/2024/06/25/americas-clean-energy-jobs-boom-313000-new-jobs-and-counting/>) and households benefit from lower electricity bills due to the fuel-free, stable cost of renewables. (See Direct Testimony and Exhibits of Ronald J. Binz on behalf of Southern Alliance for Clean Energy, Docket

No. E-2, Sub 1292, at 6:14 (Aug. 24, 2022) (discussing inherent volatility of gas markets)).

However, unlocking the full potential of these resources requires a robust transmission network. High-voltage transmission lines are the backbone of any American Energy Dominant future—they enable us to connect the richest solar and wind areas, often located in remote regions, to cities and communities that need reliable, affordable power. (See generally Ted Boling et al., Niskanen Ctr., *Evidence-Based Recommendations for Overcoming Barriers to Federal Transmission Permitting* (Apr. 2024), <https://www.niskanencenter.org/evidence-based-recommendations-for-overcoming-barriers-to-federal-transmission-permitting/>; see also Eric Larson et al., *Net-Zero America: Potential Pathways, Infrastructure, and Impacts 27–29* (Dec. 2020), https://netzeroamerica.princeton.edu/img/Princeton_NZA_Interim_Report_15_Dec_2020_FINAL.pdf (estimating increase in transmission capacity two to five times that of 2020 levels would be needed to reach zero emissions)). By investing in modernizing and expanding the grid, we can transport inexpensive clean electricity across regions, enhancing reliability and preventing bottlenecks. Studies show that we may need to triple or quadruple our transmission capacity to meet rising demand and fully tap into renewable energy. *Id.*

Achieving this means streamlining the planning and permitting of high-voltage, interstate lines, while maintaining community and environmental safeguards. It also means the continued use, development, and support of federal tools like the Department of Energy’s new coordinated permitting program to expedite critical transmission projects of national significance. (Coordination of Federal Authorizations for Electric Transmission Facilities Final Rule, 89 Fed. Reg. 35,312, 35,313 (May 1, 2024)). In practice, renewed support on and federal resources dedicated to interstate transmission capacity development would help tie together America’s vast clean and affordable resources into one resilient, reliable network. The result would be an energy system wherein no matter the season or region, Americans would have stable, resilient, low-cost power—and the United States leading the world in deploying the most modern grid of the 21st century. *This is the true and achievable vision of American energy dominance: a country powered by homegrown renewables, linked by strong transmission highways, delivering affordable and reliable electricity for all.*

Question 3. Some witnesses suggested renewables cannot support reliable baseload power. But your testimony highlighted how renewables combined with battery storage kept the lights on in Texas during a record heat wave. Can you expand on how solar, wind, and storage—particularly when paired with demand response and regional transmission—can provide dispatchable, firm power?

Answer. Real-world evidence shows that solar and wind, when complemented by tools like battery storage, demand response, and regional transfers of power, can absolutely provide reliable electricity. Texas offers a compelling example. In 2024, during a blistering record heat wave, Texas’s grid hit its highest demand ever (over 86,000 MWs). Far from faltering, renewable energy helped meet that peak demand and keep the lights on. Solar farms provided roughly a quarter of the record demand with 21,000 MWs and utility-scale batteries contributed nearly 4,000 MWs. (<https://gridlab.org/solar-storage-saved-the-hot-day/>). These clean resources performed exactly when needed, effectively acting as dispatchable power sources.

The reliability of renewables is further enhanced by geographic diversity and strong transmission links within and between regions. Wind and solar output vary, but they don’t vary uniformly across wide regions—so regional transmission allows excess renewable power in one area to be sent to support other areas, smoothing out local fluctuations. See Dept. of Energy, *National Transmission Needs Study*, 54–55 (Oct. 2023): https://www.energy.gov/sites/default/files/2023-12/National%20Transmission%20Needs%20Study%20-%20Final_2023.12.1.pdf

(“[V]arious study findings demonstrate transmission can serve to accommodate increased [Variable Energy Resource] integration and increase system reliability in response to future changes in the generation mix.”). Coupling renewable generation with demand response (programs that incentivize customers to reduce or shift usage at peak times) and storage can effectively manage peaks and valleys in demand.

It’s also worth noting that traditional fossil plants can and do fail in extreme conditions. For example, natural gas and coal plants were offline in large numbers during recent winter storms due to planned outages, fuel shortages, and frozen equipment. See, e.g., Fed. Energy Reg. Comm’n & N. Am. Elec. Reliability Corp., *Inquiry into Bulk-Power System Operations During December 2022 Winter Storm Elliott: FERC, NERC and Regional Entity Staff Report*, 17 (Oct. 2023), <https://www.ferc.gov/media/winter-storm-elliott-report-inquiry-bulk-power-system-operations-during-december-2022> (showing that gas units accounted for 63% and coal accounted for 23% of the total unavailable MW during Winter Storm Elliott).

By contrast, wind turbines and solar panels are not fuel-limited and can provide essential power during extreme weather events. Last year, during the aftermath of Hurricane Helene, Duke Energy used a microgrid powered by solar and storage to keep the lights on in the town of Hot Springs, North Carolina. (<https://www.newsobserver.com/news/politics-government/article294532699.html>). Like Duke Energy was able to do after Helene, grid operators across the country are learning to treat portfolios of renewables plus storage as reliable, dispatchable resources. Battery storage ensures that electricity generated by renewables can be stored or dispatched when it is needed most. In short, when integrated thoughtfully, renewables, storage, and demand-side measures can supply firm power during the very grid emergencies that matter most.

Question 4. Several witnesses emphasized how quickly gas infrastructure can be deployed to meet surging demand. But you mentioned that wind, solar, and battery storage are now the fastest-to-deploy forms of energy. Can you explain how quickly utility-scale renewables and storage can be brought online, and how that compares to fossil fuel infrastructure timelines?

Answer. Renewable energy projects can be built and scaled up often faster than large fossil fuel projects. Utility-scale solar farms, for instance, commonly go from planning to operation in three to five years, depending on permitting and inter-connection times (<https://seia.org/initiatives/land-use-solar-development/>). In contrast, large new natural gas power plants now take over five years to develop (Slide 7, <https://www.investor.nexteraenergy.com/media/Files/N/NEE-IR/news-and-events/events-and-presentations/2025/2025%20March%20Investor%20Deck.pdf>). In 2024, over 90% of all new utility-scale electric capacity built in the U.S. was solar, wind, or battery storage. (See <https://www.npr.org/2025/03/12/nx-s1-5319056/trump-clean-energy-electricity-climate-change>). We are adding clean energy capacity at a record pace in large part because these projects are quicker to deploy. None of this is to say there aren't challenges for quickly deploying clean energy resources. Transmission upgrades, for example, are needed to support the continued deployment of renewable energy, especially in areas where the electricity grid is currently constrained, but on balance, clean energy infrastructure is outpacing fossil fuel infrastructure in deployment speed. That agility is a key advantage as we strive to meet surging electricity demand and replace retiring older plants.

Question 5. In response to one of my questions, you questioned the accuracy of economic projections used to justify expanded oil and gas leasing. Can you elaborate on how such projections—like those assuming massive Arctic lease revenues—have failed in the past, and what a more realistic modeling approach would consider?

Answer. Yes—too often we've heard rosy projections for fossil fuel leasing that simply don't pan out in reality. A glaring example is the plan to lease the Arctic National Wildlife Refuge (ANWR) for oil drilling. As recently as January 2025, a congressionally mandated lease sale in ANWR drew no bids. (US Department of Interior, January 8, 2025, <https://www.doi.gov/pressreleases/arctic-refuge-lease-sale-yields-no-interest>)

This result is part of a longstanding pattern of overly optimistic leasing projections. Back in 2017, proponents advertised that Arctic drilling would generate over \$1 billion in federal revenue (a figure used to justify budget savings). But when the first lease sale was finally held, the result was abysmal: it brought in a mere ~\$15 million—barely a penny on the dollar of the promise—and most of the bids came from a state agency, with virtually no interest from major oil companies. Subsequent lease sales saw zero bids offered at all. In other words, the market signaled that this remote, sensitive area simply isn't the bonanza that political calculations had assumed. The nonpartisan Taxpayers for Common Sense later analyzed the situation and estimated that future Arctic Refuge lease rounds might only generate \$3 to \$30 million—a small return, especially when weighed against the environmental and cultural costs.

This pattern—of overly optimistic projections failing to materialize—underscores the need for realistic modeling in our energy decisions. Past economic justifications often ignored key factors such as shifting market trends, the high cost of developing frontier oil fields, and legal or community opposition.

In short, good policymaking requires “looking before we leap” with credible, sober economic forecasts. We've seen what happens when we rely on wishful numbers: public lands are put at risk for promises that never materialize. Going forward, we need rigorous analyses vetted by independent experts (including looking at low-demand scenarios and a credible metric or methodology to measure climate and carbon emissions impacts), so that we don't bank on fool's gold. Our public lands

and waters should be managed based on sound economics and stewardship, not on industry-fueled mirages.

Question 6. The Trump administration and our Republican colleagues have suggested that the weakening of critical protections enshrined in NEPA is a prerequisite for responding to the so-called “energy emergency”. Can you speak to the direct impacts that frontline communities will experience if NEPA’s fundamental provisions are gutted in the interest of fast-tracking fossil fuel projects?

Answer. The idea that NEPA—the National Environmental Policy Act—is standing in the way of energy projects is a common misconception not supported by empirical evidence. Studies of permitting delays have consistently found that delays attributed to NEPA are usually caused by external factors such as funding interruptions, understaffing, insufficient information from applicants, and compliance with other laws. (See, e.g., Cong. Rsch. Serv., *The National Environmental Policy Act (NEPA): Background and Implementation* 25–26 (2011); John Ruple, Jamie Pleune, & Erik Heiny, *Evidence-Based Recommendations for Improving National Environmental Policy Act Implementation*, 47(S) *Columbia J. Env’t. L.* 273, 350 (2022), <https://journals.library.columbia.edu/index.php/cjel/article/view/9479/4840>; David E. Adelman, *Permitting Reform’s False Choice*, 51 *Ecology L. Q.*, (2024)). As stated by Professor Jamie Pleune, “These findings demonstrate that the choice between speed and environmental standards is a false dilemma. Each of the true sources of delay can be addressed without compromising environmental standards that protect safe, healthy, and clean communities.” (Jamie Pleune, Roosevelt Inst., *Choosing Between Environmental Standards and a Rapid Transition to Renewable Energy Is a False Dilemma* 11–14 (2023) (discussing studies finding that permitting delays “can be summarized as: (1) agency capacity, (2) delays attributable to the operator, and (3) permitting coordination”). Moreover, simplistic calls to abandon environmental review not only risk ecological and community harm; they can also backfire by generating litigation and distrust, thereby prolonging project timelines.

Gutting NEPA would not necessarily expedite energy projects, but it would directly harm frontline communities by stripping away their primary tool for awareness, input, and mitigation of harms. NEPA is one of the most important—and often only—tools available that gives communities (especially those historically marginalized) a voice in proposed federal projects that if approved would significantly and adversely impact communities’ lives, health, livelihoods, economy, and environment. (Congressional Research Service, *The National Environmental Policy Act (NEPA): Background and Implementation* (Jan. 10, 2011) at 1). If its provisions continue to be actively weakened, projects like pipelines, refineries, or export terminals will rush forward without robust environmental review or public engagement. For a community at the fenceline of a proposed fossil fuel project, that will likely mean no meaningful consideration or even warning of how construction and operation of a project will worsen their children and parent’s asthma, impact their multi-generational fishing business, or how a pipeline route might raise the risk of spills in or poisoning of their drinking water source. (See Alexandra B. Klass & Matthew Appel, *The Law of Energy Abundance*, N.C. L. REV. 2, 28 (“NEPA’s procedural protections continue to serve as an important check on fossil fuel projects that, if built, will contribute to climate change and harm human health and the environment.”)).

Contrary to what advocates of “permitting reform” suggest, NEPA is not a permitting statute. Its “fundamental provisions” include requirements to study a project’s environmental impacts, consider alternatives, and solicit public comments. In practical terms, weakening NEPA could result in agencies ignoring cumulative impacts and climate effects. For example, if a new gas plant is proposed in an area already suffering from high pollution, NEPA is what forces the government to consider that cumulative pollution load. Rolling these provisions back would mean more pollution and hazards being imposed on communities without their knowledge or consideration of the “big picture” harm to public health, water, air, and climate.

Destroying NEPA would turn back the clock to a time when highways were plowed through dense city neighborhoods and factories sited next to homes, schools, or rivers with no public say. Public input and environmental review are not red tape; they are lifelines. Affected communities are in the best position to identify impacts and suggest alternative approaches. When NEPA review is executed and supported properly, it can improve and help streamline the development of projects, and lead to the identification and development of alternatives that are safer or less damaging. (See Letter from SELC to White House Council on Environmental Quality (Sept. 29, 2023), available at <https://www.regulations.gov/comment/CEQ-2023-0003-30199>). If NEPA is gutted to fast-track fossil fuels, we risk sacrificing the health and safety of American communities throughout the nation. We also risk

sowing chaos, confusion, and creating a void of guidance on how to responsibly and reasonably conduct necessary environmental reviews of proposed projects. In other words, we will fail to “look before we leap.”

Question 7. The “permitting reform” being advanced by our colleagues across the aisle seeks to cut opportunities for public input in the NEPA review process. To what extent would these changes to NEPA affect the federal government’s ability to meaningfully engage with the communities and landowners affected by energy development projects?

Answer. Drastically curtailing public input under NEPA would gravely undermine the federal government’s ability to engage with, learn from, and earn trust in communities potentially affected by energy projects. NEPA is the cornerstone of public engagement for federal actions—it requires agencies to inform the public of potential environmental impacts and to invite public comment and participation before decisions are made. (Congressional Research Service, *The National Environmental Policy Act (NEPA): Background and Implementation* (Jan. 10, 2011) at 1).

Many “permitting reform” bills would reduce those opportunities by establishing timelines that would make meaningful public engagement impossible, further reducing the number of projects that would trigger NEPA’s transparency requirements, and prohibiting affected communities from enforcing their rights. The result is that communities and landowners would be largely left in the dark, with no ability to participate in government decisions that affect them. This loss of engagement is not just anti-democratic; it’s counterproductive. When agencies bypass meaningful dialogue with the public, they miss local knowledge that can improve project design, mitigate harms, and they foster resentment. Affected residents who are and/or feel ignored are more likely to resort to courtroom battles or outright opposition. In contrast, when communities are heard and their input incorporated, projects often proceed more smoothly.

In fact, there is evidence that public engagement is an effective method to expedite projects by reducing project delays caused by local resistance. (See Wyatt G. Sassman, *Community Empowerment in Decarbonization: NEPA’s Role*, 96 WASH. L. REV. 1511, 1562 (2021)) This is supported by a recent study from the Massachusetts Institute of Technology that analyzed renewable energy and transmission projects that have been delayed or stopped in recent years. Researchers concluded that incorporating diverse perspectives early in the planning process would save time and money, as projects could face months of delay when the affected community feels “left out or disregarded.” (David E. Adelman, *Permitting Reform’s False Choice*, 51 *ECOLOGY L. Q.* 129, 162 (2024))

By cutting public input, these NEPA changes would essentially tell communities that their concerns don’t matter. Landowners might not get a chance to voice how a transmission line or pipeline could affect their farm or drinking water, or to suggest a less-damaging alternative route. This not only erodes trust in government, it also increases the risk of agencies making uninformed and harmful decisions. Engagement through NEPA often brings to light creative solutions or compromise, and siting adjustments that reduce harm. Losing that means losing the chance to identify and mitigate issues upfront. SELC staff have seen firsthand that when developers and agencies take the time to sit at the table with locals—listening to how a project could provide community benefits or be adjusted to avoid a church or a school—the outcomes are better for everyone. NEPA is the framework that makes many of those conversations happen. If reforms shut people and communities out, federal agencies could revert to a one-way decision-making process, which is likely to breed bad outcomes, the buildout of harmful and ill-informed projects, and conflict. In summary, slashing public input from NEPA would severely impair the government’s ability to work with the very communities proposed energy projects impact, leading to greater frustration, less equitable outcomes, and potentially even delays and litigation that smart and targeted permitting reform should seek to avoid. (See, e.g., John Ruple & Heather Tanana, *Debunking the Myths Behind the NEPA Review Process*, *Natural Resources & Environment* Vol. 35 No. 1 (2020) (noting that measures like page and time limits make it harder for agencies to satisfy NEPA’s requirements, leading to increased litigation-related delays)) Meaningful engagement isn’t a box to be checked; it’s how we build projects that endure and benefit all stakeholders.

Question 8. The impacts of fossil fuels on public health also demand that we pursue a just transition to clean, renewable energy. Can you speak to how continuing to prop up the oil and gas industry in the name of American energy dominance will

increase risks to public health and affect the well-being of communities across the country?

Answer. Propping up oil, gas, and coal in the long term will increase risks to public health and affect the well-being of communities nationwide. Burning fossil fuels releases a number of harmful pollutants that we know cause disease and premature death. For example, emissions from coal-fired power plants include sulfur dioxide and nitrogen oxides (which contribute to smog and respiratory illnesses), particulate matter (which leads to asthma, lung disease, and heart attacks), and mercury and other heavy metals (which cause neurological and developmental damage). (<https://www.eia.gov/energyexplained/coal/coal-and-the-environment.php#:~:text=Emissions%20from%20burning%20coal,when%20power%20plants%20burn%20coal>). These pollutants have real and devastating health impacts. Indeed, research indicates that pollution from aging coal plants alone is responsible for countless premature deaths and hospitalizations each year. (How Uneconomic Coal Plants Hurt our Health—and Drive Up Healthcare Costs—RMI). Those are mothers, fathers, and children whose lives are cut short or altered by preventable pollution. Continuing to rely on and subsidize these dirty energy sources means prolonging this public health burden.

The health toll falls disproportionately on certain communities—often low-income neighborhoods or communities of color located near power plants, refineries, highways, or oil and gas drilling sites. (<https://cdn.catf.us/wp-content/uploads/2024/01/19170229/community-health-impacts-air-pollution.pdf> at 6.). By contrast, a transition to clean energy means cleaner air and better health outcomes. Every fossil plant retired and replaced with wind, solar, or energy efficiency directly translates into fewer asthma attacks and heart emergencies. (<https://doi.org/10.1016/j.crsus.2024.100105>).

There’s also the climate angle: sticking with fossil fuels worsens climate change, which is itself a public health threat multiplier. Extreme heat waves, made more frequent by climate change, cause heat stroke and death; intensified wildfires choke our air with smoke; and expanded ranges of disease-carrying insects threaten new outbreaks. (<https://nca2023.globalchange.gov/chapter/15/>). This means that doubling down on fossil fuels in the name of “dominance” will boomerang back as higher healthcare costs and graver health crises for Americans. Pursuing a *just transition* to renewables isn’t just about economics or climate—it’s about an affirmative public health strategy. We have an opportunity to alleviate asthma in kids, reduce cancer risks, and ensure cleaner water and air for all. I’ve met residents living in the shadow of petrochemical complexes who yearn for relief for their families from constant emissions. Their and our collective well-being will only improve when we curb our dependence on these polluting industries. In sum, clinging to fossil fuels undercuts American health and prosperity—it imposes very real, very costly health burdens on our people—whereas shifting to clean energy will yield cleaner air, longer lives, and healthier communities across the country.

Question 9. How have the Trump administration’s actions affected the efficiency of permitting?

Answer. Despite claims that the first Trump administration “streamlined” permitting, many of its actions did not substantially improve—and in some cases hindered—the efficiency of federal permitting processes. The Trump administration rolled back portions of NEPA and other environmental reviews, aiming to speed up project approvals by cutting analysis and public input. In practice, this approach created uncertainty and litigation risk, and it ignored the real bottleneck: under-resourced and under-staffed agencies. It’s telling that the most significant improvement in permitting timelines in recent memory came not from gutting rules, but from increasing agency capacity. For instance, during the late 2010s, additional funding and staffing for environmental review offices helped shorten the median time to complete Environmental Impact Statements from 3.6 years to 2.2 years. (COUNCIL ON ENV’T QUALITY, ENVIRONMENTAL IMPACT STATEMENT TIMELINES (2010–2024) 3 (Jan. 13, 2025), https://ceq.doe.gov/docs/nepa-practice/CEQ_EIS_Timeline_Report_2025-1-13.pdf). That was achieved under the existing NEPA framework by making the process work better, not by dismantling it.

The Trump administration’s sweeping 2020 NEPA rule changes—which, among other things, tried to eliminate consideration of cumulative impacts like climate change—led to confusion and did not markedly speed up approvals or construction. Instead, they prompted legal challenges that actually threaten delay. Moreover, sidelining public input and thorough analysis tends to spur more public opposition down the line. If anything, previous attempts at ‘permitting reform’ traded short-term paper cuts for longer-term conflict, confusion, and uncertainty. A smarter

approach is what we were moving toward: retaining robust reviews but coordinating them more efficiently among agencies, and dedicating more resources to hire experts and use modern technology to process review of proposed projects faster. In short, many of the proposed “shortcuts” to environmental review will simply not solve the core issues. The efficiency of permitting is ultimately improved by rolling up our sleeves and investing in the permitting system—updating outdated procedures, hiring more staff, and leveraging existing tools such as programmatic reviews—rather than by weakening environmental safeguards. As the CEQ’s January 2025 reports shows, when agencies have what they need to do their jobs, reviews can be done on time without sacrificing quality or community trust.

The current Trump administration’s efforts to revoke and dismantle NEPA, beginning with an executive order rescinding the Council on Environmental Quality’s (“CEQ’s”) centralized authority to promulgate NEPA regulations that are binding on all federal agencies, will exacerbate the problems created during his first administration. (See Exec. Order No. 14,154, *Unleashing American Energy*, 90 Fed. Reg. 8,353, 8,355 (Jan. 20, 2025)). Until President Trump’s second term, every president had used CEQ regulations to ensure that federal agencies “use all practicable means . . . to improve and coordinate Federal plans, functions, programs, and resources . . .” (Edward Boling, et al., *CEQ Regulations Replaced by Guidance for a Year of Living in Uncertainty*, PERKINS COIE (Feb. 20, 2025) (citing 42 U.S.C. § 4331(b)), <https://perkinscoie.com/insights/blog/ceq-regulations-replaced-guidance-year-living-uncertainty> (last visited Mar. 28, 2025)). As experts at Perkins Coie acutely observed, CEQ has undercut the long-established interagency framework created by the NEPA regulations that applied to all federal agencies. Ironically, the rescinding of CEQ’s authority is contrary to the Executive Order’s prioritization of increasing “efficiency and certainty” in the NEPA process. (Edward Boling, et al., *CEQ Regulations Replaced by Guidance for a Year of Living in Uncertainty*, PERKINS COIE (Feb. 20, 2025) (emphasis added), <https://perkinscoie.com/insights/blog/ceq-regulations-replaced-guidance-year-living-uncertainty> (last visited Mar. 28, 2025)).

Question 10. It is abundantly clear that the United States will be taking a step backward if we acquiesce to the President’s declaration of an energy emergency and double down on fossil fuels. Ms. Gibson, your work has focused extensively on cutting our nation’s reliance on fossil fuels. Can you give some examples of how the communities you’ve interacted with have benefited from regional clean energy initiatives?

Answer. Across the Southeast, we’ve seen communities reap tangible benefits from clean energy programs—often implemented at the state or regional level—that not only cut pollution but also save people money and create local jobs. One standout example is Virginia’s participation in the Regional Greenhouse Gas Initiative (RGGI), a multi-state carbon trading program. Since joining RGGI, Virginia has been investing the proceeds from carbon allowance auctions into community programs. Over the past few years, tens of millions of dollars have flowed into the state’s Community Flood Preparedness Fund and low-income energy efficiency programs. (Virginia Department of Conservation and Recreation, *Community Flood Preparedness Fund Grant*, September 2024, <https://www.dcr.virginia.gov/dam-safety-and-floodplains/dsfpm-cfpf>) What does that mean on the ground? It means coastal towns are receiving grants to build flood protections, improve stormwater infrastructure, or restore wetlands to better protect against recurrent flooding. It means many economically disadvantaged Virginians are getting their homes weatherized—adding insulation, replacing leaky windows, upgrading old HVAC systems—which lowers their electricity bills and makes their homes healthier and more comfortable. We’ve spoken with families who, thanks to these RGGI-funded upgrades, saw their utility bills drop and no longer have to choose between heating their home and other necessities in winter. These are direct, everyday improvements in quality of life coming from a “regional” clean energy/climate initiative.

Other examples come from programs promoting solar energy adoption in schools and city buildings through innovative financing (sometimes enabled by state legislation). These programs are saving taxpayer money previously spent on energy costs that can be reallocated to public services. In South Carolina, after advocacy by SELC and others, the state removed caps on solar leasing, which opened the door for more churches and community centers to go solar with no upfront cost (South Carolina unanimously passes solar bill to lift 2% net metering cap / Utility Dive). These initiatives prove that clean energy isn’t just an abstract goal; it’s delivering real economic and social benefits at the local level. Perhaps most importantly, they empower communities.

Whether it's a town using RGGI funds to fix long-standing drainage issues, or a churches and community groups adopting solar, people are seeing that solutions like efficiency and renewables can address everyday problems—high bills, flooding, pollution—in ways that fossil fuels never did. That is energy progress worth celebrating and expanding.

Question 11. The fossil fuel industry is the major driver behind the climate crisis, and climate change in turn is intensifying natural disasters by increasing the frequency and severity of extreme weather events. Can you speak to the role that renewables can play in bolstering community energy resilience and supporting critical local infrastructure after such disasters?

Answer. Renewables are already proving their value as a resilience tool for communities hit by extreme weather. An energy system built around distributed solar panels, battery storage, and microgrids can bounce back faster from disasters and even keep critical services running during a crisis, compared to a system dependent on centralized fossil fuel power. (Xu et al., 2024, *Resilience of renewable power systems under climate risks*, Nature Reviews electrical engineering, <https://doi.org/10.1038/s44287-023-00003-8>).

We have seen this firsthand in Western North Carolina: after Hurricane Helene caused widespread power outages in the mountains, solar power came to the rescue. Local organizations, partnering with the nonprofit Footprint Project, deployed 45 portable solar panel and battery systems to communities that were cut off from the grid. (Microgrid Knowledge, 2024, *After Hurricane Helene Pop-Up Microgrids Powered Medical Clinics, Water Generators, Communications Equipment, and Other Critical Resources*, <https://www.microgridknowledge.com/microgrids/critical-services/article/55236920/after-hurricane-helene-pop-up-microgrids-powered-medical-clinics-water-generators-communications-equipment-and-other-critical-resources>). These solar-battery units provided essential electricity for charging phones, running medical devices, and powering community centers, all without needing a drop of fuel. During the same storm, Duke Energy's microgrid in Hot Springs, NC—which consists of a solar array and battery bank—kicked on when the main grid went down. It was able to power critical services downtown both day and night in the hurricane's aftermath. This is a concrete example of renewables supporting critical local infrastructure: a small-town pharmacy could stay open and the fire station had power, thanks to a resilient clean energy system. (<https://www.canarymedia.com/articles/distributed-energy-resources/hurricane-helene-underscores-need-for-more-solar-battery-microgrids>).

Communities are also pairing solar with critical facilities: some hospitals in Florida have solar + storage microgrids so that even if a hurricane knocks out the wider grid for days, the ICU and emergency rooms stay powered. After Superstorm Sandy, some New Jersey towns invested in solar-powered emergency shelters. All of this adds up to a new vision of resilience: one where local renewable energy resources provide a lifeline in disasters, ensuring that shelters have lights, medical equipment can operate, cell towers stay online, and water treatment plants keep operating when the larger grid is down. As climate change brings stronger storms and more punishing heat waves, this kind of resilience is not a luxury—it's essential. Renewables, combined with batteries and smart grid management, are giving communities the tools to weather the storm and recover faster. In sum, clean energy isn't just about reducing emissions; it's a cornerstone of disaster resilience strategy, keeping communities safer when the unthinkable happens.

Question 12. What evidence do we have that renewables lead to lower energy prices for consumers?

Answer. We have robust evidence from across the country that scaling up renewables translates into savings on consumers' energy bills. In fact, 19 of the 24 states where renewables contribute more than 10% of the electricity generated in the state have lower electricity bills than the U.S. average. (Slide 10, <https://www.investor.nexteraenergy.com/-/media/Files/N/NEE-IR/news-and-events/events-and-presentations/2025/2025%20March%20Investor%20Deck.pdf>). One key reason is that wind and solar have no fuel costs. When renewables supply more of the electricity on the grid, they displace generation from more expensive resources, like electricity generated by coal. This generally drives *down* the wholesale price of power.

Another way renewables save consumers money is by insulating them from volatile fuel markets. We've seen how spikes in natural gas prices (due to geopolitical events or supply constraints) can lead to sudden hikes in electricity rates or heating bills. By contrast, if your utility gets a large share of its energy from solar, wind, or hydropower, your bill is less exposed to those fossil fuel price

swings. For example, in 2022, gas price volatility caused Duke Energy Carolinas to incur nearly \$1 billion more in fuel costs than it had forecast. (<https://apnews.com/article/duke-energy-utility-power-bills-north-carolina-2aa0bd1e246c32a36090b5a523038128>) Diversifying with more renewables is like a hedge that protects customers from such shocks.

Question 13. How would reducing U.S. investments in our clean energy sector be detrimental to the U.S. economy?

Answer. Pulling back on clean energy investments now would be economically shortsighted and detrimental on multiple fronts. It would mean jeopardizing the tremendous job growth and industrial development that is currently underway. Recent federal investments and incentives for clean energy technologies have spurred a manufacturing renaissance. For example, states like North Carolina, Georgia, and Tennessee are landing major solar panel and battery plants, creating thousands of good-paying jobs. If we cut those investments, we'd stall these projects and likely send those jobs overseas. (<https://climatepower.us/wp-content/uploads/2025/01/January-2025-Clean-Energy-Boom-Report.pdf>). According to a recent report by the think tank Energy Innovation, repealing the tax credits in the IRA would decrease gross domestic product by \$180 billion by 2030 and \$250 billion by 2050, largely driven by fewer clean energy manufacturing and construction projects. (Energy Innovation, How Repealing the Inflation Reduction Act Would Harm the Economy, <https://energyinnovation.org/wp-content/uploads/IRA-Rollback.pdf>)

Second, reducing clean energy investment would undercut our economic competitiveness. If U.S. companies aren't supported to innovate and lead in clean energy, companies in Europe or Asia will capture those export markets. That would be a blow to our future trade balance and influence as countries around the globe continue to aggressively invest and develop these technologies (<https://carnegieendowment.org/research/2025/02/how-the-us-can-stop-losing-the-race-for-clean-energy?lang=en>).

Question 14. What will it take for America to achieve real energy leadership, and is it possible to outpace China, Europe, and India in clean energy production?

Answer. Achieving genuine U.S. energy leadership in the 21st century will require an unwavering commitment to building our clean energy capacity and innovation. The good news is that we have the resources and know-how to outpace other nations—if we choose to prioritize and invest accordingly. It will take a concerted effort on multiple fronts including consistent and politically durable federal incentives for domestic manufacturing of clean technologies, funding cutting-edge R&D (for example, advanced batteries, grid modernization, and next-gen renewables), and implementing smart policies that drive deployment of clean energy at scale (How the U.S. Can Stop Losing the Race for Clean Energy/Carnegie Endowment for International Peace). We also need to cultivate a skilled workforce for these industries, which means job training programs and strong labor standards so that clean energy jobs are high-quality jobs.

While it may be possible to outpace other international leaders in clean energy, the window for success is narrow and the urgency is high. America still has unmatched strengths—world-class research institutions, entrepreneurial companies, vast renewable energy resources, and now a suite of supportive policies (like the Inflation Reduction Act). We're already seeing the payoff such as onshoring some solar panel production and ramping up battery factories at an unprecedented rate (<https://climatepower.us/wp-content/uploads/2025/01/January-2025-Clean-Energy-Boom-Report.pdf>). Sustaining and expanding this progress will take consistent, bold policy support, and public-private coordination over the next decade. Otherwise, we may find ourselves permanently importing technologies invented elsewhere.

Question 15. How can expanding renewable energy in disaster-prone areas reduce dependence on fragile fuel supply chains that can be disrupted by storms, wildfires, or other disasters?

Answer. Disasters like hurricanes, wildfires, and winter storms often wreak havoc on traditional fuel supply chains—they knock out pipelines, flood coal rail lines, and disrupt the delivery of diesel for generators. By expanding renewable energy in regions vulnerable to disasters, we make communities less dependent on brittle fossil fuel logistics and more self-reliant (See Galvan et al., 2020, **Networked microgrids with rooftop solar PV and battery energy storage to improve distribution grids resilience to natural disasters**, Internat. Journal of Elect. Power and Energy Systems, <https://doi.org/10.1016/j.ijepes.2020.106239>). Renewable energy systems (especially paired with storage) can operate independently of continuous fuel supply. For example, a coastal area with solar panels and battery backups

can power critical facilities even if roads are washed out and fuel trucks can't get in for days or weeks. Unlike a gas or coal plant, solar panels won't have fuel supply issues in a disaster—the sun comes out after a storm and they start generating, no supply deliveries needed. Wind turbines are engineered to survive high winds and, once inspected, can resume spinning to produce power without waiting on a fuel supply line, whereas a thermal plant might be offline for days due to flood damage or because supply lines for fuel are disrupted.

Importantly, microgrids and distributed energy systems can island from the grid during emergencies, which is especially important during extreme weather (See Hussain et al., 2019, *Microgrids as a resilience resource and strategies used by microgrids for enhancing resilience*, Applied Energy, <https://doi.org/10.1016/j.apenergy.2019.02.055>). It's a form of energy decentralization: power is generated near where it's used, so even if highways or pipelines are compromised, that local generation can continue. And critically, renewables don't experience "price shocks" in disasters, because you don't have to bid for scarce fuel on an open market. In a storm's aftermath, fuel prices can spike or supplies be rationed, but renewables can still generate reliable electricity at the same low cost as before the storm.

In summary, building more renewables in disaster-prone regions cuts out the weakest link in energy supply during crises—the fuel. It gives communities a more resilient, continuous source of power when traditional fuel deliveries are halted. This makes our overall energy supply chain more robust in the face of increasing natural disasters, ensuring that recovery efforts aren't bottlenecked by a lack of gas or coal.

Question 16. What makes renewable energy, particularly solar and wind, a more reliable option for emergency response efforts after disasters?

Answer. When disaster strikes, **solar and wind systems paired with battery storage offer a nimble and reliable lifeline** for emergency response that diesel generators or grid-tied fossil plants often cannot sustain (Hamideh et al., 2022, *Microgrids and Resilience: A Review*, IEEE Access, <https://doi.org/10.1109/ACCESS.2022.3211511>). One reason is that renewables don't depend on supply lines that may be broken. After a hurricane or earthquake, transporting fuel can be one of the toughest challenges—roads may be blocked, and fuel stocks may be limited. Solar and wind, by contrast, draw energy from the environment (sunlight and wind) that is available on site. For emergency responders, that means a well-placed solar microgrid at a shelter, community center, or field hospital can keep operating indefinitely, as long as there's sun by day and batteries to carry through the night. We saw this in Western North Carolina: in the wake of Hurricane Helene, volunteers brought in mobile solar panel trailers with battery units, and they were able to provide power to disaster relief sites immediately—without waiting for fuel deliveries (After Hurricane Helene, Pop-Up Microgrids Powered Medical Clinics, Water Generators, Communications Equipment and Other Critical Resources/Microgrid Knowledge). They recharged by day and powered critical devices by night. This kind of setup is inherently reliable because it has fewer points of failure; as long as the equipment isn't physically damaged, it will produce power. A diesel generator, on the other hand, is just dead weight once it runs out of fuel or if water contamination ruins its fuel supply.

Another important factor in emergency response is operational reliability. Solar panels and batteries are very simple to operate—they can often kick on automatically when the grid goes down. Modern inverters can disconnect from a failing grid and form a "community island" almost instantaneously. Wind turbines, if tied into a microgrid, can operate similarly. Renewable systems can be pre-positioned in disaster-prone areas, and many communities are now installing solar+battery systems at schools or community centers designated as emergency shelters. Having these systems already in place means that responders aren't scrambling to deploy energy resources when an emergency strikes. And in areas where renewable microgrids are not already installed, small solar generators can be airlifted or trucked into disaster zones by relief agencies, providing power where it's needed without worrying about ongoing fuel logistics. In Puerto Rico's recovery, for example, some of the earliest restored electricity in remote towns came from community-driven solar microgrids, precisely because they were simpler to get running than coordinating diesel resupply (See Aros-Vera et al., 2021, *Increasing the resilience of critical infrastructure networks through the strategic location of microgrids: A case study of Hurricane Maria in Puerto Rico*, International Journal of Disaster Risk Reduction, <https://doi.org/10.1016/j.ijdrr.2021.102055>).

For emergency response, renewables offer a consistent and quickly deployable source of power. They ensure that critical operations—communications, medical care, clean water pumps—can continue in disaster aftermaths, even if fuel logistics

are cut off. By making power one less thing responders have to worry about sourcing, solar and wind let them focus on their primary mission of saving lives. This reliability and self-sufficiency make renewables an invaluable part of modern emergency planning.

Question 17. Why are increased LNG exports detrimental to American energy dominance?

Answer. Expanding liquefied natural gas (LNG) exports might sound like an exercise in U.S. “energy dominance,” but in reality it poses significant risks to Americans’ energy security and affordability. When we ramp up LNG exports, among other risks, we tether our domestic natural gas prices to volatile global markets. U.S. gas prices historically were relatively low and stable, insulated from international swings. But as more LNG export terminals have come online, domestic consumers increasingly feel the pinch of global demand spikes. For example, during the 2021–2022 global gas crunch (exacerbated by Russia’s war in Ukraine), U.S. natural gas prices soared to their highest in over a decade—driving up home heating and electricity costs here at home. (*Energy commodity prices in 2022 showed effects of Russia’s full-scale invasion of Ukraine*, U.S. Energy Information Admin. (Jan. 2, 2023), <https://www.eia.gov/todayinenergy/detail.php?id=55059>.) In essence, LNG exports enrich gas companies but leave American families and manufacturers paying more for energy as our gas gets shipped overseas to the highest bidder. That undermines the affordability prong of true energy dominance.

Moreover, focusing on LNG exports diverts resources and attention from the long-term solutions that would genuinely secure our energy future—namely, developing domestic clean energy. Every dollar and year spent on a new LNG terminal (which can cost tens of billions and take many years to build) is a dollar and time not spent on deploying renewables, improving energy efficiency, or modernizing our grid. Those are the areas where the U.S. can build durable competitive advantage. By doubling down on exporting fossil gas, we risk locking ourselves into a boom-bust cycle. Global gas markets are notoriously fickle; today’s high demand can crash tomorrow. (Purva Jain, *Conflict Exposes Natural Gas to Price Volatility*, INST. FOR ENERGY ECON. & FIN. ANALYSIS (Oct. 2024),

https://ieefa.org/sites/default/files/2024-10/IEEFA%20Briefing%20Note%20Conflict%20Exposes%20Natural%20Gas%20to%20Price%20Volatility_Oct2024.pdf).

If we over-invest in LNG infrastructure, we could be left with stranded assets if global demand or prices fall (for instance, due to climate policies abroad or a surge of LNG supply from other countries). That scenario would hurt U.S. workers and regions that banked on export growth. Additionally, sending more of our natural gas overseas can raise domestic supply concerns—during extreme weather events, gas supply is already strained in parts of the U.S., and export commitments could exacerbate shortages. In short, true energy dominance means stable, resilient energy for Americans, not becoming a resource colony for global markets. By prioritizing clean energy at home, we shield our citizens from global turbulence and create a more robust economy. LNG exports, in contrast, largely benefit a narrow sector while putting households and industries at the mercy of international price swings and geopolitical events. The smarter path to dominance is to lead in the industries of the future, not to chase short-term profits from exporting a fuel whose era is gradually sunseting.

Mr. COLLINS. Thank you. The Chair now recognizes Dr. Dayaratna for 5 minutes.

STATEMENT OF KEVIN DAYARATNA, PH.D., ACTING DIRECTOR, CHIEF STATISTICIAN, AND SENIOR RESEARCH FELLOW, CENTER FOR DATA ANALYSIS, THE HERITAGE FOUNDATION, WASHINGTON, D.C.

Dr. DAYARATNA. Chair Collins, Ranking Member Dexter, members of the Subcommittee, thank you for the opportunity to testify about energy policy. My name is Kevin Dayaratna. I am the Acting Director, Chief Statistician, and the Senior Research Fellow at the Heritage Foundation Center for Data Analysis. The views I express in this testimony are my own, and should not be construed as representing any official position of the Heritage Foundation.

Access to affordable and reliable energy is not just a convenience; it is the foundation of a thriving society. From brewing a morning cup of coffee to powering lifesaving hospital equipment to conducting this very hearing, energy is woven into every aspect of modern life. And throughout history every major leap in human progress, from the steam engine to the smartphone, has been powered by greater access to energy.

At the Heritage Foundation my colleagues and I have explored energy access in great detail. Our research has overwhelmingly shown that countries with high energy access consistently outperform others on virtually every metric of human well-being. Between 1900 and 2018 global energy consumption rose dramatically, and so did global life expectancy, which more than doubled, from 32 years to over 72. At the same time, real per capita income rose by well over 500 percent, both domestically and worldwide. In fact, no country achieves high income without also consuming large amounts of energy. It is a near universal pattern: more energy, more prosperity.

And access to energy doesn't just improve economic output, it saves lives. Countries that consume more than 30,000 kilowatt hours per capita have lower child and maternal mortality and higher life expectancy. In contrast, countries such as Malawi or Sierra Leone, with severely limited energy access, face crushing public health challenges. Clean water, modern sanitation, and lifesaving medical technologies, all powered by energy, have slashed mortality rates. Denying this access is not just a policy failure, it is a moral one as well.

Energy-driven innovation has also transformed agriculture. For example, from 1961 to 2018 agricultural output has soared by over 70 percent both domestically and worldwide, as brilliantly designed machines took on much of the heavy labor. To put it succinctly, affordable, reliable energy is the engine of human progress.

So now let's take a closer look at energy policy. Two facts become clear.

The first fact is that ill-conceived energy policy retards progress. Under the Biden administration, a range of mistaken regulations had been aimed at phasing out carbon-based energy. These included halting new oil and gas leases on Federal lands and pushing zero-emission vehicles mandates, among others. At the Heritage Foundation's Center for Data Analysis we evaluated these measures using the Heritage Energy Model, a clone of the Energy Information Agency's National Energy Modeling System. The findings of these ill-conceived measures over an 18-year time horizon were stark: an average employment shortfall of over 1.2 million jobs; income losses for a typical family of four exceeding \$5,000 per year; and a total GDP loss exceeding \$7 trillion.

And yet, what did these costly measures achieve in terms of climate benefit? We ran climate projections using the model for the assessment of greenhouse gas-induced climate change, an IPCC model. Even assuming the U.S. completely eliminated fossil fuels, a highly unrealistic scenario, the temperature mitigation by 2100 would be less than 0.23 degrees Celsius. There is no way around it. Enormous economic sacrifice, negligible environmental return.

Now let's turn to our second fact: clear-headed energy promotes progress. America is rich in energy resources. The Institute for Energy Research has noted that the United States has over 1.6 trillion barrels of oil and over 4 quadrillion cubic feet of natural gas below our very feet. At current consumption rates, that is over 200 years of oil and 130 years of natural gas.

At the Heritage Foundation Center for Data Analysis we simulated a high oil and gas scenario using assumptions identical to the EIAs. The results were quite striking. Namely, over a 25-year time horizon the results show an average employment gain of 5.3 million jobs annually, a \$12,000 annual income increase for a family of 4, and a \$25 trillion boost to GDP. And the climate impact? Practically zero. Even under extreme assumptions, our climate simulations showed that this would raise global temperatures by no more than a measly 0.03 degrees Celsius by 2100.

So the path forward is clear. Ill-conceived policies that restrict energy access and pose real harm while offering virtually no environmental benefit. But policies that promote energy abundance through innovation and regulatory reform can deliver massive gains for economic growth, public health, and long-term prosperity. So it is no exaggeration to say expanding energy access isn't merely smart policy, it is a moral imperative.

Thank you for your attention, and I look forward to your questions.

[The prepared statement of Dr. Dayaratna follows:]

PREPARED STATEMENT OF KEVIN DAYARATNA, PH.D., ACTING DIRECTOR, CHIEF STATISTICIAN, AND SENIOR RESEARCH FELLOW, CENTER FOR DATA ANALYSIS, THE HERITAGE FOUNDATION

CONGRESSIONAL TESTIMONY

The Power Play: Unlocking America's Energy for Powering Economic Growth, Prosperity, and Freedom

Testimony Before
House Committee on Natural Resource / Subcommittee on Oversight and Investigations
Hearing on "Unleashing the Golden Age of American Energy Dominance"
 United States House of Representatives

April 2, 2025

Kevin D. Dayaratna, PhD
 Acting Director, Chief Statistician, and Senior Research Fellow
 Center for Data Analysis
 The Heritage Foundation

Chairman Gosar, Ranking Member Dexter, and other Members of the subcommittee, thank you for the opportunity to testify about energy policy. My name is Kevin Dayaratna. I am the Acting Director, Chief Statistician, and Senior Research Fellow at The Heritage Foundation's Center for Data Analysis. The views I express in this testimony are my own and should not be construed as representing any official position of The Heritage Foundation.

I. Introduction

Access to affordable and reliable energy is essential to a thriving society. From brewing a morning cup of coffee, to starting a car, to powering this very hearing, affordable and reliable energy forms the backbone of nearly every aspect of daily life.

Policymakers have increasingly sought to restrict the use of certain forms of energy in response to climate change concerns. However, research from The Heritage Foundation has demonstrated that these policies often carry substantial economic costs while delivering negligible climate benefits.

This testimony is organized into three parts. First, I examine the essential connection between access to affordable, reliable energy and human flourishing. Next, I discuss the economic and environmental consequences of carbon-based regulations implemented under the Biden administration. Lastly, I present a cost-benefit analysis of harnessing the oil and gas resources available here in the United States. The data makes it clear--expanding energy access is not just smart policy; it is also a moral imperative for economic prosperity, public health, and human flourishing.

II. The Inextricable Link Between Affordable and Reliable Energy and Human Flourishing

Human progress has always relied on the ability to harness affordable and reliable energy—from fire and steam to electricity and nuclear power. In today's industrialized world, energy underpins everything from transportation to the Internet. Policymakers must recognize how access to abundant

The full document is available for viewing at:

<https://docs.house.gov/meetings/II/II15/20250402/118088/HHRG-119-II15-Wstate-DayaratnaK-20250402.pdf>

Mr. BEGICH [presiding]. I thank the witnesses for their testimony. The Chair will now recognize Members for 5 minutes each for questions.

VOICE. You are up first, sir.

Mr. BEGICH. OK, the Chair recognizes himself for 5 minutes. My first question is for Ms. Gibson.

Ms. Gibson, our Ranking Member cited traditional energy subsidies of \$15 billion annually. Given your expertise in alternative energy, how much in subsidies was provided under the Inflation Reduction Act?

Ms. GIBSON. Thank you for your question. I don't, oh, thank you. Thank you, sir.

Thank you for your question. I don't know the exact number offhand.

Mr. BEGICH. OK. Well, let me see if I can help a little bit. According to the University of Pennsylvania Wharton School, the CBO dramatically underestimated the \$391 billion in energy and climate provisions, and that the true estimate is actually \$1 trillion over a 10-year period. The Cato Institute placed the number actually much higher, between \$2 trillion and \$4.67 trillion. And that is over 100 times the cited subsidy that was mentioned in the opening remarks for an industry sector that makes up less than 10 percent of domestic energy production.

The truth is that the subsidy that appears to be required for so-called renewable energy to be competitive as an economic energy source only masks the true cost of that energy and dramatically increases the debt our Nation passes on to the next generation.

My next question is for Mr. Sweetnam.

Your analysis makes a critical point about energy transitions. They take time and they tend to be additive, not subtractive. That aligns with what Alaskans know, my home state, wind and solar can complement but not replace baseload power in a State with 30-below 0 winters and thousands of miles between grid connections. So let me ask you, given what we have seen with recent grid instability and surging demand, how dangerous is it economically and strategically to over-estimate the speed of the renewable transition, particularly when it leads to sidelining proven resources like Alaskan oil and gas?

Mr. SWEETNAM. Thank you for the question.

It is true that the grid has become less reliable as we increase our dependence on renewable energy. It also makes the energy more expensive, and we see that all around the world.

Because the wind and solar are weather dependent, they are intermittent. And so they can produce when the sun is shining and the wind is blowing. But there are periods, and sometimes there are long periods, when the wind is not blowing. And of course, every night you have to worry about not having solar. But even on cloudy days you don't have the peak capacity.

So what happens is that if you want the grid to be reliable, you have to have dispatchable capacity equal to your peak load. And so that means that you need to have gas or coal or nuclear, something that you can turn on and off that is not weather dependent. And when you have to have that capacity, but then you bring in the renewables and you run the renewables, the load factor, the capacity

factor, those other facilities goes down. And that is what makes the electricity more expensive. And we have seen it all around the world in the U.S. and Europe, State by State, in Asia where I am working. You can see, as you increase the renewables, the price to the customer goes up. And that is because you have to have two energy systems, and that is just more expensive.

The issue of sort of, yes, so I will leave it there. Thank you.

Mr. BEGICH. A follow-up question. We have noticed in Alaska, in areas where there are microgrids deployed, the attempt to utilize renewable energy sources as an adjunct to traditional diesel fuel generation has led to actual increases in the consumption of diesel fuel. Can you comment on perhaps why that may be the case?

Mr. SWEETNAM. I think I would have to know the specifics. You are saying increases. If they are replacing, I don't think that should cause an increase. So I am sorry—

Mr. BEGICH. Well, what we—

Mr. SWEETNAM [continuing]. I would need to know the specifics here.

Mr. BEGICH. Yes, and I will provide you with some additional specifics. So—

Mr. SWEETNAM. Thank you.

Mr. BEGICH. Yes. So what we have observed is that that, in order to continue to restart that diesel generation capacity, it actually increases the amount of diesel consumption because of the intermittent nature of the so-called renewable sources of energy.

Mr. SWEETNAM. Yes. You have raised a very important point, which is that because the renewable sources like wind and solar are direct current, they have to go through an inverter to create the alternating current that our electric grids run on. And they don't have the physical inertia associated with the rotating machinery, the generators. And in fact, they follow the generators.

And what happens is, if there is a reduction in a renewable energy, you can have a shortage and then a trip-off and a blackout. In Australia in 2016 they had a black start problem where they didn't have enough rotating machinery. So the inertia associated with the rotating machinery is very important to the stability of the grid.

Mr. BEGICH. Thank you for clarifying that. Now I would recognize our Ranking Member, Dr. Dexter, for any questions for the witnesses.

Dr. DEXTER. All right. Thank you, Mr. Chair.

Ms. Gibson, you have read the testimony from other witnesses and heard some of it today. Do those economic estimates of impacts from digging up even more oil and gas from public lands seem realistic to you? And why or why not?

Ms. GIBSON. Thank you, Dr. Dexter, for the question. No, they do not.

And I will just say quite simply that we have seen this movie before, and that in 2017 and 2018 there were pretty exaggerated cost estimates as to what could be gleaned from the auctioning of leases in the Arctic National Wildlife Refuge in the billions. And what resulted from that auction was less than 1 percent of what was originally put on the table.

Dr. DEXTER. Thank you. and what evidence do we have that renewables lead to lower energy prices for consumers? It has been refuted here this morning. I just want to hear from you on that.

Ms. GIBSON. Yes, absolutely.

I mean, every year there is increasingly mounting empirical evidence that renewables are our economic future. They are driving economic growth. In the top 12 States in which renewables have penetrated the grid more than anywhere else, 10 of those States, prices are less for consumers. People don't have to pay as much on their energy bills. The proof is in the pudding.

Dr. DEXTER. OK. And if we meet our energy needs with renewable energy, how will that impact our economy?

Ms. GIBSON. Overall, positively.

I mean, the economic benefits are tremendous in terms of consumer savings, industry, development, jobs, manufacturing, sales, as well as we will lead the world in energy innovation and get ahead of our competitors such as in China.

Dr. DEXTER. And I am just going to add to that, as someone who does care for folks who are impacted by toxic fumes and other smoke exposures, that we know that the exposure to those substances in the air absolutely impact our health. And the dramatic impacts of adverse health outcomes need to be factored into these economic models.

I think that we will move on to public health now. We pursue at this point, or we are discussing whether we pursue, a transition to clean, renewable energy. And Ms. Gibson, can you speak to how continuing to prop up the oil and gas industry in the name of energy dominance could increase public health risks and affect the well-being of communities across the country?

Ms. GIBSON. Well, I would say, Dr. Dexter, you probably know more than most, but dramatically it increases the likelihood of premature death, of cardiovascular disease, of respiratory illnesses.

And I would invite anybody, including esteemed members of this Committee, to come take a trip of Cameron Parish, Louisiana and talk to the multi-generational fishermen that live there, who we represent, whose families have been impacted by the LNG facilities that they are building on top of their communities, and the impacts it has had on their family, the very real health impacts that it has had on these people's families and lives.

Dr. DEXTER. I would also want to ask whether you believe that NEPA is the barrier to expanding clean energy infrastructure and development.

Ms. GIBSON. No. NEPA is not the barrier. NEPA is not a permitting statute. I know that it is often the scapegoat in a lot of conversations. But NEPA, in fact, if used correctly, can increase efficiency of the build-out of infrastructure.

Dr. DEXTER. Excellent. Thank you. And in our last few minutes, Ms. Gibson, can you please briefly describe the work the Southern Environmental Law Center does on the ground for communities impacted by natural disasters?

Ms. GIBSON. Yes, absolutely. I would say that the most recent example that comes to mind, unfortunately, is what happened in western North Carolina when we were hit by Hurricane Helene. Our organization worked directly with communities on the ground.

Solar, I should add, was absolutely integral to supporting those communities and providing power when gas and fossil went offline after the hurricane hit. And our own staff members are members of this community that lived through this horrible, horrific extreme weather event.

And right now there are fires burning in North Carolina, South Carolina, New Jersey. And we are, of course, seeing an increased rise of weather events across the country, and we need to address these issues, and we need to address them now.

Dr. DEXTER. OK. Thank you.

Mr. Chair, I yield back.

Mr. BEGICH. Thank you. The Chair now recognizes the Committee Chairman, Mr. Westerman, for 5 minutes.

Mr. WESTERMAN. Thank you, Mr. Chairman and, again, thank you to the witnesses for your testimony.

Ms. Gibson, do you support nuclear power? And does your organization support building more nuclear power?

Ms. GIBSON. We believe in safe, reliable energy.

Mr. WESTERMAN. Does that include nuclear power?

Ms. GIBSON. With increased research and more efficiency, there is a possibility in the future.

Mr. WESTERMAN. So right now—

Ms. GIBSON. But right—

Mr. WESTERMAN [continuing]. It doesn't include nuclear power.

Mr. Sweetnam, The data shows that oil, gas, and coal produce 84 percent of the energy in the United States right now. And without getting into a lot of detail, we know that solar panels take up 4,000 to 10,000 acres of land per gigawatt, whereas you build a nuclear power plant, it is much, much less land than that. And the energy density on oil and gas and coal is much greater. But do you see any foreseeable way in even the next 100 years to not have any fossil fuel component to our energy supply?

Mr. SWEETNAM. Well, you would have to have dispatchable power if you want to have an electrical grid. And so relying solely on interruptible power, you would need to have some way to store the electricity. And so batteries are efficient and economic for storing about 4 hours of electricity, but when you get into long-term storage and seasonal storage it is very uneconomic.

So to me it is possible to have a completely renewable system, but it has only been done in areas that are very small and very specific. You really need to have the dispatchable energy or very large electricity storage, which is difficult.

Mr. WESTERMAN. Which would more than likely include nuclear power and advancing—

Mr. SWEETNAM. Yes, yes.

Mr. WESTERMAN [continuing]. More hydraulic.

Mr. SWEETNAM. Yes, so the nuclear—

Mr. WESTERMAN. Hydro-electricity.

Mr. SWEETNAM. Excuse me.

Mr. WESTERMAN. And as we look at oil and gas production, we saw a kind of a peak in conventional oil production in the 1970s. And then fracking came along and we saw an uptick again. I believe it was this week I saw an article in the New York—or the Wall Street Journal that suggested the Permian may be peaking on

oil production using fracking. But we also know there is a new technology out there called CO₂ enhanced oil recovery, and I believe some of the projections show we could get another 10 percent of the oil out of conventional wells and fracked wells using CO₂.

Can you comment on how important new technologies, and Mr. Jensen, you may want to comment on this, too, are to being able to get more energy production, and what our focus should be on these new technologies?

Mr. SWEETNAM. Yes, the new technology is extremely important, and you are absolutely right that we were concerned that the U.S. was running out of oil and gas. And now, as a result of the fracking technology, we are the largest oil and gas producers in the world.

In addition to the new technology allowing more recovery of resources, it also expands the competitiveness of the industry. In the 1980s, with a higher computing capacity as computers became stronger, small companies with just two or three people could compete against the majors, who up until then were the only ones who could do the seismic processing that was required. So the new technology not only allows you to recover more resource, but it also makes the industry more competitive.

Mr. WESTERMAN. Mr. Jensen?

Mr. JENSEN. I would add to that. As we expand the production and we expand leasing, it will give new opportunities to develop new technologies. And so, through a combination of executive orders that are limiting the barriers to energy production and then legislation that might expand production further, these things will work synergistically with new technology, and they will all work together to increase energy output more rapidly.

Mr. WESTERMAN. So we hear the argument that oil is a global commodity, if we produce more it could drive the prices down, maybe get to a point where we couldn't afford to invest in producing more oil. But oil is easily traded across the globe.

But can you explain how gas is different from that, how there is such a huge demand for gas but the transportation restrictions on gas are really hindering our ability to produce and sell more gas?

Mr. SWEETNAM. Yes. Transportation is a much larger component of the cost of distributing gas than of oil. So you are absolutely right. Oil is very much an international commodity because the transportation cost relative to the value of the commodity is so low.

Natural gas, it is different. Natural gas may sell for \$2 or \$3 an MCF, but you need to spend an additional \$5 to refrigerate it, ship it across an ocean, and then re-gasify it. So that is why the international gas market is growing more slowly, but it is continuing to grow, and we do fully expect that gas trade will continue to expand, especially in countries who need more electricity, need more dispatchable power, want the clean energy of natural gas. And so they will be using more and more natural gas. This is especially true in Asia.

Mr. WESTERMAN. And we have over four quadrillion cubic feet of natural gas, which is pretty mind-boggling.

I yield back.

Mr. COLLINS [presiding]. The Chair now recognizes Mr. Hernández for 5 minutes.

Mr. HERNÁNDEZ. Thank you, Mr. Chairman, Ranking Member.

So I understand the fossil fuel industry is one of the major drivers behind the climate crisis, and that climate change, in turn, is intensifying natural disasters by increasing the frequency and the severity of extreme weather events. Ms. Gibson, can you speak to the role that renewables can play in bolstering community energy resilience and supporting critical local infrastructure after such disasters?

Ms. GIBSON. Absolutely. Renewables are more resilient, more reliable than fossils. During Winter Storm Uri and Winter Storm Elliot, Winter Storm Elliot, especially, wind produced four times the amount of energy than was originally anticipated. And meanwhile, fossils were completely offline. And they were providing much-needed power to people in desperate times.

Mr. HERNÁNDEZ. And, you know, I come from Puerto Rico and we have some of the highest electricity rates in the country, partly because we rely on imported fossil fuels for energy. How could expanding renewable energy in disaster-prone areas reduce dependence on fragile fuel supply chains that can be disrupted by storms, wildfires, or other disasters?

Ms. GIBSON. It would increase reliability, resilience, and, quite frankly, safety and security of the communities and people.

Mr. HERNÁNDEZ. And would you say that, you know, utility-scale solar and battery installations are easier to scale up rapidly in response to energy crises than fossil fuel infrastructure?

Ms. GIBSON. It is not me that would say that, it is the evidence and the empirical data. The writing is on the wall. It is faster to deploy and it is cheaper.

Mr. HERNÁNDEZ. Right now Puerto Rico faces a shortage of close to 800 megawatts. It is expected in the summer. And, you know, I will be very transparent. I will take whatever I can find in terms of energy sources to prevent power outages in the summer, even if tomorrow we discovered the dirtiest source of energy in the history of the world. Obviously, it doesn't have to be that way.

If we had to find a temporary solution to that generation problem, could renewables be an alternative, given the ease of scaling them up quickly?

Ms. GIBSON. Absolutely.

Mr. HERNÁNDEZ. Could you provide maybe more concrete examples as to how you could address a 700 or 800 megawatt shortage using renewables in a very short time frame?

Ms. GIBSON. Well, Representative, I am not an engineer, but I am sure that there are people smarter than me that could provide that answer to you.

But I will say that, again, it is faster and cheaper, period.

Mr. HERNÁNDEZ. OK.

Ms. GIBSON. That is what the evidence shows.

Mr. HERNÁNDEZ. OK. Mr. Sweetnam, I think you were nodding in disagreement, and I would love to hear your opinion.

Mr. SWEETNAM. Well, my recommendation would be to get a gas turbine on a barge. In other words, people who need power rapidly, on the order of 800 megawatts, and you could—if you bring a gas turbine on a barge and use that, you can hook right into the grid.

And that would be done. You would use a re-gasification floating vessel, which is also easily leased.

Puerto Rico, I think it is very interesting you mentioned that, because the island communities are tougher for energy, and it does make energy more expensive. The island of Kauai, if I might, committed to going to renewable energy, and so they have gotten very close with lots of solar. But it is a very small system, and it has taken up a lot of land for a small population in Kauai. But that would be an example to look at. But they did need to find a way to guarantee reliability, and so they took their existing coal plant, shut off the coal burner, and replaced it with a biogen generator. But they haven't got that up and running yet, so they are still using diesel.

But that would be a way you could get dispatchable source with solar and storage. But it is a big project. And so if you want to get 800 megawatts this summer, you just need to find a barge with a generator on it and fuel it with LNG.

Mr. HERNÁNDEZ. Oh, and I appreciate that. That is very helpful. That is something that we have heard and that I believe the Administration is considering. And like I said, I am more interested in solving the problem right now than necessarily, in the issue of energy.

Now, I have heard that the supply chains for natural gas turbines are also very backed up, and it may take years to get the necessary equipment. Do you have something to say about these challenges?

Mr. SWEETNAM. It is true that there is a backlog for new turbines for a permanent installation, and a lot of those are being purchased for artificial intelligence funding. But there are companies that rent them. So if you need 800 megawatts this summer, you are not going to be purchasing a permanent installation for that.

Mr. HERNÁNDEZ. Right. I appreciate your responses, and thank you both.

I yield back.

Mr. COLLINS. The Chair now recognizes Mr. Stauber for 5 minutes.

Mr. STAUBER. Thank you very much, and thanks to our witnesses for being here. I am going to change gears just a little bit.

Here in the United States we responsibly and ethically produce our abundant energy and natural resources better than anywhere else in the world. And when we do, we are able to bolster our economy, create good-paying union jobs, and raise much-needed revenue for the Federal, State, county, and local governments. We have a decision before us today. We could either develop our own energy and minerals resources here, enjoying all of the economic benefits that come with it, or rely on foreign adversarial nations like China or Russia.

I am glad that under the Trump administration and congressional Republicans it is clear which path we will take over the next 4 years. While this morning's hearing has focused primarily on economic impact of developing Americans' abundant energy resources, I want to focus on the incredible prospect we have to develop our Nation's critical and other non-fuel minerals, including

the tremendous mineral wealth we have in the Duluth Complex and elsewhere across northern Minnesota.

According to the U.S. Geological Survey's latest data published earlier this year, the development, processing, refining, and recycling of non-fuel minerals in the United States contributes nearly \$29 billion to our Nation's GDP annually. That is even while this Nation is stuck currently with the Biden-era policies that have locked up a vast majority of our Nation's critical minerals like those in the Duluth Complex in northeastern Minnesota.

It is policies like the Biden administration's mining ban in the Superior National Forest in northern Minnesota, which locked up over 225,000 acres from responsible mineral development. And as my colleagues all know well by now, this jeopardized development of the Duluth Complex, where there are trillions and trillions of dollars of mineral wealth. If we are able to develop our tremendous mineral wealth in Minnesota, Arizona, Alaska, Colorado, Idaho, Nevada, Michigan, Wyoming, Montana, and everywhere in between, that \$29 billion annually added to our Nation's GDP will skyrocket.

I want to point out a figure that when we talk about mining from the raw material, the gross domestic product to our economy, I just mentioned \$29 billion. That is just the original estimate on the GDP. It doesn't go downstream, which is hundreds of billions of dollars that we can add to our GDP annually if we are allowed to mine those critical minerals here. We have to mine them, process them here, and then we can manufacture here.

Mr. Sweetnam, while your testimony and research has focused primarily on oil and gas development, including the impact that domestic production of oil and gas can have on OPEC's ability to control oil and gas prices, I believe the same arguments can be made for global mineral commodities. Would you agree that, just like the oil and gas development, domestic critical mineral development would weaken China and other adversarial nations' control over global mineral prices and their ability to artificially manipulate mineral commodity prices?

Mr. SWEETNAM. So the concentration of these strategic minerals, especially those needed for wind turbines and solar panels and batteries, China dominates not only the extraction and processing, but also the refining of those materials to an extraordinary degree.

So where OPEC+ has a market share of about 35 percent, for many of these minerals China has a market share of 80 percent. And they have been happy or willing to use that dominance when they want to put economic leverage on other countries.

So I absolutely agree that the concentration of those minerals and processing in China is a security risk, and it would be helpful to address it with U.S. production.

Mr. STAUBER. With my 20 seconds left, I really appreciate that comment. We can mine here, we can process here, we can manufacture here. We do it better, in my opinion, better than anybody else in the world. And when we know better, we should do better. We cannot allow adversarial nations to control our destiny. As the Under Secretary of Defense said when I asked what would it be like if China stopped selling us their critical minerals, and it would be devastating and dangerous. Department of Defense and Energy

Under Secretaries said that to me. It would be devastating and dangerous. When we know better, we do better. We do it better here in the United States of America than anywhere in the country.

I yield back.

Mr. COLLINS. The Chair now recognizes myself for 5 minutes for questioning.

Mr. Sweetnam, I just want to pick up right where Mr. Stauber left off. Not to mention the fact that China uses child labor to mine these critical, rare Earth minerals. But let's look at China. China processes nearly 90 percent of the global rare Earths. I think you were alluding to that a few minutes ago. Sixty percent of production and eighty-three percent of processing, and China is the primary import source for fifty critical minerals here in the U.S., the primary processing source.

So given that China's dominance in the extraction process and refining of these critical minerals that are essential to the manufacture of wind and solar equipment, what are those energy risks that Mr. Stauber was talking about that are created by accelerating our reliance on this renewable energy?

Mr. SWEETNAM. So it is truly economic risk because China, with such a large position in these minerals, can decide what price they will sell them at, and they can cut off customers. So if in the U.S. we have manufacturers who are depending on those materials, they can easily be cut off or the price can be raised. And because they have so much more market power than OPEC did, similar to the effects of the Arab oil embargo and the Iranian oil crisis when we saw prices skyrocket, cutting off those materials would also have that effect.

If I may, I would also like to point out we hear very much about how the renewable energy is clean, the wind and solar. But in fact, what you are doing is you are not eliminating emissions, you are exporting emissions because the mining and processing and manufacturing of those strategic critical materials for the renewable technologies are being produced with coal energy in China. So as you will see, the emissions of the world are continuing to go up.

So even though it is correct that we have seen a lot more installation of renewable energy, CO₂ emissions are not going down. And the reason they are not going down is that the developed countries are exporting their emissions to the developing world in China. And that de-industrialization that we are observing in Germany, the de-industrialization is also happening in Japan because of high energy costs. And so, hopefully, we will not do the same thing in the United States.

Mr. COLLINS. You are right. As a matter of fact, China is opening up numerous coal plants every week. So we are just exporting emissions. And the fact that China has made no bones about it, they want to be dominant by 2045 in every category from economic to military. And so we have got to get our processing and our own refining and our mining back to America.

Mr. Jensen, I want to thank you for testifying today. I want to talk to you about the energy costs for Georgia families. In your written testimony you talk about the price reductions and say that

a Georgia household of 3 in 2025 with a 10 percent price decline will save \$763. With a 50 percent reduction, Georgia families could save \$3,800. Can you tell me what is needed for Georgia families to be able to save this money?

Mr. JENSEN. Yes. Thank you for the question, and I will tell you. But first I will note that those numbers you just cited, that is only the direct costs. And so, when you take into account the indirect costs associated with energy prices, those numbers could be twice to three times as high savings for Georgia families.

And for that to happen there needs to be an all-of-the-above energy strategy in the United States to increase every stage of energy production, and we have seen this Administration start to implement that strategy through executive order. But if we want that to be as successful as possible and to be lasting, then the way to do it is through legislation, as well.

Mr. COLLINS. Well, expand on it. Why is the cost of energy so high that families could save anywhere from \$700 to \$3,800 bucks, depending on that price reduction?

Mr. JENSEN. We have seen for this previous Administration a severe constraint on the types of energy sources that are most widely used natural gas, oil and we have seen those constrained for the last 4 years, driving up prices. And so now we have also seen other kinds of energy like nuclear constrained. And so, if we start to unconstrain America's potential to produce these resources, then we can snap up and start to see a dramatic increase in production.

The United States, I have been poking around these data recently. We are huge in these energy markets, and so we actually govern the global price of energy. And if we produce more, we can influence the price of energy both in the United States and at a global level.

Mr. COLLINS. Thank you. I see my time has expired. I tell you what, I think we are going to go with a second round of questioning, and the Chair now recognizes Mr. Westerman for 5 minutes.

Mr. WESTERMAN. Thank you, Mr. Chairman. Again, thank you to the witnesses.

Mr. Dayaratna, can you explain how the Congressional Budget Office scores energy projects, and how you would do that differently?

Dr. DAYARATNA. Thank you for the question, Congressman.

My understanding is that the Congressional Budget Office will take legislation that is given to them and score it in a static manner. What I would recommend doing is incorporating a dynamic macroeconomic feedback, incorporating the larger manifestations of the increased supply of the various sources of energy that are being altered by the proposed policy.

Mr. WESTERMAN. Thank you. And so I want to switch gears a little bit and talk about the importance of permitting reform to be able to not only produce energy, but also to do mining.

I know a couple of these gentlemen to my right have vast mining deposits in their States, and America is blessed with a lot of minerals and elements, except we don't get them out of the ground. And if you look at the report from USGS on critical minerals, we

are 100 percent dependent on imports on a lot of these minerals and elements, even though we have them right here in the U.S.

And recently I have had companies come to me and say they have got deposits of, like, graphite, which we are 100 percent dependent on graphite, and if you look at who is the dominant world supplier of graphite, it is China. So why wouldn't we develop our graphite? And the feedback is it is because there is a concern that China will dump graphite on the global market, drive down the price, and make it uneconomical to have a project here in the U.S.

So if we could get past all the hurdles to permitting on some of these mines, then you got the economic problems of dumping by foreign countries. And these are things that are not only critical to our national security, but also critical to energy, because when you are talking about energy anymore, and especially electric energy, you are talking about mining and minerals and elements.

So Mr. Jensen, I will start with you. Can you comment on the importance for permitting reform, for developing more mining materials, and how to combat dumping by our adversaries to keep production out of the United States?

Mr. JENSEN. There is a combination here where, if you combine the tariff approach that this Administration has taken for national security reasons, and you combine that with permitting reform to speed up the permitting with smart de-regulation to make it so that there are not, you know, too many barriers to getting these things out of the ground, then it will solve that issue where it will at once allow for us to increase the domestic production here, and at the same time it will put up barriers for our trading partners who have their own barriers against us. And it can create this reciprocity in the way that we treat our trading partners.

And so I think the key here is to combine the strategies where you have tariffs and you have de-regulation and you have permitting reform. And you put the three together, and then we can see all of these resources that are on the ground here start to be dug up and produced and refined, and then used in the markets.

Mr. WESTERMAN. And Mr. Sweetnam, could you elaborate on that, as well, and maybe talk about—you know, the tariffs are a way to incentivize more production here, but it is still going to take time to get these mines up and permitted up and operating.

I know Mr. Wittman, who is on this Committee, has a bill called the SECURE Act that would create a national repository for critical minerals and elements that could maybe help in that area in the interim while we get the mining up.

And also, can you comment on how important that is to the overall energy picture?

Mr. SWEETNAM. So the permitting is extremely important for the mining and also for the gas industry.

So with the mining, the permitting is very important, and I agree with what Mr. Jensen just said about the importance of permitting on mines. Even when you do get the permitting, it is my understanding that you are still talking about 10 to 15 years to open new mines. So doing something in the interim, perhaps a strategic reserve, is a very sensible thing to do with respect to those strategic minerals.

The other area where permitting is very important is in natural gas transportation. And we have seen in the past where the inability to permit pipelines has situations where we have enormous reserves of natural gas in the Marcellus in Pennsylvania, and yet in Massachusetts they are still importing LNG at a much higher cost, simply because we can't get permits to build pipelines from Pennsylvania to Massachusetts. So I think the permitting reform is extremely important.

And also, with the increased electricity generation, increasing electricity load associated with artificial intelligence, data centers, and electric vehicles, on all of those you are going to want to be able to have the permitting reform that allows natural gas to get to where those generators are, in addition to the renewable transmission lines.

Mr. WESTERMAN. Thank you. I know, talking about CO₂ enhanced oil recovery earlier, some of the stuff I have been reading and getting information on said we could use all of the CO₂ produced in the United States in recovery, which would be sequestering the CO₂. But you obviously can't do that without an elaborate pipeline network, which—

Mr. SWEETNAM. Yes.

Mr. WESTERMAN [continuing]. You have got to have permitting to be able to that.

Mr. SWEETNAM. Yes. And in fact, the CO₂ molecule is much larger, so the pipelines need to be even larger. The CO₂ technology is not new. They have been doing it in the industry for decades. And so you just have to have the right reservoir to be able to enhance the recovery with CO₂. Right now we use naturally-produced CO₂ from the ground. But if you capture the CO₂ from an industrial plant or a generator, then you can use that to enhance the oil recovery. They are doing that in Abu Dhabi right now, and we are actually doing that also in Texas.

Mr. WESTERMAN. Thank you. I went way over time, Mr. Chair.

Mr. COLLINS. That is all right. You are the Chairman.

[Laughter.]

Mr. COLLINS. The Chair now recognizes Mr. Begich for 5 minutes.

Mr. BEGICH. Thank you, Mr. Chairman. My first question here is to Dr. Dayaratna.

You did a fantastic job providing some high-quality information. I know that some of the conversation that we have had so far this morning has focused on health outcomes, and health outcomes are important. Public health is important. If we are polluting the environment, we need to understand that.

What is fascinating about the data that you provided is global per capita energy consumption and its relationship to four key health metrics, one of those metrics being the number of doctors per 1,000 people; another being life expectancy in years; another, child mortality rate; and another, maternal mortality deaths per 100,000 live births. What we see in your data very clearly is an extraordinarily strong relationship between energy production and positive health outcomes. And we hear from folks on the other side of this issue often that producing energy creates negative health outcomes, but the hard data says the exact opposite. Can you

provide us with some additional context to your research on these matters?

Dr. DAYARATNA. Oh, absolutely, and that is a great question, Congressman.

So as I was alluding to when I began my testimony, many people take energy for granted. Like, when you flip on a light switch or turn on your car, many people don't understand the beauty that goes on behind the scenes. This is exactly the case in terms of health care, for example. Energy is needed to enable doctors to do their jobs, to train doctors. So this is why you see more doctors in areas that consume more energy.

In terms of life expectancy and child mortality and maternal mortality, life expectancy increases, child and maternal mortality plummet because in countries that consume more energy, they have more access to this lifesaving medical equipment and they have the ability to power them.

But this is, to me, actually one of the most interesting parts of that analysis. And the paper that that is coming from is titled, "Powering Human Advancements," with my colleagues, Diana Furchtgott-Roth, Richard Stern, and Miles Pollard, and it is published on the Heritage Foundation website. If you look at deaths due to dirty air and deaths due to dirty water, they plummet in countries that consume more energy by over 90 percent compared to the less-developed counterparts on the other side of the world. And the bottom line is affordable and reliable energy is paramount to being able to have clean air, to being able to filter water and engage in modern sanitation techniques.

So the bottom line is access to affordable and reliable energy is paramount to a flourishing society.

Mr. BEGICH. Thank you. Thank you for that additional context. I couldn't agree more.

You know, we have a moral imperative in this Congress to ensure that we have inexpensive, abundant, reliable energy, no matter where that source is coming from, because the data, the hard data, shows that that is what is in the best interest of the public health. And I appreciate that research that you have done and the hard work that you have put in.

One additional question for Mr. Sweetnam. Expanding our strategic reserve for critical minerals, we have an opportunity, I believe, in this Congress to take a look at the critical minerals that we hold in reserve and the critical minerals that we do not currently hold in reserve.

Can you give us some additional context, or maybe just some of your own thoughts on why we should have strategic mineral and energy reserves, and why they are important to our national security and economic interests?

Mr. SWEETNAM. One way I think about it is an example of when Japan was trying to protect its fishing areas from the Chinese, and the Chinese kept encroaching, and so the Japanese coast guard captured a Chinese fishing vessel. The Chinese immediately shut off the supply of iridium to Japan, which is the blue in CRT in computer displays. The Japanese caved within a week and gave the fishing vessel back. So that ability to have so much control over

critical materials and ability to cut them off, I think, provides an economic risk to us that we don't want to live with.

Mr. BEGICH. Thank you for that insight.

You know, Alaska has nearly every critical mineral on the critical minerals list. As our Chairman mentioned earlier, it does no good if they stay in the ground. We have got to get them out of the ground, we have got to mine those resources, process those resources, and then ensure that we have the requisite storage of those resources in strategic reserves in the event that they become necessary for economic or national security purposes.

And with that I yield back.

Mr. COLLINS. The Chair now recognizes Mr. Moore for 5 minutes.

Mr. MOORE of WV. Thank you, Mr. Chairman, and thank you for inviting me to the hearing. I really appreciate it, as one that comes from an energy State, as well.

So I just want to start off here. So I am from West Virginia. Obviously, we do coal, gas, and oil, so we do all three. And so my entire life I have watched our industries under attack. I mean, that is what has been going on, especially around coal, and so regulations have really been a primary driver in that as it relates to the fossil fuel industry.

And so for 2025 you got utilities plan to retire 12.3 gigawatts of capacity, a 65 percent increase in retirement compared to 2024. And of that you are going to see 4.7 percent of the total U.S. coal fleet get retired in 2025. However, as has been pointed out here, the energy consumption in the United States from AI data centers alone could require as much as 14 gigawatts by 2030.

So let me ask. The regulatory environment has continued to destroy the coal industry. FERC takes nearly 3 years to approve for large-scale infrastructure projects. What are the ways in which we can decrease the length of time for approval of this process?

Anybody, I am——

Ms. GIBSON. I can take that one——

Mr. MOORE of WV. Yes, sure.

Ms. GIBSON [continuing]. Representative.

I would say that we have little to no issues in permitting with interstate gas infrastructure. The Federal Energy Regulatory Commission approves close to almost 100 percent of the projects that is before it. And these are large, complex projects. And they complete an environmental impact statement for the larger ones, as well as their jurisdictional authority over LNG facilities. 99 percent of those get approved as well, and they sail their way through permitting.

If we want targeted, smart permitting reform, we need to be thinking about interstate transmission lines. We need to be thinking about renewables.

Mr. MOORE of WV. Do you know how long it took to build the Mountain Valley Pipeline, Ms. Gibson? Do you have any idea?

Ms. GIBSON. I know that the Mountain Valley Pipeline likely never should have been built, Representative.

Mr. MOORE of WV. Yes, it took 14 years, 14 years to build it in a country where we built, like, the Empire State Building in 1 year and 45 days. It is a real tragedy, what is happening in this country.

And, you know, just out of curiosity here, Mr. Sweetnam, this is your—

Mr. SWEETNAM. Yes, sir.

Mr. MOORE of WV. Just out of curiosity, I see—you know, maybe you are just focused on oil and gas, but I don't see coal mentioned in this at all. Why is that?

Mr. SWEETNAM. At the Energy Policy Research Foundation we are focusing on oil and gas permitting, and I thought that was the primary—

Mr. MOORE of WV. Yes.

Mr. SWEETNAM [continuing]. Focus of this, yes.

Mr. MOORE of WV. Yes. No, that makes sense. OK.

Well, in any event, yes, I just don't understand. I mean, and we have faced it. We have, like, 1,000 years of gas in West Virginia, and we can't build a pipeline in less than 14 years to get it out. And I am just curious, since you are focused on that, maybe you could touch on that a little bit.

Mr. SWEETNAM. No, I think absolutely the permitting of pipelines does take way too long. I don't agree that they get permitted in a timely manner. And we also saw the pausing of the LNG export facilities in the Biden administration, which was of great concern to potential importers in Asia of U.S. natural gas.

But specifically with respect to pipelines, the inability to permit the interstate pipelines, the example of getting Marcellus gas up to the northeast, would greatly lower energy prices for consumers.

Mr. MOORE of WV. All right. Thank you.

I yield back. Thank you, Mr. Chairman.

Mr. COLLINS. Thank you. The Chair now recognizes Mr. Stauber for 5 minutes.

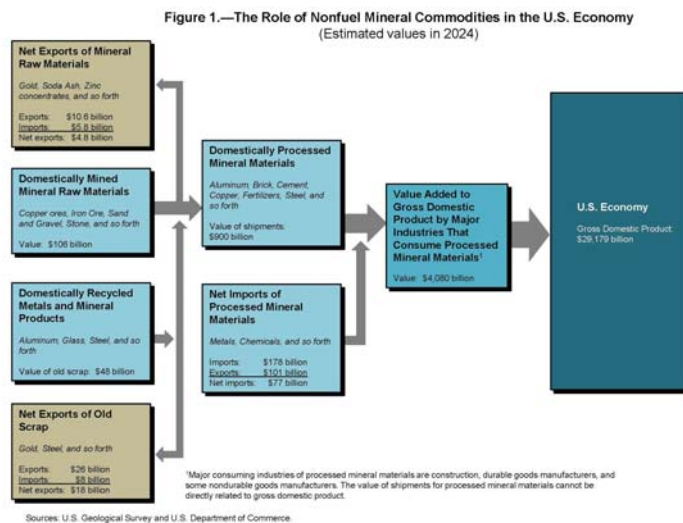
Mr. STAUBER. Thank you very much, Mr. Chair.

Before I begin my second round of questioning, I would like to ask unanimous consent to enter into the record from the USGS figure 1, the role of non-fuel minerals commodities in the U.S. economy estimated values of 2024, and it is this page in the book, Mr. Chair.

With that being said, Mr. Jensen, you had talked about—you mentioned—

Mr. COLLINS. Mr. Stauber, without objection, so ordered.

[The information follows:]



Mr. STAUBER. Thank you.

Mr. COLLINS. Sorry about that. A little slow.

Mr. STAUBER. Mr. Jensen, you mentioned the all-of-the-above energy strategy. I couldn't agree with you more. And then the best will rise to the top, right? So wind and solar may work in different parts of our Nation, but don't force northern Minnesota, who is going through a snowstorm right now, to depend on energy that is not reliable, that is intermittent, not affordable. So I love your comments about all of the above, and I would add the best will rise to the top.

Mr. Sweetnam, you had talked about the critical minerals and the Chinese dominance. In the Congo 15 of the 19 industrial mines are owned by the communist country of China. And even the Biden administration agreed with this statement: Thirty-three percent of the cobalt that comes into the United States is mined by child slave labor out of those mines.

So with that being said, you had mentioned people are OK driving their EV vehicles or their green technology as long as it doesn't come from our country. I had heard a term last week called we are exporting our environmental guilt. We are exporting our environmental guilt. We are OK saying everything is green and we want green technology, et cetera, yet we turn a blind eye when the Biden administration agrees with a memorandum of understanding to bring the cobalt here.

Ms. Gibson, you cannot agree with that, can you?

Ms. GIBSON. Of course I condemn child labor. We condemn—

Mr. STAUBER. Thank you. That—

Ms. GIBSON [continuing]. Child labor, I am a mother myself—

Mr. STAUBER. I agree. I agree with you. And Ms. Gibson, in northern Minnesota we have been mining for 145 years. The cleanest water comes right from the ground in the heart of mining

country. Would you rather the Minnesota miners, under the best environmental standards, the best labor standards in the world, mined that cobalt so we can use it in our country, rather than getting it from the communist country of China using those poor labor conditions? Yes or no?

Ms. GIBSON. Again, of course—

Mr. STAUBER. Thank you.

Ms. GIBSON [continuing]. We condemn child labor.

Mr. STAUBER. Ms. Gibson, do you know how long, on average, it takes to open up a mine from exploring to mineral extraction? Do you know the average time it takes to open up a United States mine?

Ms. GIBSON. [No response.]

Mr. STAUBER. I will give you a hint.

Ms. GIBSON. Do you want me to answer?

Mr. STAUBER. I will give you a hint. It is not 30 and it is more than 28. Can you imagine that? The only country that takes longer is Zambia.

Here we are, we have a strategic national security issue in this country. And we talk about permitting. Let's get it done for all industries, as Mr. Jensen said. When we do that, we can hold the security of this country in the palm of our own hands.

The only State that has more mineral wealth than Minnesota is Alaska. And the Biden administration put more sanctions on that State of Alaska than they did Iran. Unbelievable.

So we have an opportunity not only in this Committee, the Natural Resources Committee, to extract the minerals here under our labor standards. We are blessed with the abundance of these natural resources. Let's do it right and let's lead the world. I will be damned if I will let China control the destiny of this country. When we know better, we do better.

Mr. Sweetnam, you gave the example of China and the Japan example. Can you imagine that? Can you imagine that?

We are at the crisis point in our Nation as far as strategic national security not only in energy, but critical minerals. We must secure our Nation's strategic national security by mining them here using the American labor, American technology. It is American communities for American economy. This is the fight of the 21st century, in my opinion: energy and critical mineral dominance. And there is not a country that is set up for it in the world but the United States.

I yield back.

Mr. COLLINS. The Chair now recognizes the Ranking Member Dexter for 5 minutes.

Dr. DEXTER. Thank you so much, Mr. Chair, and I very much appreciate the passion of this argument and the discussion we are having here today.

I also want to just make it very clear that Ms. Gibson is here for a certain testimony, certainly not to condone any of the things that was just brought up by my colleague.

I also want to just mention that, despite the ongoing improvements in safety for miners and other occupations, and despite Minnesota's high-quality protections, the Iron Range mining in Minnesota has three times the rates of mesothelioma than is ex-

pected. And as a lung doctor I have taken care of patients with mesothelioma from time of service from mining. Certainly, black lung and silicosis are things that we see. These are the costs of doing mineral mining, in addition to the asthma, fires, and smoke exposure that we put people through with our refineries, with our oil production. We do not take into account the human impacts of these challenges.

And so I just want to make it also clear, there were some questions about subsidies, and the International Monetary Fund estimates there is approximately \$754 billion in direct subsidies in the U.S. every year for oil and gas production.

I am just going to ask you, Ms. Gibson, did the Inflation Reduction Act provide subsidies indefinitely for renewable energy?

Ms. GIBSON. No, Dr. Dexter.

Dr. DEXTER. Thank you. I would agree with that. I think we certainly have subsidized oil and gas production. In fact, we have abandoned mines and different infrastructure across this country.

And a stranded asset is an investment that loses value or becomes unusable before the end of its expected useful life. And in the energy context that could mean we build a methane gas plant and finance it over 40 years, but we can't use it after 10 years because it is cheaper to use renewable energy. And that is the trajectory that we are seeing as we continue to improve the technology for renewables. Maybe we require it to be shut down to deal with a climate emergency. These are costs that I believe are not being taken into account in these amazing numbers that we are being convinced of today.

I wanted to ask Mr. Dayaratna, sorry if I did not say your name correctly. Does the model that you reference in your testimony account for the economic risks of stranded fossil fuel assets as the world continues to pursue decarbonization efforts?

Dr. DAYARATNA. I am sorry. The question was about the risks of stranded fossil fuel assets?

Dr. DEXTER. Just the economic risk if we are building these methane plants or CO₂ capture plants, and then we strand them, as we know this is happening across the country. There is stranded infrastructure that then has to be cleaned up by the government because the industry is not doing that. Is that something that has happened—

Dr. DAYARATNA. I see.

Dr. DEXTER [continuing]. In the past?

Dr. DAYARATNA. The Energy Information Administration's National Energy Modeling System, I believe that they do not incorporate for that. But at the same time, I think what you are getting at, OK, well, anyway, go ahead.

Dr. DEXTER. No, please. Please—

Dr. DAYARATNA. No, I was just going to comment on broader questions regarding the public health questions that I think you might be getting at, that I think you suggested were not incorporated in the analysis, which I am happy to address.

Dr. DEXTER. So let's talk about the stranded infrastructure.

Dr. DAYARATNA. OK.

Dr. DEXTER. As we are building we are talking about taking diesel turbines off the coast of Puerto Rico and other things that

have to be created because there is a shortage. Correct? So if we create infrastructure and it is abandoned, is that cost accounted for?

Because we have a history of doing that throughout this country. There is stranded oil wells across this country, correct?

Dr. DAYARATNA. So between the business-as-usual case and the high oil and gas case and the simulations that I discussed, as well as the carbon reduction simulations, those variables were all considered equal between the cases. So I think it is like comparing apples and oranges to ask a question like that, to be honest.

Dr. DEXTER. So you don't think it is relevant that we subsidize—

Dr. DAYARATNA. When you are computing the deltas—

Dr. DEXTER [continuing]. The development of this infrastructure?

Dr. DAYARATNA. Excuse me?

Dr. DEXTER. When we are subsidizing the development, and with infrastructure there are tax deductions. We are certainly—

Dr. DAYARATNA. Oh, I see your question. My personal opinion is that there shouldn't be subsidies, period, whatsoever in the marketplace, if that is what you are asking.

Dr. DEXTER. I appreciate that perspective.

And with that I am over time, so I yield back. Thank you.

Mr. COLLINS. The Chair now recognizes himself for 5 minutes.

Mr. Sweetnam and Mr. Jensen, I just want to make a comment on both of you when you are talking about speeding up permits. And one of the reasons I came to Congress is the fact that you have got excess litigation going on out there that is actually harming and making permitting extremely long. And until we get control of these nuclear verdicts, these environmentalists that are out there that have no skin in the game, that are just suing to sue to hold up projects, until we get them and make them accountable and make them pay for that, then you are going to see continued permits to drag on and on for years. We need tort reform in this country. We need it on a Federal level to make these people accountable.

And as a matter of fact, you know, if they want to go somewhere to have their trade, go to China. That would be a good place for them to start, because we are the cleanest right here in the United States of America.

With that I want to go with climate change a little bit. Ms. Gibson, you mentioned moving away from conventional forms of energy in order to curb climate change. Can you cite the actual impact on global temperature as a result of moving toward an American energy portfolio heavily?

And if not exclusively, then dependent on renewables, you know, as you were talking about in your testimony.

Ms. GIBSON. Well, I will just respond to some things that Dr. Dayaratna said earlier.

Mr. COLLINS. Well, I would appreciate it if you would answer my, I have got a number of questions, but can you cite the actual impact on global temperature as a result of moving toward your renewables?

Ms. GIBSON. Well, I would say even the number that was given by the doctor earlier, even with very generous assumptions for the

fossil fuel industry is bad news all around and doesn't take into account our collective responsibility—

Mr. COLLINS. But can you cite the actual impact of moving towards your renewable? That is what I am asking. I am not asking for you to respond to anything that Dr. Dayaratna said. It is just a simple question that you have in your testimony. You said we were—

Ms. GIBSON. Of increased—

Mr. COLLINS. You said it was going to change. I am just asking you how much. What is the actual impact on the global temperatures?

Ms. GIBSON. The actual impact on global temperatures?

Mr. COLLINS. Yes, what is it going to be?

Ms. GIBSON. I think it is very well established at this point that increased harmful weather events that will impact not only our energy infrastructure—

Mr. COLLINS. All right.

Ms. GIBSON [continuing]. But our communities—

Mr. COLLINS. It was a number question, but that is OK.

Dr. Dayaratna, as we just heard, some claim that increasing drilling here in the States is going to exacerbate climate change. That is essentially what Ms. Gibson in her testimony was talking about. Does your modeling at Heritage offer any estimates of this?

And what about the policies that are seeking to reduce the carbon emissions?

And you got any response to the no response?

Dr. DAYARATNA. Yes, sir. So again, we used the model for the assessment of greenhouse gas-induced climate change, which is not our model, it is a model by the Intergovernmental Panel on Climate Change. And taking into account the increased emissions from the high oil and gas case, which—again, they are not our assumptions, these are the Energy Information Administration's assumptions about a high oil and gas scenario. Using overly-sensitive assumptions about the climate, there would be no more than a 0.03 degrees Celsius temperature increase by the end of the century.

Now, if you go in the other direction, which I think was the second part of your question about reducing emissions through carbon-based regulation, if the United States were to completely abate fossil fuels starting today, there would be less than 0.23 degrees Celsius temperature mitigation by the end of the century, again assuming an overly-sensitive climate.

You could play with our model online. It is the Heritage Foundation Climate Calculator, where you have all these assumptions and you could play with them. And these are considered the most extreme assumptions about the climate.

Mr. COLLINS. Good. Thank you. Thank you. That is all the questions that I have, so I am going to yield back.

I want to thank the witnesses for their valuable testimony and the members for their questions.

The members of the Committee may have some additional questions to the witnesses, and we will ask you to respond to these in writing. Under Committee rule 3, members of the Committee must submit questions to the Subcommittee clerk by 5 p.m. on

Monday, April the 7th. The hearing record will be held open for 10 business days for these responses.

If there is no further business—

Dr. DEXTER. Wait, Mr. Chair, I wanted to ask for some records to be submitted into the—

So I would just like to introduce for the record a paper that, thank you, Mr. Chair, paper that estimates the value of stranded assets in oil and gas infrastructure in the U.S. under a scenario in which climate change mitigation limits warming to 0.2 degrees Celsius by 2100—or 2 degrees Celsius. Not the change, sorry. This estimate puts the value at around \$300 billion.

And we have two other documents I would like to submit for the record. So thank you, Mr. Chair.

Mr. COLLINS. Without objection, so ordered.

Mr. COLLINS. So if there is no further business, without objection, the Subcommittee stands adjourned.

[Whereupon, at 11:44 a.m., the Subcommittee was adjourned.]

Submissions for the Record by Rep. Gosar



BACKGROUNDER

No. 3846 | AUGUST 28, 2024 | REVISED AND UPDATED
CENTER FOR ENERGY, CLIMATE, AND ENVIRONMENT

Twisters and Trends: An Analysis of U.S. Tornado Activity and Climate Change

Joe D'Aleo and Roy W. Spencer, PhD

KEY TAKEAWAYS

There has been a 50 percent reduction in strong tornadoes in the U.S. since the 1950s; weak tornado counts increased until 1990 due to better reporting.

When tornadoes do occur, growing population and infrastructure put more property and lives at risk, but growth-normalized tornado damage has decreased since 1950.

These facts do not support claims that increasing greenhouse gas emissions are causing storms to intensify.

Tornadoes wreak havoc in scattered locations throughout the world but are most prevalent in North America. Given the large amount of media attention that often accompanies these storms, they inevitably become part of the climate change debate.¹

This *Backgrounder* examines the relationship between trends in the frequency and severity of tornadoes and climate change. The authors find that despite increasing temperatures and carbon-dioxide (CO₂) emissions, overall tornado trends do not appear to be linked to these changes. They also discuss the increases in economic damages that tornadoes have caused over time. These increases, however, are merely a manifestation of increasing wealth and a maturing society, and when normalized with respect to economic growth, the trends reverse, with decreases in normalized monetary damages.

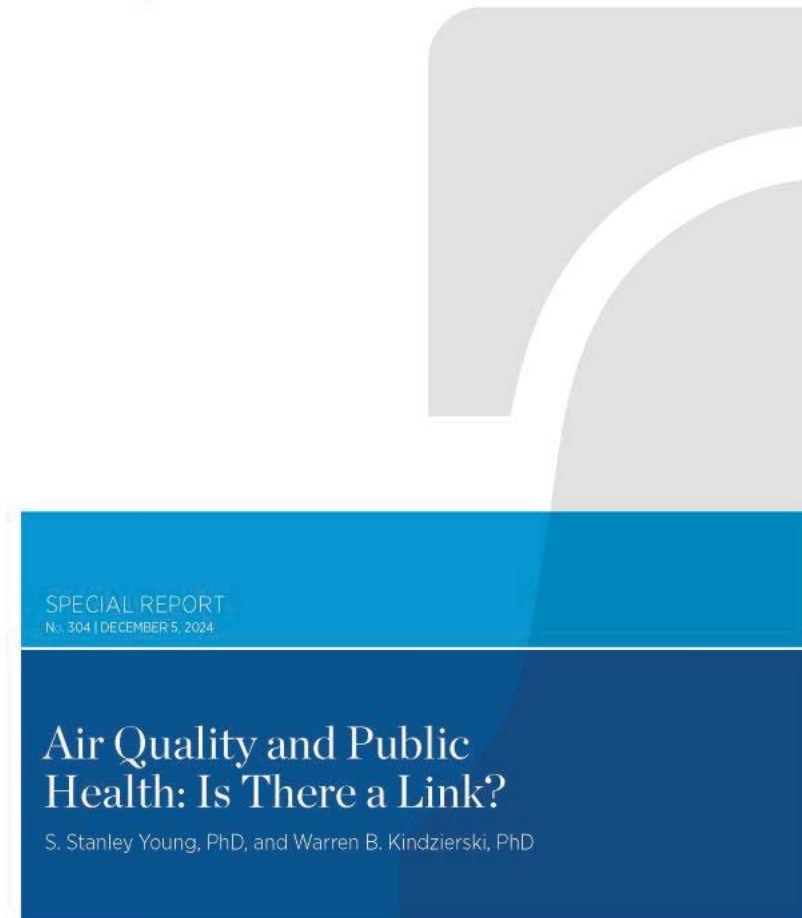
This paper, in its entirety, can be found at <https://report.heritage.org/bg3846>

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Climate sensitivity, agricultural productivity and the social cost of carbon in FUND

Kevin D. Dayaratna¹ · Ross McKittrick² · Patrick J. Michaels³

Received: 17 June 2019 / Accepted: 6 January 2020 / Published online: 18 January 2020
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Abstract

We explore the implications of recent empirical findings about CO₂ fertilization and climate sensitivity on the social cost of carbon (SCC) in the FUND model. New compilations of satellite and experimental evidence suggest larger agricultural productivity gains due to CO₂ growth are being experienced than are reflected in FUND parameterization. We also discuss recent studies applying empirical constraints to the probability distribution of equilibrium climate sensitivity and we argue that previous Monte Carlo analyses in IAMs have not adequately reflected the findings of this literature. Updating the distributions of these parameters under varying discount rates is influential on SCC estimates. The lower bound of the social cost of carbon is likely negative and the upper bound is much lower than previously claimed, at least through the mid-twenty-first century. Also the choice of discount rate becomes much less important under the updated parameter distributions.

Keywords Agriculture · Climate sensitivity · CO₂ fertilization · Integrated assessment modeling · Social cost of carbon

1 Introduction

The marginal social cost of carbon dioxide emissions, usually shortened to the social cost of carbon (SCC), is typically derived using integrated assessment models (IAMs). While over 20 global-scale IAMs have been developed, three are specifically tailored to aggregate benefit–cost analysis and thus are most widely used in SCC estimation (Weyant 2017). These are called Dynamic Integrated Climate-Economy (DICE, Nordhaus 1993), Framework for Uncertainty, Negotiation, and

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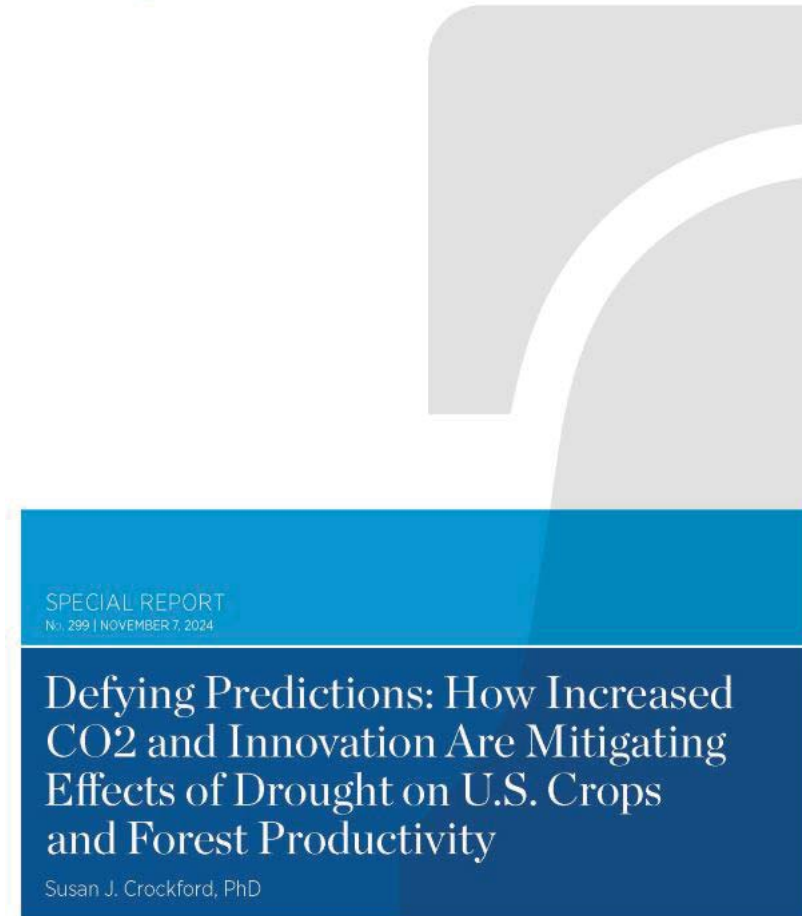
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EMPIRICALLY CONSTRAINED CLIMATE SENSITIVITY AND THE SOCIAL COST OF CARBON

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BRUNO MAUTNER

Department of Economics, University of Guelph and Green Institute

DAVID KRUEGER

US Environmental Protection Agency, Washington, DC, USA

Published 5 April 2012

Integrated Assessment Models (IAMs) require assumptions of both economic and climate processes. The latter include Fossil-fuel Carbon Reserves (FCR), or the temperature or growth in burning CO₂ levels, and Green House Effect (GHE) efficiency. Key uncertainties in IAMs have been those from climate model runs that lack an empirical basis, and a strong climate requirement may not be constrained to consistent IAM values. Empirical key estimates are now available, but have not yet been applied in IAMs. We incorporate a new version of the FCR, and make a conditional or calibrated GHE efficiency case, to re-estimate IAMs. The resulting Social Cost of Carbon (SCC) estimates are much lower than those with models based on simulated GHE parameters. In the FCR model, the average SCC falls by approximately 30–50% depending on the discount rate, while in the GHE model the average SCC falls by over 80%. The speed of emissions across discount rates also declines substantially.

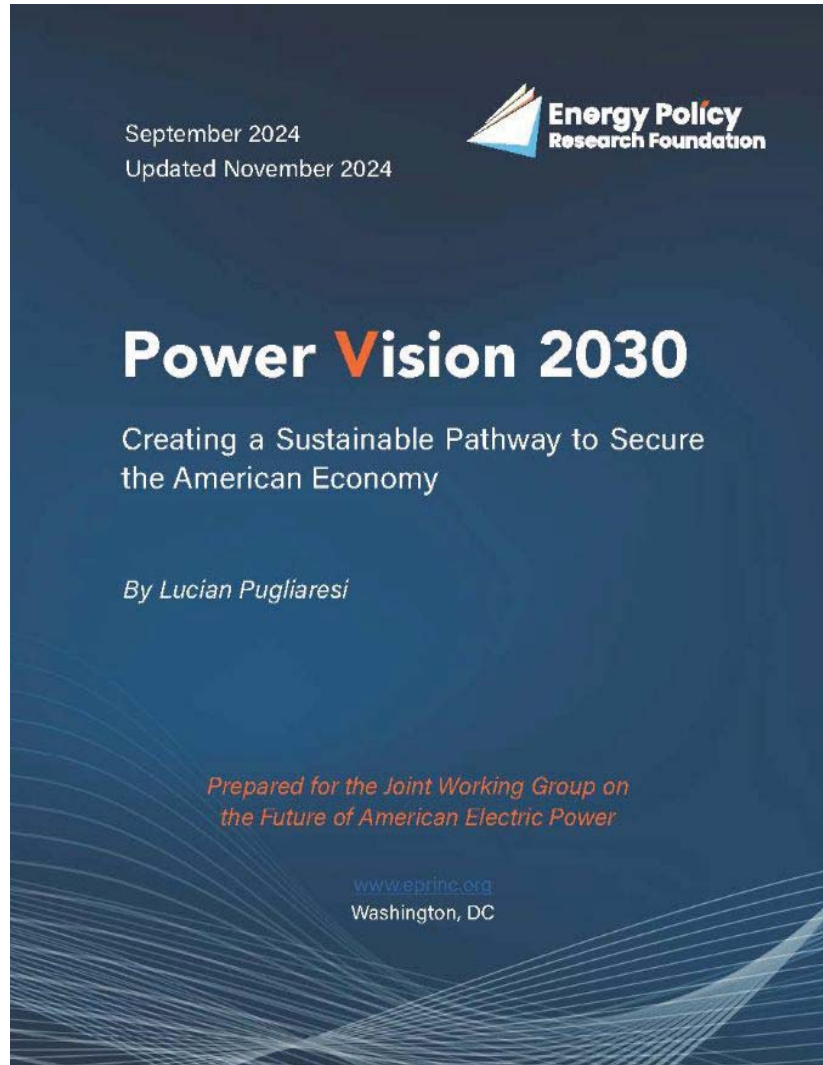
Keywords: Social cost of carbon, climate sensitivity, carbon tax, carbon prices, integrated assessment models.

1. Introduction

Integrated Assessment Models (IAMs) emerged in the 1990s and have become central to the analysis of global climate policy, especially for estimating the Social Cost of Carbon (SCC) or the marginal damages of an additional unit of carbon dioxide (CO₂) emissions. A particularly influential application has been through the US Interagency Working Group (1991, 2006, 2011) which estimated SCC rates for use in US climate and energy regulations. IAMs operate at a high level of abstraction and require extensive

¹Recent versions of IAMs exist, with highlighting or reducing different aspects, such as Fossil and Greenhouse Gas Reserves, and/or Fossil Fuel Efficiency.

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BACKGROUNDER

No. 3809 | JANUARY 24, 2024

CENTER FOR ENERGY, CLIMATE, AND ENVIRONMENT

Global Warming: Observations vs. Climate Models

Roy W. Spencer, PhD
KEY TAKEAWAYS

The observed rate of global warming over the past 50 years has been weaker than that predicted by almost all computerized climate models.

Climate models that guide energy policy do not even conserve energy, a necessary condition for any physically based model of the climate system.

Public policy should be based on climate observations—which are rather unremarkable—rather than climate models that exaggerate climate impacts.

Average warming of the climate system over the past five decades has been widely attributed to greenhouse gas emissions—primarily carbon dioxide (CO₂)—from the burning of fossil fuels. This belief has led to calls for greatly reducing humanity’s reliance on such fuels and a transition to “renewable” energy sources such as wind power and solar energy.

For the purposes of guiding public policy and for adaptation to any climate change that occurs, it is necessary to understand the claims of global warming science as promoted by the United Nations Intergovernmental Panel on Climate Change (IPCC).¹ When it comes to increases in global average temperature since the 1970s, three questions are pertinent:

This paper, in its entirety, can be found at <https://report.heritage.org/bg3809>

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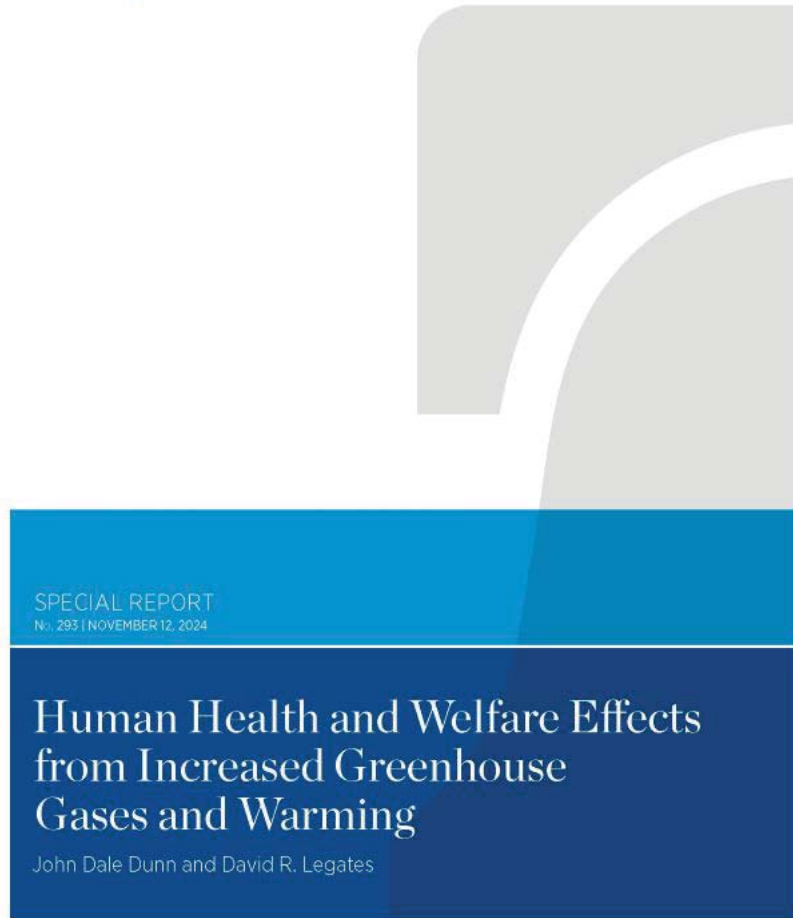
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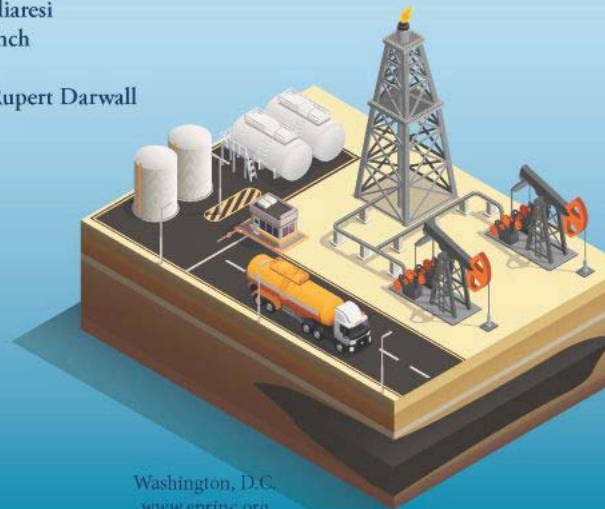
A Critical Assessment of the IEA's Net Zero Scenario, ESG, and the Cessation of Investment in New Oil and Gas Fields

Authors:

June 2023

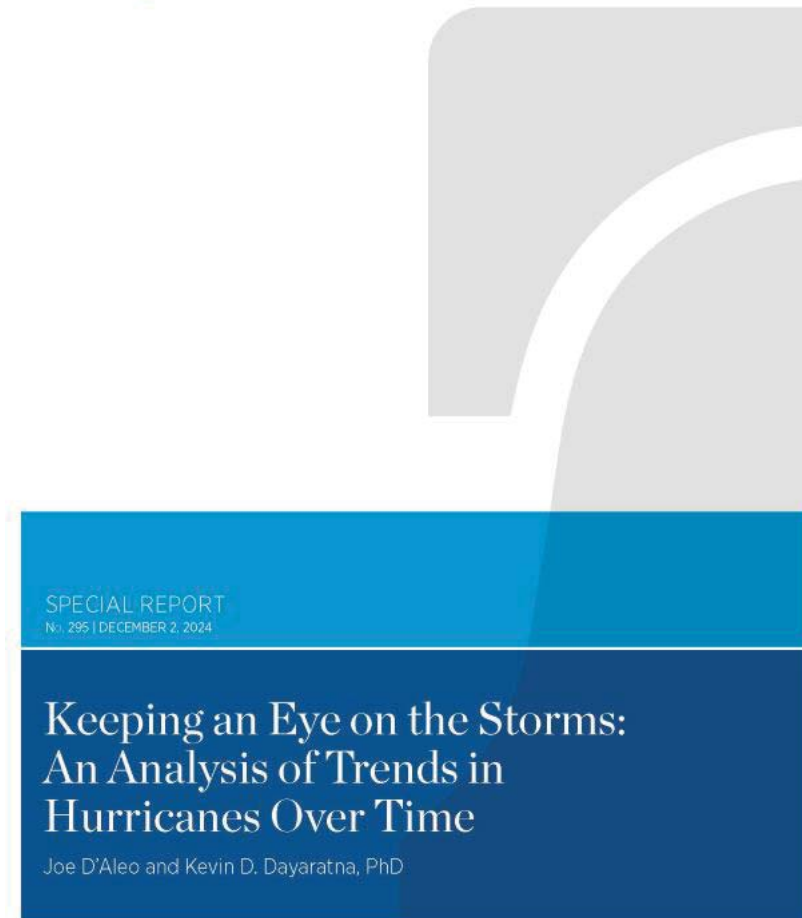
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BACKGROUND

No. 2860 | NOVEMBER 21, 2013

Loaded DICE: An EPA Model Not Ready for the Big Game

Kevin D. Dayaratna and David W. Kreutzer, PhD

Abstract

The Environmental Protection Agency (EPA) uses three statistical models of the environment and economy, called integrated assessment models (IAMs), to determine the value of the social cost of carbon (SCC), defined by the EPA as the economic damage that a ton of CO₂ emitted today will cause over the next 300 years. This study analyzes the IAM that generates the intermediate EPA results (the DICE model) and finds it flawed beyond use for policymaking. In addition to more fundamental problems outlined by others, we find that reasonable changes in a few assumptions lead to order-of-magnitude changes in estimates of the SCC.

The "social cost of carbon" (SCC) is a metric used by the Environmental Protection Agency (EPA) to quantify the economic impact associated with carbon emissions.¹ The EPA uses three statistical models to estimate the SCC: FUND (Climate Framework for Uncertainty, Negotiation and Distribution), DICE (Dynamic Integrated Climate-Economy), and PAGE (Policy Analysis of the Greenhouse Effect).² Although policymakers often refer to the results generated by these models to justify imposing burdensome regulations on the energy sector of the U.S. economy, the fundamental assumptions underlying these models have a number of serious deficiencies.³ In this study, we look at several of these shortcomings in the DICE model.

In particular, aside from the serious questions concerning the core of integrated assessment models (IAMs) in general, the DICE estimates of the SCC shift substantially with reasonable

KEY POINTS

- Using the OMB-mandated discount rate that the EPA omitted reduces the 2020 estimate of the "social cost of carbon" (SCC) by more than 80 percent.
- An updated estimate of the ECS distribution (CO₂'s temperature impact) reduces the 2020 estimate of the SCC by more than 40 percent.
- With an updated ECS distribution, a time horizon up to 2150, and with the omitted discount rate, the 2020 estimate of the SCC falls to \$4.03 from \$37.79—a drop of nearly 90 percent.
- Since moderate and defensible changes in assumptions lead to such large changes in the resulting estimates of the SCC, the entire process is susceptible to political gaming.
- While running the DICE model (and similar integrated assessment models) may be a useful academic exercise, the results at this time are nowhere near reliable enough to justify trillions of dollars of government policies and burdensome regulations.

This paper, in its entirety, can be found at <http://report.heritage.org/bg2860>

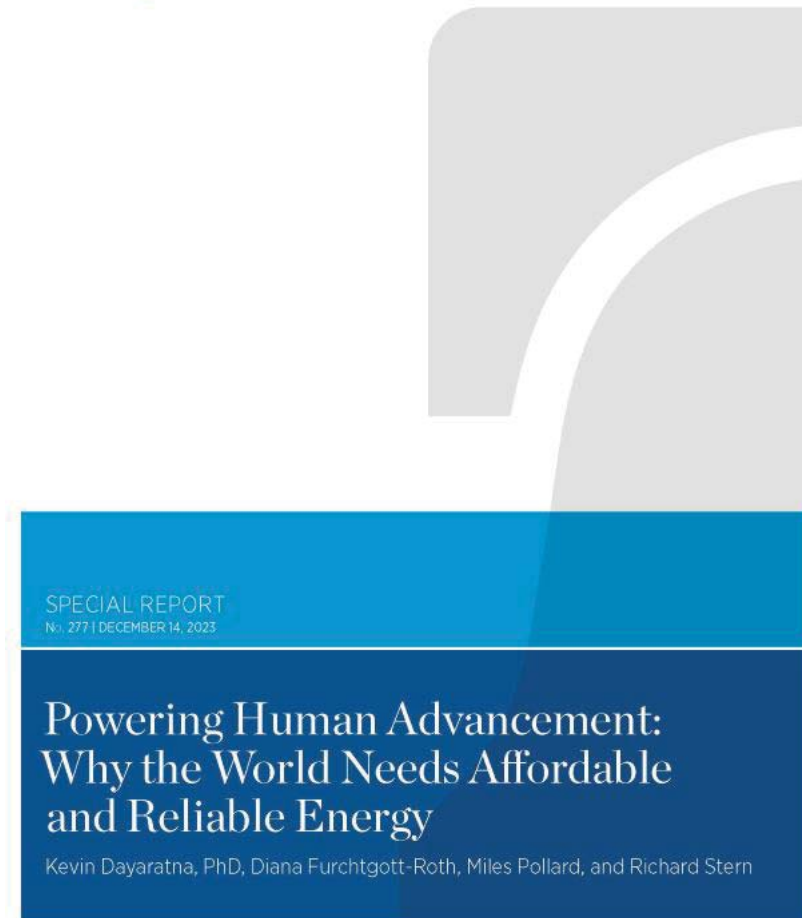
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BACKGROUNDER

No. 3713 | JUNE 16, 2022

CENTER FOR ENERGY, CLIMATE, AND ENVIRONMENT

The Unsustainable Costs of President Biden's Climate Agenda

Kevin D. Dayaratna, PhD, Katie Tubb, and David Kreutzer
KEY TAKEAWAYS

The Biden Administration's climate goals are so unrealistic that the Heritage Energy Model—a clone of the EIA's model—crashes before they can be achieved.

Attempting to meet these goals through a carbon tax would reduce U.S. GDP by \$7.7 trillion over 18 years and U.S. employment by 1.2 million jobs.

Eliminating all U.S. emissions would reduce global temperatures by less than 0.2 degrees Celsius by 2100—wrecking the economy for a negligible climate benefit.

One of President Joe Biden's first actions in office was to recommit the United States to the Paris Agreement on global warming. The international accord aims to keep global warming below 2 degrees Celsius from preindustrial levels, with the ultimate objective of limiting warming to 1.5 degrees Celsius.¹

While the Paris Agreement's climate impact will be minimal at best (even when assuming that the signatory countries follow through on their commitments), the policies implemented by the Biden Administration to reach its intended targets will impose significant costs on American families and businesses. Americans are struggling under high inflation, exacerbated by record-high energy prices. Prohibiting and restricting the use of natural resources while subsidizing and mandating alternatives will only further

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BACKGROUNDER

 No. 3888 | JANUARY 20, 2025
 CENTER FOR DATA ANALYSIS

Time for U.S. Energy Dominance: Unlocking America's Oil and Gas Potential through Innovation and Policy

Kevin D. Dayaratna, PhD, Austin Gae, and Mario Loyola
KEY TAKEAWAYS

The U.S. has vast oil and gas resources—federal and state policymakers should pursue policies to unlock these resources for the good of all Americans.

Tapping these resources would produce peak employment gains of 6 million jobs and generate more than \$25 trillion in GDP from now until 2050.

Regardless of assumptions about the severity of climate change, the global temperature impact of tapping these resources will be less than 0.03 degrees Celsius.

Access to affordable and reliable energy is fundamentally important to the success and well-being of any society. Affordable energy enhances quality of life by powering essential infrastructure, including hospitals, schools, and transportation systems. Reliable energy sources, including fossil fuels, have fueled global economic growth, driving industrial productivity, supporting modern conveniences, and lifting millions out of poverty. Ensuring a stable and cost-effective energy supply remains crucial for fostering innovation, sustaining economic growth, and advancing social progress.¹

President Donald Trump has pledged to fight for affordable and reliable energy for the American people, continuing the commitment of his first term. In 2017, President Trump issued an executive order to promote energy independence, directing federal agencies to review, rescind, and potentially replace

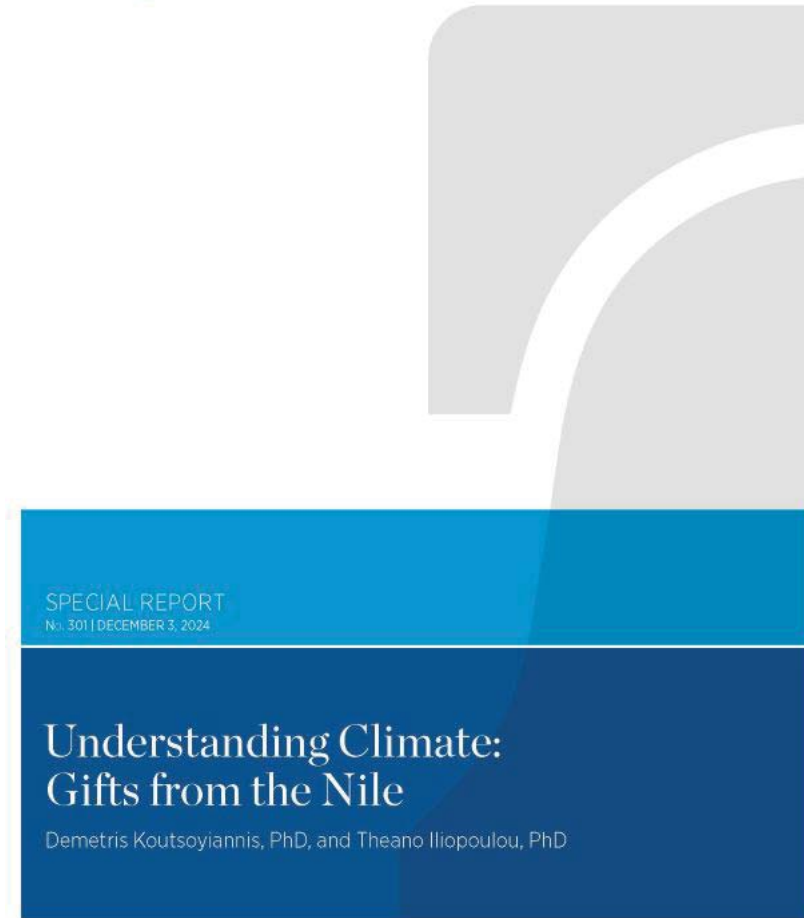
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BACKGROUND

No. 2897 | APRIL 29, 2014

Unfounded FUND: Yet Another EPA Model Not Ready for the Big Game

Kevin Dayaratna and David Kreutzer, PhD

Abstract

The Environmental Protection Agency (EPA) calls upon three statistical models, known as integrated assessment models, to estimate the value of the social cost of carbon, defined as the economic damage that one ton of CO₂ emitted today will cause over the next 300 years. In 2013, the Heritage Foundation's Center for Data Analysis (CDA) rigorously examined one of these models—the DICE model—and found it to be “flawed beyond use for policymaking.” This study examines another model the EPA uses—the FUND model. As with the DICE model, the CDA finds the FUND model to be extremely sensitive to assumptions. In fact, the FUND model is so sensitive to assumptions that at times it even suggests net economic benefits to CO₂ emissions. Consequently, the CDA researchers believe that both models are fundamentally unsound as a basis for justifying significant regulations of the American economy.

Unable to enact cap-and-trade legislation, even when he was supported by filibuster-proof majorities in Congress, President Barack Obama famously claimed, “Cap and trade was just one way of skinning the cat; it was not the only way.”¹ The primary alternative way to skin the cat is regulation by federal agencies, especially by the Environmental Protection Agency (EPA). A disturbing tool used to justify an increasing number of costly regulations is something called the social cost of carbon (SCC) that, for regulatory benefit-cost analysis, assigns a dollar cost to every ton of CO₂ emitted, which can dramatically tilt the cost-benefit calculus toward more expensive regulation.

KEY POINTS

- Using the OMB-mandated discount rate of 7 percent, the Climate Framework for Uncertainty, Negotiation and Distribution (FUND) model suggests an average social cost of carbon (SCC) of essentially zero dollars, suggesting no net economic damages of global warming.
- Upon using the OMB-mandated discount rate in conjunction with updating the equilibrium climate sensitivity distribution, the model reduces its estimate of the SCC for 2020 by nearly \$34 a ton (a drop of more than 102 percent).
- The FUND model even allows negative estimates of the SCC. In some instances, the chance of the SCC's being negative is nearly 70 percent.
- With such great sensitivity to assumptions producing results all over the map, the FUND model may remain an interesting academic exercise, but it is almost certainly not reliable enough to justify trillions of dollars' worth of additional economic regulations with which to burden the economy.

This paper, in its entirety, can be found at <http://report.heritage.org/bg2897>

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Submissions for the Record by Rep. Dexter

**Written Testimony of Professor Jamie Pleune,
University of Utah, S.J. Quinney College of Law
Before the U.S. House of Representatives, Committee on Natural Resources,
Subcommittee on Oversight and Investigations
May 11, 2023
Hearing on “The Biden Administration’s Executive Overreach
and its Impact on American Energy Independence”**

Thank you, Chairman Gosar and Ranking Member Stansbury for the opportunity to testify today. My name is Jamie Pleune. I am an Associate Professor of Law (Research) at the S.J. Quinney College of Law, University of Utah and a Wallace Stegner Center Fellow.

The Wallace Stegner Center provides objective and actionable research on contemporary environmental issues. The non-partisan Law and Policy Program at the Wallace Stegner Center has done extensive empirical research into different aspects of the National Environmental Policy Act and its implementation. My testimony today reflects the results of that research and my personal observations. I do not speak on behalf of the University of Utah, and the views I express do not necessarily represent the views of the state of Utah, or the University of Utah.

I. Research Does Not Substantiate the Claim that NEPA Causes Delays.

The National Environmental Policy Act is often blamed for delays in the permitting process. However, research does not support that characterization. Multiple studies have found that the NEPA analysis is rarely the primary cause of delay, even though delays may be reflected in the NEPA process.¹ Analysis on a project may stop and restart for external reasons such as funding, engineering requirements, changes in agency priorities, delays in obtaining non-federal approvals, or political opposition to the project.² These delays create the appearance of a long NEPA process, because the NEPA process marks a public beginning and ending, even though the NEPA analysis did not cause the delay.³

¹ RYAN SUD, SANJAY PATNAIK & ROBERT GLICKSMAN, THE BROOKINGS INSTITUTE, HOW TO REFORM FEDERAL PERMITTING TO ACCELERATE CLEAN ENERGY INFRASTRUCTURE: A NONPARTISAN WAY FORWARD 14 (Feb. 2023).

² GOVERNMENT ACCOUNTABILITY OFFICE, GAO-14-379, NATIONAL ENVIRONMENTAL POLICY ACT: LITTLE INFORMATION EXISTS ON NEPA ANALYSES 15 (Apr. 2014); LINDA LUTHER, CONG. RES. SERV., R4279, THE ROLE OF THE ENVIRONMENTAL REVIEW PROCESS IN FEDERALLY FUNDED HIGHWAY PROJECTS: BACKGROUND AND ISSUES FOR CONGRESS 9 (Apr. 11, 2012) (“The environmental review process may start, stop, and restart for reasons unrelated to environmental issues. Local and state issues have shown to have the most significant influence on whether a project moves forward relatively quickly or takes longer than anticipated.”).

³ EXECUTIVE OFFICE OF THE PRESIDENT, COUNCIL ON ENVIRONMENTAL QUALITY, ENVIRONMENTAL IMPACT STATEMENT TIMELINES (2010-2018) 2 (June 2020) (“For some EISs, the timeline does not represent continuous activity. Delays may be attributable to the agency, the applicant, Congress, the needs of cooperating agencies, States, Tribes, and local interests, or public controversy.”); John C. Ruple, Jamie Pleune & Erik Heiny, *Evidence-Based Recommendations for Improving National Environmental Policy Act Implementation*, 46 COLUM. J. ENV’T L. 273, 304 (2022) [hereinafter Ruple et al. *Evidence-Based Recommendations for Improving Implementation of NEPA*] (conducting a detailed analysis of NEPA decisionmaking times and observing that complex projects can be completed quickly and simple projects subject to a truncated NEPA analysis may encounter delays); Executive Office of the President, Council on Environmental Quality, *Environmental Impact Statement Timelines (2010-2018)* 8 (June 2020).

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<https://docs.house.gov/meetings/II/II15/20250402/118088/HHRG-119-II15-20250402-SD002.pdf>



REPEALING FEDERAL ENERGY TAX CREDITS WOULD COST AMERICAN JOBS AND INCREASE HOUSEHOLD ENERGY BILLS

In 2022, Congress created clean energy tax credits and funding programs to reduce consumer costs, revamp America's energy system, and attract domestic manufacturing investment. These credits were established under the Inflation Reduction Act (IRA), which has since generated [\\$600 billion](#) in private investment across roughly 750 domestic clean-energy projects, creating more than [406,000](#) new American jobs.¹

However, the 119th Congress is considering repealing existing federal funding and tax credits, risking billions in investments, undercutting economic growth, eliminating jobs, and raising consumers' energy bills. Meanwhile, Trump administration proposals to repeal federal policies, including freezing funding for IRA programs [have stalled](#) more than 60 new projects, costing Americans more than 42,000 announced jobs and \$57 billion in investment through February 2025.

Energy Innovation used its open-source, peer-reviewed [Energy Policy Simulator](#) to analyze the potential effects of repealing these existing federal policies. This analysis compares a "Current Policies" scenario that includes all current legislation and regulations and a "Repeal" scenario that removes federal clean energy tax credits and other funding programs starting in 2025. This updates our [previous modeling](#), running the Repeal Scenario on the most [up-to-date EPS platform](#) with several methodological improvements and bug fixes.

We find that repealing existing federal clean energy tax credits and funding programs would increase annual cumulative household energy costs by nearly \$32 billion from 2025-2035, with annual consumer energy bills increasing by more than \$6 billion across all American households in 2030, growing to more than \$9 billion in 2035. It would cost our economy nearly 790,000 jobs in 2030 as new investment in American energy falters and GDP drops by more than \$160 billion.

Repealing Existing Federal Policies Would Reverse Economic Growth

Tax credits for clean energy technologies have already spurred significant investment in domestic manufacturing, with 77 percent of clean energy manufacturing and deployment investment flowing to Congressional districts [represented by Republicans](#). Under the Repeal Scenario, we find decreased clean investments would reduce GDP by more than \$160 billion in 2030 and nearly \$190 billion in 2035, compared to the Current Policies case. This is largely driven by fewer clean energy manufacturing and construction projects.

¹ As of January 2025

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Measuring the NEPA Litigation Burden: A Review of 1,499 Federal Court Cases

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REPEALING FEDERAL ENERGY TAX CREDITS AND FUNDING WILL HARM ALABAMA'S ECONOMY

Federal energy tax credits and funding programs are supercharging America's economy. As of January, these grant programs and tax credits have generated [\\$600 billion in new private investment](#) and created more than [406,000 new jobs](#). Prior [modeling by Energy Innovation](#) showed that just a few key federal tax credits could increase national GDP up to \$200 billion and create up to 1.3 million jobs by 2030.

Since Congress passed the Inflation Reduction Act (IRA) in 2022, roughly \$2.76 billion [in clean energy](#) and transportation investments and more than 4,300 new jobs have been announced in Alabama, alongside \$378 million in announced investments from federal grants and loans. 28 [new clean energy and transportation facilities](#) have begun development, and 11 have begun manufacturing American-made products.

But Trump administration proposals to repeal federal policies could significantly harm this economic growth. In just two months, administration actions, including freezing funding for IRA programs, [have cost America](#) nearly 42,000 announced jobs and stopped more than 60 announced clean energy projects representing more than \$57 billion in investment.

Energy Innovation used our free and open-source [Energy Policy Simulator](#) to analyze potential impacts on state-level economic growth, jobs,¹ public health, and greenhouse gas emissions in Alabama from repealing these existing policies.

The modeling finds repealing federal funding and tax credits reduces Alabama's GDP by \$5.09 billion in 2030 and \$6.34 billion in 2035, compared to maintaining current policies. Reducing new clean energy projects would increase Alabama's air pollution by nearly 9 million metric tons (MMT) of carbon dioxide (CO₂) in 2030 and 13 MMT in 2035-equivalent to the emissions from 2 and 3 coal-fired power plants, respectively.

Repealing Existing Federal Policies Would Increase Energy Bills and Reduce Job Growth in Alabama

Current federal policies, such as clean energy tax credits, grants, loans, and standards accelerate clean energy project deployment and electric vehicle sales in Alabama. But repealing these policies would force Alabama households to pay higher electricity bills because less low-cost clean energy is being built, while fewer EVs on the road would force consumers to spend more on gasoline. Repealing existing federal clean energy tax credits and funding programs would increase average annual household energy costs in Alabama (including electricity and fuel expenses) by more than \$10 per year in 2030 and more than \$200 per year in 2035.

Across all Alabama households, this increases cumulative household energy costs by more than \$878 million through 2035, assuming a 7 percent discount rate.

¹ A job year defined as one year of work for one person, for instance a new construction job that lasts five years is equal to five job-years. This is a more accurate measure than "job" because one job may last for five months or five years.

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Stranded fossil-fuel assets translate to major losses for investors in advanced economies

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The distribution of ownership of transition risk associated with stranded fossil-fuel assets remains poorly understood. We calculate that global stranded assets as present value of future lost profits in the upstream oil and gas sector exceed US\$1 trillion under plausible changes in expectations about the effects of climate policy. We trace the equity risk ownership from 43,439 oil and gas production assets through a global equity network of 1.8 million companies to their ultimate owners. Most of the market risk falls on private investors, overwhelmingly in OECD countries, including substantial exposure through pension funds and financial markets. The ownership distribution reveals an international net transfer of more than 15% of global stranded asset risk to OECD-based investors. Rich country stakeholders therefore have a major stake in how the transition in oil and gas production is managed, as ongoing supporters of the fossil-fuel economy and potentially exposed owners of stranded assets.

The transition to a global low-carbon economy entails deep and fast structural change that poses challenges for economic adjustment everywhere^{1–3}. One key challenge both for the real economy and financial markets is the fast phase-out of fossil-fuel production, which will necessitate the write-down of major, functioning capital assets and reserves reflected as assets on fossil energy companies' balance sheets. But while over 100 studies have analysed scenario-contingent early retirement of fossil-energy supply facilities⁴, this retirement has not been linked to financial ownership. As a result, academic and regulator studies undertaking stress tests of the financial system start from synthetic shocks to financial assets, rather than the underlying real assets^{5–7}. The distribution of financial ownership and exposure to loss risk remains insufficiently understood.

Asset stranding is the process of collapsing expectations of future profits from invested capital (the asset) as a result of disruptive policy and/or technological change⁸. This loss of value in fossil-fuel assets is reflected in investor expectations of enterprise value and therefore market prices, including—where listed—stock market indices. Such price corrections lead to a wealth loss for the ultimate owners of these assets; additionally, further losses can propagate to other entities indirectly through highly connected financial networks.

Asset stranding becomes a social concern where these effects destabilize financial markets with negative repercussions in the real economy such as on pensions and government finances^{9,10}. The (premature) obsolescence of capital stock is a recurring feature of dynamic, capitalist economies, as new products and industries replace old 'sunset' ones, and is not typically associated with systemic financial risks because the financial sector is buoyed by the new 'sunrise' sectors¹¹. Yet, in the case of the low-carbon transition,

the rate of industrial change required for achieving a 2°C, let alone 1.5°C, goal is so large¹² that the rapid collapse of fossil-fuel 'sunset' industries presents major transition risks^{13,14}.

Here we map comprehensively the current global financial geography of stranded oil and gas asset risk for equity ownership. We trace potential losses from extraction sites through corporate headquarters and their immediate shareholders (including banks and fund managers) all the way to the ultimate owners (government and individual shareholders) for oil and gas extraction companies worldwide. We comprehensively link fossil-fuel stranded assets and transition risk studies at the asset level for the transmission channel of equity mispricing. We distinguish both geographic and functional characteristics of the organizations along this equity ownership path. We find that exposure to wealth losses is more evenly shared geographically than the distribution of oil and gas production assets may suggest. Therefore, private investors in rich countries have both a larger stake in continued fossil-fuel production and greater exposure to stranded assets than the literature has so far suggested.

Estimating stranded assets and wealth losses

We operationalize asset stranding as the effect of a change in expectations on the present value of discounted future profit streams. We calculate profits given expectations per asset. Energy is supplied from 43,439 oil and gas production assets based on Rystad's Ucube dataset. Whether an asset is expected to supply demand depends on its present-day production cost and reserve profile in relation to the expected market-clearing oil price. If investor expectations for total demand for oil and gas fall, some assets must become unprofitable relative to initial expectations; that is, the oil or gas price falls below the break-even price for those assets.

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