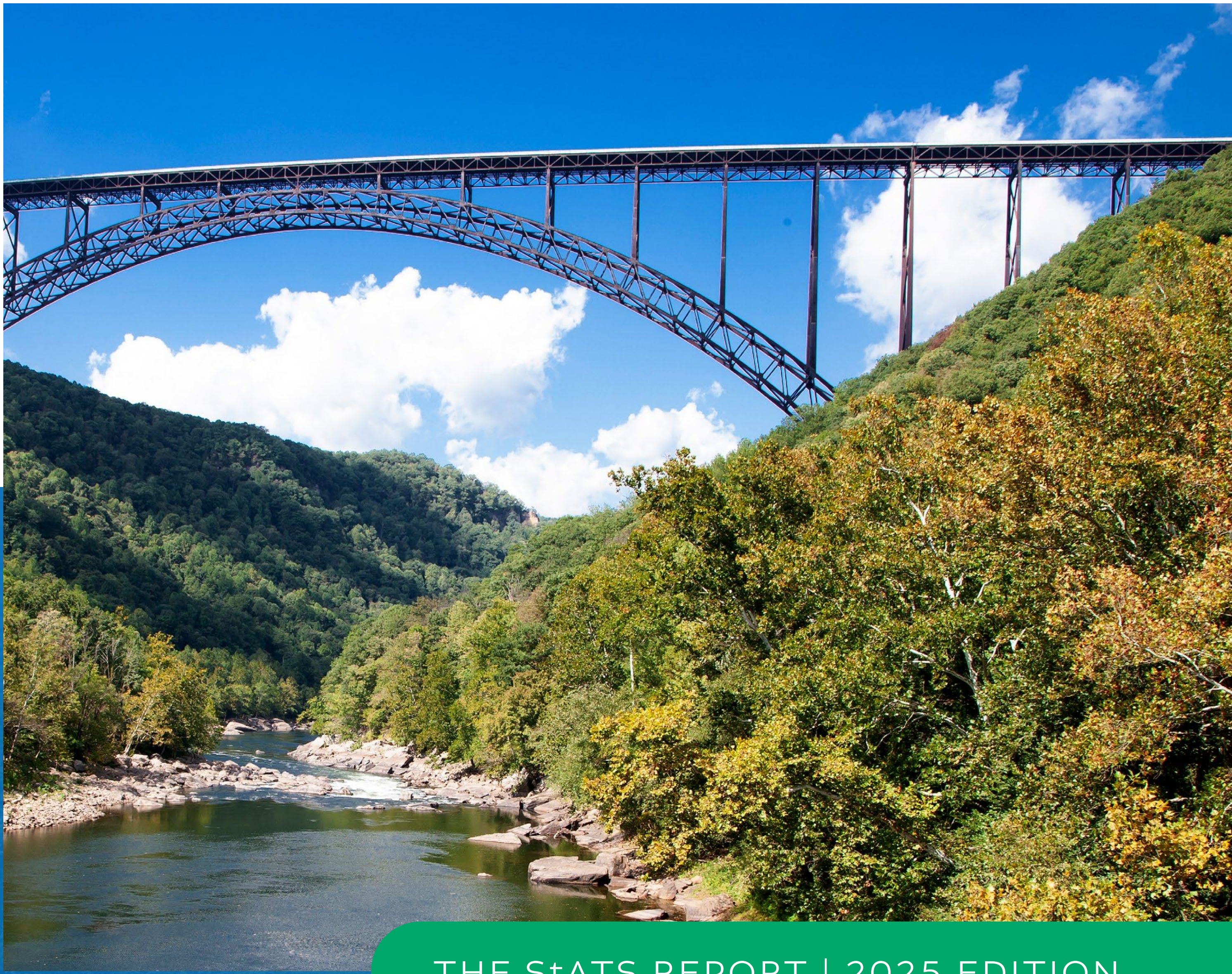
U.S. House Committee on Energy and Commerce
Subcommittee on Environment
“Short-Circuiting Progress: How the Clean Air Act Impacts Building Necessary Infrastructure and Onshoring American Innovation.”
Documents for the Record
June 11, 2025

1. A report from the Association of Air Pollution Control Agencies entitled, “State Air Trends,” submitted by the Majority.
2. A letter from the Association of Air Pollution Control Agencies, addressed to Administrator Zeldin, submitted by the Majority.
3. A letter from the Association of Air Pollution Control Agencies, addressed to Edwin Roks and Administrator Regan, submitted by the Majority.
4. A report from The Magazine for Environmental Managers entitled, “Charting Recent NAAQS Developments and Implications for Air Agencies,” submitted by the Majority.
5. An article from the Magazine for Environmental Managers entitled, “Understanding the Impact of a Lower Fine Particulate Matter National Ambient Air Quality Standard,” submitted by the Majority.
6. A report from Alpine Geophysics entitled, “2022-2024 Annual PM 2.5 Design Value Maps,” submitted by the Majority.
7. A letter from the American Cement Association, addressed to Chairman Guthrie and Ranking Member Pallone, submitted by the Majority.
8. An article from AP News entitled, “Trump EPA Rollbacks Would Weaken Rules Projected to Save Billions of Dollars and Thousands of Lives,” submitted by Rep. Barragan.
9. A report from the American Lung Association entitled, “Clearing the Air: How the New Particle Pollution Standards Work,” submitted by the Minority.
10. A February 21, 2025 letter from health organizations to EPA Administrator Zeldin, submitted by the Minority.
11. A report from the American Lung Association entitled, “State of the Air 2025,” submitted by the Minority.
12. A letter from health organizations in opposition to the Smoggy Skies Act, submitted by the Minority.
13. A report from the Environmental Protection Network entitled, “Breathing Easy: An Assessment of Public Health Benefits from EPA Air Pollution Standards (2021-24),” submitted by the Minority.
14. An article from the New York Times entitled, “How Lee Zeldin Went From Environmental Moderate to Dismantling the EPA,” submitted by the Minority.

15. A report from the Center for American Progress entitled, “The Trump Administration’s Assault on Environmental Protections Will Give Polluters a Free Pass While Causing Millions of Asthma Attacks,” submitted by the Minority.
16. An article from WIRED entitled, “Air Pollution is Still Killing Thousands of People in the US,” submitted by Rep. Carter (LA).

THE ASSOCIATION OF AIR POLLUTION CONTROL AGENCIES



THE StATS REPORT | 2025 EDITION

State Air Trends & Successes

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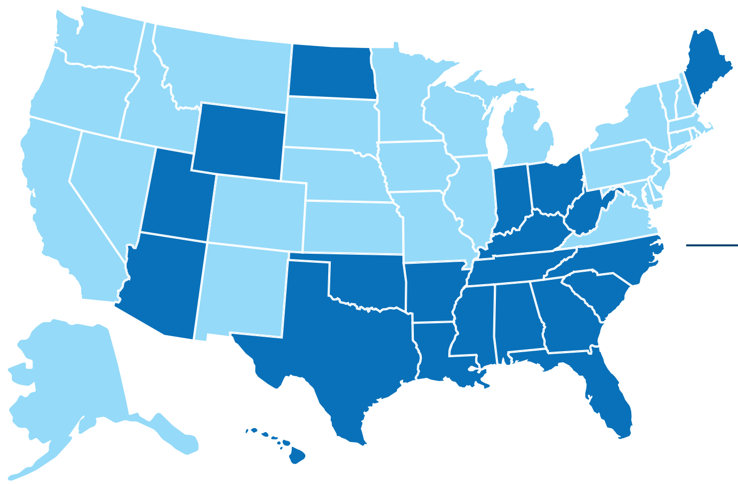


Alabama	North Carolina
Arizona	North Dakota
Arkansas	Ohio
Florida	Oklahoma
Georgia	South Carolina
Hawaii	Tennessee
Indiana	Texas
Kentucky	Utah
Louisiana	West Virginia
Maine	Wyoming
Mississippi	

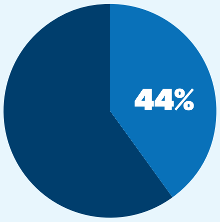
Association of Air Pollution Control Agencies (AAPCA)

AAPCA is a national, non-profit, consensus-driven organization focused on assisting state and local air quality agencies and personnel with implementation and technical issues associated with the federal Clean Air Act.

Created in 2012, AAPCA represents 53 state and local air pollution control agencies, and senior officials from 21 state environmental agencies currently sit on the AAPCA Board of Directors. AAPCA is housed in Lexington, Kentucky as an affiliate of The Council of State Governments. More information about AAPCA can be found on the Association's website: www.cleanairact.org.

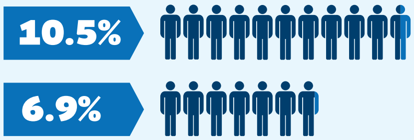
Footprint of AAPCA Member States

State members of the AAPCA Board of Directors have primary responsibility for protecting air quality for a significant portion of the country, as reflected in the following statistics:



An estimated **149.9 million** Americans, nearly **44%** of the total ***U.S. population*** in 2024.

A ***population growth*** of **10.5%** vs. a national population growth of **6.8%** from 2014 to 2024.



2,646 million metric tons of ***total CO_2 emissions*** in 2022.

39% of ***U.S. Gross Domestic Product*** (GDP) in 2024.

42% of ***U.S. total manufacturing output*** and **5.5 million** manufacturing jobs in 2023.

1.6 trillion ***vehicle miles traveled*** in 2023.

68% of ***U.S. operable petroleum refining capacity*** in 2024.

Total ***energy production growth*** of **55%** vs. a national growth of **31%** since 2000.

65% of total ***U.S. energy production*** in 2022, as well as:

54% of total ***net electricity generation*** in 2024.

46% of ***solar generation*** in 2024.

46% of ***wind generation*** in 2024.

68% of ***natural gas production*** in 2023.

71% of ***crude oil production*** in 2023.

76% of ***coal production*** in 2023.

Foreword

Dear Readers,

While many associate air pollution with modern industrialization, the importance of clean air has long been recognized. As early as 535 AD, Byzantine Emperor Justinian I declared that clean air, along with running water and access to the sea, were fundamental rights of humanity — a concept that now serves as a precursor to contemporary clean air regulations. As we approach a new administration in 2025 and reflect on the past year's progress, we take pride in the continued success of efforts to reduce air pollution and enhance air quality across the United States.

Despite ongoing challenges, Association of Air Pollution Control Agencies (AAPCA) member states and local communities remain steadfast in their commitment to protecting public health and the environment. In 2024, we made significant strides in implementing the Clean Air Act, with member states and localities playing a vital role in reducing emissions, improving visibility, and elevating air quality nationwide. The coming year offers a chance for renewed collaboration and progress, as AAPCA remains focused on providing our members with the tools and resources necessary to tackle the evolving challenges of air quality management. United by a common vision, we will continue to advocate for sound, science-based policies and promote best practices in air quality monitoring and regulation.

AAPCA is a consensus-driven organization of 53 state and local air agencies focused on assisting members with implementation of technical issues associated with the federal Clean Air Act. Comprised of senior officials from 21 state environmental agencies, AAPCA's Board of Directors is geographically diverse, providing a unique forum of perspectives to engage as we work to improve air quality for the more than 149 million Americans we represent. AAPCA's Member States also guide the Association on a consensus-basis, seeking to engage our federal co-regulator partners on common principles as we implement the federal Clean Air Act.

As the current president of AAPCA, I am pleased to present the Association's 2025 edition of its annual publication, *State Air Trends & Successes: The StATS Report*. Highlights from this year's report include:

- From 2000 to 2023, AAPCA member states have achieved a 44 percent decrease in the combined emissions of the pollutants (or pollutant precursors) for which there are national ambient air quality standards, or NAAQS.
- Since 1970 when the Clean Air Act was enacted, the United States has reduced aggregate emissions of the six criteria air pollutants by 78 percent.
- In 2024, AAPCA Member States were the permitting agencies for 23,224 facilities, or 49 percent of the state agency total, and the lead agencies for 6,857 Full Compliance Evaluations, approximately 50 percent of the state lead agency total.
- The United States has seen at least a 26 percent decline in the ambient levels of carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), and sulfur dioxide (SO_2) since 1980.
- From 2000 to 2022, visibility in 156 national parks and wilderness areas across the United States has improved by 37 percent on the clearest days and 29 percent on the most impaired days.
- From 2000 to 2022, the United States reduced energy-related carbon dioxide (CO_2) emissions by 16 percent while experiencing a 28 percent increase in total energy production.

Thank you for reading.

Laura M. Crowder

Laura Crowder

Director, Division of Air Quality

West Virginia Department of Environmental Protection

2025 President, AAPCA

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Introduction

Published annually since 2017, *State Air Trends & Successes: The StATS Report* spotlights state and local air agencies as essential to the significant improvement in air quality that has been achieved in the United States since the enactment of the Clean Air Act (CAA) in 1970. Under the CAA's framework of cooperative federalism, the U.S. Environmental Protection Agency (EPA) sets national standards while state, local, and tribal agencies work on the ground with businesses, communities, and other stakeholders to develop implementation strategies. State, local, and tribal governments are uniquely situated to take an informed approach when melding environmental, economic, and social priorities to meet the distinct needs within their jurisdictions. This approach has been remarkably successful and air pollution control efforts have vastly improved air quality while the nation has experienced substantial economic and social growth.

In support of state and local air quality agencies, *The StATS Report* by the Association of Air Pollution Control Agencies (AAPCA) catalogues key trends and metrics that are publicly available from federal, state, and local agencies (see page 6 of this report, "Types of Air Quality Data and Metrics"), and includes data for criteria air pollutant concentrations and emissions, hazardous air pollutants (or air toxics), energy-related carbon dioxide, and visibility in national parks. Where applicable, trends for economic and social indicators like Gross Domestic Product (GDP), energy production, and population are included to offer important context. *The StATS Report* provides these metrics and trends in three sections:

- First, "AAPCA Member State Air Trends & Successes," focuses on the 21 AAPCA Member States, which are responsible for protecting air quality for nearly 150 million Americans, about 44 percent of the U.S. population. These states have seen above-average population growth, are responsible for 42 percent of the nation's manufacturing output, and produce 65 percent of the nation's total energy.
- Second, "American Air Quality in an International Context," examines U.S. air quality improvement and economic indicators alongside other nations. The United States is the clear leader in air quality internationally while ranking first in GDP, second in total electricity generation, and third in population.
- Third, "Air Quality Trends in the United States," presents trends for ambient concentrations and emissions of pollutants under the National Ambient Air Quality Standards (NAAQS) program, toxic air releases, visibility in national parks, and energy-related carbon dioxide. These decades-long trends show substantial, sustained improvement.

By virtually any metric, the nation's air is cleaner and healthier than fifty-five years ago, when the CAA was first enacted. Air quality trends show consistent and prolonged improvement, with drastic reductions in the emissions and ambient concentrations of pollutants, while the United States has seen tremendous growth in economic and social factors. *The StATS Report* underscores that environmental protection and economic development can be simultaneously achieved through the leadership of state and local air agencies and collaborative efforts amongst co-regulators.

Cooperative Federalism as a Successful Framework

Under the tenets of cooperative federalism, state agencies have become the primary implementers of environmental statutes and programs, such that today, states have assumed more than 96 percent of the delegable authorities under federal law.[1] As primary implementers of the CAA, air agencies are responsible for a broad range of core air pollution control efforts, including developing plans to meet air quality standards and improve visibility, implementing federal air toxics rules, monitoring, modeling, managing emissions inventories, permitting, public outreach, and overseeing enforcement and compliance. States perform more than 90 percent of the enforcement and compliance actions and collection of the environmental quality data currently held by the U.S. EPA.[2]

Crucially, state and local agencies are responsible for ensuring the availability of quality data used to drive science-based policies, regulatory decisions, and best practices. Air agencies are increasingly involved in innovative efforts utilizing emerging technologies like sensors, satellites, and artificial intelligence to meet demands for real-time data and forecasting. State and local technical staff contribute heavily to the development of national, regulatory tools and resources. Subject matter experts from state air pollution control agencies are cornerstone members of U.S. EPA advisory committees, such as the Clean Air Scientific Advisory Committee (CASAC) and Clean Air Act Advisory Committee (CAAAC).

Often the first contact for citizens, air agencies serve as vital checkpoints for emerging issues in air quality. These agencies are responsible for timely, informed, and reasoned responses that are transparent, understandable by the public, and meet stakeholder expectations. In this capacity, air agencies have built the necessary relationships, credibility, and trust for interfacing with the public and regulated industries on environmental challenges. Cooperative federalism supports early, meaningful, and substantial state and local agency involvement in the development and implementation of environmental programs to increase mutual understanding, improve co-regulatory relations, remove barriers, reduce costs, and more quickly improve the nation's air quality.

Confronted in recent years by resource and staffing constraints, state and local agencies require strategic budgeting and innovative programming to meet new and existing responsibilities under the CAA. Nonetheless, state and local air agencies are led by dedicated public servants determined to meet the challenges of administering progressively complicated and demanding operations.

Succinctly put, state and local agencies are a critical part of achieving our nation's environmental and public health goals and mandated responsibilities in an effective and efficient way. The successes presented in AAPCA's *State Air Trends & Successes: The StATS Report* result from long-standing partnerships between state, local, and tribal entities, U.S. EPA, and the regulated community. Supporting these agencies through the framework of cooperative federalism strengthens their position as co-regulators in improving air quality. Amidst increased efforts to modernize regulatory policies and technologies, cooperative federalism remains a proven framework for achieving successful environmental outcomes – and is necessary to continuing the success of the first half-century of the Clean Air Act.

1 The Environmental Council of the States (ECOS), *Cooperative Federalism 2.0: Achieving and Maintaining a Clean Environment and Protecting Public Health*, June 2017

2 The Environmental Council of the States (ECOS), *Resolution 00-1: On Environmental Federalism*, Revised March 27, 2024

Types of Air Quality Data and Metrics

This report primarily relies on data from the U.S. Environmental Protection Agency (EPA) and other federal agencies, such as the U.S. Energy Information Administration (EIA), to evaluate air quality trends. These trends include metrics for criteria air pollutants, air toxics and hazardous air pollutants, visibility progress in National Parks and wilderness areas, and greenhouse gases, with sources provided below each chart or graph and in the reference notes. Also included in this report are case studies and short excerpts from other relevant analyses, which include links to their source and data.

Criteria Air Pollutant Data

Trends and indicators of air quality can be measured in a variety of ways, but an important group of data to analyze is that of the air pollutants that are regulated under the federal Clean Air Act. Section 109 of the Clean Air Act requires U.S. EPA to establish both primary and secondary national ambient air quality standards, or NAAQS. Primary NAAQS are "standards the attainment and maintenance of which in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health," while secondary NAAQS "specify a level of air quality the attainment and maintenance of which… is requisite to protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air."[1]

NAAQS have been set for six "criteria" pollutants: carbon monoxide (CO), sulfur dioxide (SO_2), ground-level ozone (O_3), fine and coarse particulate matter ($PM_{2.5}$ and PM_{10}), lead (Pb), and nitrogen dioxide (NO_2). Individual NAAQS may differ in form (for example, annual fourth highest daily maximum 8-hour concentration average over three years, for ozone), level[2] (often measured in parts per billion or micrograms per cubic meter), and averaging time (from one hour up to one year).[3] U.S. EPA and the Clean Air Scientific Advisory Committee review the adequacy of the NAAQS according to the statute.[4]

Nationally, ambient air pollution data from thousands of monitors across the United States are collected by U.S. EPA and state, local, and tribal air pollution control agencies and provided to the Air Quality System, or AQS. These data are used to "assess air quality, assist in attainment/non-attainment designations, evaluate State Implementation Plans [SIPs] for non-attainment areas, perform modeling for permit review analysis, and prepare reports for Congress as mandated by the Clean Air Act."[5]

U.S. EPA reports on long-term air quality trends by preparing data analyses that show the overall trend lines for pollutant concentrations and emissions. Primary sources that inform this report include:

- Criteria air pollutant concentration data from U.S. EPA's analysis of the AQS that looks at long-term trends in air quality.[6]
- Data showing emissions trends of the criteria pollutants from U.S. EPA's Air Pollutant Emissions Trends Data,[7] which relies on the National Emissions Inventory (NEI). The NEI is "a comprehensive and detailed estimate of air emissions of criteria pollutants, criteria precursors, and hazardous air pollutants from air emissions sources… released every three years based primarily upon data provided [to the Emissions Inventory System (EIS)] by State, Local, and Tribal air agencies for sources in their jurisdictions and supplemented by data developed by the US EPA."[8]
- Design values that are computed and published annually by U.S. EPA and defined as "a statistic that describes the air quality status of a given location relative to the level of the NAAQS… typically used to designate and classify nonattainment areas, as well as to assess progress towards meeting the NAAQS."[9]

Other Air Quality Data

In addition to tracking criteria air pollutants, U.S. EPA also maintains data and develops analyses on multiple other federal air quality programs used to inform this report, including:

- The Toxic Release Inventory (TRI), which provides a consistent set of data over time for hazardous air pollutants (or air toxics) from source reporting.[10]
- Visibility progress tracked as part of the Regional Haze Program, with long-term trends available in U.S. EPA's annual air quality trends report.[11]
- Power sector emissions data for SO_2, nitrogen oxides (NO_X), and hazardous air pollutants (HAPs), as published in U.S. EPA's annual progress report.[12]

Additionally, greenhouse gas data in this report are primarily from U.S. EPA's annual *Inventory of U.S. Greenhouse Gas Emissions and Sinks*[13] and U.S. EIA reports, such as the *Annual Energy Outlook*, which includes CO_2 emissions data from energy sources.[14]

1 42 U.S.C. §7409(b).

2 U.S. EPA states: "Units of measure for the standards are parts per million (ppm) by volume, parts per billion (ppb) by volume, and micrograms per cubic meter of air (µg/m³)."

3 A chart of the primary and secondary NAAQS by pollutant, which includes averaging time, level, and form, can be found here.

4 42 U.S.C. §7409(d).

5 U.S. EPA, Air Quality System. U.S. EPA notes that the AQS "also contains meteorological data, descriptive information about each monitoring station (including its geographic location and its operator), and data quality assurance/quality control information."

6 Links to data summary files for national criteria pollutant trends can be found here.

7 Data can be found here. U.S. EPA notes: "The latest version of the 1970 – 2023 data show the trends for Tier 1 categories which distinguish pollutant emission contributions among major source types. Improvements to the methods used to estimate emissions for the years 2002-2019 were introduced for the trends summaries released in 2023, and are retained for the current February 2024 update of these data."

8 More information on the NEI can be found here. U.S. EPA states: "The NEI is built using the Emissions Inventory System (EIS) first to collect the data from State, Local, and Tribal air agencies and then to blend that data with other data sources."

9 U.S. EPA, Air Quality Design Values.

10 U.S. EPA, Toxics Release Inventory (TRI) Program. Annual TRI National Analysis here. U.S. EPA notes that the TRI "is a resource for learning about toxic chemical releases and pollution prevention activities reported by industrial and federal facilities. TRI data support informed decision-making by communities, government agencies, companies, and others. Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) created the TRI Program."

11 U.S. EPA, Air Quality – National Summary. See also: U.S. EPA, Our Nation's Air: Trends Through 2023, (Section: "Visibility Improves in Scene Areas").

12 U.S. EPA, Power Sector Programs – Progress Report.

13 U.S. EPA releases the *Inventory of U.S. Greenhouse Gas Emissions and Sinks* annually on April 15. See also: U.S. EPA, Greenhouse Gas Inventory Data Explorer.

14 U.S. EIA, *Annual Energy Outlook*, Spring 2025.

AAPCA Member State Air Trends & Successes

"The success of environmental protection and public health in the United States begins on the front lines at the state, tribal and local levels....Collaboration and teamwork with state and territorial environmental and health agencies in particular have made it possible to better achieve the mission of protecting human health and the environment."

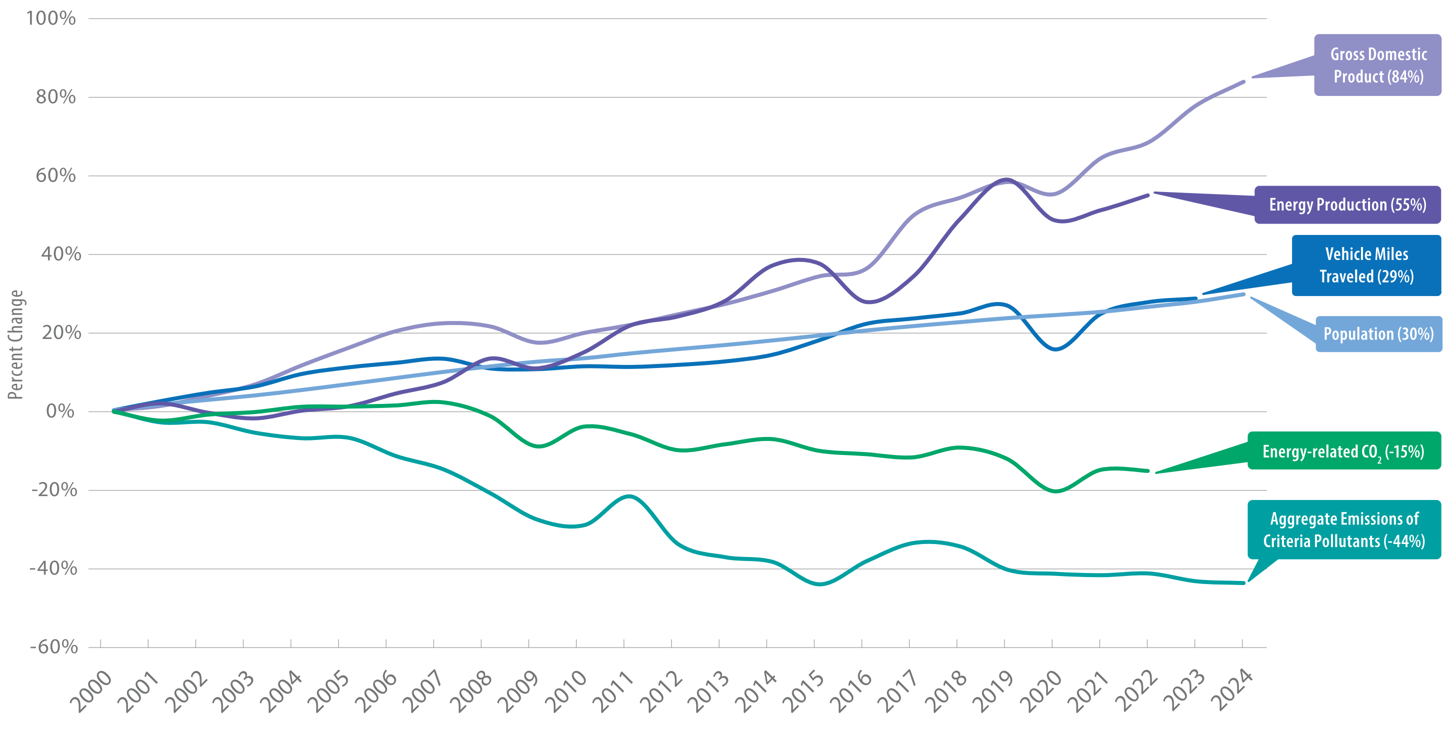
*Source: U.S. EPA, **EPA Research Partner Support Stories**, February 2025 Update.*

Economic Growth and Air Quality in AAPCA Member States

Since the turn of the century, AAPCA Member States have overseen significant improvements in air quality from emissions reductions, decreasing the combined emissions of the pollutants (or pollutant precursors) for which there are national ambient air quality standards, or NAAQS,[1] by 44 percent from 2000 to 2024. Simultaneously, AAPCA Member States have experienced demonstrable economic and social growth:

- A 84 percent increase in Gross Domestic Product (GDP) from 2000 to 2024, including accounting for nearly 39 percent of the total U.S. GDP in 2023.[2]
- A 30 percent increase in population from 2000 to 2024, representing over 149 million people, 44 percent of the total U.S. population.[3]
- A 29 percent increase in vehicle miles traveled from 2000 to 2023.[4]
- A 55 percent increase in energy production from 2000 to 2022, contributing 65 percent of total U.S. energy production in 2022.[5]
- A 15 percent decrease in energy-related carbon dioxide (CO_2) emissions from 2000 to 2022.[6]

Figure 1. AAPCA Member States | Comparison of Growth Indicators and Emissions Since 2000



Sources: U.S. Bureau of Economic Analysis, data available **here**; U.S. Energy Information Administration (EIA), **State Energy Data System (SEDS): 1960-2022**, Table P2. *Primary energy production estimates in trillion Btu, 2022*; U.S. Federal Highway Administration Office of Highway Policy Information, data available **here**; U.S. Census Bureau, data available **here**; U.S. EIA, **Energy-Related CO_2 Emission Data Tables**, Table 1. State energy-related carbon dioxide emissions by year (1970–2022); U.S. EPA, **Air Pollutant Emissions Trends Data**, State Tier 1 CAPS Trends, Criteria pollutants State Tier 1 for 1990–2024.

State Clean Air Act Deadlines

The timeline below lays out important dates for developing State Implementation Plans (SIPs)[1] for several recent U.S. EPA Office of Air & Radiation rulemakings, including National Ambient Air Quality Standards (NAAQS).[2]

2025

- **May 2025** — States Certify 2024 $PM_{2.5}$ Data; U.S. EPA Calculates Design Values
- **June 2025** — proposed U.S. EPA extension for Second Planning Period SIP Progress Reports
- **July 2025** — Ambient Air Monitoring 5-Year Network Assessments Due
- **September 2025** — 2024 Exceptional Events Demonstration Submittals Due
- **October 2025** — U.S. EPA Notifies States of any Intended Modifications to Their Recommendations
- **December 2025** — States Submit Additional Information to Respond to U.S. EPA's Intended Modifications
- **December 2025** — States Submit Recommendations for Secondary SO_2 Designations to U.S. EPA
- **December 2025** — Serious Area Outermost Attainment Date

2026

- **January 2026** — Serious Nonattainment Area SIPs Due
- **February 2026** — U.S. EPA Promulgates Final Area Designations
- **March 2026** — EG State Plans for EG OOOOc Due
- **May 2026** — EG State Plans for Electric Generating Units (EGUs) Due
- **August 2026** — EPA Notifies States of any Intended Modifications to Their Recommendations
- **October 2026** — States Submit Additional Information to Respond to U.S. EPA's Intended Modifications
- **December 2026** — U.S. EPA Promulgates Final Area Designations

2027

- **February 2027** — "Infrastructure" SIPs Due
- **August 2027** — Moderate Area Attainment SIPs Due
- **August 2027** — Serious Nonattainment Area Attainment Date

2028 AND BEYOND

- **March 2029** — State Plan Compliance Deadline for EG OOOOc
- **January 2030** — EG State Plan Compliance Deadline for EGUs (based on subcategory)
- **July 2030** — Ambient Air Monitoring 5-Year Network Assessments Due
- **July 2031** — Proposed Extended Due Date for Third Implementation Period SIPs
- **January 2032** — EG State Plan Compliance Deadline for EGUs (based on subcategory)
- **December 2032** — Moderate Area Attainment Date
- **July 2033** — Third Implementation Period Progress Reports Due
- **December 2036** — Serious Area Attainment Date
- **July 2038** — Fourth Implementation Period SIPs Due

Legend

- 2024 Fine Particulate Matter ($PM_{2.5}$) NAAQS (89 FR 16202)
- 2012 Fine Particulate Matter ($PM_{2.5}$) NAAQS (78 FR 3086, See also: 81 FR 58009)
- 2015 Ozone NAAQS (80 FR 65292)
- NSPS and Emissions Guidelines (EG) for the Oil & Natural Gas Sector / Methane Rule (89 FR 16820)
- NSPS and Emissions Guidelines (EG) for Existing Fossil Fuel-Fired Electric Generating Units (89 FR 39798)
- Monitoring Network
- Regional Haze (89 FR 104471)
- 2024 Secondary Annual Sulfur Dioxide ($SO2_2$) NAAQS (89 FR 105692)

1 A State Implementation Plan (SIP) is a collection of regulations and documents used by a state, territory, or local air district to implement, maintain, and enforce the NAAQS, and to fulfill other requirements of the Clean Air Act. More information from U.S. EPA is available here.

2 On March 12, 2025, U.S. EPA Administrator Zeldin announced the Agency will undertake actions to reconsider at least 27 U.S. EPA Office of Air & Radiation regulations from previous administrations, including several of the recent rulemakings included in this timeline.

Air Quality | Ozone

U.S. EPA's online Green Book "provides detailed information about area National Ambient Air Quality Standards (NAAQS) designations, classifications, and nonattainment status."[7] According to U.S. EPA's Green Book, 47 areas in the United States were previously designated as nonattainment for the 2008 ozone annual National Ambient Air Quality Standards (NAAQS) of 0.075 parts per million (ppm), determined using the annual fourth-highest daily maximum 8-hour concentration, averaged over three years.[8]

U.S. EPA develops design values[9] based on monitoring data from the Agency's Air Quality System (AQS).[10] The table below lists the percent change in design values from 2003 to 2023 for the 13 previously designated nonattainment areas for the 2008 ozone annual NAAQS that are partially or fully within AAPCA Member States, which averaged a 24 percent reduction in ambient concentrations of ozone.[11]

Table 1

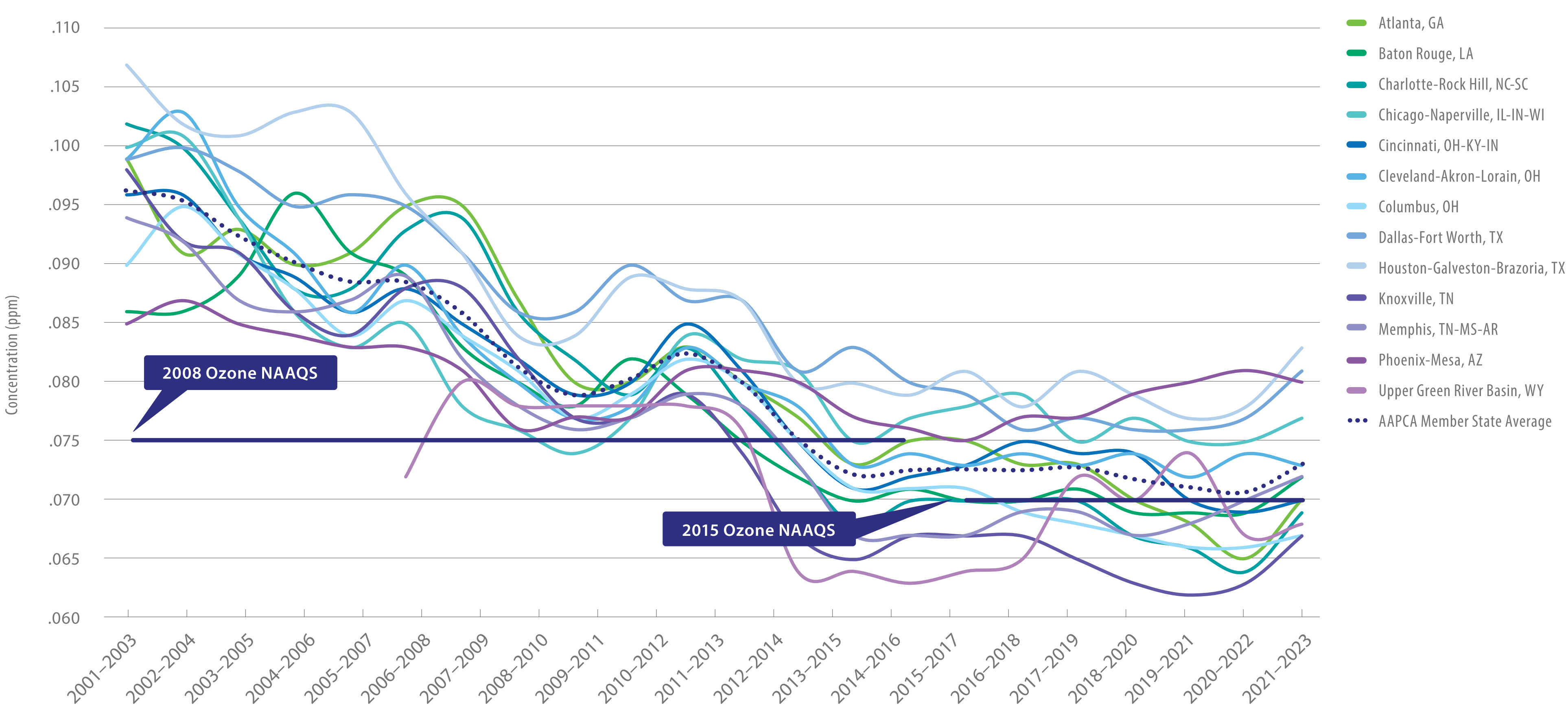
Designated Area	2001 – 2003 Design Value	2021 – 2023 Design Value	Percent Change in Ozone Concentrations
Atlanta, GA	0.091	0.070	-23%
Baton Rouge, LA	0.086	0.072	-16%
Charlotte-Rock Hill, NC-SC	0.100	0.069	-31%
Chicago-Naperville, IL-IN-WI	0.101	0.077	-24%
Cincinnati, OH-KY-IN	0.096	0.070	-27%
Cleveland-Akron-Lorain, OH	0.103	0.073	-29%
Columbus, OH	0.095	0.067	-29%
Dallas-Fort Worth, TX	0.100	0.081	-19%
Houston-Galveston-Brazoria, TX	0.102	0.083	-19%
Knoxville, TN	0.092	0.067	-27%
Memphis, TN-MS-AR	0.092	0.072	-22%
Phoenix-Mesa, AZ	0.087	0.080	-8%
Upper Green River Basin, WY*	--	0.068	-6%

*Upper Green River Basin, WY is calculated from the first year that data was available, design value year 2005–2007. This area is excluded from average calculations.

Source: U.S. EPA, **Air Quality Design Values**, Ozone Design Values, 2023.

Air Quality | Ozone

Figure 2. AAPCA Member States | Design Value History for Areas Previously Designated Nonattainment or Maintenance for the 2008 Ozone Annual NAAQS, 2003 – 2023



Source: U.S. EPA, Air Quality Design Values, Ozone Design Values, 2023.

Air Quality | Fine Particulate Matter

According to the U.S. EPA Green Book, a total of 39 areas were initially designated nonattainment for the 1997 fine particulate matter ($PM_{2.5}$) annual NAAQS of 15.0 micrograms per cubic meter (µg/m^3), measured by the three-year average annual mean concentration.[12]

Of the previously designated nonattainment areas for the 1997 annual $PM_{2.5}$ NAAQS, 23 are located partially or completely within AAPCA Member States. The table below lists the percent change in design values from 2003 to 2023, a period in which AAPCA Member States averaged a 42 percent reduction in $PM_{2.5}$ ambient air concentrations.[13] Furthermore, all the designated areas within AAPCA Member States have since been classified as attainment or maintenance for the 2012 $PM_{2.5}$ NAAQS of 12.0 µg/m^3.[14]

Table 2

Designated Area	Percent Change in $PM_{2.5}$ Concentrations (2001-2003 through 2021-2023 Design Values)
Atlanta, GA	-46%
Birmingham, AL	-47%
Canton-Massillon, OH	-46%
Charleston, WV	-53%
Chattanooga, TN-GA-AL	-38%
Chicago-Gary-Lake County, IL-IN	-35%
Cincinnati-Hamilton, OH-KY-IN	-37%
Cleveland-Akron-Lorain, OH	-33%
Columbus, OH	-44%
Dayton-Springfield, OH	-41%
Evansville, IN	-42%
Greensboro-Winston Salem-High Point, NC	-42%
Hickory-Morganton-Lenoir, NC	-45%
Huntington-Ashland, WV-KY-OH	-54%
Indianapolis, IN	-29%
Knoxville, TN	-45%
Louisville, KY-IN	-42%
Macon, GA	-38%
Martinsburg-Hagerstown, WV-MD	-44%
Parkersburg-Marietta, WV-OH	-49%
Rome, GA*	-38%
Steubenville-Weirton, OH-WV	-44%
Wheeling, WV-OH	-43%

*Data ends in designation year 2014–2016
Source: U.S. EPA, **Air Quality Design Values**, $PM_{2.5}$ Design Values, 2023.

U.S. EPA and delegated programs at state, local, and tribal air agencies work together to implement the NAAQS, as directed by the federal Clean Air Act (CAA). On February 7, 2024, U.S. EPA promulgated a final rule to tighten the annual $PM_{2.5}$ NAAQS to 9.0 µg/m^3, based on an annual arithmetic mean averaged over three years.[15] As a result of this revision to the NAAQS, the CAA requires that U.S. EPA designate all parts of the country with respect to the revised annual, or primary, standard. U.S. EPA provides the below timeline for state designations and implementation[16] of the 2024 annual $PM_{2.5}$ NAAQS:

State deadline to submit recommendations for designations to U.S. EPA
February 7, 2025

U.S. EPA notifies states concerning intended modifications to recommendations (120-day letters)
October 9, 2025

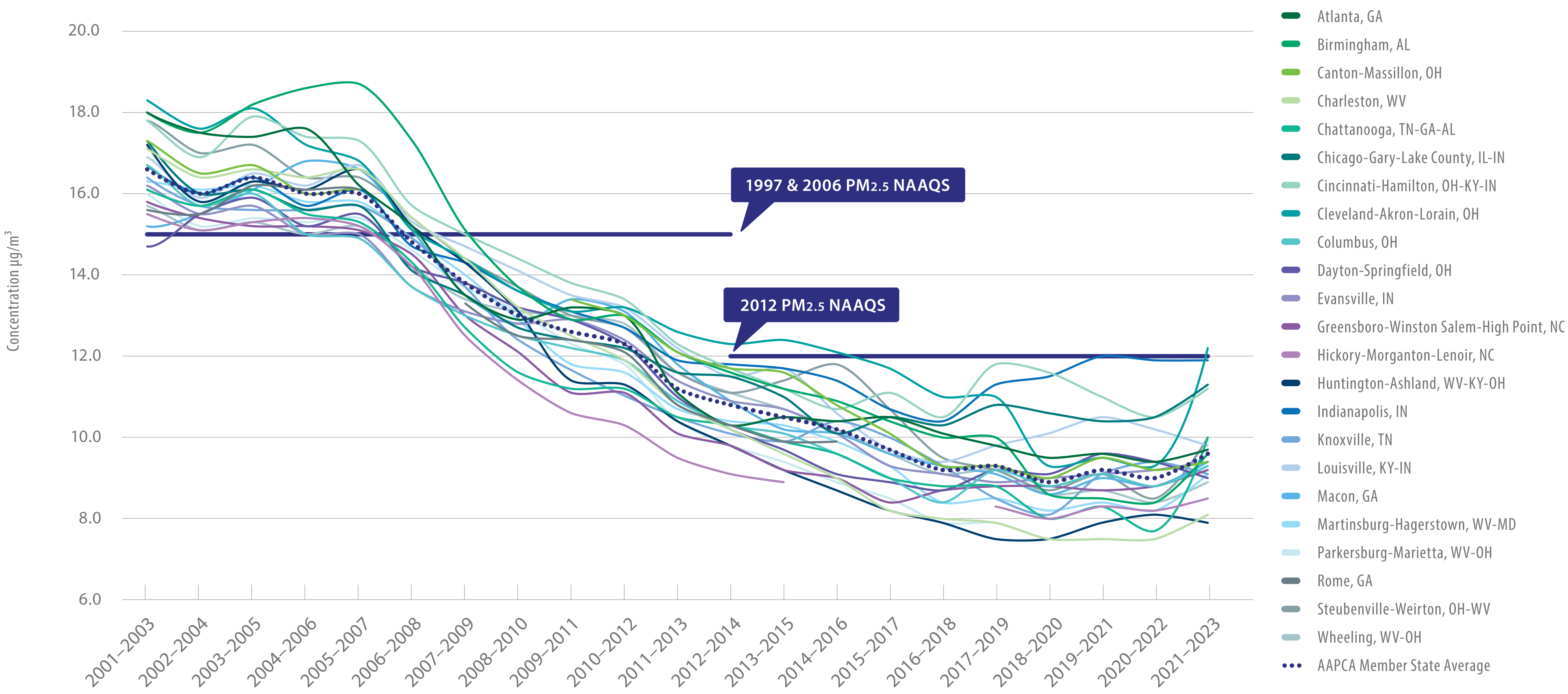
U.S. EPA promulgates final area designations
February 6, 2026

State deadline to submit "infrastructure" state implementation plans (SIP)
February 7, 2027

State deadline to submit nonattainment area SIPs
August 6, 2027

Air Quality | Fine Particulate Matter

Figure 3. AAPCA Member States | Design Value History for Areas Previously Designated Nonattainment or Maintenance for the 1997 $PM_{2.5}$ Annual NAAQS, 2003 – 2023



Source: U.S. EPA, **Air Quality Design Values**, $PM_{2.5}$ Design Values, 2023.

Local Program Case Study | San Joaquin Valley, CA

San Joaquin Valley in Central California Reaches Key $PM_{2.5}$ Air Quality Milestone

In a major development for air quality in Central California, air quality data from 2024 confirms that the San Joaquin Valley has met the federal annual standard for fine particulate matter ($PM_{2.5}$) for the first time. Based on monitoring data from 2022 to 2024, the San Joaquin Valley's official design value has fallen below the 15 micrograms per cubic meter (µg/m^3) threshold established by the U.S. Environmental Protection Agency (EPA) to protect public health.

This milestone marks a significant turning point in a region historically challenged by persistent air quality issues due to its unique topography, meteorological conditions, and emissions sources. Since $PM_{2.5}$ monitoring began in the San Joaquin Valley in 1999, the region has worked to address levels of fine particulate pollution that once reached an annual average of 27.6 µg/m^3. By 2023, that number had dropped to 13.5 µg/m^3—representing a reduction of more than 50 percent over the last 25 years.

The progress is the result of decades of effort by local, state, and federal agencies, in partnership with Valley communities and industries. In particular, the San Joaquin Valley Air Pollution Control District and the California Air Resources Board have implemented a combination of regulatory and voluntary programs to reduce emissions from vehicles, industrial operations, agricultural activities, and other sources. These efforts have contributed to steady improvements in both $PM_{2.5}$ and ozone pollution levels throughout the region.

Despite the Valley's natural disadvantages—including its bowl-like topography that traps pollution and intensifying wildfire seasons—air quality has steadily improved. These improvements over the last few decades have been realized even with rapid population growth across the San Joaquin Valley, an increase in the number of vehicles and vehicle miles traveled (VMT) across the region, and the Valley being a significant transportation corridor for much of California, bringing with it significant impacts from heavy duty freight emissions. The successful reduction in $PM_{2.5}$ levels underscores the importance of sustained, multi-agency coordination and investment in emissions reduction strategies.

The federal annual $PM_{2.5}$ standard was established to limit exposure to fine particulate matter, which can penetrate deep into the lungs and pose serious health risks, especially for vulnerable populations. Meeting this standard is considered an important benchmark for protecting public health and improving quality of life for Valley residents.

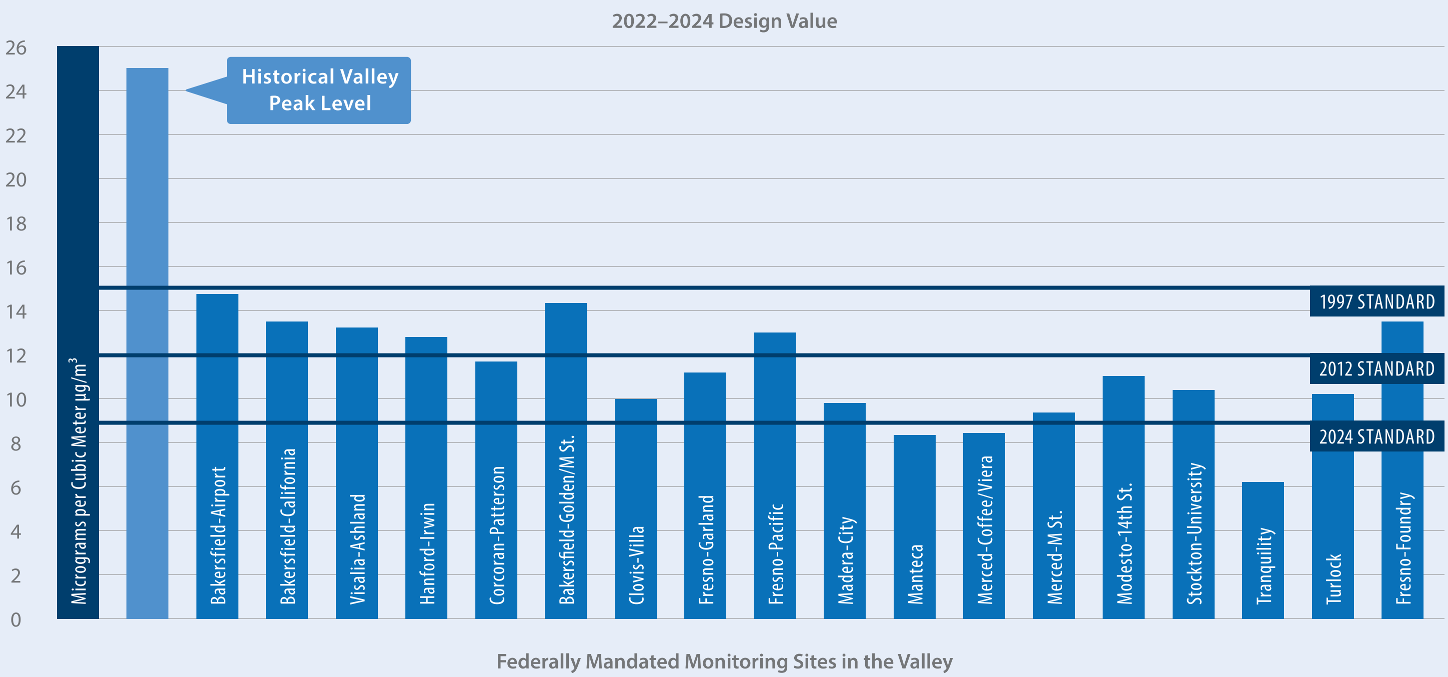
Looking ahead, significant challenges remain. Although the Valley has met the 15 µg/m^3 standard, more stringent standards still remain. Achieving these new goals will require further emissions reductions, particularly from sources not currently regulated by local air districts, such as locomotives, aircraft, and federally regulated mobile sources.

Continued funding for incentive programs and clean technology transitions—such as replacing older diesel equipment with electric or hybrid alternatives—will be crucial. Ongoing collaboration will also play a key role in identifying additional opportunities to reduce emissions and support compliance with the evolving federal standards.

The San Joaquin Valley's achievement in meeting the 15 µg/m^3 standard offers a moment of reflection on the progress made and a reminder of the work that still lies ahead to ensure clean air for all communities in the region.

Thank you to the San Joaquin Valley APCD for the contribution of this case study. More on the SJVAPCD can be found at **www.valleyair.org**.

Figure 4. Particulate Matter Continues to Decline



Regional Haze Case Study | Georgia

Cohutta Wilderness Area

The Cohutta Wilderness Area (Figure 1) is one of three Federal Class I areas in Georgia and is located in the northwest portion of the state. It is managed by the U.S. Forest Service and currently consists of 36,977 acres, with 95 percent of the acres located in Georgia in the Chattahoochee National Forest and the other 5 percent located in Tennessee in the Cherokee National Forest. It is one of the largest federally designated wilderness areas on the East Coast. This area has a rich cultural history and ecological significance, making it a critical area for both preservation and recreation. The Cohutta Wilderness Area is popular with hikers, fishermen, botanists, kayakers, mountain bikers, naturalists, and hunters, offering a variety of ecosystems that include remote gorges, ridgelines, river valleys, and hardwood forests.

The goal of the U.S. EPA's Regional Haze Rule is for each Class I area to achieve natural conditions by the year 2064. The Cohutta Wilderness Area has benefited from the collaborative effort of state, local, and federal stakeholders through the Regional Haze Program. Statewide SO_2 emissions in Georgia were reduced by 95 percent between 2000-2020 and NO_x emissions in Georgia were reduced by 60 percent during this same time period. Visibility progress is measured by comparing the 5-year average haze index (dv) for the 20 percent most impaired days to the uniform rate of progress (URP) glide path at each Class I area. The monitoring data through 2022 indicates that the Cohutta Wilderness Area is well below the 2028 URP glide slope target (Figure 2). In fact, the Cohutta Wilderness Area is currently meeting the 2045 URP target. This is more than 20 years ahead of schedule!

The Georgia Environmental Protection Division (EPD) submitted "Georgia's State Implementation Plan for Regional Haze (Second Planning Period)" on August 11, 2022. On November 21, 2024, EPA formally approved Georgia's SIP submittal. To date, this is the only fully approved Regional Haze SIP for the Second Planning Period in EPA Region 4. In order to meet the aggressive court ordered deadline for submittal, Georgia EPD developed a "Streamlined Response to Comments Approach for SIPs". This innovative approach was awarded an AAPCA Best Practices award in 2023. In addition, Georgia EPD submitted "Georgia's Regional Haze Progress Report for the Second Planning Period" to EPA on March 14, 2025. With all the Regional Haze Second Planning Period obligations completed, Georgia EPD will soon start working on their Regional Haze SIP for the Third Planning Period.

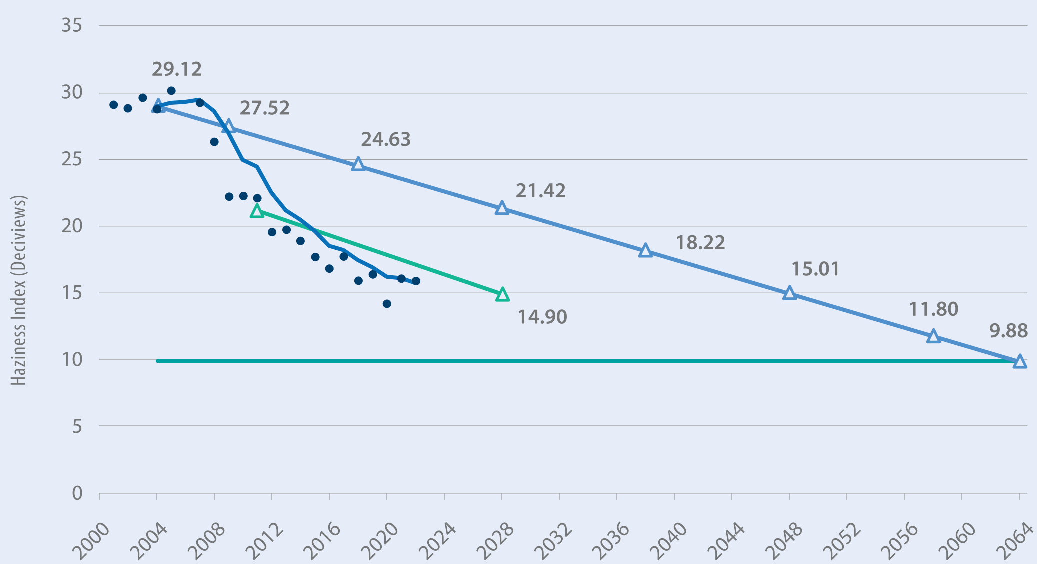
Figure 4. Picture of Cohutta Wilderness Area. Photo taken from explorегeorgia.org/blue-ridge/outdoors-nature/fishing/cohutta-wilderness-area.

More on the Georgia Environmental Protection Division can be found at ***https://epd.georgia.gov/air-protection-branch***.

Figure 5. Visibility progress at the Cohutta Wilderness Area for the 20 percent most impaired day

The graph compares the 5-year rolling average haze index (dv) and 2028 model projections to the uniform rate of progress glide path.

Glide Path
Observation (Most Impaired)
Rolling Average (Most Impaired)
Natural Condition (Most Impaired)
Model Projection (Most Impaired)



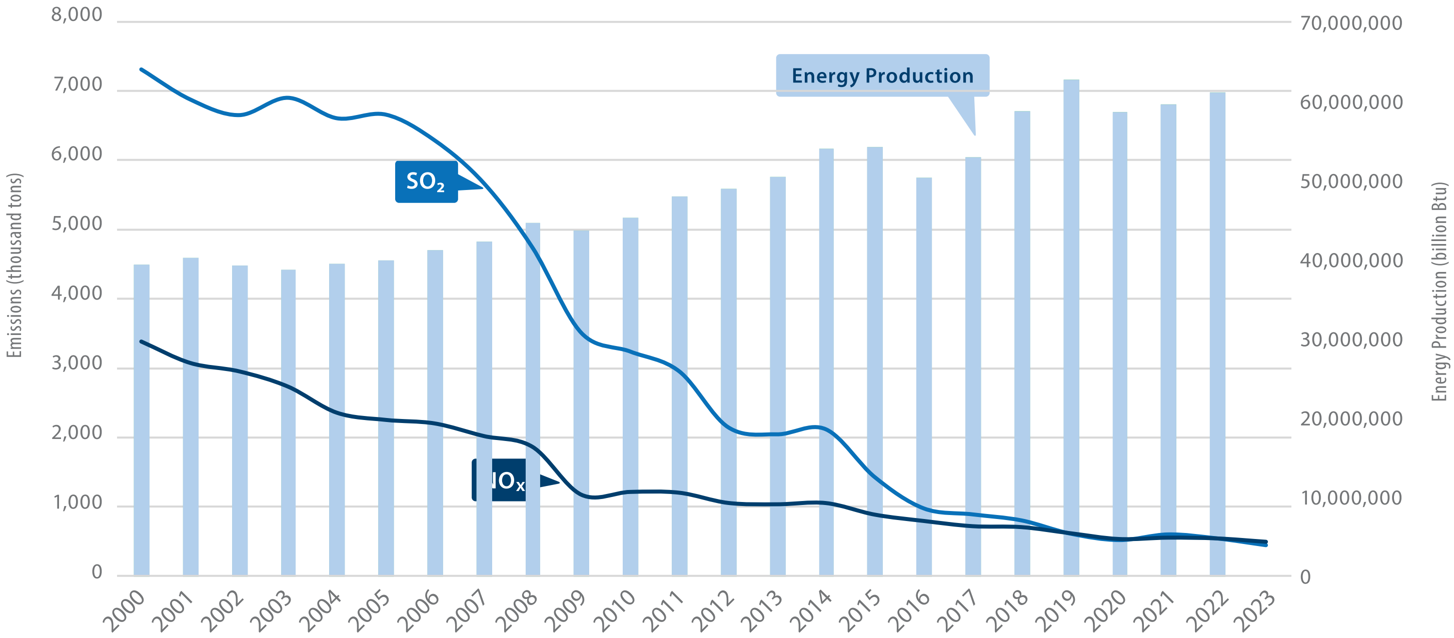
Emissions Reductions in the Electricity Sector

Since 2000, AAPCA Member States have overseen significant reductions in the emissions of sulfur dioxide (SO_2) and oxides of nitrogen (NO_X) from the electricity sector:

- SO_2 emissions decreased 94 percent, from 7,322,232 tons in 2000 reduced to 437,703 tons in 2023; and
- NO_X emissions decreased 86 percent, from 3,405,187 tons in 2000 down to 482,711 tons in 2023.[17]

AAPCA Member States produced nearly 59,500,000 billion British thermal units (billion Btu) of energy in 2022, experiencing a 51 percent increase in energy production from 2000 levels.[18]

Figure 6. AAPCA Member States | Energy Production Compared to SO_2 and NO_X Emissions from the Electricity Sector, Since 2000



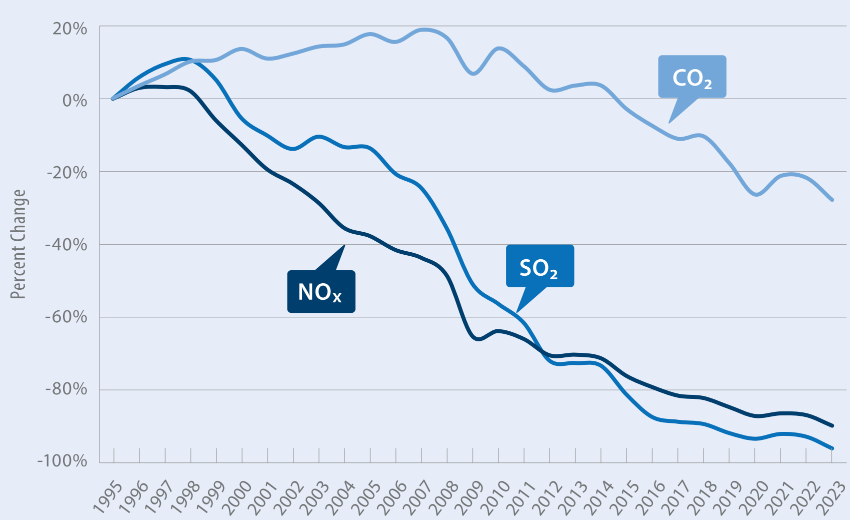
Source: U.S. Energy Information Administration, **State Energy Data System (SEDS): 1960-2022**; U.S. EPA, **Air Pollutant Emissions Trends Data**, State Tier 1 CAPS Trends, Criteria pollutants State Tier 1 for 1990–2023.

U.S. Power Plant Emissions Trends Annual Percent Change of Emissions from Power Plants, Since 1995

In March 2025, U.S. EPA updated the 2023 annual emissions data for power plants across the United States, highlighting the following trends:

- A 24 percent decrease in sulfur dioxide (SO_2) emissions, from 2022 to 2023, which is 96 percent below 1995 levels;
- A 15 percent decrease in nitrogen oxides (NO_X) emissions, from 2022 to 2023, which is 90 percent below 1995 levels; and,
- A 7 percent decrease in carbon dioxide (CO_2) emissions, from 2022 to 2023, which is 28 percent below 1995 levels.

Source: U.S. EPA, Power Plant Progress Report, last updated September 12, 2024. Data available **here**.



Emissions Reductions in the Electricity Sector

Data from U.S. EPA's Clean Air Markets Programs[19] show that the United States reduced sulfur dioxide (SO_2) emissions from the electricity sector by 96 percent, from 15,592,075 tons in 1990 to 664,622 tons in 2023.

AAPCA Member States accounted about 65 percent of the total 14,927,453-ton national reduction in SO_2 emissions, lowering SO_2 emissions from 10,013,501 tons in 1990 to 383,489 tons in 2023.[20]

Figure 7. AAPCA Member States Share of SO_2 Emissions Reductions in the Electricity Sector, 1990–2023 (tons of SO_2 reduced)

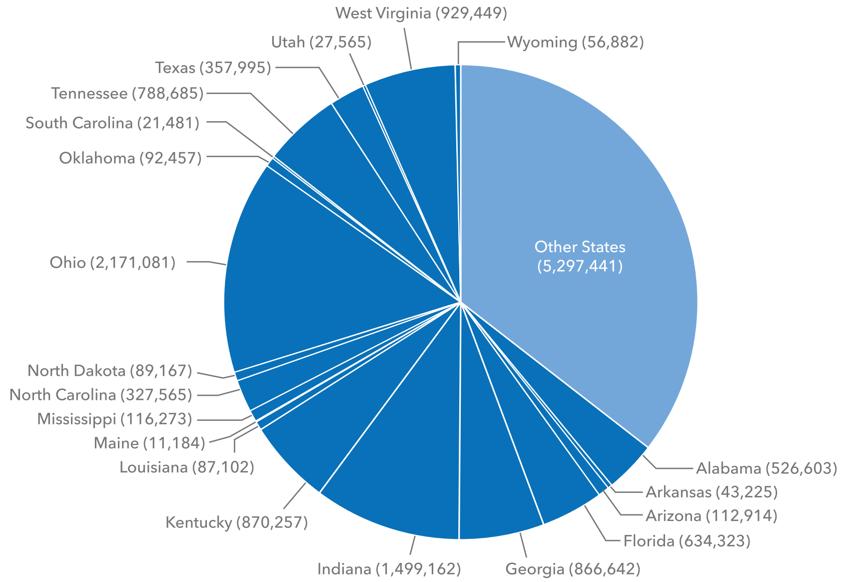
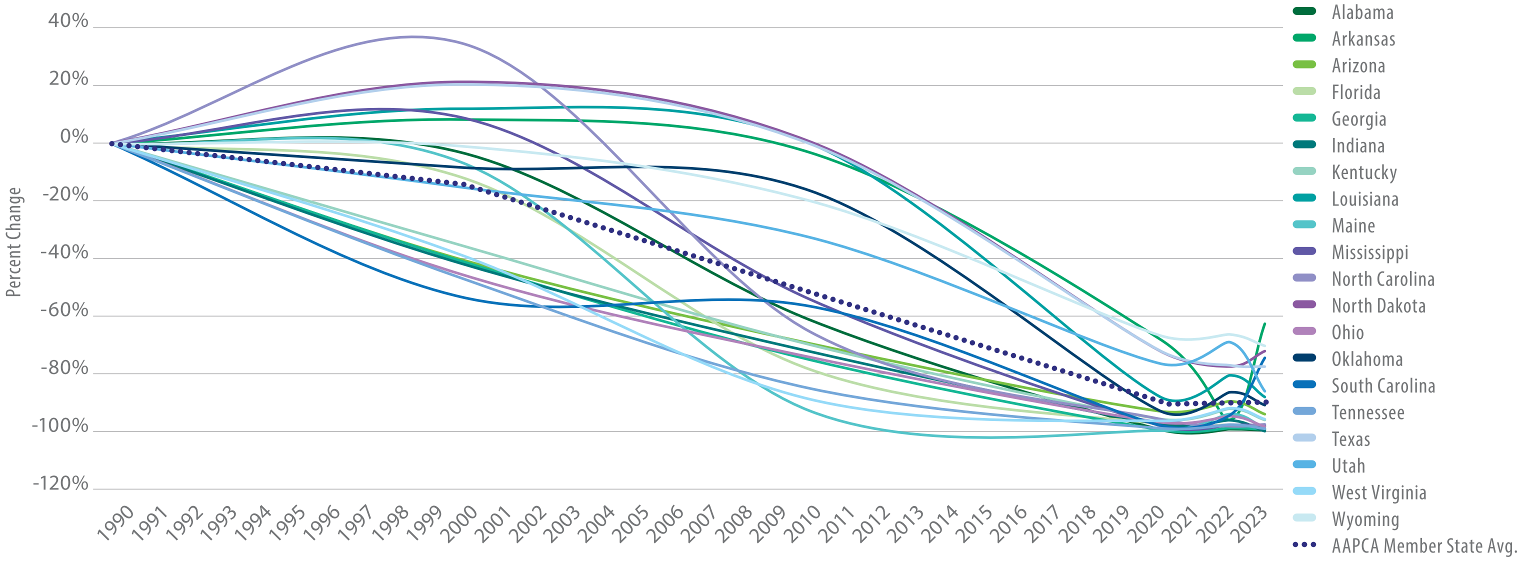


Figure 8. AAPCA Member States | Percent Reduction in SO_2 Emissions from the Electricity Sector, 1990–2023



Source: U.S. EPA, "**State-by-State SO_2 Emissions from CSAPR and ARP Sources, 1990-2023**," January 27, 2025.

Emissions Reductions in the Electricity Sector

U.S. EPA's Clean Air Markets Programs[21] data also show that the United States reduced nitrogen oxides (NO_x) emissions from the electricity sector by 90 percent, from 6,409,837 tons in 1990 to 639,686 tons in 2023.

AAPCA Member States accounted for 59 percent of the total 5,770,151-ton national reduction in NO_x emissions, lowering NO_x emissions from 3,861,642 tons in 1990 to 434,664 tons in 2023.[22]

Figure 9. AAPCA Member States Share of NO_x Emissions Reductions in the Electricity Sector, 1990–2023 (tons of NO_x reduced)

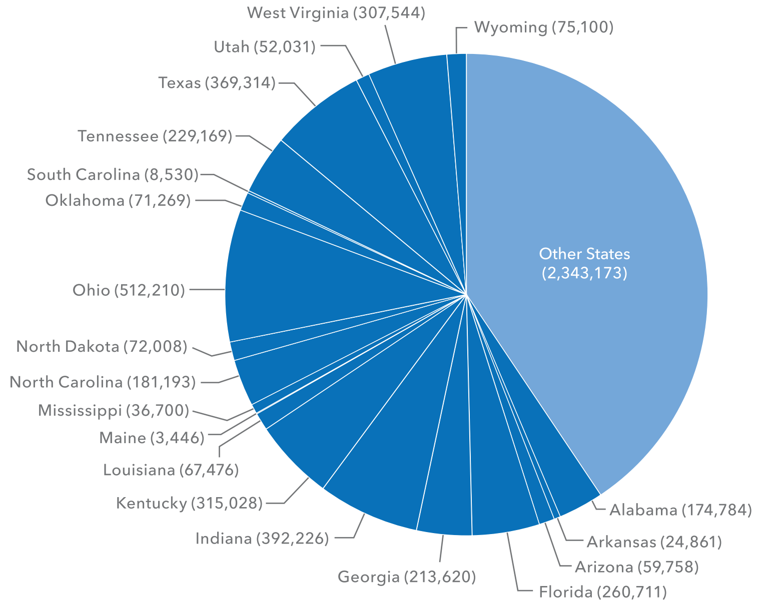
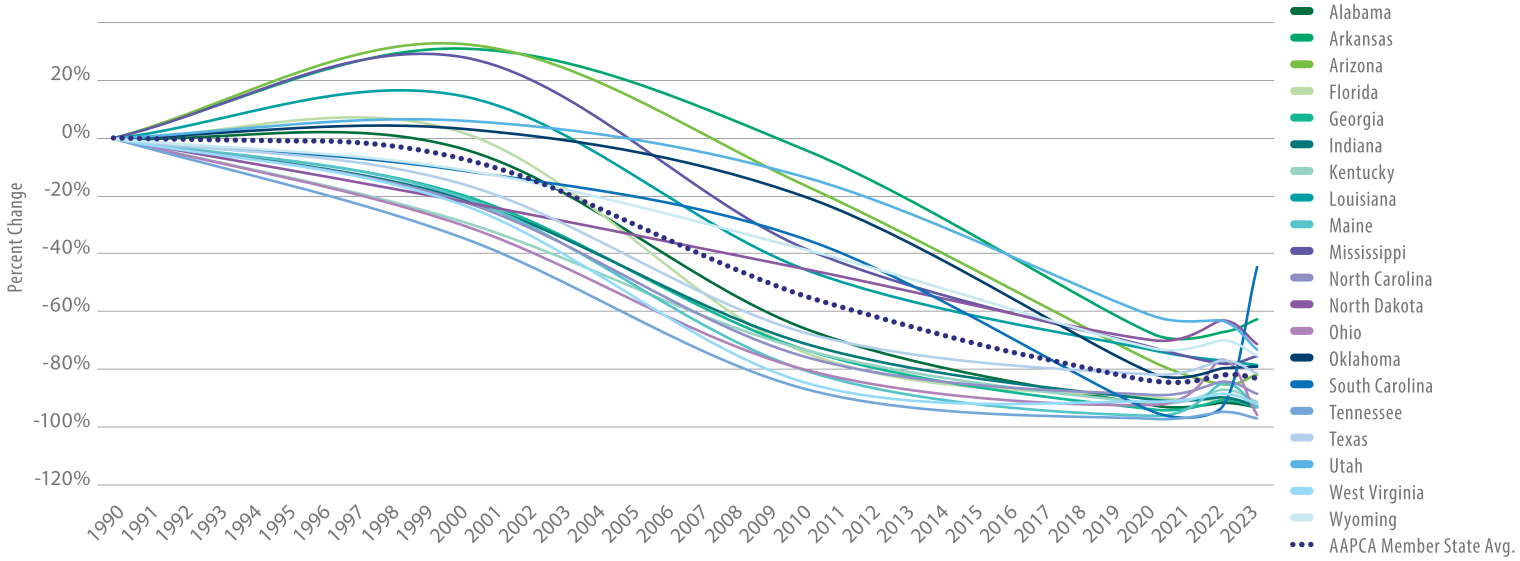


Figure 10. AAPCA Member States | Percent Reduction in NO_x Emissions from the Electricity Sector, 1990–2023

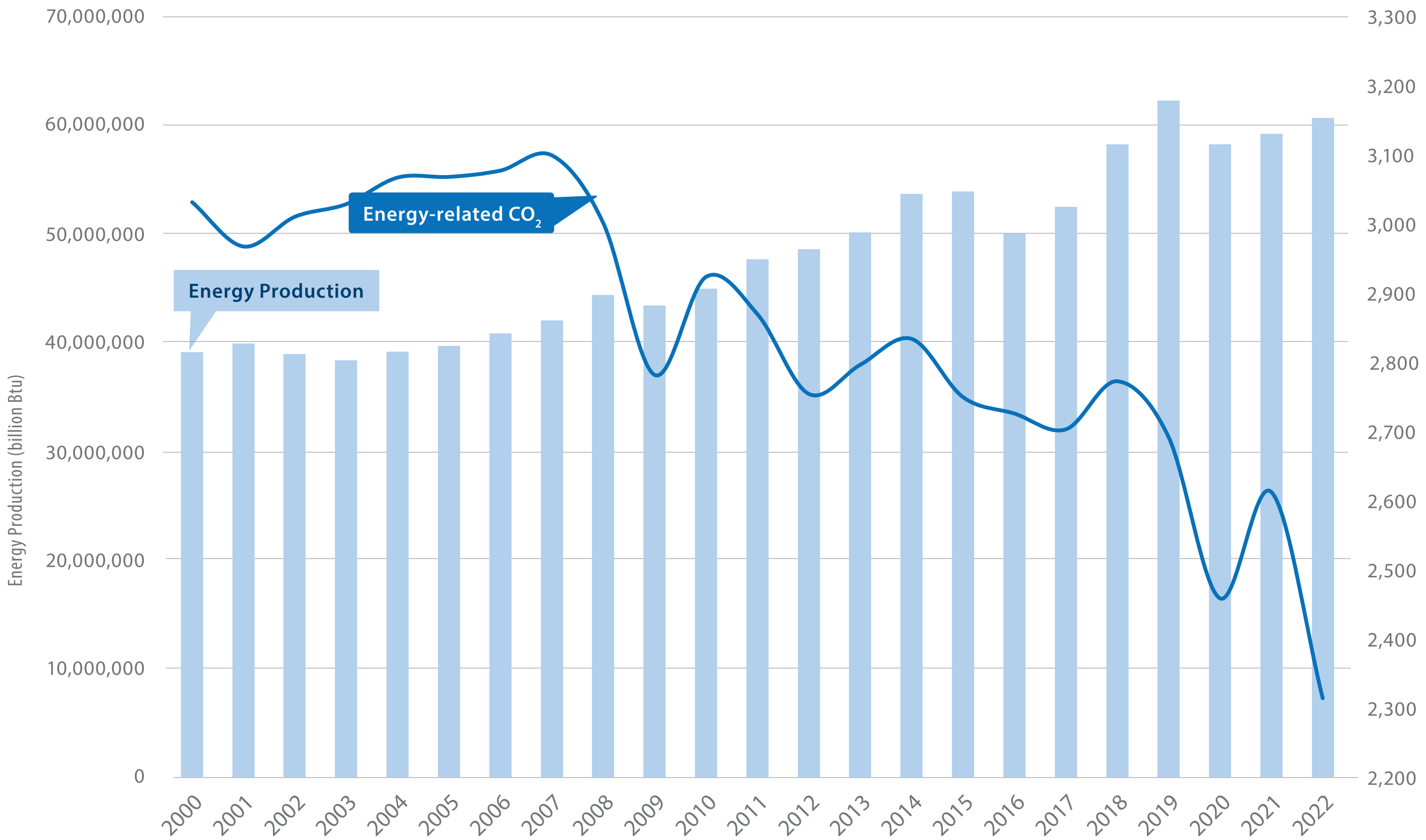


Source: U.S. EPA, "State-by-state NOX Emissions from CSAPR and ARP Sources, 1990–2023," January 27, 2025.

Energy-Related Carbon Dioxide

Data for 2022 from U.S. Energy Information Administration (EIA) show that AAPCA Member States reduced energy-related carbon dioxide (CO_2) emissions by 25 percent compared to 2000 levels, from 3,107 million metric tons of CO_2 in 2000 to 2,323 million metric tons in 2022. Over the same period, energy production in AAPCA Member States increased by 55 percent. In 2022, total energy production in AAPCA Member States was more than 21,000,000 billion British thermal units (Btu) higher than in 2000.[23]

Figure 11. AAPCA Member States | Total Energy Production Compared to Energy-Related CO_2 Emissions, 2000—2022



Source: U.S. Energy Information Administration (EIA), **State Energy Data System (SEDS): 1960-2022**; U.S. EIA, **Energy-Related CO_2 Emission Data Tables**, Table 1. State energy-related carbon dioxide emissions by year.

Carbon Intensity of the Economy

The U.S. Energy Information Administration (EIA) also calculates carbon intensity of the economy by state as metric tons of energy-related CO_2 per chained 2012 million dollars of gross domestic product. The table below lists the percent reduction in carbon intensity of the economy for AAPCA Member States from 2000 to 2022. AAPCA's membership oversaw an average reduction in carbon intensity of the economy of 43.9 percent.[24]

Table 3

AAPCA Member State	Percent Change in Carbon Intensity of the Economy (2000-2022)
Alabama	-51.7%
Arizona	-47.8%
Arkansas	-43.0%
Florida	-52.1%
Georgia	-53.6%
Hawaii	-36.6%
Indiana	-49.1%
Kentucky	-43.4%
Louisiana	-20.1%
Maine	-52.6%
Mississippi	-35.0%
North Carolina	-54.4%
North Dakota	-34.9%
Ohio	-47.8%
Oklahoma	-46.1%
South Carolina	-51.3%
Tennessee	-56.6%
Texas	-47.6%
Utah	-55.8%
West Virginia	-19.4%
Wyoming	-22.4%

Source: U.S. Energy Information Administration, **Energy-Related CO_2 Emission Data Tables**, Table 7. Carbon intensity of the economy by state.

Air Toxics

Data from U.S. EPA's *2023 Toxics Release Inventory (TRI) National Analysis* shows a national reduction in reported toxic air releases of 33 percent over the last decade, down from 775,021,513 pounds in 2013 to 520,738,140 pounds in 2023.[25]

Of the 254,283,373-pound decrease in reported toxic air releases from 2013 to 2023, AAPCA Member States were responsible for 172,057,214 pounds, or about 68 percent.[26]

Figure 12. AAPCA Member States Share of Total Reduction of Reported Toxic Air Releases, 2013–2023 (pounds reduced)

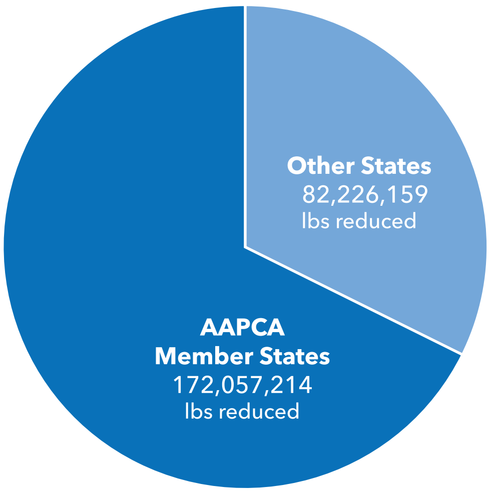
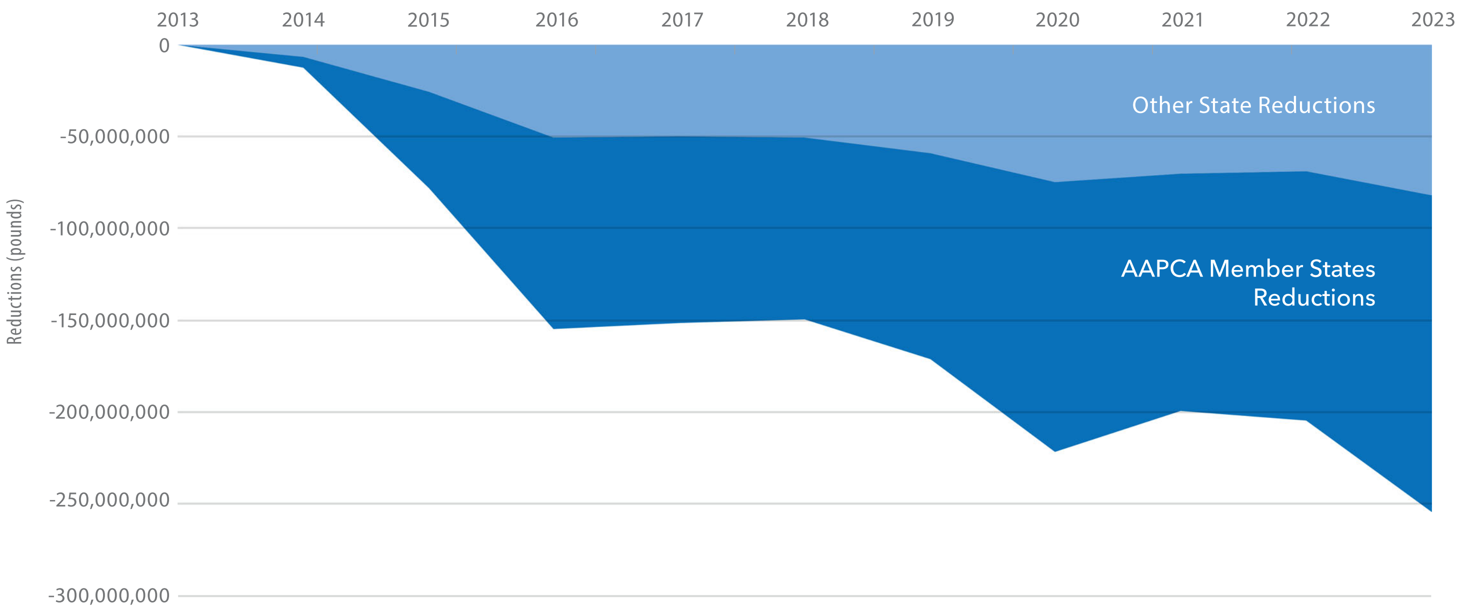


Figure 13. AAPCA Member States | Annual Share of National Reduction in Reported Toxic Air Releases, 2013–2023



U.S. EPA Toxics Release Inventory Explorer, **2023 TRI Factsheets**.

Local Program Case Study | Louisville, KY

STAR (Strategic Toxic Air Reduction Program): Louisville's Local Air Toxics Program

By the early 2000s resident concerns had long been mounting about toxic air pollution emissions from "Rubbertown," an industrial area along the Ohio River in west Louisville, Kentucky, nicknamed for the tire and synthetic rubber facilities that were built there during World War II. Rubbertown had become home to facilities producing a variety of chemicals and materials, many of which were in close proximity to residential areas. In response to these concerns and existing environmental studies, the Louisville Metro Air Pollution Control District (LMAPCD) and other local partners, including the West Jefferson County Community Task Force (WJCCTF), the Kentucky Division for Air Quality (KY DAQ), and the University of Louisville (UofL), conducted a landmark air monitoring study known as the West Louisville Air Toxics Study (WLATS). WLATS concluded that Louisville had unacceptably high levels of toxic chemicals in the air, particularly in Rubbertown-adjacent neighborhoods.

After more than 60 public meetings with approximately 1,300 attendees and hundreds of questions and responses, the Louisville Metro Air Pollution Control Board adopted the Strategic Toxic Air Reduction (STAR) program through a set of local regulations on June 21, 2005. STAR established a framework to assess and address toxic air emissions in Louisville and the risk they pose to nearby communities.

Among other steps, the regulations identified 190 toxic air contaminants (TACs), relied on scientific research to determine cancer and non-cancer risk of those chemicals, and required facilities' modeled emissions to meet certain risk benchmarks. For example, no existing facility may create a cancer risk of greater than 7.5 in a million at an adjacent resident fence line, and no single chemical as part of a single process may create a cancer risk greater than 1 in a million. In the nearly 20 years since the passing of the STAR program, local emissions of toxic air pollution in Louisville have been significantly reduced.

Figure 17. One of the public meetings held as part of the process to create the STAR program

According to the latest data from U.S. EPA's Toxics Release inventory, emissions of all TACs have been reduced by more than 85 percent in Louisville. Emissions of Category 1 TACs, those that were of the greatest concern based on the WLATS, have been reduced by more than 97 percent. Still, the work of STAR continues in LMAPCD permits and compliance work. As LMAPCD's Director Rachael Hamilton likes to say, "STAR is a do, not a did."

Figure 14. Total TAC emissions, 2005-2023

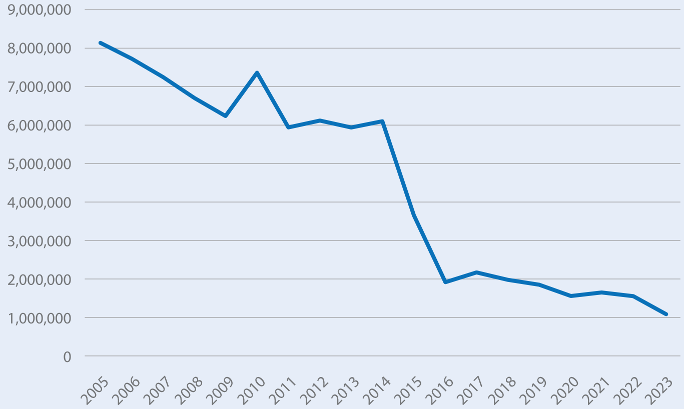
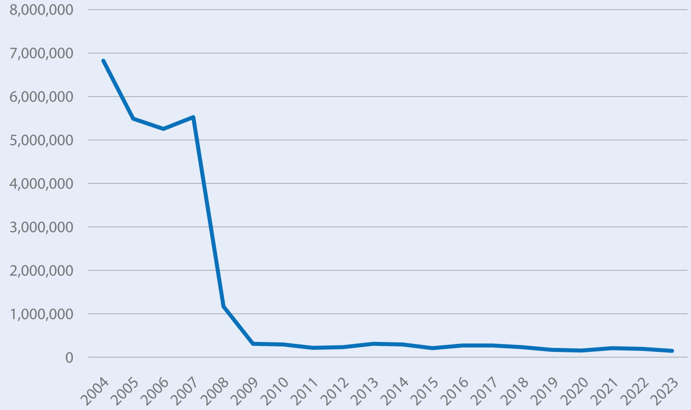


Figure 15. Category 1 TACs, 2005-2023



Thank you to the LMAPCD for the contribution of this case study. More on the LMAPCD can be found at **https://louisvilleky.gov/government/air-pollution-control-district**.

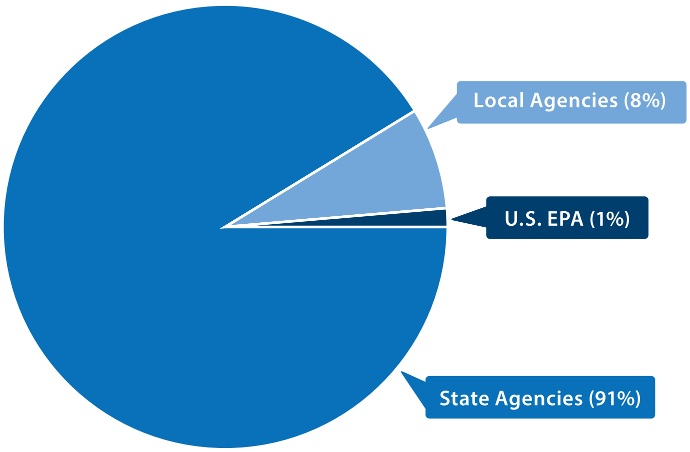
Compliance and Enforcement Activity

U.S. EPA's Enforcement and Compliance History Online (ECHO) Air Dashboard notes that "EPA delegates much of its [Clean Air Act] authority to state, local, and tribal agencies" to regulate air pollution from stationary sources.[27] ECHO documents compliance monitoring activities that are undertaken by state and local air agencies and U.S. EPA, such as compliance evaluations, compliance determinations, and enforcement actions.

The ECHO Air Dashboard shows that of the 51,676 facilities permitted under the Clean Air Act in federal fiscal year (FY) 2024, states were the permitting agency for 47,153 facilities, local agencies for 3,822, and U.S. EPA for 701 facilities. AAPCA Member States were the permitting agency for 23,224 facilities, or 49 percent of the state agency total in 2024.[28]

Figure 16. Facilities Permitted under Clean Air Act by Lead Agency, 2024

Source: U.S. EPA, Analyze Trends: **EPA/State Air Dashboard**.

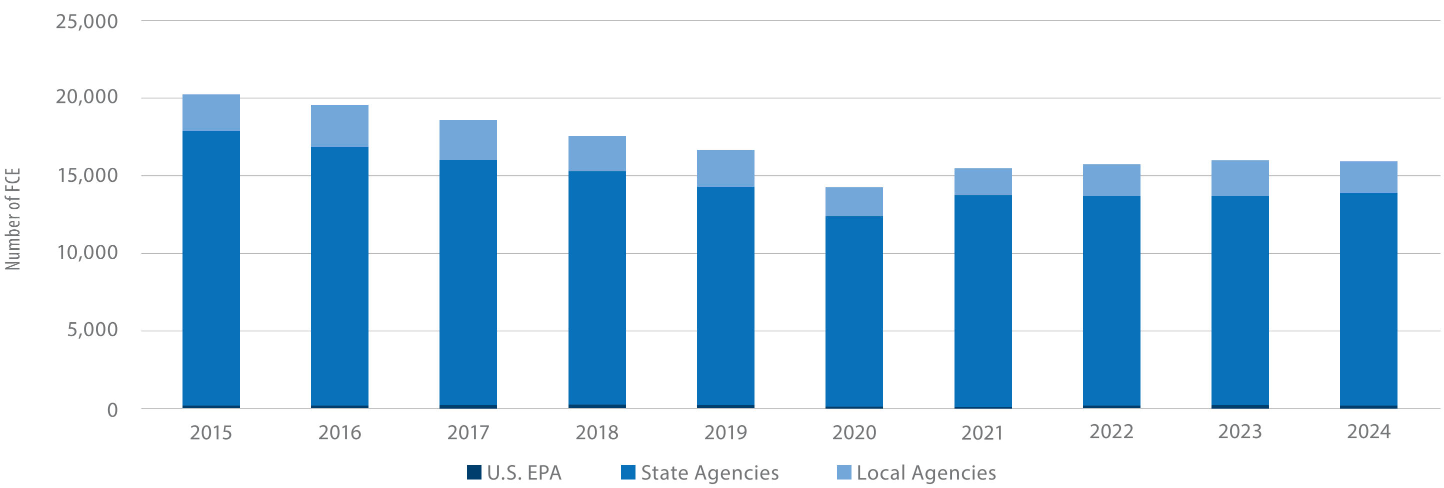


The ECHO Air Dashboard also provides data on Full Compliance Evaluations (FCE) performed by U.S. EPA and state and local agencies. U.S. EPA defines an FCE as "a comprehensive evaluation of the compliance status of the facility. It looks for all regulated pollutants at all regulated emission units, and it addresses the compliance status of each unit, as well as the facility's continuing ability to maintain compliance at each emission unit."[29]

In 2024, AAPCA Member States were the lead agency for 6,857 FCE, approximately 50 percent of the state lead agency total. In federal FY 2024, ECHO details the following FCE lead agency distribution:

- States were the lead agency for 13,730 FCE, averaging more than 14,600 FCE annually since 2015;
- Local programs were the lead agency for 2,035 FCE, averaging more than 2,200 FCE annually since 2015; and,
- U.S. EPA was the lead agency for 172 FCE, averaging about 160 FCE annually since 2015.[30]

Figure 17. Full Compliance Evaluations under Clean Air Act by Lead Agency, 2015–2024



Source: U.S. EPA ECHO, **Analyze Trends: EPA/State Air Dashboard**.

AAPCA **Best Practices** in Air Pollution Control

Each year, AAPCA designates Best Practices that identify ground-breaking technology, innovative approaches, and exemplary operations in the field of air pollution control, with particular focus on activities that are directly transferable to the operation of an air pollution control agency. Below are recipients of AAPCA's Best Practices in Air Pollution Control for the last five years:

2024

Oklahoma's Air Quality Health Advisory Program
Oklahoma Department of Environmental Quality

Enhance Exceptional Event Demonstrations for Wildfire Events using a New Modeling Approach
Pennsylvania Department of Environmental Protection

Comprehensive Wildfire Prevention and Smoke Impact Response Program
San Joaquin Valley Air Pollution Control District (Local Government Best Practice)

2023

Streamlined Response to Comments Approach for State Implementation Plans
Georgia Environmental Protection Division

Representative Sample Guidance Document
Oklahoma Department of Environmental Quality

Wyoming Pond Emissions Calculator
Wyoming Department of Environmental Quality

Healthy Air Living Schools Program
San Joaquin Valley Air Pollution Control District (Local Government Best Practice)

2022

Open Burn Permit Program
Arizona Department of Environmental Quality

2022 Air Quality Workshop
Oklahoma Department of Environmental Quality

Environmental Trainee Mentoring Program
Pennsylvania Department of Environmental Protection

Wyoming Environmental Audit Process
Wyoming Department of Environmental Quality

Air Quality Action Partners Program
Louisville Metro Air Pollution Control District (Local Government Best Practice)

Streamlined Communication and Collaboration for Air Monitoring Programs via Microsoft Teams
Mecklenburg County Air Quality (Local Government Best Practice)

Residential Woodsmoke Reduction Strategy
San Joaquin Valley Air Pollution Control District (Local Government Best Practice)

2021

COVID-19 Air Quality Inspection/Compliance Determinations
Arizona Department of Environmental Quality

Efficiencies in the Data Quality Review of Ambient Air Monitoring Data
Georgia Environmental Protection Division

NESHAP 6H Reg Nav Tool
North Carolina Department of Environmental Quality

Shiny Dashboard for Remote Monitoring of Air Quality Data
Tennessee Department of Environment and Conservation

2020

Georgia PSD Emissions Inventory
Georgia Environmental Protection Division

Presentations from all past recipients can be found on AAPCA's website at **www.cleanairact.org**

American Air Quality in an International Context

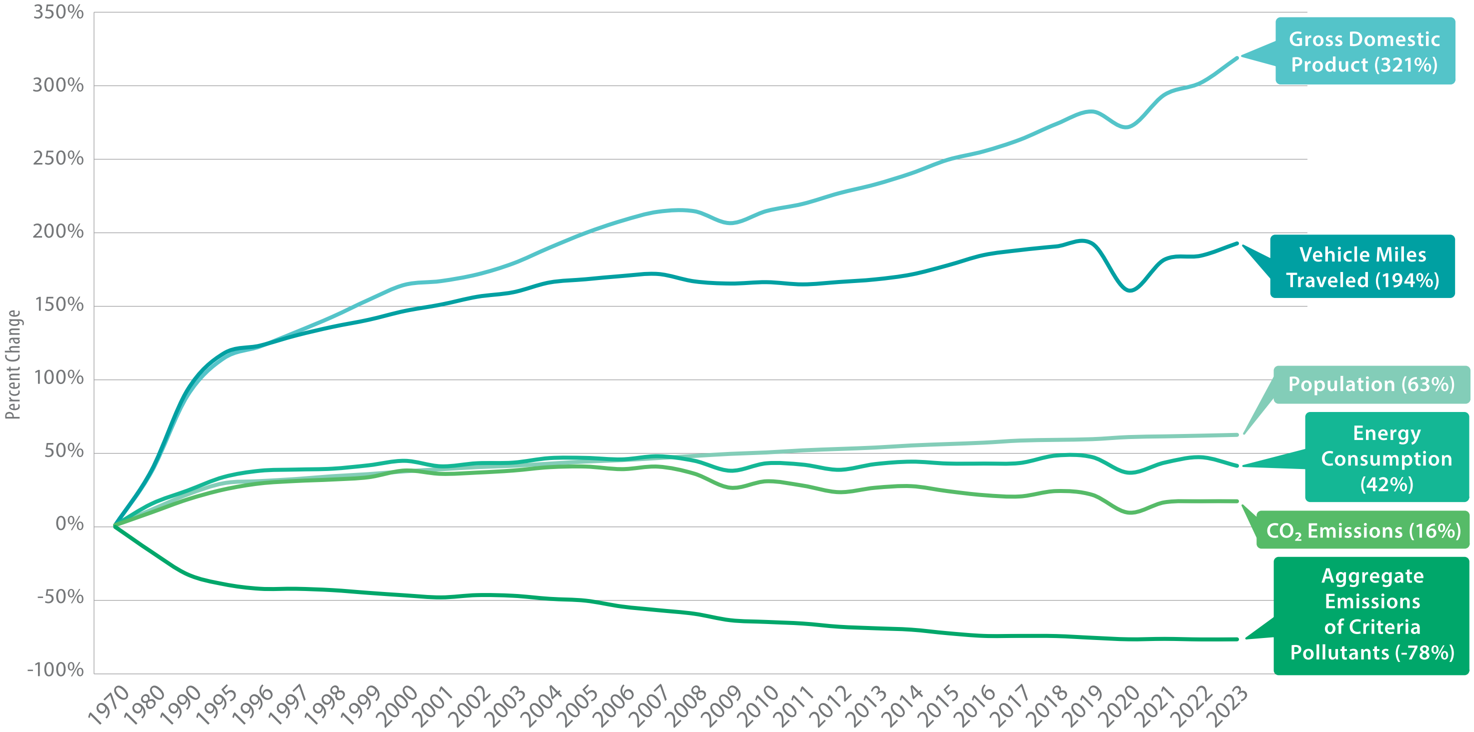
"The Clean Air Act directs EPA to periodically review the National Ambient Air Quality Standards. Together with our Tribal, state, and local air agency partners, we have successfully implemented those standards to bring Americans cleaner air and lower risks of adverse health effects."

*U.S. EPA, **Our Nation's Air: Trends Through 2023** (Section: "NAAQS"), June 2024.*

Economic Growth and Air Quality in the United States

Since 1970 when the Clean Air Act was enacted, the United States has reduced aggregate emissions of the six criteria air pollutants by 78 percent.[31] U.S. EPA's 2024 report, *Our Nation's Air: Trends Through 2023*, indicates that the substantial progress in emissions reductions and air quality improvements have occurred while economic indicators in the United States remain strong. Between 1970 and 2023, national gross domestic product grew by 321 percent, vehicle miles traveled increased by 194 percent, population grew by 63 percent, and energy consumption rose by 42 percent.[32]

Figure 18. Growth Indicators and Emissions Reductions in the United States, 1970–2023



Source: U.S. EPA, ***Our Nation's Air: Trends through 2023***, Section: "Economic Strength with Cleaner Air," June 2024.

Internationally, the United States ranks:

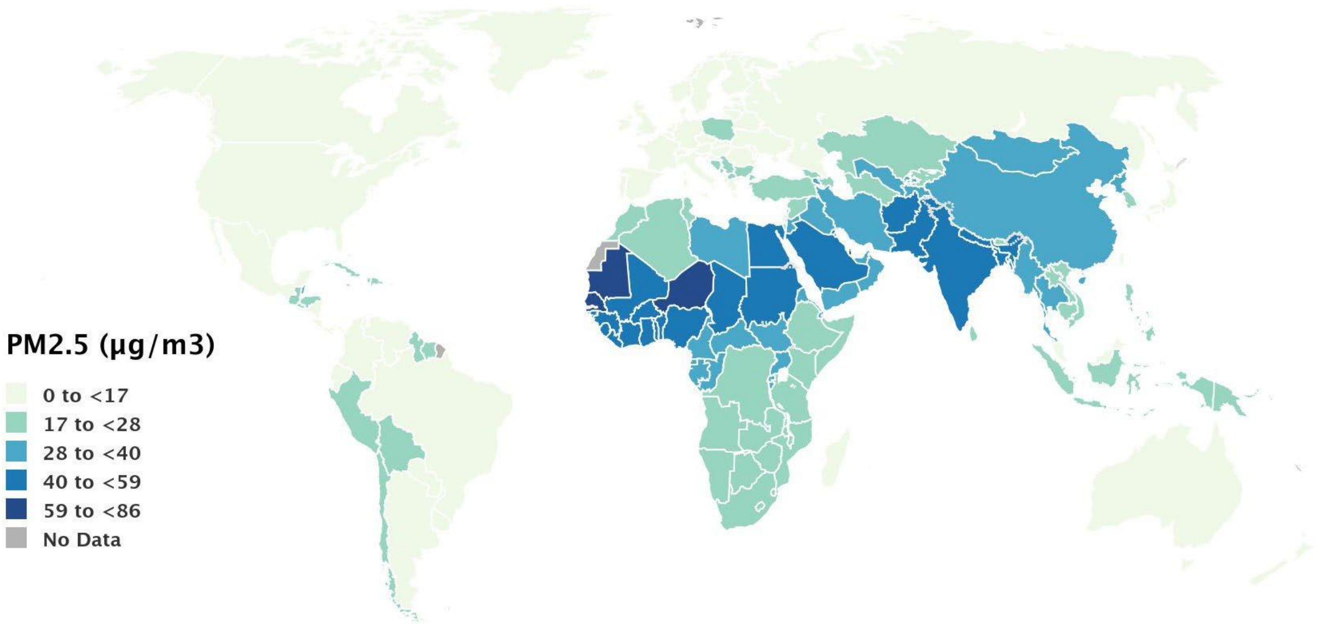
- First in gross domestic product, at $27.72 trillion in 2023, representing approximately 26 percent of gross world product. [33]
- Second in both total energy supply, at 90,978,682 terajoules (TJ), and total electricity generation, at 4,495,368 gigawatt hours (GWh), representing approximately 15 percent of the world total in 2022 for both categories.[34]
- Third in population, at more than 342 million people in 2025, representing approximately 4 percent of the world population.[35]

International Air Quality | Fine Particulate Matter

The State of Global Air/2024, a research and outreach initiative led by the Health Effects Institute and the Institute for Health Metrics and Evaluation's Global Burden of Disease (GBD) project, reports on global exposure to air pollution and its human health impacts. The report includes information on global health impacts of fine particulate matter ($PM_{2.5}$), nitrogen dioxide (NO_2), and ozone (O_3), from 1990-2021.

The State of Global Air/2024 report indicates that on a global scale $PM_{2.5}$ levels are decreasing or stabilizing in many regions, with a global average exposure of 31.3 μg/m³ in 2020, while the average $PM_{2.5}$ concentration in the United States in 2020 was 7.81 ug/m³. The primary sources of $PM_{2.5}$ in the Middle East and Africa include dust, power plants, transportation, and industries, while the primary sources of $PM_{2.5}$ in South Asia include residential fuel use, energy generation, industries, and agriculture. Notably, $PM_{2.5}$ exposure in low- and middle-income countries (LMICs) are one to four times higher than exposures in high-income countries, tracking with socio-economic development and national policy actions.

Figure 19. Global Map of National Population-Weighted Annual Average $PM_{2.5}$ Concentrations in 2020

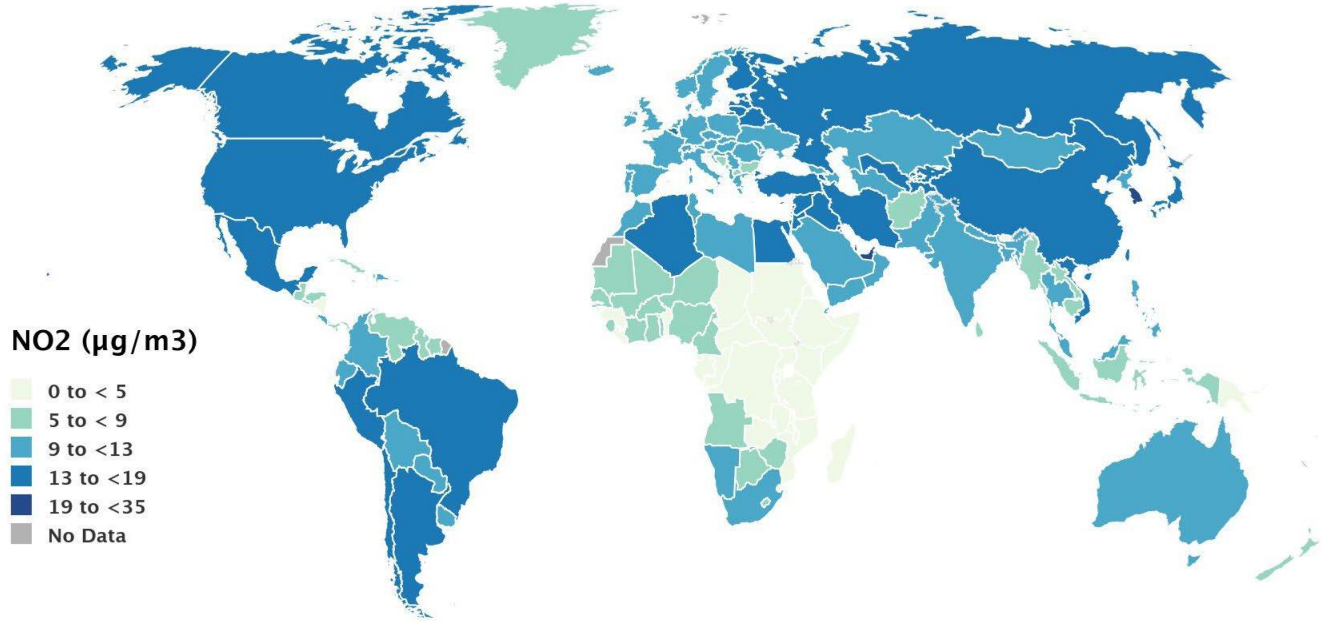


Source: Health Effects Institute. 2024. *State of Global Air 2024*. Available: **www.stateofglobalair.org** [accessed 3/20/2025]. Global Burden of Disease Study 2021. IMHE, 2024.

International Air Quality | Nitrogen Dioxide

The *State of Global Air/2024* report recognizes the contribution of NO_2 to other pollutants, including O_3 and secondary particulate matter. The report also indicates that the highest levels of NO_2 pollution are seen in high-income countries, due to NO_2 being generated from the burning of fuel in vehicles, power plants, and industrial facilities. In addition to vehicle traffic, agriculture is also a primary source of nitrogen oxides. The highest levels of NO_2 are seen in North Africa and the Middle East (26.8 ug/m^3), and in Central and Eastern Europe and Central Asia (26.1 ug/m$_3$); The average NO_2 concentration in the United States in 2020 was 14.5 ug/m^3. The highest exposures to NO_2 are seen in countries with a high socio-development index, like Singapore, Japan and Canada. Notably, these countries are also experiencing a substantial decline in NO_2 exposures due to sustained policy action and technological advancements.

Figure 20. Global Map of National Population-Weighted Annual Average NO_2 Concentrations in 2020

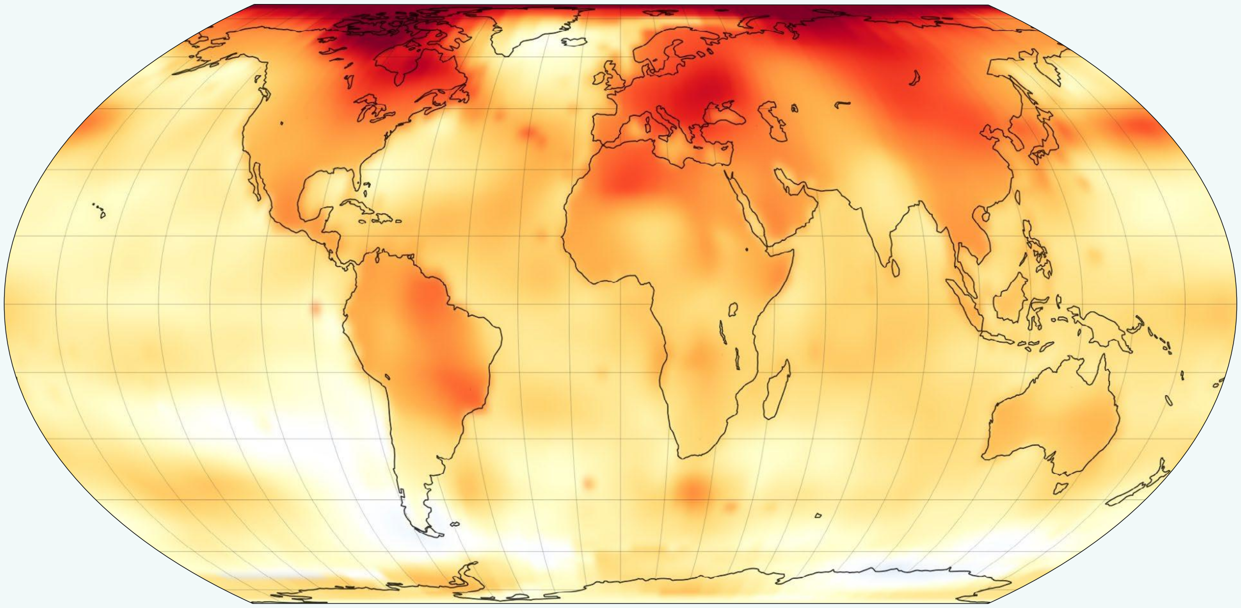


Source: Health Effects Institute. 2024. *State of Global Air 2024*. Available: www.stateofglobalair.org [accessed 3/20/2025]. Global Burden of Disease Study 2021. IMHE, 2024.

Satellite Snapshot | 2024 A Record Year

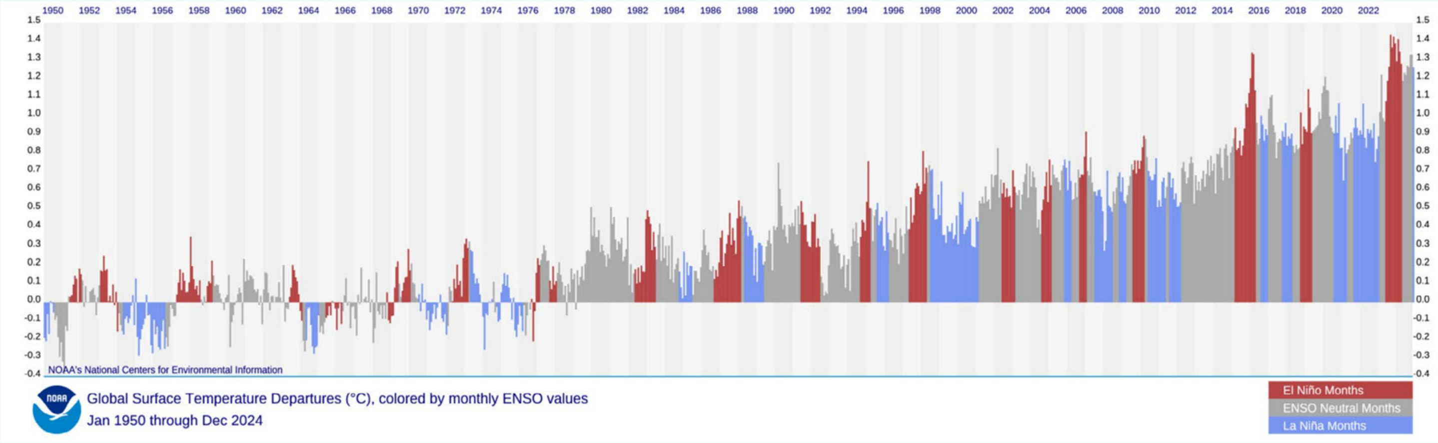
Data from the National Oceanic and Atmospheric Administration (NOAA) and the National Aeronautics and Space Administration (NASA) Earth Observatory (EO) demonstrate that global temperatures on the Earth's surface in 2024 were the warmest on record. The global surface temperature in 2024 exceeded the pre-industrial (1850-1900) average global temperature by 2.63 degrees Fahrenheit[36] and exceeded the 20th-century baseline (1951-1980) by 2.30 degrees Fahrenheit.[37] Figure 23 shows global temperatures in 2024 compared to global temperatures from 1951-1980; Figure 24 shows global temperatures during the 1950-2024 time period.

Figure 21. Global Temperature Anomaly (°C compared to the 1951-1980 average)



Source: NASA Earth Observatory, "**2024 Was the Warmest Year on Record**," January 11, 2025.

Figure 22. Global Surface Temperature Departures (°C), January 1950 – December 2024

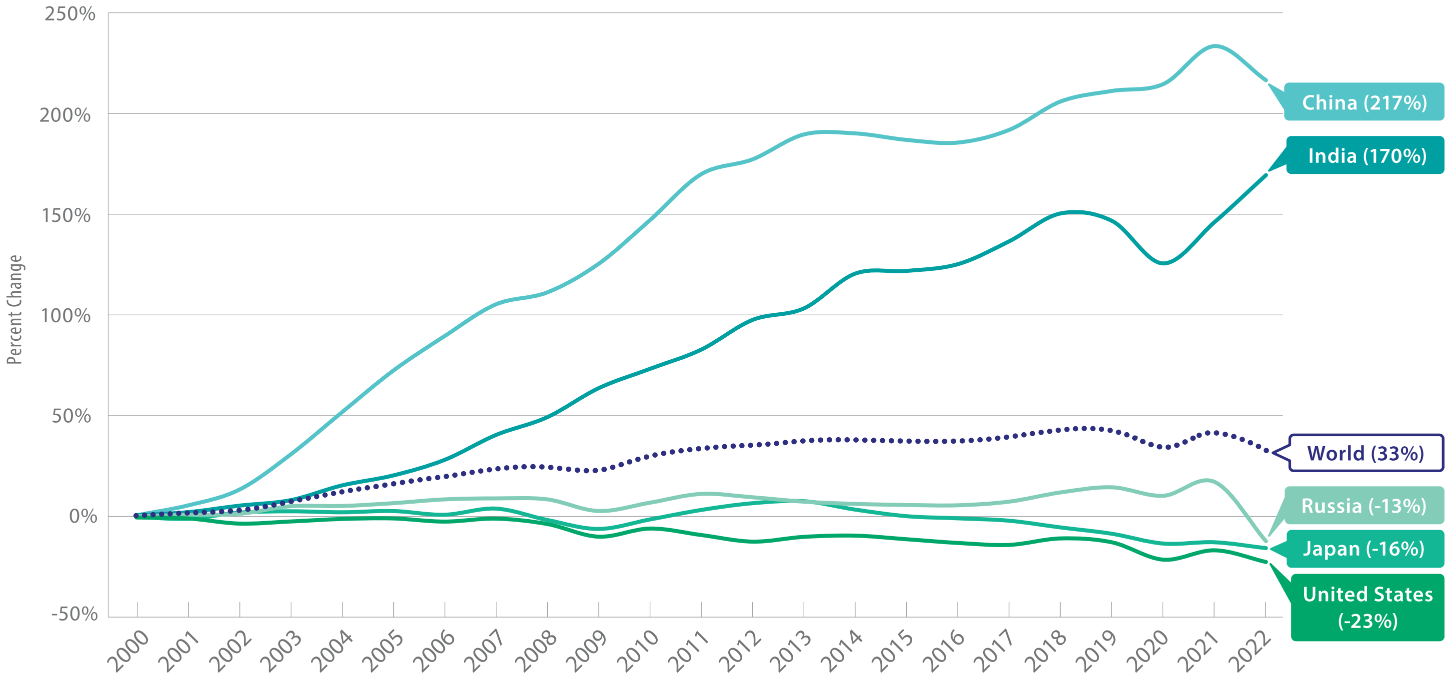


Source: NOAA National Centers for Environmental Information, **Monthly Global Climate Report for Annual 2024, Global monthly temperature anomolies, with ENSO status**, January 2025.

International Air Quality | Greenhouse Gases

The International Energy Agency's (IEA) database*, *Greenhouse Gas Emissions from Energy*, is designed to help understand the contributions to greenhouse gas (GHG) emissions associated with energy from 1971 to 2022 for more than 205 countries. In 2022, China and the United States together were responsible for 45 percent of global fuel combustion emissions, followed by India, Russia, and Japan. By 2022, GHG emissions from energy in the United States totaled 4,677.8 million tonnes of CO_2 eq., a decrease of 23 percent compared to emissions levels in 2000.[38]

Figure 23. Annual Percent Change of Greenhouse Gas Emissions from Energy by Country, 2000–2022



Source: International Energy Agency, ***Greenhouse Gas Emissions from Energy***, August 2, 2024.

*The IEA database includes estimates of total GHG emissions from energy and related indicators, covering CO_2, CH_4 and N_2O emissions from fuel combustion, as well as fugitive emissions. (measured as million tonnes of CO_2 eq.)

International Energy Agency | Global Energy Demand and CO_2 Emissions in 2024

In March 2025, IEA published the report, *Global Energy Review 2025*, highlighting the following trends in global energy demand and carbon dioxide (CO_2) emissions:

- Global energy demand grew by 2.2 percent in 2024, a faster rate than the annual average of 1.3 percent seen between 2013 and 2023.
- Global energy-related CO_2 emissions increased by 0.8 percent in 2024, compared with a 1.2 percent increase in 2023; In 2023, CO_2 emissions totaled 36.8 gigatons (Gt), while CO_2 emissions totaled 37.6 gigatons (Gt) in 2024.
- Global GDP increased by 3.2 percent in 2024, while electricity demand increased by 4.3 percent in 2024.

Source: International Energy Agency, **Global Energy Review 2025**, March 2025.

Air Quality Trends in the United States

"States currently perform the vast majority of environmental protection tasks in America, including more than 90% of the enforcement and compliance actions and collection of the environmental quality data currently held by the U.S. EPA."

Source: The Environmental Council of the States (ECOS), ***Resolution 00-1 Environmental Federalism****, March 2024.*

Concentration Trends | Criteria Air Pollutants

U.S. EPA's national-level analysis of 2023 monitoring data show the substantial reductions in ambient concentrations of all criteria pollutants over the past several decades. As the table below indicates, the United States has seen at least a 26 percent decline in the ambient levels of carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), and sulfur dioxide (SO_2) since 1980. Available data show that fine and coarse particulate matter ($PM_{2.5}$ and PM_{10}) ambient concentrations have declined by at least 29 percent since 2000. And more recent data point to a sustained trend of meaningful improvements, with monitored concentrations of most criteria pollutants now below 2010 levels.[39]

Table 4

Ambient Concentrations	1980 vs 2023	1990 vs 2023	2000 vs 2023	2010 vs 2023
Carbon Monoxide	-88%	-79%	-65%	-18%
Lead	---	---	---	-87%
Nitrogen Dioxide (annual)	-68%	-62%	-54%	-30%
Nitrogen Dioxide (1-hour)	-66%	-55%	-40%	-23%
Ozone (8-hour)	-26%	-18%	-12%	-1%
PM_{10} (24-hour)	---	-29%	-36%	0%
$PM_{2.5}$ (annual)	---	---	-37%	-15%
$PM_{2.5}$ (24-hour)	---	---	-29%	+1%
Sulfur Dioxide (1-hour)	-95%	-92%	-87%	-78%

Source: U.S. EPA, "**Air Quality—National Summary: Air Quality Trends**," Last updated January 8, 2025.

Emissions Trends | Criteria Air Pollutants

In coordination with state and local air agencies, tribes, and industry, U.S. EPA develops annual nationwide emissions estimates, which are "based on actual monitored readings or engineering calculations of the amounts and types of pollutants emitted by vehicles, factories, and other sources."[40] In the below table, U.S. EPA's most recently published estimates show that the emissions of all criteria pollutants and precursors declined by at least 27 percent from 1990 to 2023. Recent data point to a sustained trend of meaningful reductions, with estimated emissions of all criteria pollutants and precursors at least 5 percent lower than 2010 levels.[41]

Table 5

Emissions	1980 vs 2023	1990 vs 2023	2000 vs 2023	2010 vs 2023
Carbon Monoxide	-76%	-71%	-59%	-28%
Lead*	-99%	-88%	-78%	-36%
Nitrogen Oxides	-75%	-73%	-69%	-55%
Volatile Organic Compounds	-58%	-46%	-26%	-5%
Direct PM_{10}	-62%	-27%	-24%	-14%
Direct $PM_{2.5}$	---	-28%	-35%	-11%
Sulfur Dioxide	-94%	-93%	-90%	-76%

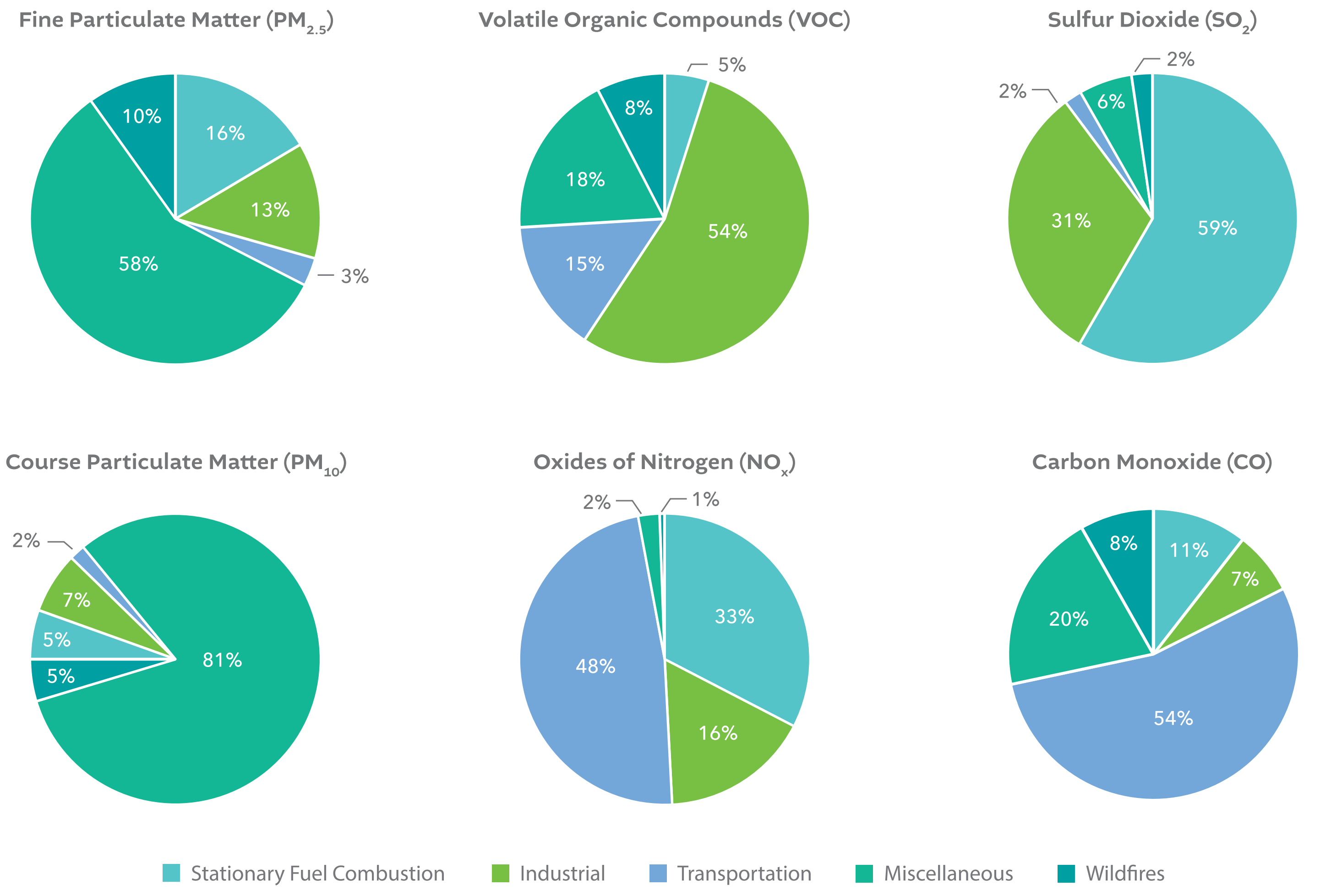
*As a result of the permanent phase-out of leaded gasoline, controls on emissions of lead compounds through EPA's air toxics program, and other national and state regulations, airborne lead concentrations in the U.S. decreased 98 percent between 1980 and 2005. After 2005, the EPA methodology for lead changed and is not comparable to the 2005 and earlier numbers. Since 2008, emissions have continued to decrease by 30 percent from 2008 to 2017. In the 2017 NEI, the highest amounts of Pb emissions are from Piston Engine Aircrafts, and Ferrous and Non-ferrous Metals industrial sources. The 2008 and 2017 estimates were used to approximate the 2010 to 2023 percent change.

Source: U.S. EPA, **Air Quality—National Summary: Emissions Trends**, Last updated January 8, 2025.

Emissions Sources | Criteria Air Pollutants

U.S. EPA tracks emissions from the following source categories: Stationary Fuel Combustion, Industrial, Transportation, Wildfires, and Miscellaneous. Included below are the sources of criteria air pollutant and precursor emissions for the year 2024.

Figure 24. Criteria Air Pollutant Sources, 2024



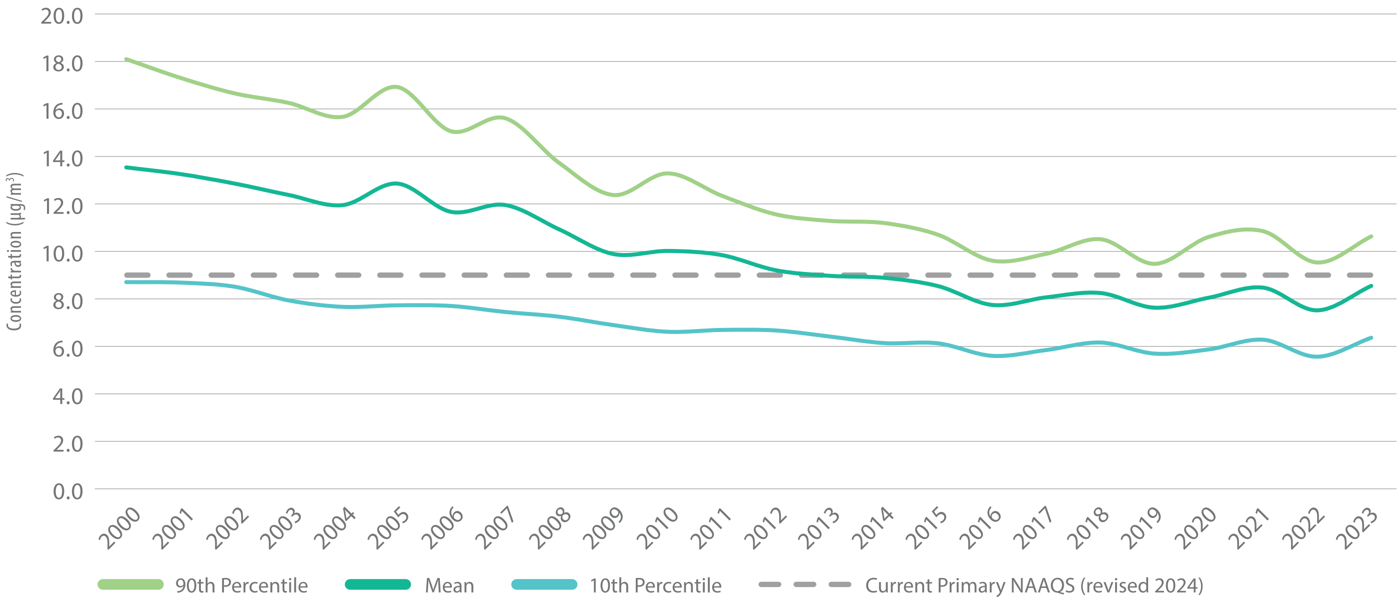
Source: U.S. EPA, **Air Pollutant Emissions Trends Data**, National Tier 1 CAPS Trends, Criteria pollutants National Tier 1 for 1970–2024.

What are Exceptional Events?

Exceptional Events are unusual or naturally occurring events that can affect air quality but are not reasonably controllable using techniques that tribal, state or local air agencies may implement in order to attain and maintain the National Ambient Air Quality Standards. On March 12, 2025, U.S. EPA Administrator Zeldin took action to reevaluate the treatment of data influenced by Exceptional Events."

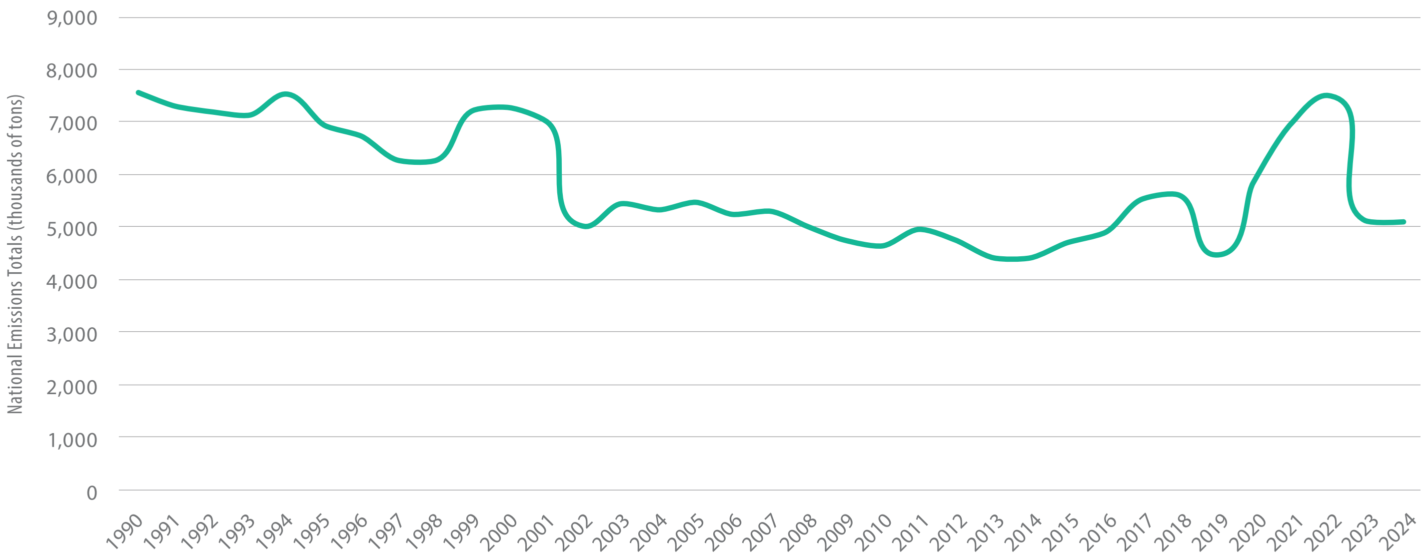
Criteria Air Pollutant Trends | Fine Particulate Matter

Figure 25. Fine Particulate Matter ($PM_{2.5}$) Air Quality, 2000-2023
(Seasonally Weighted Annual Average) National Trend based on 375 Sites



Source: U.S. EPA, **Particulate Matter (PM2.5) Trends**, August 2024.

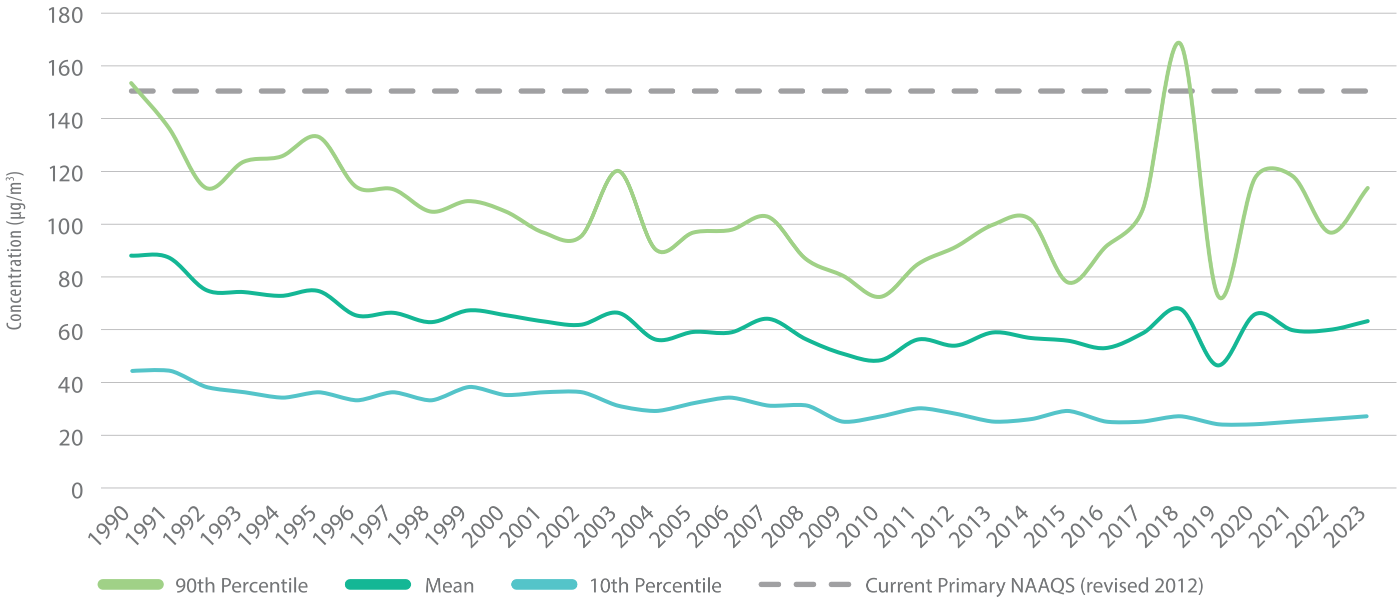
Figure 26. Fine Particulate Matter ($PM_{2.5}$) Emissions, 1990-2024



Source: U.S. EPA, **Air Pollutant Emissions Trends** (Data file: "National Tier 1 CAPS Trends, Criteria pollutants National Tier 1 for 1970– 2024").

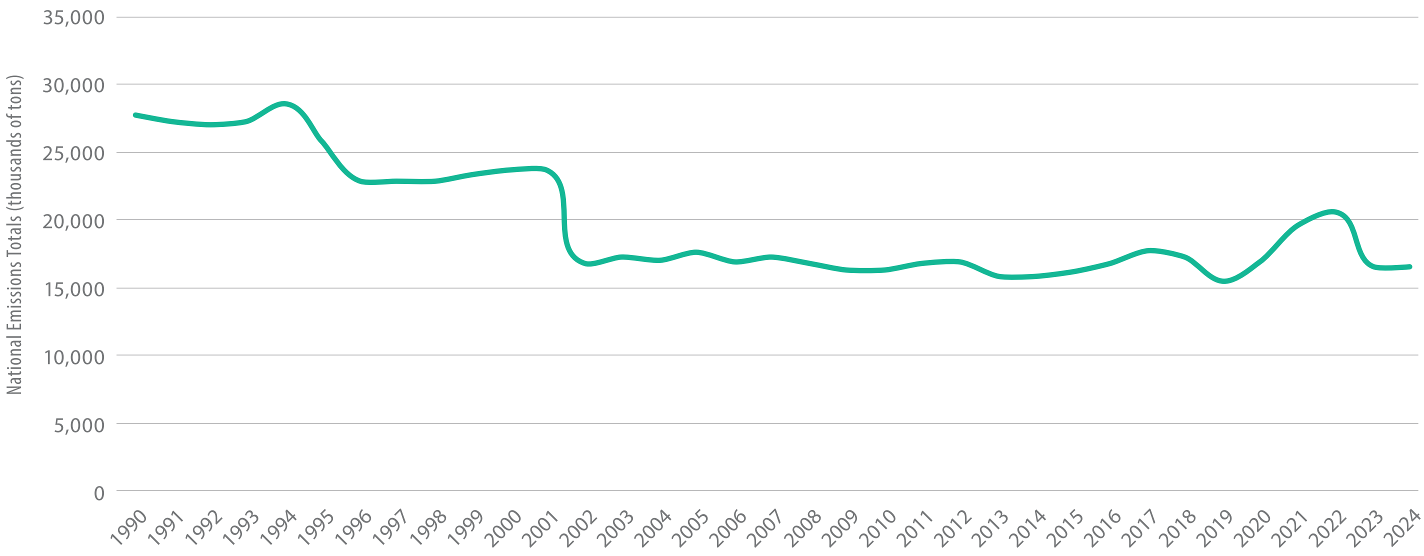
Criteria Air Pollutant Trends | Coarse Particulate Matter

Figure 27. Coarse Particulate Matter (PM_{10}) Air Quality, 1990–2023
(Annual 2[nd] Maximum 24-Hour Average) National Trend Based on 90 Sites



Source: U.S. EPA, **Particulate Matter (PM_{10}) Trends**, August 2024.

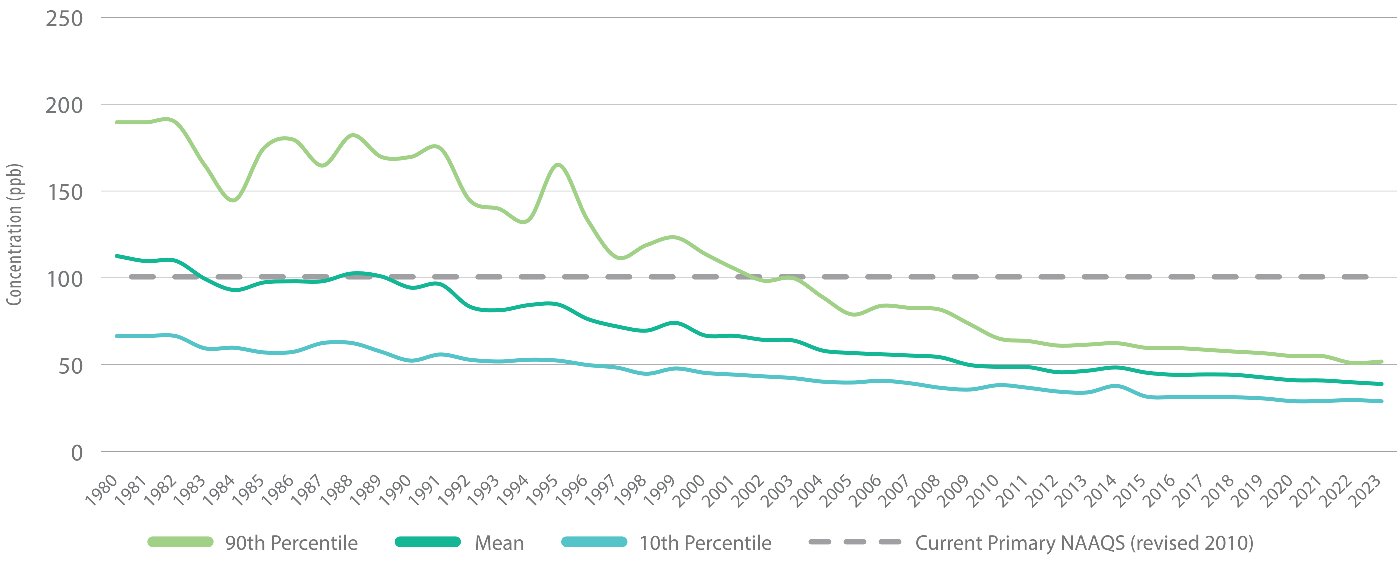
Figure 28. Coarse Particulate Matter (PM_{10}) Emissions, 1990–2024



Source: U.S. EPA, **Air Pollutant Emissions Trends** (Data file: "National Tier 1 CAPS Trends, Criteria pollutants National Tier 1 for 1970– 2024").

Criteria Air Pollutant Trends | Nitrogen Dioxide

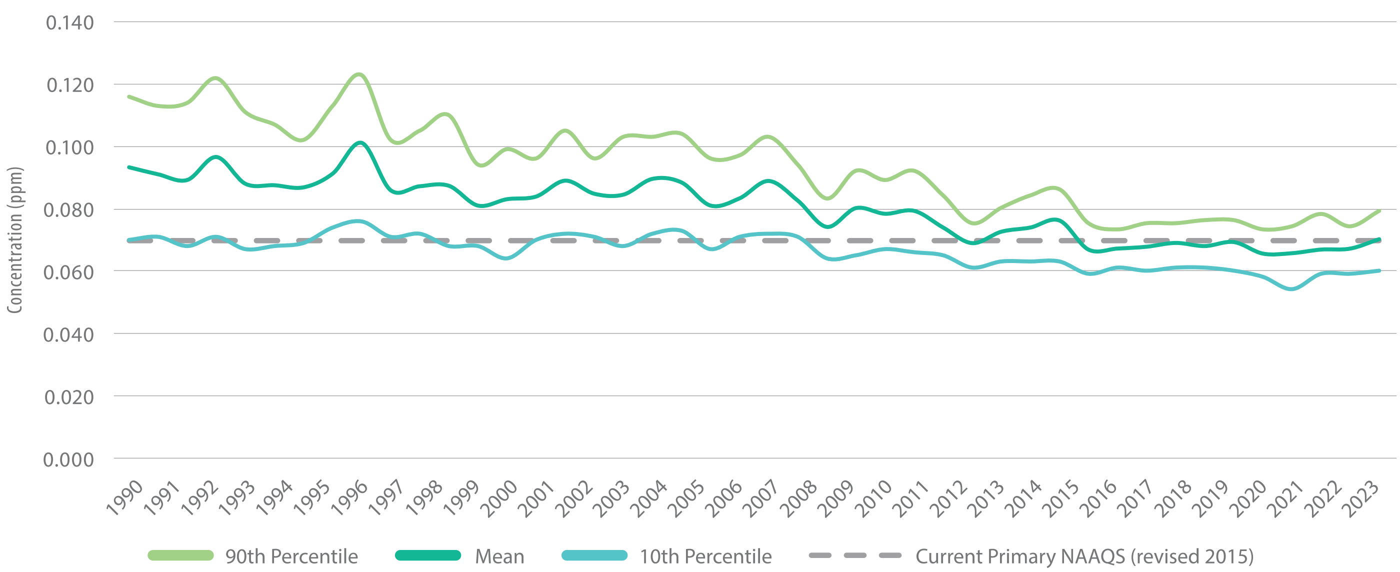
Figure 29. Nitrogen Dioxide (NO_2) Air Quality, 1980–2023
(Annual 98th Percentile of Daily Max 1-hour Average) National Trend based on 20 Sites



Source: U.S. EPA, Nitrogen Dioxide Trends, August 2024.

Criteria Air Pollutant Trends | Ozone

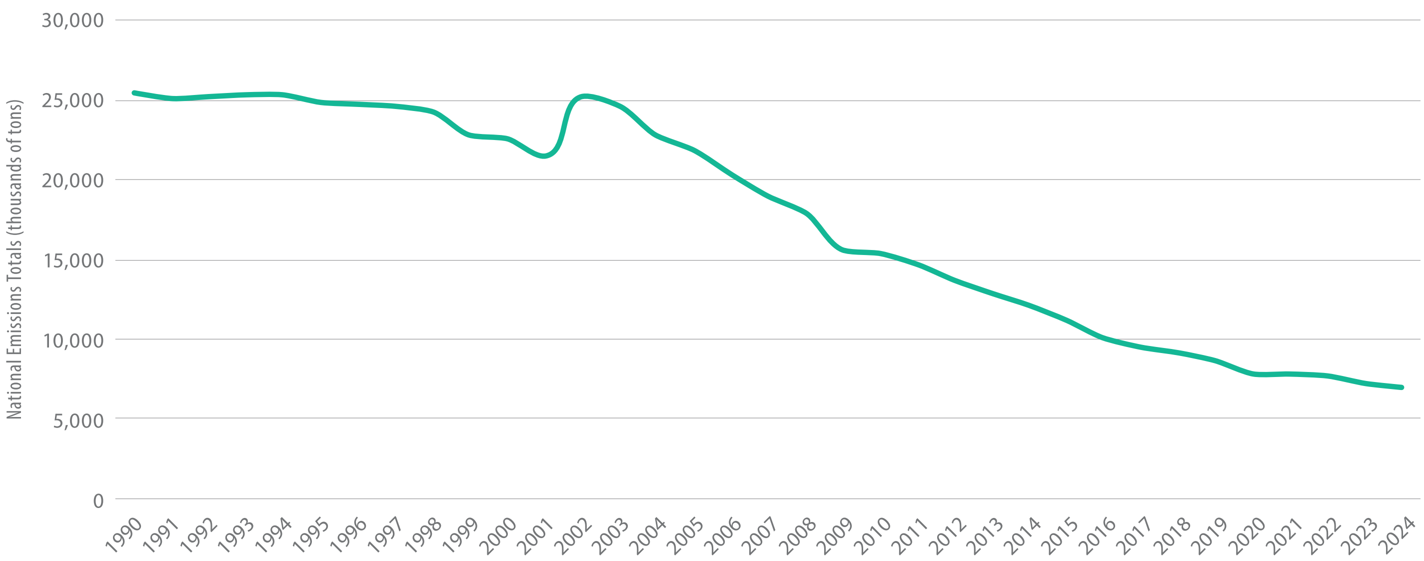
Figure 30. Ozone (O_3) Air Quality, 1980–2023
(Annual 4th Maximum Daily Max 8-Hour Average) National Trend based on 135 Sites



Source: U.S. EPA, Ozone Trends, August 2024.

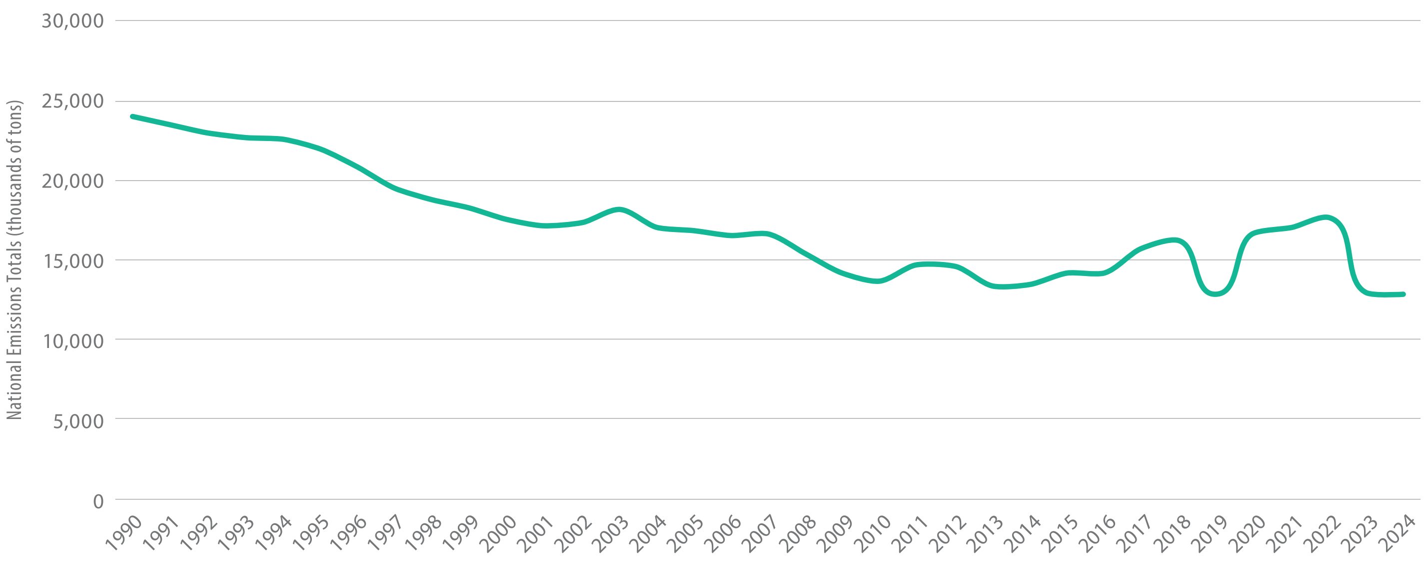
Criteria Air Pollutant Trends | Ozone Precursor Emissions

Figure 31. Oxides of Nitrogen (NO_x) Emissions, 1990-2024



Source: U.S. EPA, **Air Pollutant Emissions Trends Data** (Data file: "National Tier 1 CAPS Trends, Criteria pollutants National Tier 1 for 1970–2024").

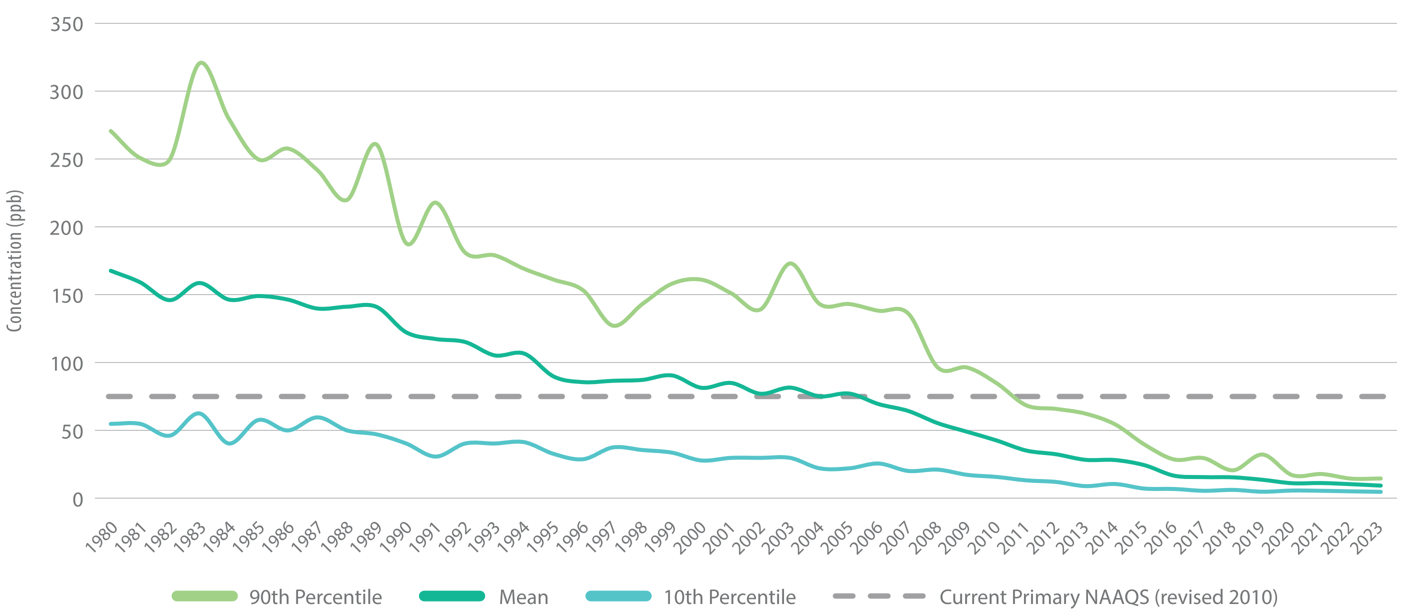
Figure 32. Volatile Organic Compound (VOC) Emissions, 1990-2024



Source: U.S. EPA, **Air Pollutant Emissions Trends** (Data file: "National Tier 1 CAPS Trends, Criteria pollutants National Tier 1 for 1970– 2024").

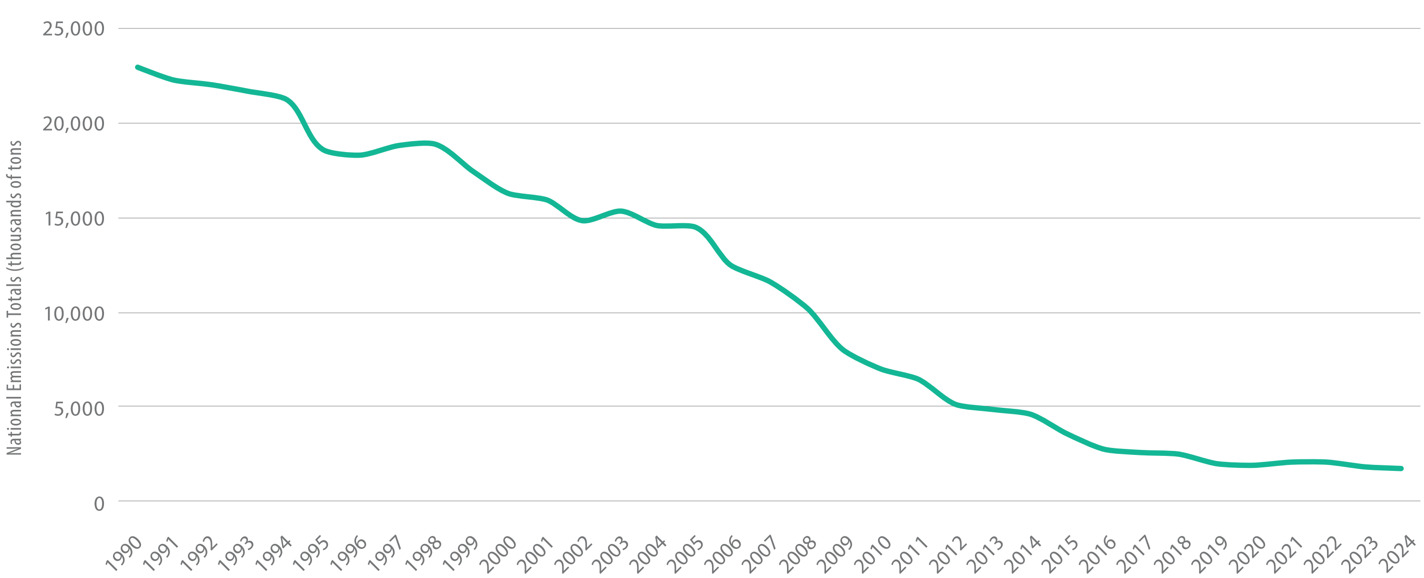
Criteria Air Pollutant Trends | Sulfur Dioxide

Figure 33. Sulfur Dioxide (SO_2) Air Quality, 1980-2023
(Annual 99th Percentile of Daily Max 1-Hour Average) National Trend based on 31 Sites



Source: U.S. EPA, **Sulfur Dioxide Trends**, August 2024.

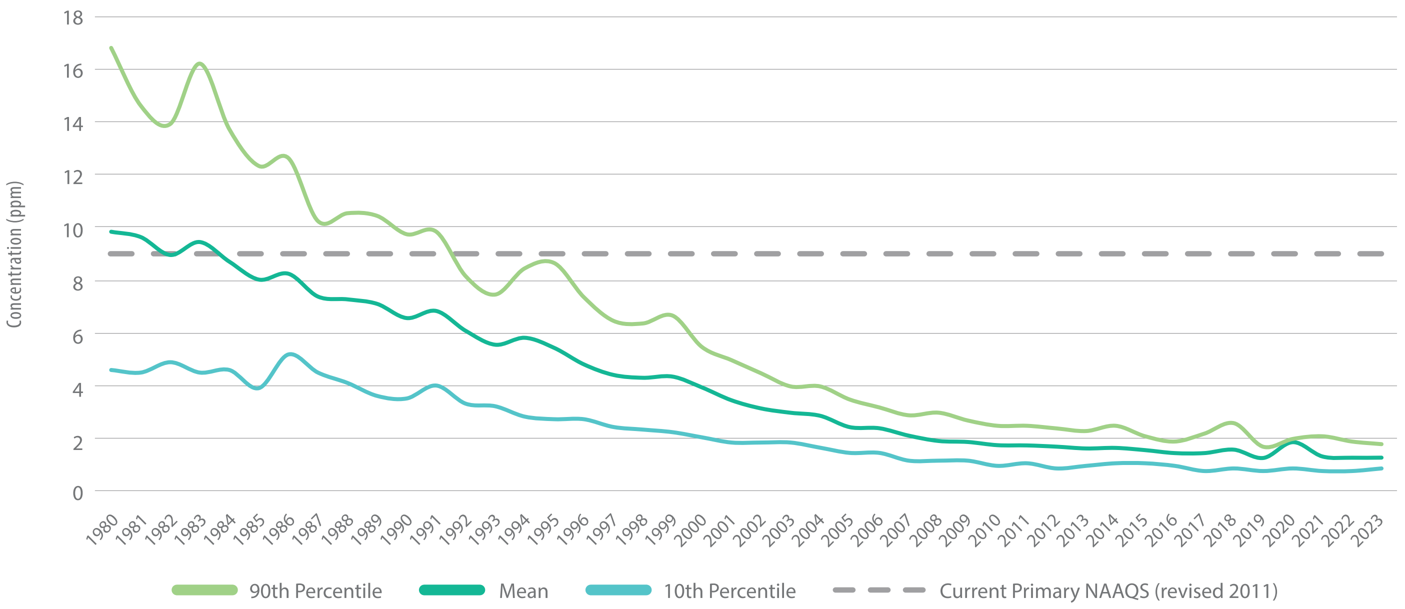
Figure 34. Sulfur Dioxide (SO_2) Emissions, 1990-2024



Source: U.S. EPA, **Air Pollutant Emissions Trends** (Data file: "National Tier 1 CAPS Trends, Criteria pollutants National Tier 1 for 1970– 2024").

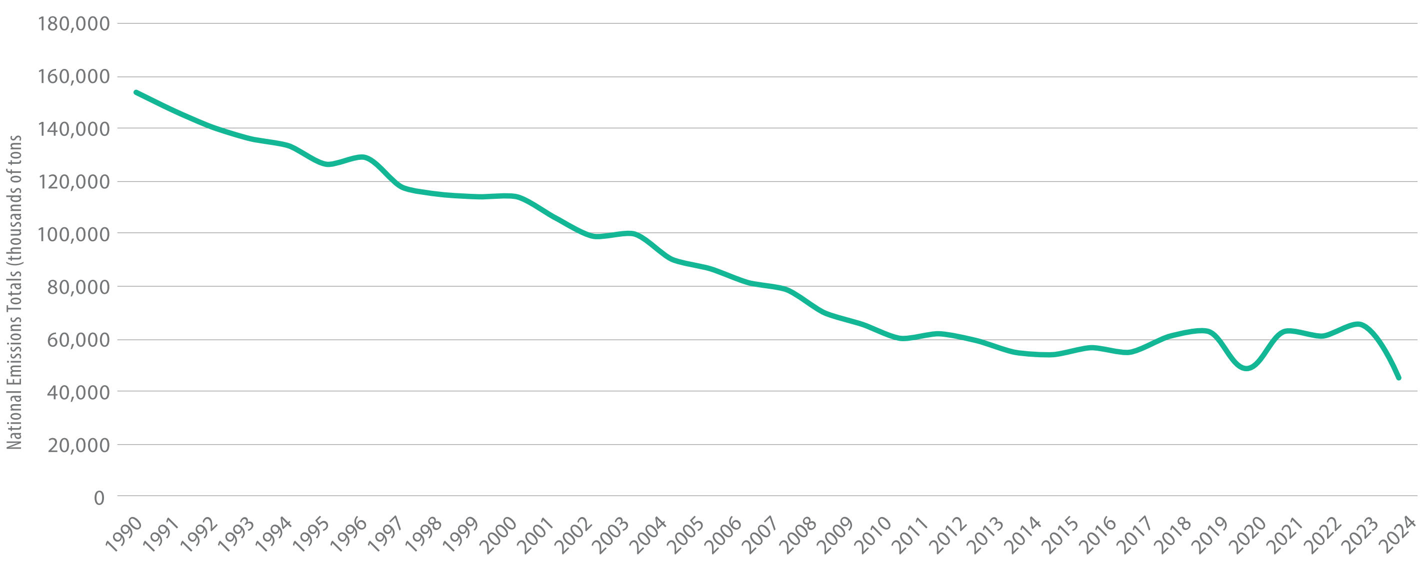
Criteria Air Pollutant Trends | Carbon Monoxide

Figure 35. Carbon Monoxide (CO) Air Quality, 1980–2023
(Annual 2nd Maximum 8-hour Average) National Trend based on 33 Sites



Source: U.S. EPA, **Carbon Monoxide Trends**, August 2024.

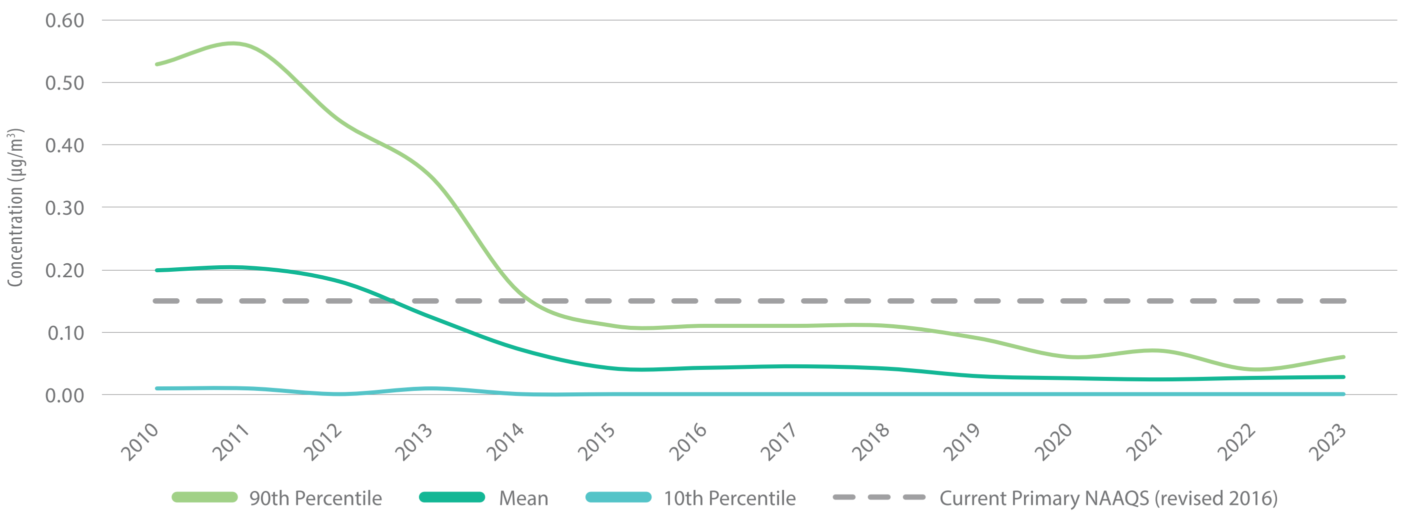
Figure 36. Carbon Monoxide (CO) Emissions, 1990–2024



Source: U.S. EPA, **Air Pollutant Trends Data** (Data file: "National Tier 1 CAPS Trends, Criteria pollutants National Tier 1 for 1970– 2024").

Criteria Air Pollutant Trends | Lead

Figure 37. Lead Air Quality, 2010–2023
(Annual Maximum 3-Month Average) National Trend Based on 92 Sites

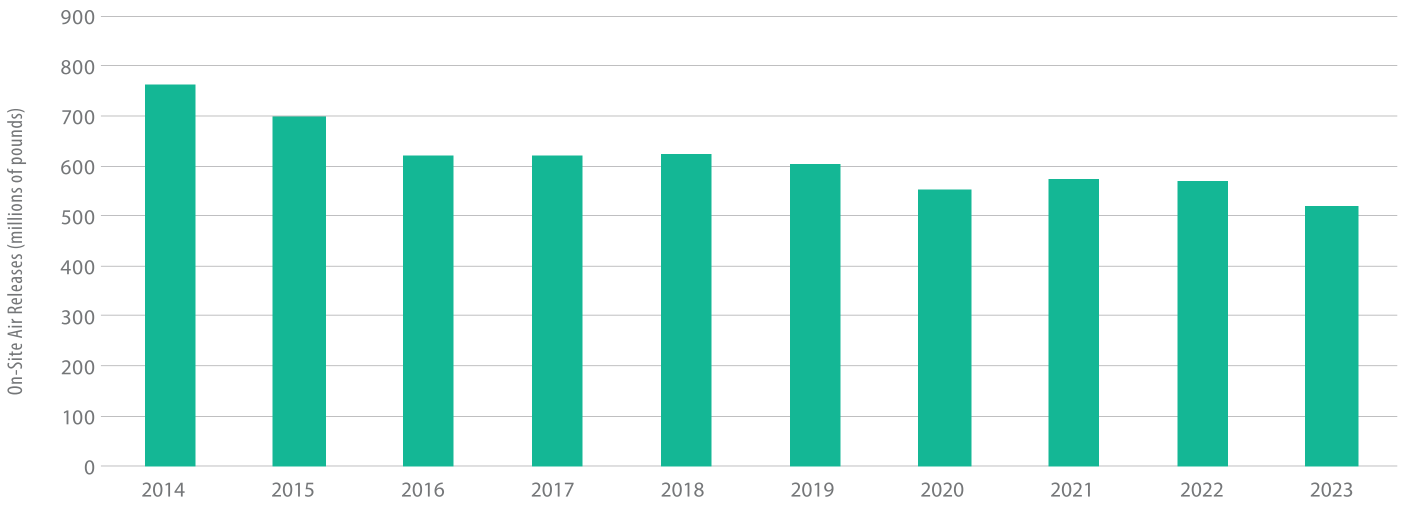


Source: U.S. EPA, **Lead Trends**, August 2024.

Hazardous Air Pollutants

U.S. EPA's 2023 *Toxics Release Inventory (TRI) National Analysis* data show declining emissions of hazardous air pollutants, or air toxics, over the last decade. Reported on-site releases of chemicals into the air decreased by 32 percent, a total reduction of 241 million pounds, from 2014 to 2023. In 2023, national air releases decreased by about 9 percent compared to 2022..

Figure 38. National Toxic Air Releases, 2014–2023

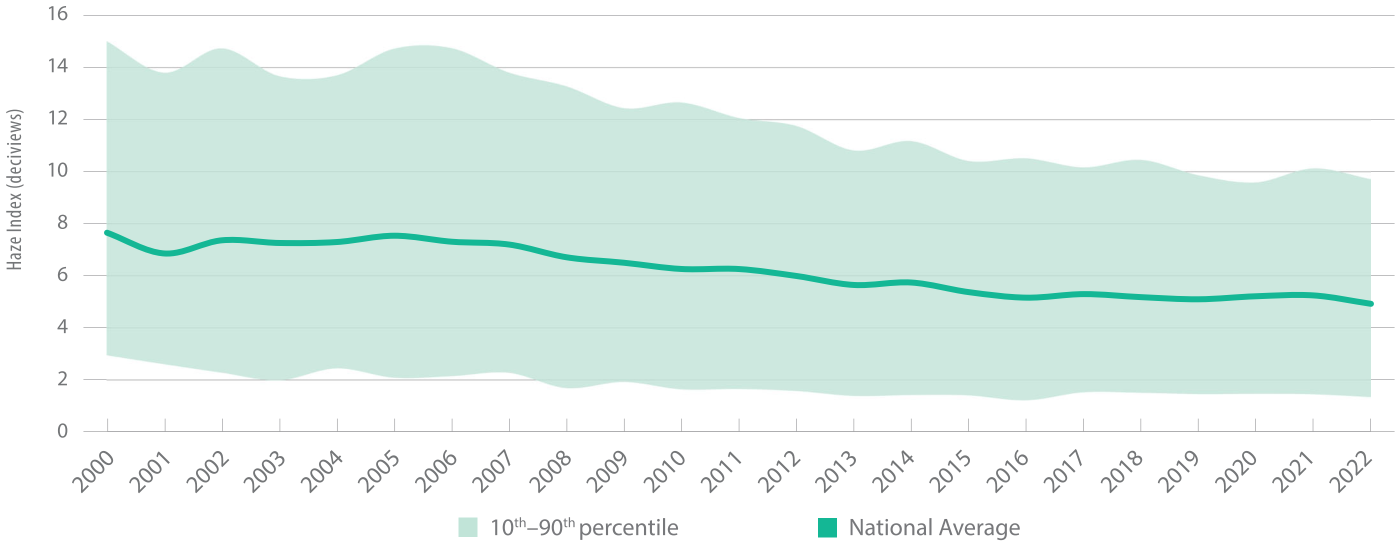


Source: U.S. EPA, *2023 Toxics Release Inventory National Analysis*, **2023 TRI Factsheet for US**, October 2024.

Visibility Improvements

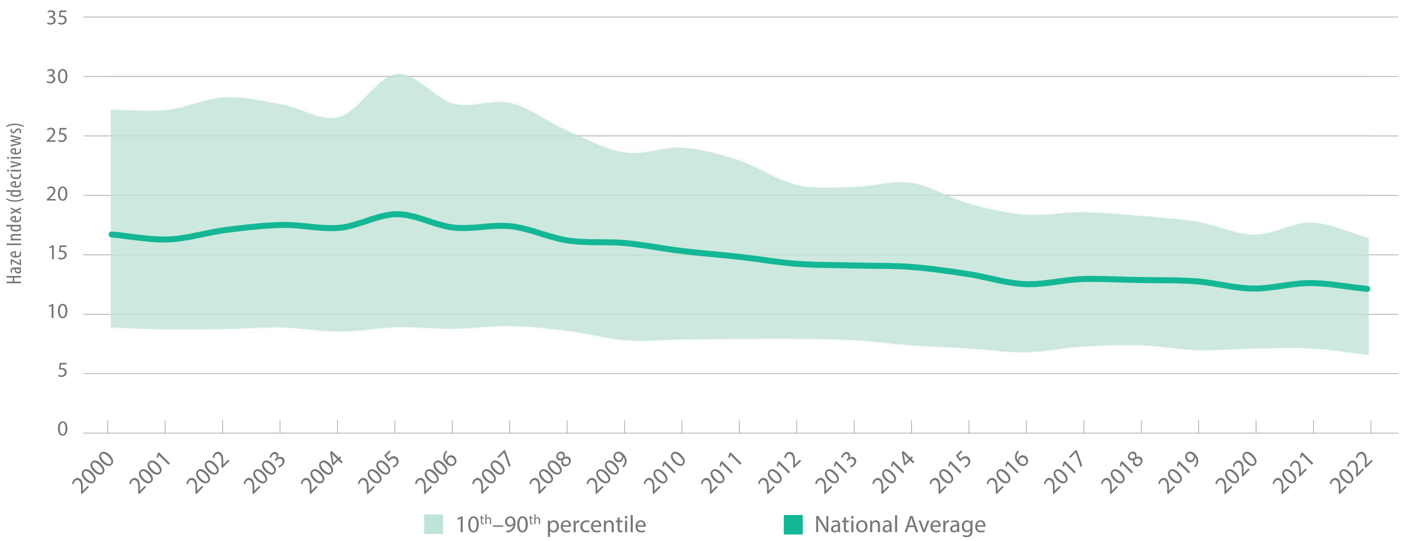
Under the national Regional Haze Program, state and federal agencies monitor visibility in 156 national parks and wilderness areas, or Class I areas.[42] U.S. EPA's latest annual air trends report, *Our Nation's Air: Trends Through 2023*, provides visibility data for Class I areas through 2023. On average from 2000 to 2022, visibility on the 20 percent clearest days improved by 37 percent, while visibility on the 20 percent most impaired days improved by 29 percent.[43]

Figure 39. National Visibility Trends on Clearest Days, 2000–2022



Source: U.S. EPA, ***Our Nation's Air: Trends Through 2023***, Section: "Visibility Improves in Scenic Areas," June 2024.

Figure 40. National Visibility Trends on Most Impaired Days, 2000–2022

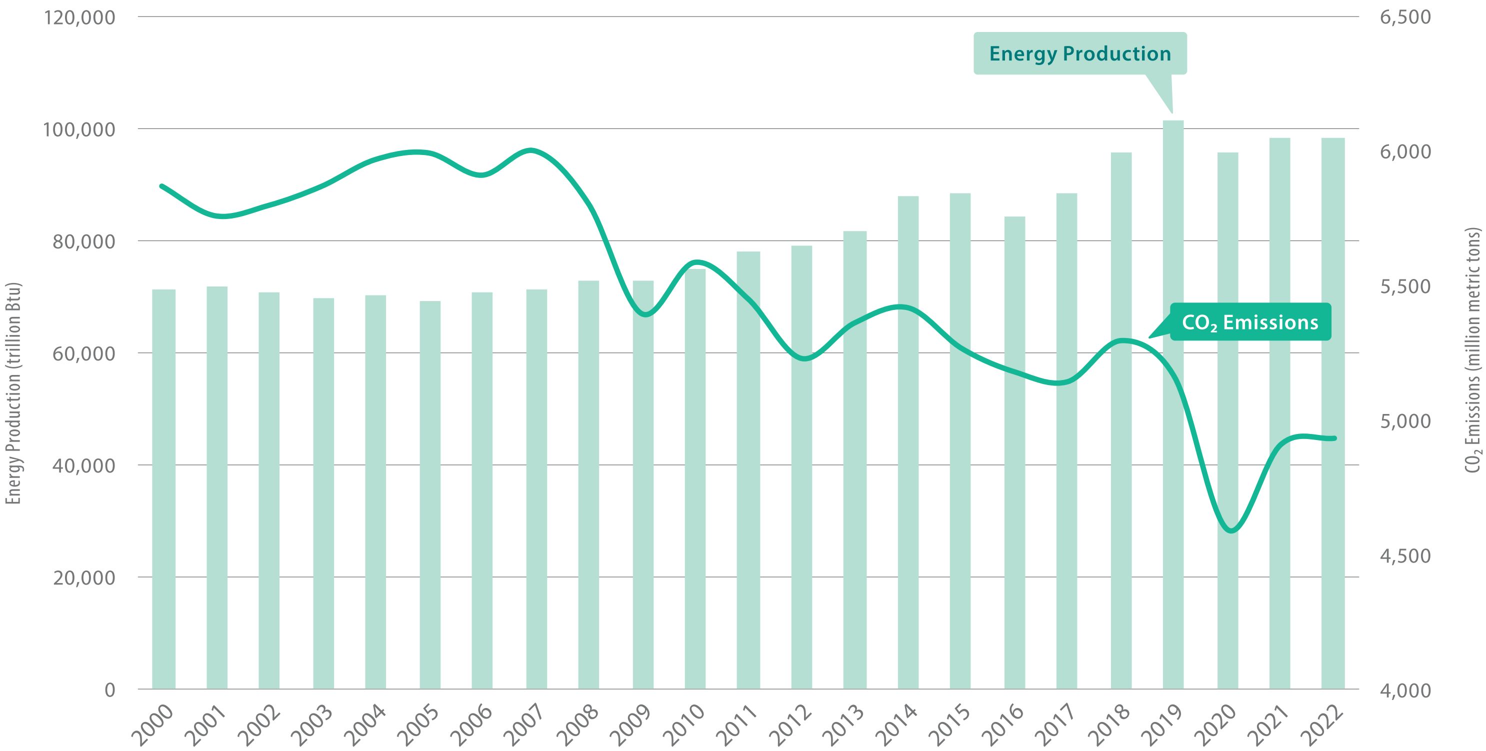


Source: U.S. EPA, ***Our Nation's Air: Trends Through 2023***, Section: "Visibility Improves in Scenic Areas," June 2024.

Emissions Trends | Energy-Related Carbon Dioxide

From 2000 to 2022, the United States reduced energy-related carbon dioxide (CO_2) emissions by 16 percent while experiencing a 28 percent increase in total energy production, according to recent data from the U.S. Energy Information Administration (EIA). National energy-related CO_2 emissions fell from 5,868 million metric tons in 2000 to 4,934 million metric tons in 2022.[44] Conversely, total energy production rose from 71,238 trillion British thermal units (Btu) in 2000 to 98,436 trillion Btu in 2022.[45]

Figure 41. United States | Total Energy Production Compared to Energy-Related CO_2 Emissions, 2000–2022



Sources: U.S. Energy Information Administration, **State Energy Data System (SEDS): 1960-2022**. U.S. EIA, **Energy-Related CO_2 Emission Data Tables**, Table 1. State energy-related carbon dioxide emissions by year (1970–2022).

International Energy Agency | Energy System of United States

The International Energy Agency Energy Statistics Data includes the following energy and emissions trends for the United States:

- Energy-related carbon dioxide (CO_2) emissions in the United States in 2022 totaled 4,608 Mt CO_2, a 20 percent decline since 2000;
- Energy intensity of the economy declined by 40 percent from 2000 to 2023;
- Crude oil production increased 129 percent from 2000 to 2023;
- Natural gas production increased 98 percent from 2000 to 2023; and
- Coal production decreased 48 percent from 2000 to 2023.

Source: International Energy Agency, **United States**, Data accessed February 21,2025.

Sources

[1] U.S. EPA, **Air Pollutant Emissions Trends Data**, State Tier 1 CAPS Trends, Criteria pollutants State Tier 1 for 1990–2024.

[2] U.S. Bureau of Economic Analysis, **Gross Domestic Product by State and Personal Income by State**," released March 28, 2025.

[3] U.S. Census Bureau, data available **here**.

[4] U.S. Office of Highway Policy Information, data available **here**.

[5] U.S. EIA, **State Energy Data Systems (SEDS):1960-2022**.

[6] U.S. EIA, **Energy-Related CO_2 Emission Data Tables**, Table 1. State energy-related carbon dioxide emissions by year.

[7] U.S. EPA's Green Book can be found **here**.

[8] U.S. EPA's listing of areas designated nonattainment or maintenance for the 2008 ozone NAAQS can be found **here**. In 2015, U.S. EPA lowered the NAAQS for ozone to .070 parts per million (ppm), based on the annual fourth-highest daily maximum 8-hour average concentration, averaged over three years. In 2020, U.S. EPA **retained** the 2015 standard of .070 ppm. In August 2023, U.S. EPA **initiated a new review** of the ozone NAAQS.

[9] U.S. EPA defines a design value as "a statistic that describes the air quality status of a given location relative to the level of the [NAAQS]." More information is available **here**.

[10] U.S. EPA's **Air Quality System** "contains ambient air pollution data collected by EPA, state, local, and tribal air pollution control agencies from over thousands of monitors."

[11] U.S. EPA, **Air Quality Design Values**, Ozone Design Values, 2023.

[12] U.S. EPA's listing of areas designated nonattainment or maintenance for the 1997 annual $PM_{2.5}$ NAAQS can be found **here**. In 2012, the NAAQS for $PM_{2.5}$ was lowered to 12.0 µg/m^3, based on an annual arithmetic mean averaged over three years (the 2006 review maintained the 1997 NAAQS). In 2020, U.S. EPA **retained** the 2012 standard of 12.0 µg/m^3. In June 2021, U.S. EPA announced the **reconsideration** of the 2020 decision to retain the 2012 $PM_{2.5}$ standards. On February 7, 2024, U.S. EPA promulgated a final rule revising the annual $PM_{2.5}$ NAAQS to 9.0 µg/m^3, based on an annual arithmetic mean averaged over three years.

[13] U.S. EPA, **Air Quality Design Values**, $PM_{2.5}$ Design Values, 2023.

[14] U.S. EPA's listing of areas designated nonattainment or maintenance for the 2012 $PM_{2.5}$ NAAQS can be found **here**.

[15] U.S. EPA, "**EPA finalizes stronger standards for harmful soot pollution, significantly increasing health and clean air protections for families, workers, and communities**," February 7, 2024. More information available **here**.

[16] U.S. EPA's February 7, 2024, memorandum on Initial Area Designations for the 2024 Revised Primary Annual Fine Particle National Ambient Air Quality Standard can be found **here**.

[17] U.S. EPA, **Air Pollutant Emissions Trends Data**, State Tier 1 CAPS Trends, Criteria pollutants State Tier 1 for 1990–2024.

[18] U.S. Energy Information Administration, **State Energy Data System (SEDS): 1960–2022**.

[19] More information on U.S. EPA Clean Air Markets Programs can be found **here**, and include the **Acid Rain Program** (ARP), the **Cross-State Air Pollution Rule** (CSAPR), and the **CSAPR Update**.

[20] U.S. EPA, "**Progress Report - Emissions Reductions**," March 19, 2025.

[21] More information on U.S. EPA Clean Air Markets Programs can be found **here**, and include the **Acid Rain Program** (ARP), the **Cross-State Air Pollution Rule** (CSAPR), and the **CSAPR Update**.

[22] U.S. EPA, "**Progress Report - Emissions Reductions**," March 19, 2025.

[23] U.S. Energy Information Administration (EIA), **State Energy Data System (SEDS): 1960–2022**; U.S. EIA, **Energy-Related CO_2 Emission Data Tables,** Table 1. State energy-related carbon dioxide emissions by year.

[24] U.S. Energy Information Administration, **Energy-Related CO_2 Emission Data Tables**, Table 7. Carbon intensity of the economy by state.

[25] U.S. EPA Toxic Release Inventory Explorer, **2023 TRI Factsheets**.

[26] U.S. EPA Toxic Release Inventory Explorer, **2023 TRI Factsheets**.

[27] See **EPA/State Air Dashboard**, part of **Enforcement and Compliance History Online** (ECHO). Data accessed February 12, 2025.

[28] See **EPA/State Air Dashboard**, part of **Enforcement and Compliance History Online** (ECHO). Data accessed February 12, 2025.

[29] U.S. EPA's ECHO **Air Dashboard** reports the following as Clean Air Act compliance monitoring activities: Full Compliance Evaluation (FCE), Partial Compliance Evaluation (PCE), Stack Test, and Title V Annual Compliance Certification (TVACC) Reviews.

[30] See **EPA/State Air Dashboard**, part of **Enforcement and Compliance History Online** (ECHO). Data accessed February 12, 2025.

[31] U.S. EPA, ***Our Nation's Air: Trends through 2023***, Section: "Economic Strength with Cleaner Air," June 2024.

[32] U.S. EPA, ***Our Nation's Air: Trends through 2023***, Section: "Economic Strength with Cleaner Air," June 2024.

Sources

[33] World Bank, **GDP Listings by Country**. Data accessed March 19, 2025.

[34] International Energy Agency (IEA), ***World Energy Outlook 2023***, October 2023. See IEA's **World Energy Mix**.

[35] U.S. Census Bureau, **Current Population**. Data accessed March 19, 2025.

[36] National Oceanic and Atmospheric Association, "**2024 was warmest year in the modern record for the globe**," January 10, 2025.

[37] National Aeronautics and Space Administration, "**Temperatures Rising: NASA Confirms 2024 Warmest Year on Record**," January 10, 2025.

[38] International Energy Agency, ***Greenhouse Gas Emissions from Energy, Highlights***, August 2, 2024. See IEA's **Greenhouse Gas Emissions from Energy Data Explorer**.

[39] U.S. EPA, **Air Quality—National Summary: Air Quality Trends**, Last updated January 8, 2025.

[40] U.S. EPA, **Air Quality—National Summary: Air Quality Trends**, Last updated January 8, 2025. Note: EPA estimates nationwide emissions of ambient air pollutants and the pollutants they are formed from (their precursors). These estimates are based on actual monitored readings or engineering calculations of the amounts and types of pollutants emitted by vehicles, factories, and other sources. Emission estimates are based on many factors, including levels of industrial activity, technological developments, fuel consumption, vehicle miles traveled, and other activities that cause air pollution. See U.S. EPA's **Air Pollutant Emissions Trends Data**.

[41] U.S. EPA, **Air Quality—National Summary: Emissions Trends**, Last updated January 8, 2025.

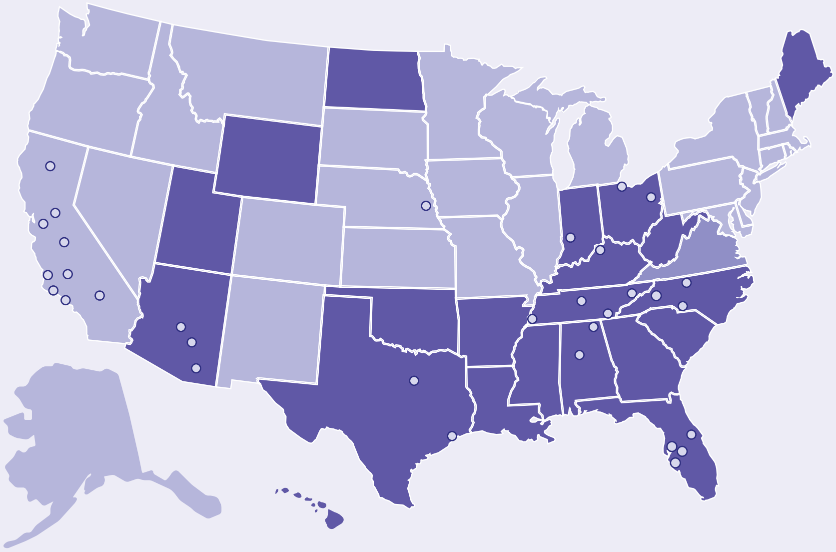
[42] A list of areas protected by the Regional Haze Program is available **here**.

[43] U.S. EPA, ***Our Nation's Air: Trends through 2023***, Section: "Visibility Improves in Scenic Areas," June 2024.

[44] U.S. Energy Information Administration, **Energy-Related CO_2 Emission Data Tables**, Table 1. State energy-related carbon dioxide emissions by year (1970–2022).

[45] U.S. Energy Information Administration, **State Energy Data System (SEDS): 1960-2022**.

Air Quality Resources



AAPCA STATE AGENCIES

- Alabama Department of Environmental Management
- Arizona Department of Environmental Quality
- Arkansas Division of Environmental Quality
- Florida Department of Environmental Protection
- Georgia Environmental Protection Division
- Hawaii Department of Health
- Indiana Department of Environmental Management
- Kentucky Division for Air Quality
- Louisiana Department of Environmental Quality
- Maine Department of Environmental Protection
- Mississippi Department of Environmental Quality
- North Carolina Department of Environmental Quality
- North Dakota Department of Environmental Quality
- Ohio Environmental Protection Agency
- Oklahoma Department of Environmental Quality
- South Carolina Department of Environmental Services
- Tennessee Department of Environment & Conservation
- Texas Commission on Environmental Quality
- Utah Department of Environmental Quality
- West Virginia Department of Environmental Protection
- Wyoming Department of Environmental Quality

AAPCA LOCAL AGENCIES

- Asheville-Buncombe Air Quality Agency (NC)
- Butte County Air Quality Management District (CA)
- Canton City Health Department Air Pollution Control Division (OH)
- Chattanooga-Hamilton County Air Pollution Control Bureau (TN)
- City of Fort Worth Environmental Quality Division (TX)
- City of Huntsville Natural Resources and Environmental Management (AL)
- City of Indianapolis (IN)
- El Dorado County Air Quality Management District (CA)
- Environmental Protection Commission of Hillsborough County (FL)
- Forsyth County Office of Environmental Assistance & Protection (NC)
- Galveston County Health District, Air Pollution Services (TX)
- Jefferson County Department of Health, Air & Radiation Protection Division (AL)
- Knox County Air Quality Management (TN)
- Louisville Metro Air Pollution Control District (KY)
- Manatee County Environmental Protection Division (FL)
- Maricopa County Air Quality Department (AZ)
- Mecklenburg County Air Quality (NC)
- Mojave Desert Air Quality Management District (CA)
- Nashville-Davidson Metro Public Health Department (TN)
- Omaha Air Quality Control Division (NE)
- Orange County Air Quality Management (FL)
- Pima County Department of Environmental Quality (AZ)
- Pinal County Air Quality (AZ)
- Pinellas County Air Quality Program (FL)
- San Joaquin Valley Air Pollution Control District (CA)
- Shelby County Health Department (TN)
- Toledo Division of Environmental Services (OH)
- Ventura County Air Pollution Control District (CA)
- Yolo-Solano Air Quality Management District (CA)

ADDITIONAL AIR QUALITY RESOURCES

- U.S. EPA Air Quality Trends Website
- U.S. EPA Nonattainment Areas for Criteria Pollutants (Green Book)
- U.S. EPA Report on the Environment (ROE) Website
- U.S. EPA Air Quality Index (AQI)
- U.S. EPA Power Plant Emissions Trends
- The Environmental Council of the States (ECOS)

AAPCA STAFF

Morgan Dickie | Executive Director
Lauren Hedge | Policy & Membership Specialist

January 31, 2025

Mr. Lee Zeldin
U.S. Environmental Protection Agency (EPA)
1200 Pennsylvania Ave NW
Washington, DC 20460

Dear Administrator Zeldin,

On behalf of the Association of Air Pollution Control Agencies (AAPCA),[1] congratulations on your confirmation to serve as Administrator of the U.S. Environmental Protection Agency (EPA). AAPCA's state and local member air pollution control agencies, responsible for protecting the air quality of nearly 150 million Americans, welcome you as the Agency's Administrator. State and local air agencies serve as co-regulators with U.S. EPA under the federal Clean Air Act (CAA), and we look forward to engaging you and your staff as the Administration's priorities are developed and initiated. The Association provides this input on environmental policy impacting state and local air pollution control agencies to convey member expertise and priorities.

Built on the foundation of cooperative federalism, the CAA has proven a successful framework for productive partnerships at the federal, state, and local levels that have led to remarkable improvements in air quality since 1970.[2] State and local environmental agencies, delegated with permitting, planning, enforcement, and regulatory authority, are dedicated to working hand-in-hand with federal counterparts to find best-possible solutions that are informed by diverse geographic, economic, and social factors. With core work still to be done and a range of evolving issues, AAPCA offers the following considerations and recommendations for the Agency.

Commit to Early Engagement and Timely Communication.

AAPCA members support Agency efforts to engage air agencies early and meaningfully in regulatory and planning processes, improve the timeliness of state implementation plan (SIP) approval to reduce the SIP backlog, provide technical support, expand grant flexibility, ensure quality and up-to-date training, and effectively coordinate with state and local agencies on compliance and enforcement activities. On June 18, 2024, AAPCA provided comments regarding U.S. EPA's draft Fiscal Years (FY) 2025 – 2026 National Program Guidances (NPGs) for the Office of Air and Radiation (OAR), which were incorporated into the Agency's final FY 2025 – 2026 NPGs.[3]

AAPCA urges U.S. EPA to commit to early, frequent, and substantive engagement with state and local air agencies as co-regulatory partners and stresses the importance of providing timely notice of planned

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[1] AAPCA is a national, non-profit, consensus-driven organization focused on assisting state and local air quality agencies and personnel with implementation and technical issues associated with the federal Clean Air Act. Created in 2012, AAPCA represents 53 state and local air pollution control agencies, and senior officials from 21 state environmental agencies currently sit on the AAPCA Board of Directors. AAPCA is housed in Lexington, Kentucky as an affiliate of The Council of State Governments. You can find more information about AAPCA at: www.cleanairact.org.

[2] AAPCA, *State Air Trends & Successes: The StATS Report*, May 2, 2024.

[3] See AAPCA's June 2024 comments and more information about U.S. EPA's FY 2025 – 2026 NPGs here.

actions. Giving advance notice to state and local air agency leadership on forthcoming U.S EPA actions via embargoed information or briefings for the purpose of Federalism[4] is critical to ensuring effective communication between co-regulators and impacted communities and stakeholders.

Encourage Flexibility and Tailored Expectations to Reduce Regulatory Burden.
State and local agencies and the jurisdictions that they serve are unique and differ geographically, economically, and socially. AAPCA members ask U.S. EPA to encourage flexibility and tailored expectations in the work and grant planning processes, as well as for U.S. EPA's commitment to work collaboratively with air agencies to meet priorities under the CAA. U.S. EPA should meaningfully engage with co-regulatory agencies during the pre-proposal and proposal stages of rulemaking. Such engagement is critical to providing U.S. EPA with an understanding of individual state perspectives and offers the opportunity for U.S. EPA to craft rules that provide flexibility while still meeting the objective of the rulemaking.

As an example, U.S. EPA's recently withdrawn final revisions to the Air Emissions Reporting Requirements (AERR)[5] would benefit from improved engagement with state and local air agencies. Specifically, the solicitation and inclusion of input from state and local air agencies prior to proposal would have allowed the consideration of pertinent, on-the-ground expertise in managing emissions inventory systems. The Agency initially proposed that state and local agencies decide whether to assume the responsibility of reporting hazardous air pollutant (HAP) emissions on behalf of owners/operators, and AAPCA recommended that the final AERR rule must include an approach for state and local agency reporting of HAP data that is feasible and does not supersede existing air agency emissions inventory systems. AAPCA also urged U.S. EPA to grant state and local agencies flexibility in rule development to satisfy the proposed reporting requirements for HAP emissions in the revised AERR. Not doing so would divert already limited state, local, and federal agency resources away from other essential aspects of CAA implementation and must be avoided.[6]

Mitigate Funding Challenges and Resource Constraints.
From their on-the-ground expertise, state and local air agencies understand that melding national environmental regulations with local priorities, economic strategies, and social needs requires significant resources. Funding directed to air agencies – including State and Local Air Quality Management Grants under CAA Sections 103 and 105 – must be adequate to meet historic CAA obligations as well as significant and substantive regulatory actions from U.S. EPA that further exacerbate existing resource constraints. AAPCA's state and local air agency members depend on sufficient, stable resources to perform core CAA activities.

On June 5, 2024, AAPCA provided feedback to the U.S. Senate Committee on Appropriations regarding Fiscal Year (FY) 2025 appropriations for U.S. EPA, including State and Local Air Quality Management

[4] Executive Order (E.O.) 13132 – Federalism (64 Fed. Reg. 43255)
[5] U.S. EPA's final rule, "Revisions to the Air Emission Reporting Requirements (AERR)" was withdrawn from interagency review at the White House Office of Information & Regulatory Affairs on January 21, 2025.
[6] See AAPCA's November 2023 comments on U.S. EPA's proposed Revisions to the Air Emissions Reporting Requirements (Docket ID No. EPA-HQ-OAR-2004-0489).

Grants under the State and Tribal Assistance Grant (STAG) program.[7] The Association asked for increased funding for State and Local Air Quality Management Grants that adequately accounts for new and historic CAA mandates as critical for state and local air agency budgets as well as ensuring the cooperative federalism balance needed for successful environmental outcomes. Providing maximum flexibility in air agency grants enables programs to determine the best use of funds to address air pollution control needs in their jurisdiction.

Since the beginning of the fine particulate matter ($PM_{2.5}$) monitoring program, appropriations have maintained funding authority under CAA Section 103. AAPCA reaffirms the importance of sustaining the granting authority for $PM_{2.5}$ monitoring under CAA Section 103, which does not require a 40-percent funding match and allows state and local agencies to best allocate resources for air quality planning and programs while continuing $PM_{2.5}$ monitoring. Distributing funds for $PM_{2.5}$ monitoring under CAA Section 105 would adversely impact state and local air agency budgets.

State and local agencies have also indicated difficulties hiring and retaining a qualified, technical, and experienced workforce to meet the growing complexities of air pollution control work. Further contributing to this concern may be the almost 30 percent of state and local air agency employees at or near retirement.[8]

State and local resource constraints have been underscored as air agencies face increased obligations under the CAA and prepare to implement multiple major new rulemakings, including a tightened $PM_{2.5}$ national ambient air quality standard (NAAQS),[9] methane standards for the oil and natural gas sector,[10] and greenhouse gas (GHG) standards for power plants.[11] Communicating early about Administration priorities, and avoiding imposing unfunded federal mandates are steps that will help overburdened air agencies navigate these growing resource constraints. However, years of flat grant funding of CAA programs needs critical attention. Furthermore, Title V Operating Permit Program emissions-based fees are declining amid achieved emissions reductions. State and local air agencies have led the efforts to improve the nation's air quality while administering progressively complicated and demanding operations that have had to accommodate growing inflation in expenses related to personnel, travel, monitoring equipment, and building costs for monitoring sites without concomitant federal funding.

Appoint a Balanced Clean Air Scientific Advisory Committee.

U.S. EPA's Clean Air Scientific Advisory Committee (CASAC) fulfills the role of "independent scientific review committee" responsible for reviewing the primary and secondary NAAQS and recommending any new standards and revisions of existing standards to the U.S. EPA Administrator. The charge to the CASAC is to review the science, review the risk and exposure assessment, and review U.S. EPA's policy recommendations. It is critically important to keep a balanced set of perspectives on the chartered CASAC and panels, especially including adequate representation from state air pollution control

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[7] See AAPCA's June 2024 letter to U.S. Senate Committee on Appropriations Leadership for FY 2025 Appropriations for the U.S. EPA State and Local Air Quality Management Grants.

[8] See AAPCA's November 2023 report *Staffing at State and Local Air Pollution Control Agencies*.

[9] 89 Fed. Reg. 16202 (March 6, 2024).

[10] 89 Fed. Reg. 16820 (March 8, 2024).

[11] 89 Fed. Reg. 39798 (May 9, 2024).

agencies.[12] State air pollution control personnel have hands-on experience and practical knowledge in the implementation of the NAAQS that contributes a real-world perspective to the CASAC. U.S. EPA should make a conscientious effort to appoint CASAC members and panel members with a balance of perspectives from a variety of backgrounds, including adding more people representing state air pollution control agencies. Furthermore, each CASAC member's recommendation is critically important to the U.S. EPA Administrator, and the recommendation of the minority should not be dismissed or relegated to an obscure appendix. The precedent set during the 2023 ozone NAAQS review and 2023 secondary oxides of nitrogen (NO_X), oxides of sulfur (SO_X), and particulate matter (PM) NAAQS review of removing dissenting opinions from the letter to the U.S. EPA Administrator and placing them in an obscure appendix was contrary to previous reviews, wholly inappropriate, and should be immediately reversed. The CASAC was most recently[13] overseeing the Agency's review of NAAQS for lead, ozone, and NO_X.

Build Capacity for Implementing Recent Regulatory Actions.

AAPCA's members are currently undertaking CAA planning and implementation for a number of recent regulatory actions and provide the following insight to inform the Administration's initiatives.

$PM_{2.5}$ NAAQS

This year, air agencies will be providing recommendations for area attainment designations and boundaries following the revision of the primary annual $PM_{2.5}$ NAAQS. As part of the designations process, air agencies may submit exceptional events (EE) demonstrations for events that have regulatory significance for the 2024 revised primary annual $PM_{2.5}$ NAAQS initial area designations. This is an important CAA provision for addressing air quality impacts outside of regulatory control. Developing EE demonstrations are time- and resource-intensive activities for air agencies. With intensifying wildfire seasons, agencies will need to develop demonstrations more often. U.S. EPA OAR and Regional Offices should continue to work with state and local agencies to streamline the process for drafting and reviewing approvable exceptional event demonstrations – particularly for EE demonstration submissions for the purpose of initial area designations recommendations.

Additionally, U.S. EPA should consider air agency requests to exclude specific monitors from comparison with the primary annual $PM_{2.5}$ NAAQS based on a demonstration that data from such monitors are not representative of area-wide air quality. For example, $PM_{2.5}$ monitors deployed to meet near-road monitoring requirements provide measurements within localized microenvironments near highly trafficked roadways that are not representative of a broader airshed.

AAPCA recently sent a letter[14] to U.S. EPA expressing concern about persisting high bias in $PM_{2.5}$ data from federal equivalent method (FEM) Teledyne T640/T640X PM Mass Monitors. AAPCA appreciates

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[12] Air & Waste Management Association *EM* Magazine, "The Need for a Balanced CASAC in the NAAQS Review Process," June 2024

[13] On January 28, 2025, U.S. EPA Acting Administrator James Payne notified the Office of the Science Advisory Board that, "A decision has been made to reset the Science Advisory Board (SAB) and Clean Air Scientific Advisory Committee (CASAC) and reestablish its current membership."

[14] See AAPCA's December 2024 letter concerning particulate matter monitoring method comparability of the Teledyne T640/T640X PM Mass Monitor Federal Equivalent Method.

Teledyne Technologies and U.S. EPA's efforts to correct the bias in the Teledyne T640/X FEM.[15] However, the bias adjustment algorithm that was developed by Teledyne, approved by U.S. EPA, and applied to data[16] housed in the Air Quality System (AQS) does not adequately reduce the bias in the Teledyne T640/X $PM_{2.5}$ concentrations, resulting in annual $PM_{2.5}$ concentrations that are significantly higher compared to annual $PM_{2.5}$ concentrations measured with federal reference method (FRM) monitors. This could lead to areas being designated nonattainment based on measured Teledyne T640/X $PM_{2.5}$ concentrations, when the area would have been designated attainment based on measured FRM $PM_{2.5}$ concentrations. Developing and implementing the bias adjustment was a time- and resource-intensive process that resulted in the delayed release of 2023 $PM_{2.5}$ design values.[17] U.S. EPA has the option of taking up to one additional year to make initial area designations if the Administrator has insufficient information.[18] U.S. EPA ought to give due consideration to the designations timeline and provide adequate time for attainment/nonattainment designations to be made with the best available data.

CAA Section 111(d) State Plans

State and local air agencies are subject to tight, two-year deadlines to develop Emissions Guideline State Plans (EGSP) for existing sources in the oil and natural gas sector and existing fossil-fuel fired electric generating units (EGUs), due March 9, 2026, and May 11, 2026, respectively. State and local regulatory processes vary considerably and changes to new or existing rules can take as long as five years. Due to the significant lead times required for state and local regulatory processes, air agencies would benefit from early communication on the Administration's priorities regarding implementation of these rules, including any intention to reconsider the rules or roll back their requirements.

Thank you for your consideration of this input. AAPCA's state and local air agency members look forward to working with U.S. EPA and their EPA Regions under your Administration. If you have any questions, please contact Ms. Morgan Dickie, Executive Director, at mdickie@csg.org or (859) 244-8042.

Sincerely,

Morgan Dickie
AAPCA Executive Director

[15] See AAPCA March 2024 comments on U.S. EPA's Proposed Update of $PM_{2.5}$ Data From T640/T640X PM Mass Monitors (Docket ID No. EPA-HQ-OAR-2023-0642).

[16] 89 Fed. Reg. 42874 (May 16, 2024).

[17] U.S. EPA released 2023 $PM_{2.5}$ Design Values on August 9, 2024, while design value reports for all other criteria pollutants were made available on June 12, 2024.

[18] U.S. EPA's February 2024 memorandum on "Initial Area Designations for the 2024 Revised Primary Annual Fine Particle National Ambient Air Quality Standard" indicates that "If the Administrator has insufficient information to make initial designations decisions in the 2-year time frame, the EPA may take up to 1 additional year to make initial area designations decisions."

cc: Mr. Chad McIntosh, U.S. EPA
Mr. Travis Voyles, U.S. EPA
Mr. Eric Amidon, U.S. EPA
Ms. Sarah Dunham, U.S. EPA
Ms. Abbie Tardif, U.S. EPA

December 20, 2024

Mr. Edwin Roks
Chief Executive Officer
Teledyne Technologies Incorporated
1049 Camino Dos Rios
Thousand Oaks, CA 91360

Mr. Michael S. Regan
Administrator
U.S. Environmental Protection Agency (EPA)
1200 Pennsylvania Ave NW
Washington, D.C. 20460

Dear Mr. Roks and Mr. Regan:

This letter is to transmit from the Association of Air Pollution Control Agencies (AAPCA)[1] considerations for improving data comparability between federal reference methods (FRM) and federal equivalent methods (FEM)[2] for ambient air monitoring of particulate matter (PM). State and local air agencies are co-regulators under the federal Clean Air Act (CAA) with important on-the-ground expertise, including serving as primary monitoring entities for the National Ambient Air Quality Standards (NAAQS). The U.S. Environmental Protection Agency (EPA) Office of Air Quality Planning & Standards (OAQPS) and Teledyne Technologies Incorporated acknowledge the need to address comparability issues between FRMs and FEMs, and AAPCA provides this expert technical input to that aim.[3]

Teledyne T640/T640X PM Mass Monitors received FEM designation from the U.S. EPA Office of Research & Development (ORD) in July 2016 and are widely used for continuous monitoring of ambient fine particulate matter ($PM_{2.5}$) by state and local air agencies throughout the nation.[4] These instruments have the advantage of instantly providing high temporal resolution $PM_{2.5}$ concentrations at a lower overall cost compared to FRM monitors. State and local agencies rely on U.S. EPA ORD designation of an instrument as "equivalent" to an FRM, which is generally the sole assurance of comparable performance.[5] Meeting data quality objectives is critical for collecting

[1] AAPCA is a national, non-profit, consensus-driven organization focused on assisting state and local air quality agencies and personnel with implementation and technical issues associated with the federal Clean Air Act. Created in 2012, AAPCA represents 53 state and local air pollution control agencies, and senior officials from 21 state environmental agencies currently sit on the AAPCA Board of Directors. AAPCA is housed in Lexington, Kentucky as an affiliate of The Council of State Governments. More about AAPCA is at: www.cleanairact.org.
[2] Methods for measuring ambient concentrations of specified air pollutants have been designated as "reference methods" or "equivalent methods" in accordance with 40 CFR Part 53. See U.S. EPA, "List of Designated Reference and Equivalent Methods," June 15, 2024.
[3] See also AAPCA's letter to U.S. EPA OAQPS addressing particulate matter monitoring method comparability (November 23, 2022).
[4] See U.S. EPA's Supplemental Information on the EPA's Update of $PM_{2.5}$ Data from T640/T640X PM Mass Monitors (May 13, 2024). State and local agencies were "reporting data for about 400 T640 and T640X $PM_{2.5}$ FEMs in 2023."
[5] See 40 CFR Part 53 Subpart C – Procedures for Determining Comparability Between Candidate Methods and Reference Methods.

defensible ambient air data that will have important implications for implementing the 2024 revised primary annual $PM_{2.5}$ NAAQS,[6] including for attainment/nonattainment designations, state implementation plans (SIPs), exceptional events demonstrations, and permitting.

AAPCA's state and local air agency members are concerned that the Teledyne T640/X FEM instruments have a significantly high bias compared to FRM instruments. AAPCA appreciates Teledyne Technologies and U.S. EPA's efforts to correct the bias in the Teledyne T640/X FEM.[7] However, the bias adjustment algorithm that was developed by Teledyne, approved by U.S. EPA, and applied to AQS data[8] does not adequately reduce the bias in the Teledyne T640/X $PM_{2.5}$ concentrations, resulting in annual $PM_{2.5}$ concentrations that are significantly higher compared to annual $PM_{2.5}$ concentrations measured with FRM monitors. This can lead to areas being designated nonattainment based on measured Teledyne T640/X $PM_{2.5}$ concentrations, when the area would have been designated attainment based on measured FRM $PM_{2.5}$ concentrations. As a result, many state and local air monitoring programs are in the process of invalidating the Teledyne T640/X measurements and moving away from the Teledyne T640/X instruments.

Currently, there are over 200 sites nationwide that have FRM monitors collocated with Teledyne T640/X instruments. The Georgia Environmental Protection Division (EPD) evaluated the performance of the Teledyne T640/X instruments by calculating the normalized mean bias (NMB)[9] at collocated FRM/FEM sites. The NMB statistics were based on 24-hour $PM_{2.5}$ measurements at 217 FRM sites across the United States from 2018 through 2023. The dataset included more than 68,000 FRM/FEM 24-hour $PM_{2.5}$ concentration data pairs. Details of Georgia EPD's evaluation are contained in Attachment A (slides 23 – 34) and Attachment B.

Prior to the implementation of the Teledyne bias adjustment algorithm, the multiyear average bias of the T640/X instruments was as much as 9.0 micrograms per cubic meter, or $\mu g/m^3$, (65.3 percent) higher as compared to FRM data. Also, 189 monitoring locations (87 percent) had a bias greater than ±10 percent while only 28 monitoring locations (13 percent) had a bias less than ±10 percent. The overall NMB was 20.1 percent. The Teledyne bias adjustment algorithm made adjustments based on the hourly ambient temperature and hourly measured FEM concentration. After implementation of the Teledyne bias adjustment algorithm, the multiyear average bias of the T640/X instruments was up to 7.9 $\mu g/m^3$ (57.6 percent) higher as compared to the FRM data. Also, 68 monitoring locations (31 percent) had a bias greater than ±10 percent while 149 monitoring locations (69 percent) had a bias less than ±10 percent. The overall NMB was 6.4 percent. While this is a significant improvement in the bias compared to the uncorrected measurements, it still does not adequately reduce the bias in the Teledyne T640/X $PM_{2.5}$ concentrations to an acceptable level.

The main concern with the current Teledyne algorithm is that it applies a constant adjustment value of 0.925 $\mu g/m^3$ to all values over 5.0 $\mu g/m^3$ (when the hourly temperature is greater than 20°C) and a constant adjustment value of 1.861 $\mu g/m^3$ to all values over 10.0 $\mu g/m^3$ (when the hourly temperature is less than or equal to 20°C). However, the FRM/FEM comparison clearly demonstrates that this approach does not match the data at higher $PM_{2.5}$ concentrations and that the bias adjustment needs to increase as the Teledyne FEM $PM_{2.5}$ concentrations

[6] 89 Fed. Reg. 16202 (March 6, 2024).
[7] See AAPCA comments on U.S. EPA's Docket ID No. EPA-HQ-OAR-2023-0642; Proposed Update of $PM_{2.5}$ Data From T640/T640X PM Mass Monitors (March 15, 2024).
[8] 89 Fed. Reg. 42874 (May 16, 2024).
[9] Normalized Mean Bias (NMB) = [(Average FEM Conc.) - (Average FRM Conc.)]/(Average FRM Conc)

increase.[10] Therefore, the application of a constant adjustment value (e.g., 0.925 or 1.861 µg/m^3) is inappropriate and should be replaced with an adjustment based on a percent reduction in Teledyne FEM $PM_{2.5}$ concentration for all concentrations and temperatures. As an example of an alternative bias adjustment approach, Georgia EPD implemented a simple update to the Teledyne bias adjustment algorithm. The alternative approach multiplies the T640/X raw PM value by 0.813233 for all hourly $PM_{2.5}$ concentrations regardless of concentration and temperature. Application of the Georgia EPD bias adjustment algorithm to the T640/X data resulted in a multiyear average bias of up to 4.7 µg/m^3 (34.4 percent) higher as compared to the FRM data. Also, only 45 monitoring locations (21 percent) had a bias greater than ±10 percent while 172 monitoring locations (79 percent) had a bias less than ±10 percent. The overall NMB was -2.3 percent. Table 1 below summarizes the T640/T640X instrument bias before and after Teledyne adjustment and Georgia EPD adjustment for 217 collocated FRM/FEM sites from 2018 – 2023.

Table 1. Summary of T640/T640X instrument bias before and after Teledyne adjustment and Georgia EPD adjustment for 217 collocated FRM/FEM sites from 2018-2023.

	Before Teledyne Bias Adjustment Algorithm	**After Teledyne Bias Adjustment Algorithm**	**After Georgia EPD Bias Adjustment Algorithm**
Maximum multi-year average bias	9.0 µg/m^3 (65.3%)	7.9 µg/m^3 (57.6%)	4.7 µg/m^3 (34.4%)
# of Sites > ±10% NMB	189 (87%)	68 (31%)	45 (21%)
# of Sites < ±10% NMB	28 (13%)	149 (69%)	172 (79%)
Overall NMB	**20.1%**	**6.4%**	**-2.3%**

Although the Georgia EPD analysis was performed for the entire United States, it should be noted that some areas of the country performed better than others, while others performed worse. Below are additional examples of analyses and actions undertaken by AAPCA member agencies:

- Georgia EPD evaluated collocated FRM/FEM instruments across 11 collocated sites in Georgia from January 1, 2021, to July 31, 2023. The Teledyne bias adjustment algorithm resulted in an overall normalized mean bias of 9.59 percent (with 6 of 11 sites having greater than ±10 percent bias). Applying a single bias adjustment multiplier of 0.813233 for all $PM_{2.5}$ concentrations regardless of concentration and temperature reduces the overall normalized mean bias in Georgia to -0.24 percent (all Georgia sites have less than ±10 percent bias and 9 of 11 sites have less than ±5 percent bias). Details can be found in Attachment C. As a result of the poor Teledyne T640/X performance in Georgia, Georgia EPD recently purchased 16 new FRM instruments to deploy at locations only running T640/X FEM instruments. For many of these sites, the FRM instruments will collect daily filter samples at an additional cost of approximately $300,000/year for filters, analysis, and additional full-time employees. Georgia EPD has requested NAAQS exclusion for a number of Teledyne T640/X $PM_{2.5}$ monitors based on the poor comparison to collocated FRMs using the U.S. EPA FEM Comparability Assessment Tool.[11]
- Oklahoma Department of Environmental Quality (ODEQ) uses both T640 and T640X samplers, and has found that, following U.S. EPA's implementation of Teledyne's correction factor, a 10 – 22 percent high bias still exists at all three sites collocated with FRM samplers. This level of bias throughout the state results in regions within Oklahoma now inaccurately showing annual design values at or near the newly revised annual primary NAAQS for $PM_{2.5}$. The risk of being designated nonattainment due to biased data rather than true NAAQS exceedances is not a risk ODEQ can continue to take. As such, ODEQ Ambient Air Monitoring staff are

[10] See Attachment A, slides 27 – 28.

[11] See U.S. EPA technical note "$PM_{2.5}$ Continuous Monitor Comparability Assessment" (updated May 18, 2018).

currently not purchasing T640 or T640X analyzers, replacement parts, or factory repairs for these devices, and are evaluating options to transition Oklahoma's entire continuous $PM_{2.5}$ Monitoring network towards alternative FEM samplers.

- Texas Commission on Environmental Quality (TCEQ) continues to evaluate data from sites where it has an FRM collocated with a Teledyne T640X. The data reviewed to date indicates a general high bias in the Teledyne T640X data when compared to the FRM data. This high bias ranges from +8 percent to +37 percent across six monitoring sites in the TCEQ network. In addition to the high bias, known problems with poor build quality in the sample inlets have affected sampler operations, making it difficult to compare data across multiple instruments and methods. Currently, TCEQ has no plans to purchase or deploy additional Teledyne T640X samplers in its network and is evaluating options to replace or redesignate Teledyne T640X samplers already being used.
- West Virginia Department of Environmental Protection (WVDEP) provided comments to U.S. EPA responding to the Agency's update of $PM_{2.5}$ data from T640/T640x PM Mass Monitors to indicate remaining concern that the applied adjustment does not adequately correct WVDEP's data compared with FRM data at the same locations. Using 2023 data at the Moundsville, WV, monitoring site as an example, the historical uncorrected T640X FEM (31.44 percent above FRM) was corrected using the alignment factor, however, the corrected data (22.46 percent above FRM) does not sufficiently align the FEM data to within 5 – 10 percent of the FRM data as expected. Furthermore, using Georgia EPD's alternate alignment factor on 2023 data at Moundsville would result in an average of the FEM running 8.33 percent higher than the FRM.[12]

AAPCA requests that Teledyne Technologies re-evaluate the bias adjustment algorithm implemented on the Teledyne T640/X instruments such that the comparability with the collocated FRM measurements result in an overall bias much closer to zero. Without an updated bias adjustment algorithm, state and local air agencies are likely to continue to invalidate the Teledyne T640/X measurements and look for alternatives to the Teledyne T640/X instruments.

AAPCA also urges U.S. EPA to revisit retroactively correcting particulate matter with a diameter of 10 microns or smaller (PM_{10}) data. Teledyne's Network Data Alignment is applicable to PM_{10} measurements moving forward, and despite being potentially diminutive,[13] correcting the bias associated with PM_{10} data is important to some states and provides a more accurate dataset for regulatory, scientific, and public use. We agree with the Agency's prioritization of implementing the Network Data Alignment for $PM_{2.5}$ given approaching implementation deadlines for the 2024 revised annual $PM_{2.5}$ NAAQS; however, U.S. EPA should begin working with air agencies to implement the alignment, as appropriate, for PM_{10} data as well. Developing and implementing the bias adjustment was a time- and resource-intensive process that resulted in the delayed release of 2023 $PM_{2.5}$ design values.[14] Transparent, early engagement with state and local co-regulators is critical as U.S. EPA continues to further evaluate and improve the performance of FEMs operating in the national regulatory monitoring network.

Thank you for considering the Association's comments on improving PM monitoring method comparability between FRMs and the Teledyne T640/T640X PM Mass Monitor FEM. If you have any questions, please contact

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[12] See Attachment D.

[13] See U.S. EPA's "Supplemental Information on the EPA's Update of $PM_{2.5}$ Data from T640/T640X PM Mass Monitors" (May 13, 2024).

[14] U.S. EPA released 2023 $PM_{2.5}$ Design Values on August 9, 2024, while design value reports for all other criteria pollutants were made available on June 12, 2024.

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Sincerely,

Morgan Dickie
Executive Director, AAPCA

cc: Mr. Kirk Lovewell, Teledyne Technologies Inc.
Mr. Stephen Toner, Teledyne Technologies Inc.
Ms. France Meder, Teledyne Technologies Inc.
Mr. Peter Tsirigotis, U.S. EPA OAQPS
Mr. Richard Wayland, U.S. EPA OAQPS
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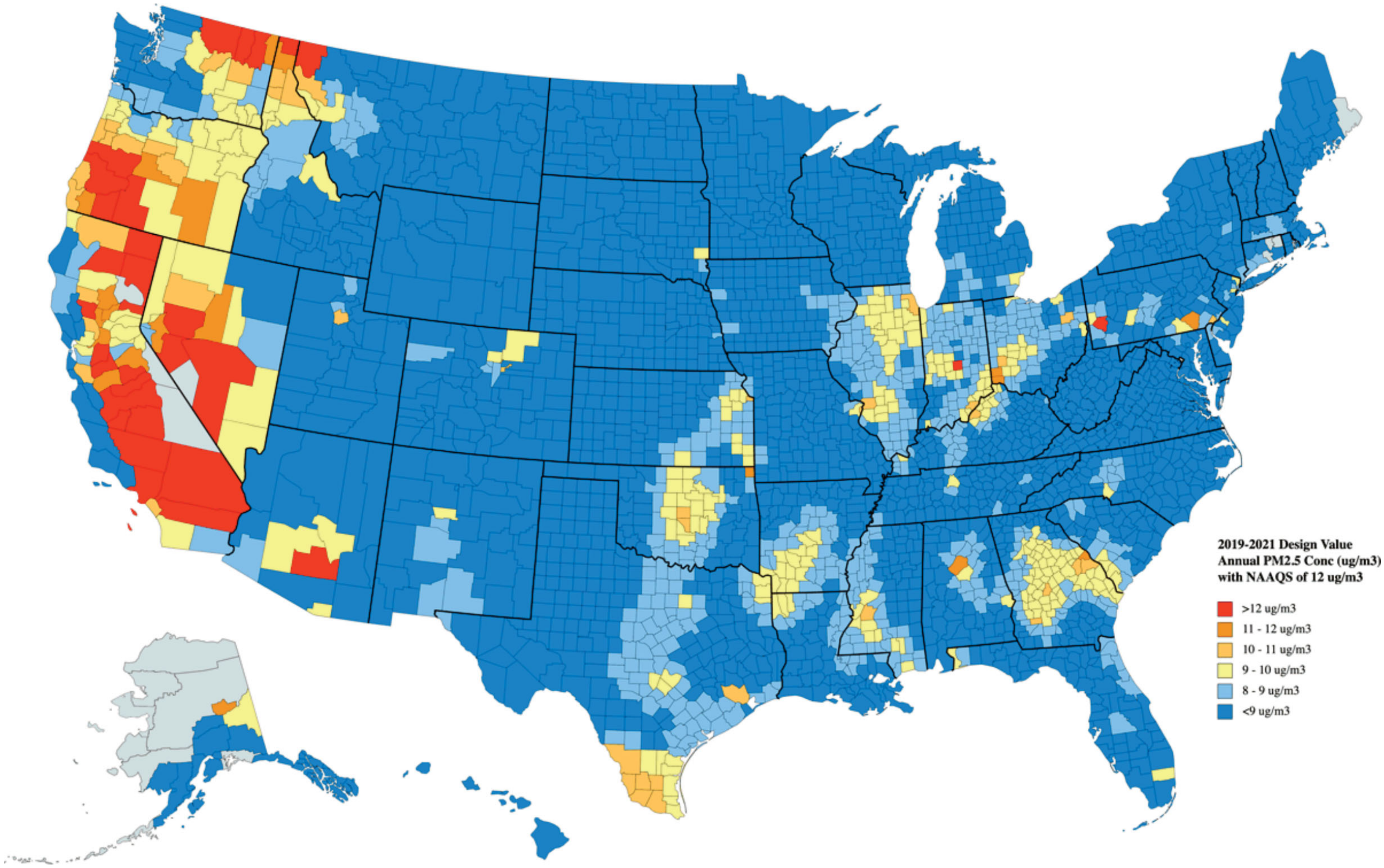
Mr. Robert Vanderpool, U.S. EPA ORD



2019-2021 $PM_{2.5}$ Design Values.
Source: Providence Engineering and Environmental Group LLC.

Charting Recent NAAQS Developments and Implications for Air Agencies

by Jason Meyers and Laura Crowder

An overview of state and local air pollution control agencies' roles and responsibilities in implementing control strategies necessary to achieve the NAAQS in light of recent developments.

The U.S. National Ambient Air Quality Standards (NAAQS) program is foundational to improving the nation's air quality. Structured under the U.S. Clean Air Act's (CAA) framework of cooperative federalism, the NAAQS program is administered by the U.S. Environmental Protection Agency (EPA), which reviews and sets health-based (or primary) and public welfare (or secondary) ambient air standards for six "criteria" pollutants.[1] Section 101 of the CAA specifies that air pollution control at its source is the primary responsibility of state and local governments. Actions by state and local governments, which also involve regulated entities and other stakeholders, have successfully achieved significant reductions in the emissions and ambient concentrations of pollutants regulated by NAAQS.[2]

Section 109(d) of the CAA stipulates that EPA, in consultation with the chartered Clean Air Scientific Advisory Committee (CASAC), shall review each criteria pollutant NAAQS at five-year intervals.[3] The review timeline has differed historically, and EPA recently completed the first change to a standard in nearly nine years, tightening the fine particulate matter ($PM_{2.5}$) NAAQS by 25%.[4] As the 2024 $PM_{2.5}$ NAAQS are implemented and EPA reviews multiple other NAAQS, there are key regulatory, legal, and technical issues that have important implications for state, local, and tribal air agencies responsible for implementation, monitoring, enforcement, and permitting.

$PM_{2.5}$ NAAQS: Review and Early Implementation

In June 2021, EPA initiated a reconsideration of the agency's December 2020 determination to retain the primary and secondary PM NAAQS. Based on the CASAC "supplemental" review of underlying science and health data, a proposal was issued in January 2023 to take public comment on a range between 9.0 and 10.0 micrograms per cubic meter (μg/m^3) for the primary $PM_{2.5}$ annual standard, a reduction from 12.0 μg/m^3 on an annual arithmetic mean, averaged over three years.[5] As a result, EPA promulgated a new primary annual $PM_{2.5}$ NAAQS of 9.0 μg/m^3 on February 7, 2024. The primary 24-hr $PM_{2.5}$ NAAQS of 35 μg/m^3; the primary 24-hr NAAQS for coarse particulate matter (PM_{10}) of 150 μg/m^3; and the secondary NAAQS for both $PM_{2.5}$ (15.0 μg/m^3) and PM_{10} (150 μg/m^3) were retained. The final rule was published in the Federal Register on March 6, 2024, with an effective date of May 6, 2024.[6]

Implementation of the new standard, which was last revised in 2012, will require significant resources and effort from state, local, and tribal air agencies. A February 7, 2024, memorandum from EPA's Office of Air and Radiation (OAR) outlined the process for determining if an area is attaining the 2024 $PM_{2.5}$ NAAQS.[7] The memorandum prescribes a deadline of February 7, 2025, for states and tribes to submit attainment/nonattainment recommendations for their jurisdictions, which are determined by a complex five-factor analysis that evaluates the most recent three years of monitoring data, emissions data from current sources, meteorology, geography/topography, and area boundaries. Agencies will also have to perform public outreach and associated environmental justice analyses.

A number of complicating factors will need to be addressed as air agencies strive to meet the one-year deadline for providing attainment recommendations. Foremost, wildfires and prescribed fires account for 44% of direct $PM_{2.5}$ emissions[8] and are outside the control of agencies that regulate air pollution (and regularly outside of jurisdictional borders, as with the 2023 Canada wildfires). Because fires will significantly increase three-year design values (DV)[9] used for recommendations, air agencies must develop exceptional event (EE) demonstrations to exclude smoke-impacted data. Developing an EE demonstration for EPA approval is resource-intensive, involving detailed analyses and often spanning hundreds of pages in length. By January 1, 2025, air agencies must provide initial notification to EPA of the intent to submit EE demonstration(s) and then submit said EE demonstration(s) by February 7, 2025, alongside attainment recommendations.[10]

Importantly, state, local, and tribal agencies undertake extensive public outreach efforts during these events to keep the public informed about health risks from smoke and associated PM. As air agencies develop exceptional events packages following a wildfire, prescribed burn, or other event, opportunities for the public to review and comment on the data and demonstration packages are provided.

Another technical hurdle is EPA's correction of biased PM data from approximately 400 Teledyne T640/T640X continuous monitors across the United States. Despite receiving approval by EPA's Reference and Equivalency Program as a Federal Equivalent Method (FEM), these continuous monitors consistently measure $PM_{2.5}$ levels about 20% higher than collocated filter-based Federal Reference Method (FRM) monitors. Smoke impacts from fires can result in even higher biases from these instruments. EPA approved a Network Data Alignment in April 2023 to correct the positive bias moving forward, and then took comment on a plan to retroactively apply the Alignment to data back to 2017.[11] State and local agencies note that this is important for having consistent and accurate monitoring data for regulatory, scientific, and public purposes,[12] but requires agencies to submit, review, and certify nearly seven years of data during the limited attainment recommendations period (with additional analyses necessary for smoke-impacted data).

Using quality-assured ambient air monitoring data, EPA intends to make formal area designations two years after the promulgated standard, or February 6, 2026. One year later, in February 2027, "infrastructure" state implementation plans (SIPs) are due from states to document their ability to implement, maintain, and enforce the new NAAQS. For areas not meeting the $PM_{2.5}$ NAAQS, nonattainment SIPs will be due in August 2027.[13]

While the revised $PM_{2.5}$ NAAQS was promulgated on February 7, 2024, for attainment purposes, the standard became applicable for permitting purposes on May 6, 2024. As the primary CAA permitting authorities implementing the NAAQS, air agencies must evaluate permits using the $PM_{2.5}$ standard for the Prevention of Significant Deterioration (PSD), which was established by Congress for the New Source Review (NSR) permitting program to ensure that projects can occur while air quality is maintained. The tightened $PM_{2.5}$ NAAQS substantially impacts the PSD program, and air agencies have noted difficulties in $PM_{2.5}$ modeling for projects as the standard approaches background levels, potentially limiting opportunities for new economic development projects. In some areas, exceptional events and monitors sited near roads may also factor into planning and permitting efforts.

Ozone NAAQS Review

As with the PM NAAQS, EPA announced a reconsideration of the December 2020 decision to retain the ozone NAAQS in October 2021. The reconsideration included a "supplemental" review of the supporting science and health studies. Unlike the PM NAAQS, the agency determined that the current evidence did not support lowering the ozone NAAQS. Ultimately, EPA initiated a full statutory review of the ozone standards in August 2023, returning it to the CAA-stipulated five-year interval.[14]

Last revised in 2015, the current primary and secondary NAAQS for ground-level ozone is set at 70 parts per billion (ppb), based on the annual fourth-highest daily maximum eight-hour average concentration, as averaged over three years. EPA concluded that the current ozone NAAQS are adequate to protect human health during the review that was completed in 2020, as well as the supplemental review that ended in 2023. The CASAC majority, though, suggested a significant reduction of the ozone NAAQS, noting in its review of the associated policy assessment: "All of the CASAC members, except one, recommend a revised NAAQS level in the range of 55 to 60 ppb to be protective of public health."[15] During deliberations, the CASAC majority also called for setting a separate, distinct secondary standard for ozone to address ecological effects, which would be "uncharted territory" in the words of the CASAC chair.

EPA has indicated that an Integrated Review Plan (IRP) is forthcoming later this year to guide the new review process. The *Fall 2023 Unified Agenda of Regulatory and Deregulatory Actions* (released December 6, 2023) identifies the rule as a long-term action, indicating that a proposal is not expected in 2024.[16]

Other NAAQS Reviews

In addition to $PM_{2.5}$ and ozone, EPA is also in the process of three other reviews that include multiple primary and secondary standards:

- The Lead NAAQS were last revised in 2008 and then retained in 2016. The CASAC completed review of the associated IRP in September 2023 and a final rule is not expected in 2024.[17]
- Revisions to the nitrogen dioxide (NO_2) NAAQS were last made in 2010, though the agency does not expect regulatory action this year.[18] The CASAC held a meeting to review the associated IRP in April 2024.
- Facing consent decree deadlines, EPA issued a proposed rule in April 2024 based on a combined review of the secondary NAAQS for nitrogen oxides (NO_X) and sulfur oxides (SO_X) that was announced in August 2013, as well as for PM that was announced in December 2014. The proposal would revise the secondary sulfur dioxide (SO_2) NAAQS "to an annual average, averaged over three consecutive years, with a level within the range from 10 to 15 [ppb]" and retention of the secondary NO_X and PM standards. EPA must issue a final rule by December 10, 2024.[19]

Other Factors

Air agencies have begun implementation, enforcement, and permitting efforts for the 2024 $PM_{2.5}$ NAAQS, but there are a few distinct issues that could impact state, local, tribal, and federal work. On March 6, 2024, the day the final rule was published, multiple petitions for review were filed in the U.S. Court of Appeals for the D.C. Circuit challenging the new standard, including petitions from 25 states.[20] Judicial review could ultimately determine if (or what of) the final rule remains in effect, even though a court decision may come well into the implementation process.

A more immediate challenge for state and local air agencies is meeting a growing list of CAA obligations in the face of continued resource and staffing constraints. In addition to the $PM_{2.5}$ NAAQS, several significant regulations will enter the implementation phase in 2024, including entirely new rules to control emissions from power plants and the oil and gas sector. Heightened monitoring efforts, such as the ongoing deployment of continuous regulatory monitors and proliferation of air sensors, require commensurate workload increases for maintenance, data analysis, and public communication. Despite air agencies shouldering this work, federal funding directed to their air quality programs has remained mostly static for more than a decade and emissions reductions from permitted sources have led to less revenue generated from emissions fees. Further, air agencies have indicated difficulties hiring and retaining a qualified, technical, and experienced workforce.[21]

Conclusion

From review through implementation, EPA's NAAQS program requires a broad range of expertise to inform processes that have important implications for the nation's air quality and public health. This is particularly true for resource-constrained air agencies that are responsible for the complex and technically challenging core monitoring, modeling, emissions inventory, and planning efforts that. These agencies have a profound understanding of how national environmental efforts must intertwine with local priorities, economic development strategies, and social needs. While air quality standards may change, the foundation for successful implementation requires deep coordination among EPA and the state, local, and tribal agencies working on the ground. **em**

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References

1. A current, full listing of the NAAQS can be found at https://www.epa.gov/criteria-air-pollutants/naaqs-table.
2. U.S. Environmental Protection Agency (EPA). Our Nation's Air: Trends Through 2022, May 23, 2023; https://gispub.epa.gov/air/trendsreport/2023/#home. *See also:* Association of Air Pollution Control Agencies (AAPCA). State Air Trends & Successes: The StATS Report, May 2023; https://cleanairact.org/aapca-publishes-2023-edition-of-state-air-trends-successes-the-stats-report/.
3. 42 U.S.C. §7409(d). See https://www.govinfo.gov/content/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapI-partA-sec7409.htm.
4. U.S. Environmental Protection Agency (EPA). Final Reconsideration of the National Ambient Air Quality Standards for Particulate Matter (PM), February 7, 2024; https://www.epa.gov/pm-pollution/final-reconsideration-national-ambient-air-quality-standards-particulate-matter-pm.
5. EPA also took comment on 8.0 and 10.0 µg/m^3, retention of the secondary PM NAAQS, and various ranges for the daily and secondary NAAQS. *See:* Abraczinskas, M.; Meyers, J.; Sloan, J. Understanding the Impact of a Lower Fine Particulate Matter National Ambient Air Quality Standard, EM Magazine, May 2023; https://cleanairact.org/wp-content/uploads/2023/05/emmay23_AAPCA-article.pdf.
6. 89 Fed. Reg. 16202 (March 6, 2024); https://www.govinfo.gov/content/pkg/FR-2024-03-06/pdf/2024-02637.pdf.
7. Memorandum from Joseph Goffman, Assistant Administrator, EPA OAR, "Initial Area Designations for the 2024 Revised Primary Annual Fine Particle National Ambient Air Quality Standard," February 7, 2024; https://www.epa.gov/system/files/documents/2024-02/pm-naaqs-designations-memo_2.7.2024-_-jg-signed.pdf.
8. U.S. Environmental Protection Agency (EPA). Wildland Fire, Air Quality, and Public Health Considerations Fact Sheet, February 7, 2024; https://www.epa.gov/system/files/documents/2024-02/pm-naaqs-wildland-fire-air-quality-fact-sheet-final.pdf.
9. U.S. Environmental Protection Agency (EPA) Air Quality Design Values. See https://www.epa.gov/air-trends/air-quality-design-values.
10. Notably, monitoring data from 2023, which was heavily impacted by wildfires from Canada, will be used for both state recommendations (2021, 2022, 2023 data) and EPA's final determinations for area designations (2022, 2023, 2024 data).
11. 89 Fed. Reg. 11831 (February 15, 2024); https://www.govinfo.gov/content/pkg/FR-2024-02-15/pdf/2024-02935.pdf.
12. *See:* AAPCA letters on addressing PM monitoring method comparability from November 2022 (https://cleanairact.org/wp-content/uploads/2022/11/AAPCA-Letter-Particulate-Matter-Monitoring-FINAL-11-23-2022.pdf) and March 2024 (https://cleanairact.org/wp-content/uploads/2024/03/AAPCA-Comments-Proposed-Update-of-T640-T640X-PM2.5-Data-FINAL-3.15.24.pdf).
13. U.S. Environmental Protection Agency (EPA). Final Rule to Strengthen the National Air Quality Health Standard for Particulate Matter Fact Sheet, February 7, 2024; https://www.epa.gov/system/files/documents/2024-02/pm-naaqs-overview.pdf.
14. EPA Administrator Michael Regan letter to Dr. Lianne Sheppard, Chair, CASAC (August 18, 2023); https://cleanairact.org/wp-content/uploads/2024/03/EPA-CASAC-23-002-Response-2.pdf. *See also:* EPA Initiates New Review of the Ozone National Ambient Air Quality Standards to Reflect the Latest Science, August 2023; https://www.epa.gov/newsreleases/epa-initiates-new-review-ozone-national-ambient-air-quality-standards-reflect-latest.
15. CASAC letter to EPA Administrator Michael Regan (June 9, 2023); https://cleanairact.org/wp-content/uploads/2024/03/EPA-CASAC-23-002-2.pdf.
16. *See:* RIN: 2060-AV64; https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=202310&RIN=2060-AV64.
17. *See:* RIN: 2060-AU86; https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=202310&RIN=2060-AU86.
18. *See:* RIN: 2060-AW08; https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=202310&RIN=2060-AW08. EPA indicates in Volume 1 of the IRP for NO_2 (pg. 4-1) that: "In September 2023, the Center for Biological Diversity, Sierra Club, and Center for Environmental Health filed a deadline suit regarding completion of the review of the health-based air quality criteria and the primary NAAQS for oxides of nitrogen. That citizen suit has not yet been resolved, and the EPA anticipates that resolution of those claims would inform the schedule for completion of the review." (https://www.epa.gov/system/files/documents/2024-03/no2-irp-volume-1_march-2024.pdf).
19. 89 Fed. Reg. 26620 (April 15, 2024); https://www.govinfo.gov/content/pkg/FR-2024-04-15/pdf/2024-07397.pdf.
20. Petitions for review were filed by AL, AK, AR, FL, GA, ID, IN, IA, KS, KY, LA, MS, MO, MT, NE, ND, OH, OK, SC, SD, TN, TX, UT, WV, and WY.
21. Association of Air Pollution Control Agencies (AAPCA). Staffing at State and Local Air Pollution Control Agencies, November 2023; https://cleanairact.org/wp-content/uploads/2023/11/AAPCA-Survey-on-State-and-Local-Air-Agency-Staffing-FINAL-November-2023.pdf.

Understanding the Impact of a Lower Fine Particulate Matter National Ambient Air Quality Standard

by Michael Abraczinskas, Jason Meyers, and Jason Sloan

A look at the potential impact of the proposed new, lower $PM_{2.5}$ standard on state and local air agencies.

In early January, the U.S. Environmental Protection Agency (EPA) announced a proposal to revise the National Ambient Air Quality Standards (NAAQS) for Particulate Matter (PM).[1] The proposal, which was open for public comment through March 28, 2023, was the culmination of supplemental scientific and policy assessments developed following EPA's June 2021 announcement that the agency would reconsider its December 2020 decision to retain the existing PM NAAQS.[2] A final rule—expected in August 2023—could tighten the current annual standard. State and local air agencies will play a critical role in determining if an area is attaining, or meeting, the NAAQS. In coordination with EPA, agencies will also develop and update state implementation plans (SIPs) to ensure the NAAQS are met and maintained within and across state lines.

Background: NAAQS Program and PM Standards Review

The NAAQS program, created under the U.S. Clean Air Act (CAA) Amendments of 1970, determines the health-based (or primary) and public welfare (or secondary) ambient air quality levels for six "criteria" pollutants, including coarse (PM_{10}) and fine ($PM_{2.5}$) particulate matter (42 U.S.C. §7409(b)). CAA Section 109(d) sets forth that EPA, in coordination with the independent Clean Air Scientific Advisory Committee (CASAC), shall review each criteria pollutant NAAQS at five-year intervals, however the actual timeline has varied.

Periodic reviews of the PM NAAQS have resulted in the standard evolving over time as scientific understanding of exposure levels and health effects has increased.[3] The original particulate standard of Total Suspended Particulates (TSP) was established in 1971, then changed to PM less than 10-micron (PM_{10}) in 1987. Following the 1997 review, EPA established a standard for PM less than 2.5-micron ($PM_{2.5}$) and set the primary NAAQS of 15.0 micrograms per cubic meter (µg/m^3) as an annual mean, averaged over three years. In 2012, EPA tightened the $PM_{2.5}$ NAAQS to 12.0 µg/m^3, which was retained in 2020 after CASAC review. In mid-2021, the agency announced the reconsideration and supplemental review of the determination to retain the existing 2012 PM NAAQS.

EPA's current proposal to revise the PM NAAQS is informed by the CASAC evaluations of updated science and policy assessments totaling more than 1,000 pages and a 467-page Regulatory Impact Analysis (RIA).[4] The January 2023 proposal lowers the primary $PM_{2.5}$ annual standard from 12.0 µg/m^3 to within the range of 9.0–10.0 µg/m^3 while retaining the current primary daily NAAQS for $PM_{2.5}$ and PM_{10}, as well as the secondary PM NAAQS. The proposal sought further comment on alternative annual standard levels down to 8.0 µg/m^3 and up to 11.0 µg/m^3 and various ranges for the daily and secondary NAAQS. The agency is now reviewing comments received ahead of a final rule anticipated later this year.

Historical Trends, Sources, and Projected Impacts

The NAAQS program has dramatically improved the nation's air quality through cooperation between EPA, state, local, and tribal agencies, and regulated entities.[5] A 2017 article in the *Annals of the American Thoracic Society* states that "Actions to control emissions from vehicles, factories, electric power plants, and more have reduced emissions of the most prominent pollutants […] by 73%, even while the U.S. gross domestic product has grown by more than 250%."[6] EPA's June 2022 report, *Our Nation's Air: Status and Trends Through 2021*,[7] finds that the national annual average for ambient $PM_{2.5}$ was reduced from 13.5 µg/m^3 in 2000 to 8.5 µg/m^3 in 2021. U.S. gross domestic product more than doubled over that same period, underscoring that environmental protection and economic development are not mutually exclusive.

EPA tracks the criteria pollutant emissions of major sources, which can contribute to direct (primary) emissions or secondary formation of particles in the atmosphere. Importantly, most concentrations of $PM_{2.5}$ in the atmosphere form from precursor emissions of sulfur oxides (SOx), nitrogen oxides (NOx), volatile organic compounds (VOCs), and ammonia (NH3). Figure 1 presents the sources of primary $PM_{2.5}$ emissions per the agency's Air Pollutant Emissions Trends Data for 2021.[8]

EPA's RIA for the $PM_{2.5}$ NAAQS reconsideration found substantial benefits to public health, the environment, economic growth, and social welfare. For example, reducing the annual $PM_{2.5}$ standard to 10.0 µg/m^3 while maintaining the 24-hr $PM_{2.5}$ standard at 35 µg/m^3 is estimated, in 2032, to avoid as many as 1,700 deaths and 110,000 lost workdays and reduce hospital visits for a range of health conditions. EPA estimates the economic value of these avoided morbidities and premature deaths to be between US$7.6 billion and US$17 billion.[9]

Revising the $PM_{2.5}$ NAAQS to within the proposed ranges could bring more than 100 counties (out of about 3,100 counties) in the country into nonattainment. In a preliminary analysis,[10] EPA found that monitoring data from 2019 to 2021 indicated that at least 50 counties would not meet an annual standard of 10.0 µg/m^3; the number of impacted counties would more than double under a 9.0 µg/m^3 $PM_{2.5}$ NAAQS scenario, with an additional 62 counties—112 in total—out of attainment. Several counties may be designated nonattainment for $PM_{2.5}$ for the first time. Under current air pollution control efforts, EPA's analysis further projects that 51 counties would not meet the most stringent standard proposed of 9.0 µg/m^3 by 2032. State and local agencies with areas designated nonattainment must develop air quality attainment plans for their jurisdictions, which could be subject to additional emission reduction requirements through permitting restrictions to, under certain situations, withholding federal highway funding if attainment dates are not met.[11]

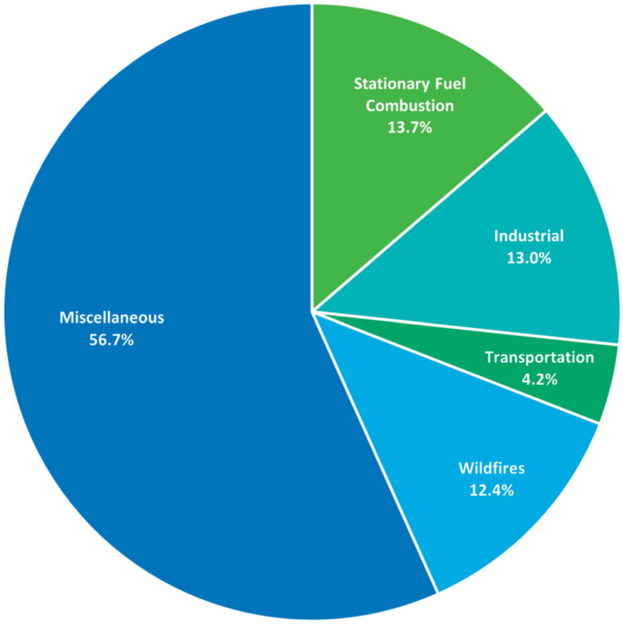


Figure 1. Sources of Fine Particulate Matter ($PM_{2.5}$)
Source: U.S. EPA Air Pollutant Emissions Trends Data for 2021.[8]

State Considerations When Implementing a New NAAQS

Determining attainment status is dictated by the CAA and takes several years. After a new NAAQS is promulgated, delegated programs at state, local, and tribal agencies are required to implement measures to meet the standards. EPA provides the following timeline[12] for designations and implementation:

- **Within 2 years after a final NAAQS:** For areas with available information, EPA must "designate" areas as meeting (attainment areas) or not meeting (nonattainment areas) the final NAAQS considering the most recent air quality monitoring data and input from states and tribes. All $PM_{2.5}$ nonattainment areas are initially designated as "Moderate."
- **Within 3 years after a final NAAQS:** CAA Section 110 requires all states to submit ["infrastructure" SIP] revisions to show they have the basic air quality management program components in place to implement the final NAAQS.
- **Within 18 months after the effective date of designations:** Nonattainment area $PM_{2.5}$ [SIPs] are due.
- **End of the 6th calendar year after the effective date of designations:** "Moderate" area attainment date.

To meet these timelines, air agencies will need tools, guidance, and appropriate flexibility to accommodate unique social, geographic, and economic factors. With each successive, tighter $PM_{2.5}$ NAAQS, achieving the standard becomes more difficult, particularly as the NAAQS potentially approach background concentrations while the majority of stationary sources have control measures to reduce $PM_{2.5}$ emissions. States have stressed as paramount the need for a timely implementation rule, known as a "SIP Requirements Rule," that addresses plan requirements for nonattainment areas under a newly promulgated NAAQS. To illustrate, the 2015 Ozone NAAQS SIP Requirements Rule was finalized in November 2018, well into the implementation timeline and state planning efforts. A timely rule and guidance will be particularly important for areas that have not previously been in nonattainment.

Additionally, the $PM_{2.5}$ NAAQS reconsideration has proposed changes to the Air Quality Index (AQI) and new monitoring requirements, including "a revision to the $PM_{2.5}$ network design to account for at-risk populations."[13] Operating an ambient air monitoring program involves network planning, monitor siting, shelter maintenance, instrument certification, and data handling, including quality assurance/quality control, recordkeeping, and reporting. EPA will need to coordinate directly with state and local air agencies, which serve as primary monitoring entities under the CAA. Agencies have concerns about ambient PM data comparability between monitors using federal reference methods (FRM) and federal equivalent methods (FEM) for continuous monitoring, which have been shown to measure higher concentrations than collocated FRMs and may bias design values used for attainment designations.[14] Resource or other constraints will also need to be taken into consideration.

While air agencies are responsible for developing strategies to meet and maintain the NAAQS, events such as wildfires and transatlantic Saharan dust can severely impact air quality and are clearly outside of regulatory control. EPA states in a fact sheet on the proposed PM NAAQS revisions that "Wildland fires—including both wildfires and prescribed fires—account for 44% of the nation's primary emissions of fine particulate matter ($PM_{2.5}$)."[15] The "exceptional events" provision established in Section 319 of the CAA allows data from events affecting air quality and "not reasonably controllable or preventable" or "caused by human activity that is unlikely to recur at a particular location or a natural event" to be set aside for regulatory purposes (42 U.S.C §7619). A lower PM NAAQS could substantially increase the number of regulatorily significant events and, therefore, EPA may need to update guidance, regulations, review processes, and other mechanisms for agencies to reasonably develop exceptional event demonstrations.

EPA's implementation of the Inflation Reduction Act (IRA) may also play an impactful role in meeting the PM NAAQS. Appropriately crafted and timed provisions on monitoring and consideration of overburdened communities (among others) can assist state and local agencies in planning, EPA's implementation of the Inflation Reduction Act (IRA) may also play an impactful role in meeting the PM NAAQS.

permitting, enforcement, and other regulatory efforts. The agency's IRA funding directed at reducing diesel emissions from heavy-duty vehicles, including school buses and at ports, could improve PM emissions and air quality in some areas. Close coordination with state and local governments that have technical experts on the ground will help maximize air quality benefits as agencies seek to develop SIPs for meeting the PM NAAQS and other CAA programs.

In announcing the PM NAAQS reconsideration, Administrator Michael Regan noted that "EPA is committed to ensuring this review, and other upcoming NAAQS reviews, reflect the latest science and public health data." His comments align with Strategy 1 of the *FY 2022 – 2026 EPA Strategic Plan*, "Ensure Scientific Integrity and Science-Based Decision Making."[16] As the agency promulgates a new PM NAAQS, committing to Strategy 4 of the plan ("Strengthen Tribal, State, and Local Partnerships and Enhance Engagement") can drive successful implementation. Under the CAA, states, tribes, and local governments are co-regulators with EPA and central to meeting the NAAQS. This collaboration has resulted in cleaner and healthier air across the nation—and established a proven framework for achieving public health goals. **em**

Michael Abraczinskas is the Director for the North Carolina Division of Air Quality and the 2023 President of the Association of Air Pollution Control Agencies (AAPCA; **www.cleanairact.org**). **Jason Meyers** is the Air Planning & Assessment Division Administrator for the Louisiana Department of Environmental Quality and AAPCA 2023 Vice President. **Jason Sloan** is AAPCA's Executive Director. Email: **jsloan@csg.org.**

References

1. U.S. Environmental Protection Agency. "EPA Proposes to Strengthen Air Quality Standards to Protect the Public from Harmful Effects of Soot," January 6, 2023. See: https://www.epa.gov/newsreleases/epa-proposes-strengthen-air-quality-standards-protect-public-harmful-effects-soot.
2. U.S. Environmental Protection Agency. "EPA to Reexamine Health Standards for Harmful Soot that Previous Administration Left Unchanged," June 10, 2021. See https://www.epa.gov/newsreleases/epa-reexamine-health-standards-harmful-soot-previous-administration-left-unchanged.
3. U.S. Environmental Protection Agency. Timeline of Particulate Matter (PM) National Ambient Air Quality Standards (NAAQS); Updated November 3, 2022. See https://www.epa.gov/pm-pollution/timeline-particulate-matter-pm-national-ambient-air-quality-standards-naaqs.
4. All documents are available at: https://www.epa.gov/pm-pollution/proposed-decision-reconsideration-national-ambient-air-quality-standards-particulate.
5. Hays, K.; Hodanbosi, R.; Sloan, J. The National Ambient Air Quality Standards at 50; *EM* January 2022; https://cleanairact.org/wp-content/uploads/2022/01/hays.pdf. See also: AAPCA, *State Air Trends & Successes: The StATS Report*, April 2022; https://cleanairact.org/wp-content/uploads/2022/04/AAPCA-2022-StATS-Report.pdf.
6. Greenbaum, D. The Clean Air Act: Substantial Success and the Challenges Ahead; *Annals of the American Thoracic Society*, October 3, 2017; https://www.atsjournals.org/doi/full/10.1513/AnnalsATS.201710-763PS.
7. Available at: https://gispub.epa.gov/air/trendsreport/2022/#naaqs_trends.
8. Available at: https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data.
9. U.S. Environmental Protection Agency. Regulatory Impact Analysis for the Proposed Reconsideration of the National Ambient Air Quality Standards for Particulate Matter, December 2022; https://www.epa.gov/system/files/documents/2023-01/naaqs-pm_ria_proposed_2022-12.pdf.
10. U.S. Environmental Protection Agency. Current and Projected Air Quality Data for Counties with Monitors, February 2023; https://www.epa.gov/system/files/documents/2023-01/PM Maps-2022 proposal%282%29.pdf.
11. See https://www.epa.gov/air-quality-implementation-plans/status-active-sanctions-clocks-under-clean-air-act.
12. U.S. Environmental Protection Agency. Proposed Revisions to National Ambient Air Quality Standards for Particulate Matter, January 2023. Presentation – Slide 17; https://www.epa.gov/system/files/documents/2023-01/PM NAAQS Reconsideration Proposal-Overview Presentation_0.pdf.
13. 88 *Fed. Reg.* 5563 (January 27, 2023).
14. On November 23, 2022, AAPCA transmitted a letter to EPA concerning PM monitoring method comparability. See https://cleanairact.org/wp-content/uploads/2022/11/AAPCA-Letter-Particulate-Matter-Monitoring-FINAL-11-23-2022.pdf.
15. Available at: https://www.epa.gov/system/files/documents/2023-02/pm-naaqs-2022-wildland-fire-air-quality-fact-sheet.pdf.
16. U.S. Environmental Protection Agency. *FY 2022 – 2026 EPA Strategic Plan*, March 2022; https://www.epa.gov/system/files/documents/2022-03/fy-2022-2026-epa-strategic-plan.pdf.

2022-2024 Annual $PM_{2.5}$ Design Value Maps

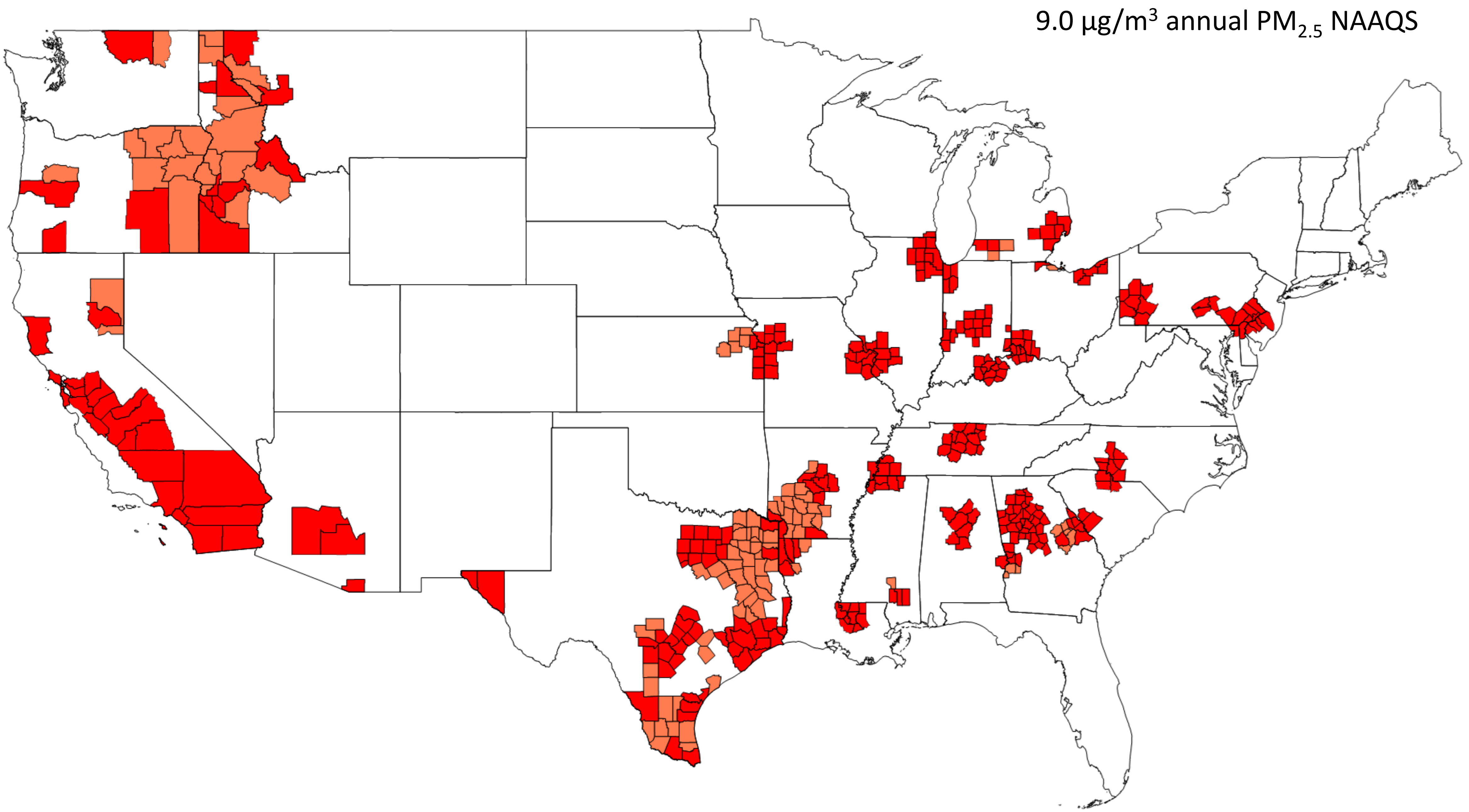
June 2025

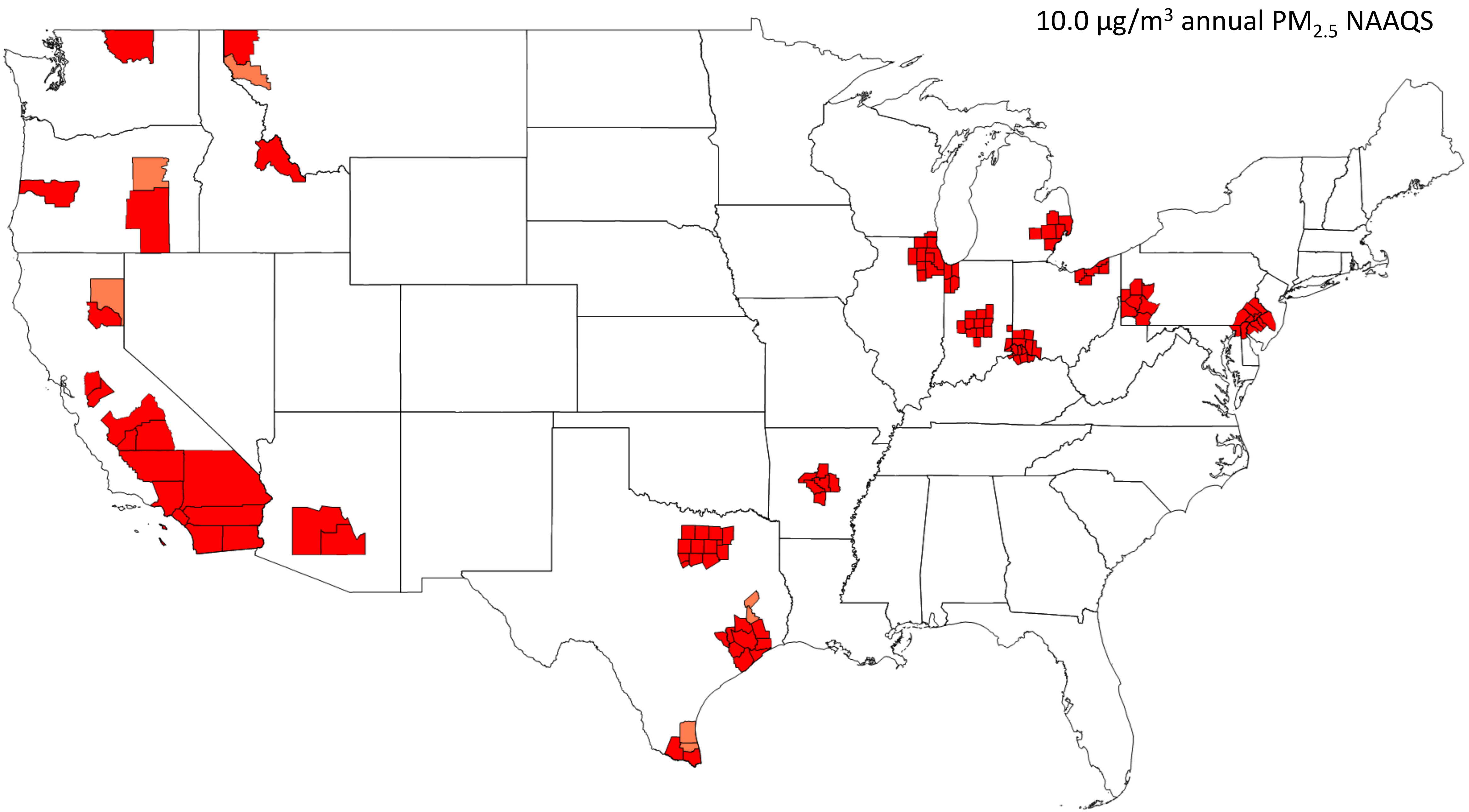
Prepared by Alpine Geophysics, LLC

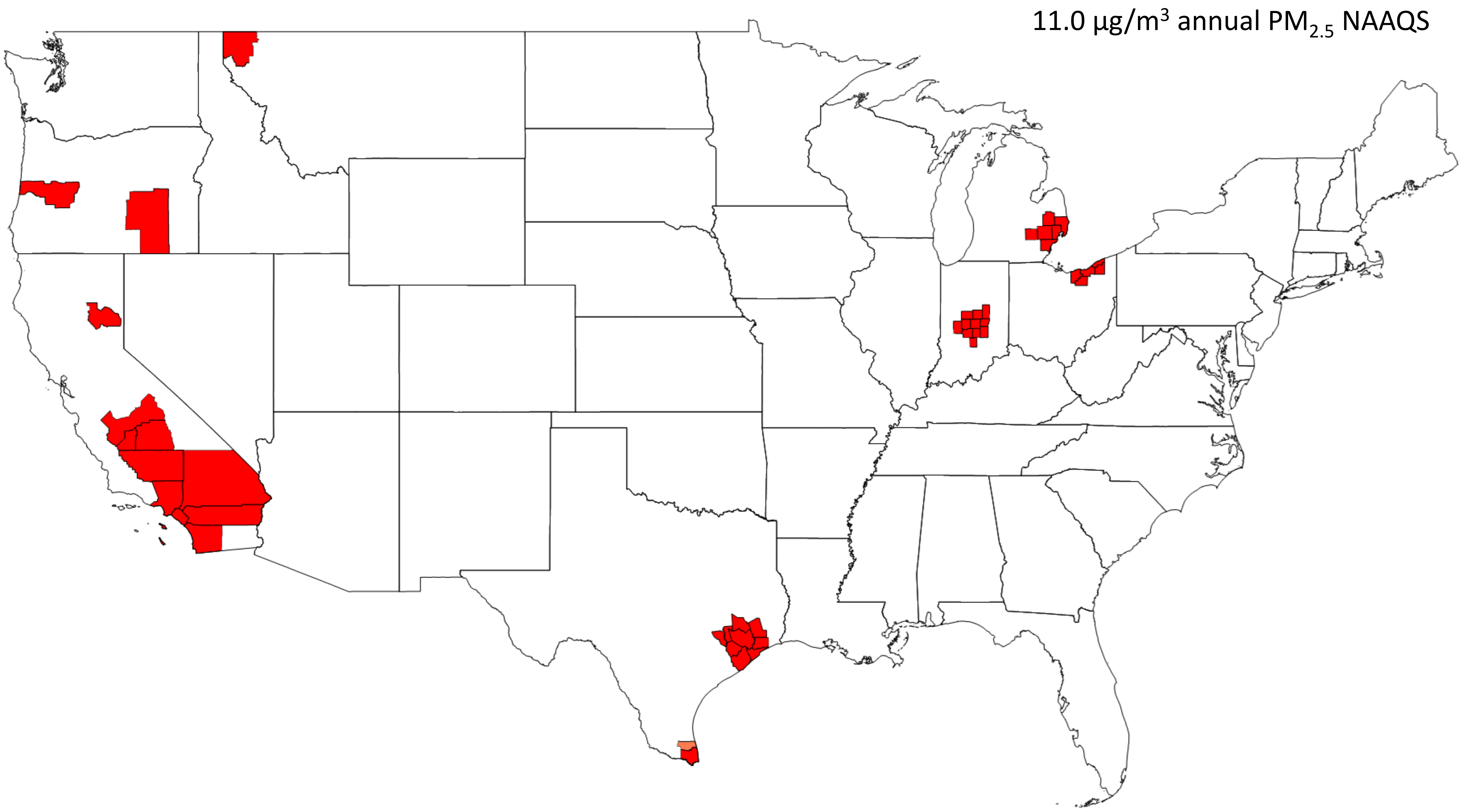
$PM_{2.5}$ Design Value Data and Map Key

- All DVs obtained from EPA's site
  - https://www.epa.gov/air-trends/air-quality-design-values

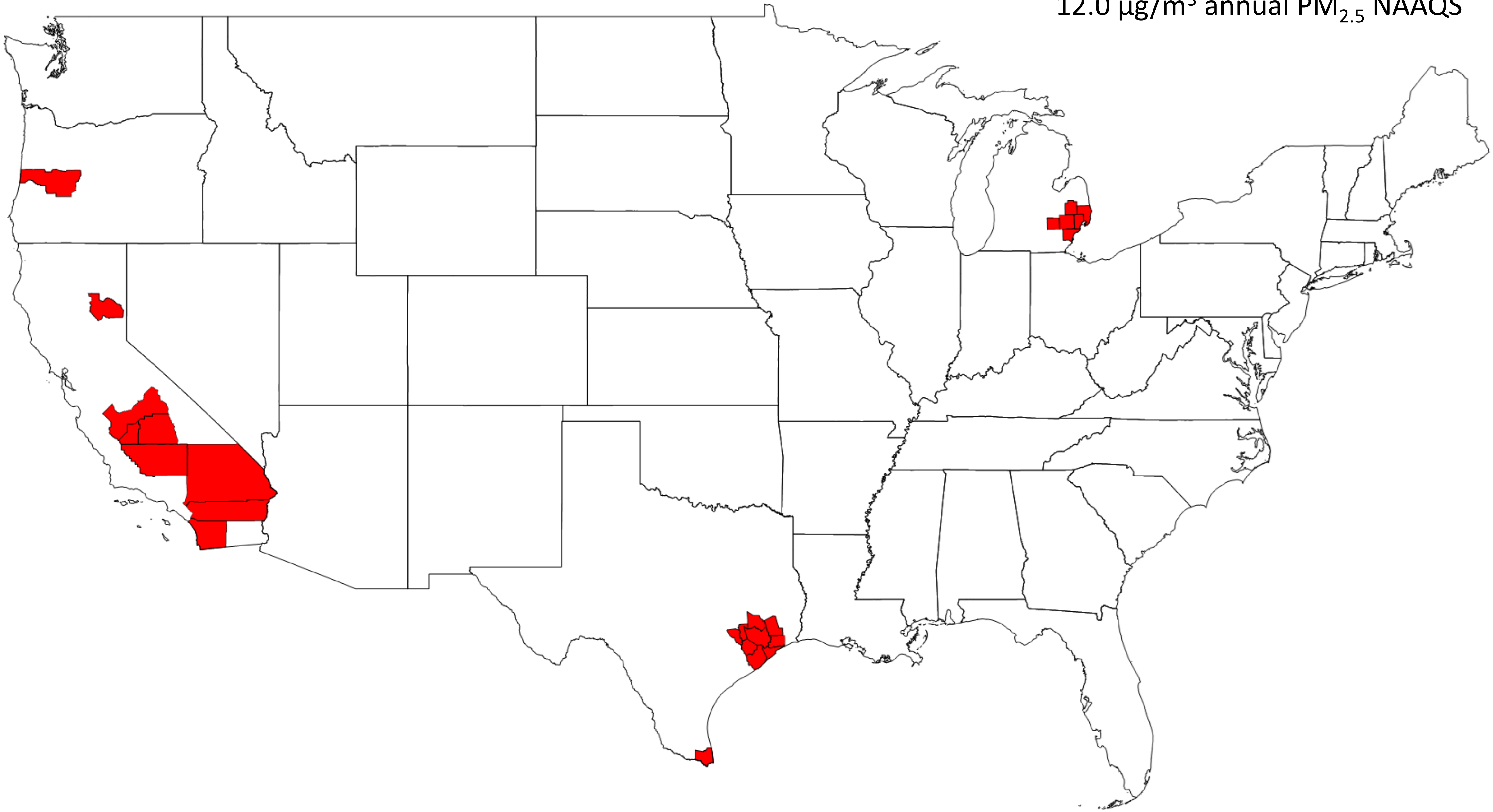
- Map colors
  - "white" indicates attainment with the noted $PM_{2.5}$ NAAQS
  - "red" indicates nonattainment with noted $PM_{2.5}$ NAAQS at county/CBSA level
  - "orange" indicates nonattainment with noted $PM_{2.5}$ NAAQS using kriging


9.0 µg/m³ annual PM2.5 NAAQS


10.0 μg/m³ annual PM2.5 NAAQS


11.0 μg/m3 annual PM2.5 NAAQS

$12.0\ \mu g/m^3$ annual $PM_{2.5}$ NAAQS

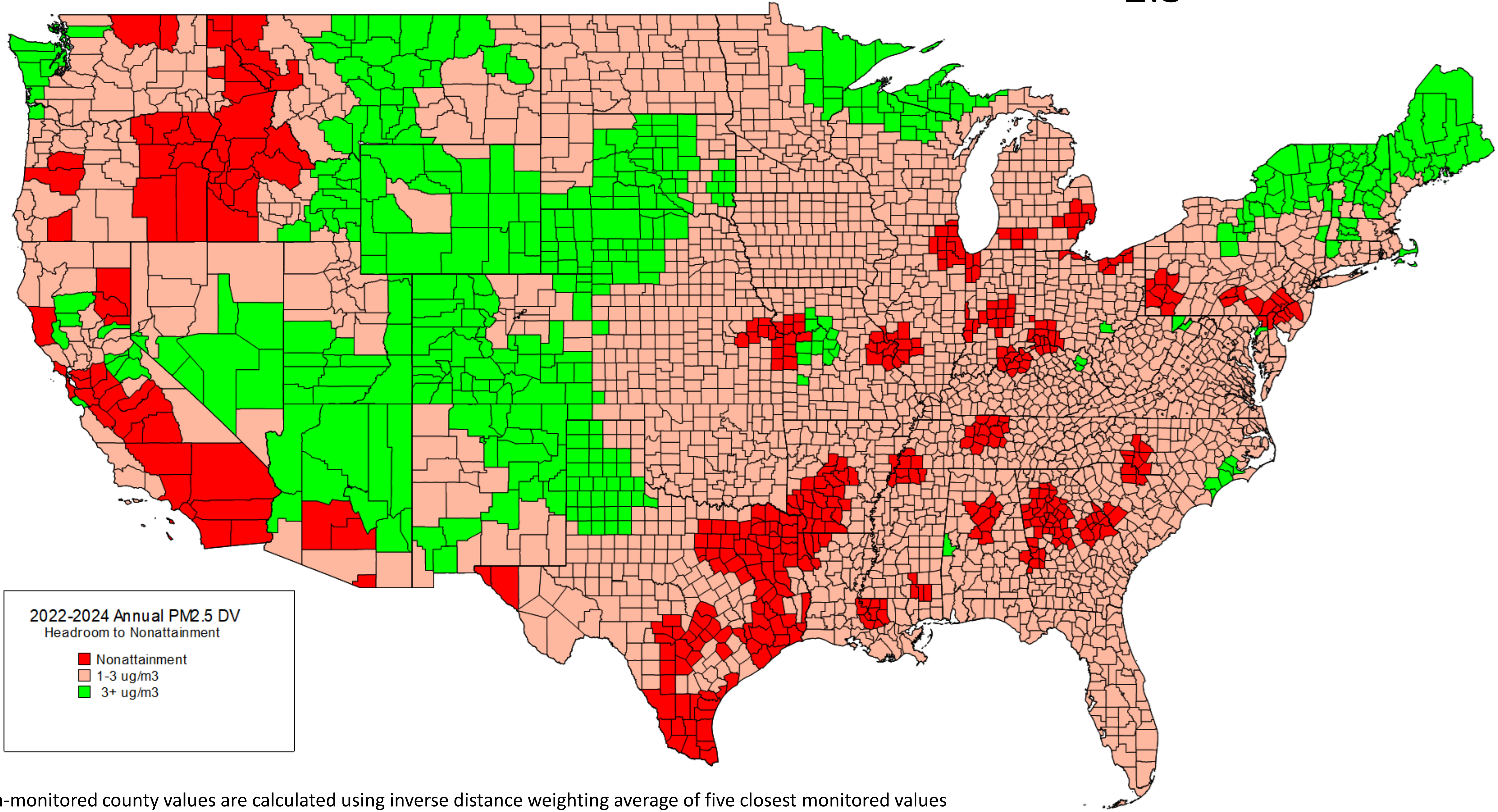


$PM_{2.5}$ DV Headroom Mapping

- Used maximum annual 2022-2024 $PM_{2.5}$ DVs to represent each monitored county and expanded to CBSA boundaries using maximum value within the CBSA

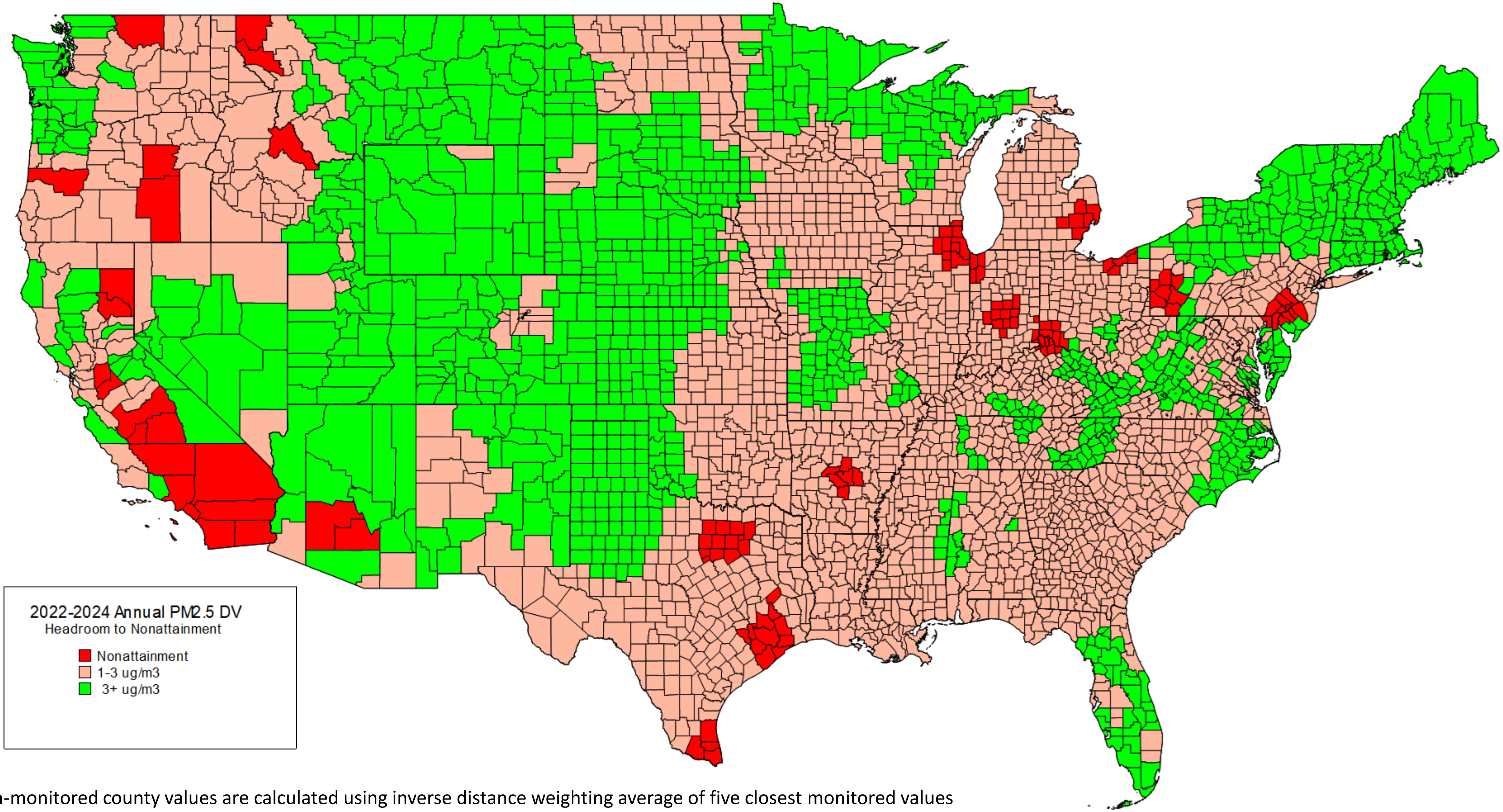
- “Headroom” is remaining $\mu g/m^3$ to reach annual $PM_{2.5}$ NAAQS

Headroom to 9.0 μg/m^3 Annual PM$_{2.5}$ NAAQS



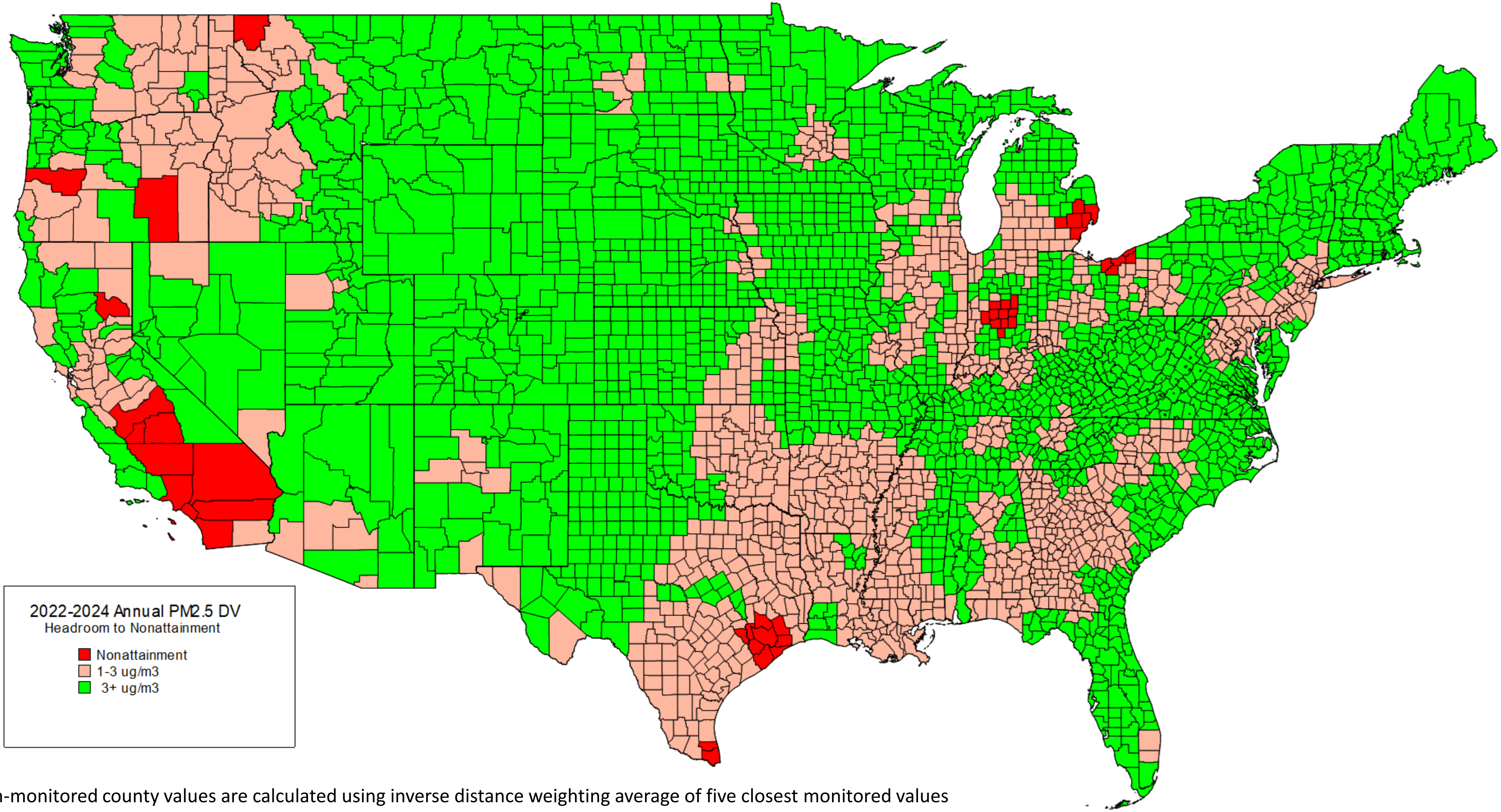
Non-monitored county values are calculated using inverse distance weighting average of five closest monitored values

Headroom to 10.0 μg/m^3 Annual $PM_{2.5}$ NAAQS



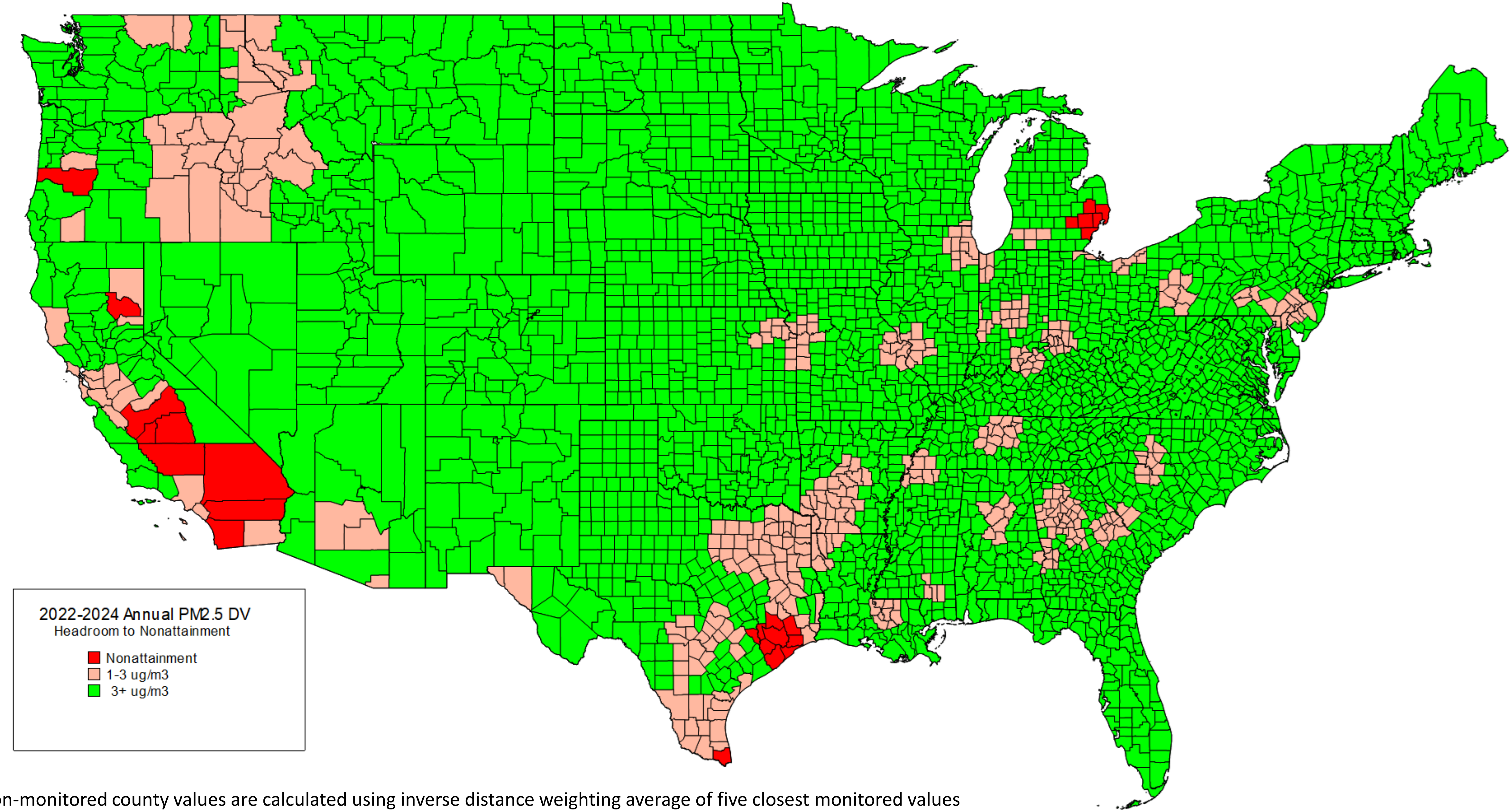
Non-monitored county values are calculated using inverse distance weighting average of five closest monitored values

Headroom to 11.0 μg/m^3 Annual $PM_{2.5}$ NAAQS



Non-monitored county values are calculated using inverse distance weighting average of five closest monitored values

Headroom to 12.0 µg/m^3 Annual $PM_{2.5}$ NAAQS



Non-monitored county values are calculated using inverse distance weighting average of five closest monitored values

American Cement Association
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June 11, 2025

The Honorable Brett Guthrie
Chair
U.S. House of Representatives
Energy & Commerce Committee
Washington, DC 20150

The Honorable Frank Pallone
Ranking Member
U.S. House of Representatives
Energy & Commerce Committee
Washington, DC 20150

Dear Chairman Guthrie & Ranking Member Pallone

I am writing on behalf of the American Cement Association (ACA) in support of your hearing, *Short-Circuiting Progress: How the Clean Air Act Impacts Building Necessary Infrastructure and Onshoring American Innovation*. We support pragmatic and technically feasible air regulations that protect human health and the environment, while allowing American cement manufacturers to continue to produce the most widely used building material on Earth.

The American Cement Association, formerly known as the Portland Cement Association, is the leading voice for America's cement manufacturers. Founded in 1909, our association adopted its new name in May 2025 to reflect the industry's evolution beyond Portland cement. Today, our members are pioneering the production of innovative cements and emissions-reduction technologies to expand domestic manufacturing capacity.

Cement is essential to building and maintaining the nation's infrastructure – from highways and bridges to airports, mass transit systems, and water facilities. Our products enhance energy efficiency in buildings, improve fuel efficiency on roads, and contribute to the resilience of critical infrastructure. Cement and concrete manufacturing supports over 600,000 American jobs and contributes more than $100 billion to the U.S. economy annually.

The Committee is prepared to examine two bills at this hearing: the Clean Air & Economic Advancement Reform Act (Clear Act) and the Clean Air & Building Infrastructure Improvement Act (CABII Act). Both bills are expected to foster economic growth while supporting the significant improvements made by the NAAQS program. We encourage bipartisan collaboration to address the complexities of air permitting policy and find solutions that strike a balance between reducing air emissions, promoting economic growth, and protecting human health.

The National Ambient Air Quality Standards (NAAQS) program, while well-intentioned, has failed in certain aspects, such as the five-year review cycle, which is an insufficient amount of time to conduct a NAAQS review. A ten-year review period would allow the EPA to consider whether reductions are technologically feasible, analyze the latest available science, and collect data to inform a proper NAAQS review. A more extended review period would also permit the EPA to provide timely implementation regulations and guidance, as well as ensure that states are not required to develop regulations to meet standards that they do not have the authority to change. The Clear Act seeks to expand the Environmental Protection Agency's (EPA) review cycle of NAAQS from the seldom-reached goal of five years to ten years.

The Clear Act would also allow for technical feasibility to be included in State Implementation Plans (SIPs) and more opportunities for innovative pollution control systems. Finally, natural events, such as fires, droughts, and heat, would be considered as part of the NAAQS process, which is not currently permitted. This lack of inclusion of these considerations in the current NAAQS process leads to states shifting reductions to industry in an inequitable manner.

The EPA should be required to release implementation guidance for any NAAQS when it is issued so manufacturers can adequately prepare for it to take effect. For projects underway in the permitting process, when a new NAAQS is finalized, the statutory language should clearly state that the new standard does not apply to those projects. The CABII Act would mandate the EPA to publish regulations and guidance for a revised NAAQS standard concurrently and prevent a new standard from applying to preconstruction permits until associated final regulations and guidance are issued.

Finally, the 2024 Fine Particulate Matter (PM 2.5) NAAQS is an example of how inconsistent, hasty, and faulty regulatory processes can harm economic growth while failing to substantively improve air quality. The CABII Act would ensure that the 2024 PM2.5 standard is not applied to permits until an area has a final designation.

Inconsistencies and ever-shifting regulatory hurdles are unfair to manufacturers seeking to innovate, expand their facilities, and improve energy efficiency. The bills meet the goals discussed at today's hearing.

For these reasons, we support the efforts of the Energy and Commerce Committee to evaluate the NAAQS program. We encourage bipartisan collaboration to tackle the complexities of air permitting policy and find solutions that balance the need to reduce air emissions, foster economic growth, and protect human health. We offer assistance with any technical or other drafting questions required for that effort. We appreciate your consideration of our views. If you have any questions, please contact me at soneill@cement.org or (202)719-1974.

Sincerely,

Sean O'Neill
Senior Vice President, Government Affairs
Portland Cement Association

Trump EPA rollbacks would weaken rules projected to save billions of dollars and thousands of lives

Spotlights

When the head of the Environmental Protection Agency announced a wide-ranging rollback of environmental regulations, he said it would put a "dagger through the heart of climate-change religion" and introduce a "Golden Age" for the American economy.

What Lee Zeldin didn't mention: how ending the rules could have devastating consequences to human health.

The EPA-targeted rules could prevent an estimated 30,000 deaths and save $275 billion each year they are in effect, according to an Associated Press examination that included the agency's own prior assessments as well as a wide range of other research.

It's by no means guaranteed that the rules will be entirely eliminated; they can't be changed without going through a federal rulemaking process that can take years and requires public comment and scientific justification.

But experts say the numbers are conservative and that even a partial dismantling of the rules would mean more pollutants such as smog, mercury and lead — and especially more tiny airborne particles that can lodge in lungs and cause health problems. It would also mean higher emissions of the greenhouse gases driving Earth's warming to deadlier levels.

"More people will die," said Cory Zigler, a professor of biostatistics at Brown University who has studied air pollution deaths from coal-fired power plants. "More of this type of pollution that we know kills people will be in the air."

What went into AP's examination of the pollution rules

The AP set out to look at what could happen if all the rules were eliminated, by first examining exhaustive assessments the EPA was required to produce before the rules were approved. Though the agency's priorities can change as presidential administrations change, the methods for the assessments have been largely standard since Ronald

Reagan’s presidency and are deeply rooted in peer-reviewed scientific research.

The AP used those and eight different government and private group databases for its estimate of financial costs, some death estimates and analysis of pollution trends. AP performed additional analysis of potential deaths by drawing on peer-reviewed formulas and scientific research on the impacts of increased heat and pollution. And AP vetted its work with multiple outside health experts, who said it is scientifically justified, but likely an undercount.

Multiple experts say the science behind the rules is strong, and they pointed to the rigorous process that must be followed to change them, including requirements for public comment.

Zeldin acknowledged as much last month.

“I’m not going to prejudge outcomes with what will be a lot of rulemaking,” Zeldin said in April.

Virtually all the benefits from the rules come from restricting the burning of coal, oil and natural gas. The fossil fuel industry was a heavy contributor to President Donald Trump’s 2024 presidential campaign and Republicans overall. In announcing the proposed changes, the EPA repeatedly cited the costs of the rules and omitted the benefits in all but one instance.

Calculating costs and benefits is contentious

Asked for comment on the AP findings, an EPA spokesperson said the agency's plans would "roll back trillions in regulatory costs and hidden 'taxes' on U.S. families."

"Unlike the Biden EPA attempts to regulate whole sectors of our economy out of existence, the Trump EPA understands that we do not have to choose between protecting our precious environment and growing our economy," spokesperson Molly Vaseliou said.

Scott Segal, an attorney at Bracewell LLP who represents energy and manufacturing interests, suggested that EPA analyses under the Biden administration emphasized worst-case scenarios, inflated health benefit claims and missed the big-picture economic benefits of booming industry.

"If you only count lives saved by regulation, not lives harmed by regulation, the math will always favor more regulation," Segal said. "This framing misses the larger point: public health isn't just about air quality — it's also about job security, housing, access to medical care, and heating in the winter."

The EPA regulatory analyses are immense documents that numerous health and environment researchers and former officials say are grounded in science, not politics. For example, in January 2024, the EPA produced a 445-page analysis of tightening standards on dangerous particle pollution that cited more than 90 different scientific publications, along with scores of other documents. The Biden EPA presented four different regulatory scenarios and ultimately chose one of the middle options.

Two experts who reviewed AP's work said the EPA documents that underpinned the analysis were themselves conservative in their estimates. University of Washington health and environment professors Kristi Ebi and Howard Frumkin said that's because EPA looked at added heat deaths and air pollution mortality, but did not include climate change's expected deaths from increased infectious disease, flooding and other disaster factors.

"This is a rigorous, compelling and much-needed analysis," said Frumkin, who was appointed director of the CDC's National Center for Environmental Health during George W. Bush's administration. "It makes clear that regulatory rollbacks by the Trump administration will have major, direct consequences for health and well-being. Because of these regulatory rollbacks and funding cuts, Americans will die needlessly."

That's a sentiment echoed by two former Republican EPA administrators, William Reilly and Christine Todd Whitman, who served in the George Bush and George W. Bush administrations respectively.

“This administration is endangering all of our lives — ours, our children, our grandchildren,” said Whitman, who led EPA under George W. Bush.

How regulations helped clear the air

A visit to Evansville, Indiana, helps show how EPA regulations have made a difference.

The city of about 115,000 lies where the state’s southwest tip meets Kentucky at the curving Ohio River. Industry lines the banks and coal barges float past carrying loads destined to fuel power plants.

Kirt Ethridge, 30, grew up in Evansville and still lives there. As a child, he recalls looking down from high ground into the bowl-shaped valley where the heart of the city lies and seeing a haze of pollution atop it. He thought that was normal.

He didn’t think much of the looming smokestacks of the coal-fired power plants and factories that ringed the city, nor the line of inhalers waiting on a bench before he and his classmates ran the mile. He suffered asthma attacks in class, sometimes more than once a week, that sent him to the nurse’s office. Once, he was rushed to the hospital in an ambulance.

“It’s a very scary feeling, particularly as a kid, to not be able to get enough air in your lungs,” he said, describing it as like “breathing through a straw.”

In southwestern Indiana, coal-fired power plants were to blame for between 19,000 and nearly 23,000 deaths from 1999 to 2020, according to work by Zigler published in the journal Science that examined death rates among Medicare recipients and modeled where plants’ pollution would spread.

Nationally, he and his team found a sharp decline in air pollution deaths from coal-fired power plants after the mid-2000s, from an average of 43,000 a year to just 1,600 a year in 2020, with a similar cut in particle pollution. That’s when two different forces came into play: Cheaper and less polluting natural gas pushed aside dirtier and costlier coal, while at the same time stricter regulations required more pollution control devices such as scrubbers.

Duke Energy operates its biggest power plant near Evansville — Gibson Station, which can power about 2.5 million homes. Emissions have declined significantly as the company installed scrubbers that pull unwanted chemicals out of smokestacks, along with other pollution control technology.

Duke Energy spokeswoman Angeline Protegere said the scrubbers were a response to “regulations over the years as well as market factors.”

Put simply, the air got cleaner around places like Evansville. Vanderburgh County and neighboring counties violated national annual air standards for fine particles from 2005 to 2010, but no longer do, even as standards have tightened.

The same is true across the United States. The amount of tiny airborne particles in the last 10 years nationwide is one-third lower than 2000-2009, EPA statistics show. Smog pollution is down nearly 15% and sulfur dioxide has plunged 80%.

“The Clean Air Act, the EPA’s founding legislation, has been a powerful engine for improving public health as our air has grown visibly clearer and cleaner,” said Gina McCarthy, who headed the EPA under President Barack Obama and served as Biden’s White House climate adviser. “Millions of Americans have avoided illnesses, hospital visits, and premature deaths thanks to EPA’s cleaner car and truck standards in concert with rules that limit industrial pollution.”

Five rules saving more than $200 billion a year

Five rules together were estimated to have more than $200 billion a year in net benefits, based on EPA documents that estimated reduced illnesses and deaths and the costs for companies to comply.

Three rules dealt with cars and trucks. The “clean car rule” is a tightening of EPA emission standards for vehicles that was supposed to take effect for 2027 model years and eventually have annual net benefits of more than $100 billion a year, according to the agency’s 884-page regulatory analysis. The EPA estimated that over the next three decades this rule alone would prevent 7.9 billion tons of heat-trapping carbon dioxide, 8,700 tons of particulate matter and 36,000 tons of nitrogen oxides.

Two other proposed rules — one that deals with car models from 2023 to 2027 and another aimed at heavy trucks and buses — are estimated to save nearly $38 billion a year combined through reduced health problems from air pollution, according to EPA’s own detailed calculations.

EPA plays up costs, plays down benefits of targeted rules

Almost none of those benefits are to be found in 10 fact sheets the EPA produced in conjunction with Zeldin’s announcement. Nine make no mention of benefits from the rules, while eight mention the costs.

In 17 of the 20 rules with explicit cost-benefit analyses, AP found that estimated benefits are larger than the costs — and sometimes far larger.

For example, Biden’s proposed power plant rule was designed to save more than $24 billion a year, prevent about 3,700 annual premature deaths and 3 million asthma incidents from fossil fuel-powered plants, according to EPA documents last year and work by the Environmental Protection Network. Under Trump, the EPA’s fact sheet on that rule notes nearly $1 billion in costs but nothing about the far higher estimated benefits.

Another rule the EPA updated last year sets standards for pollution permitted in the air, called National Ambient Air Quality Standards. The update, required by the Clean Air Act, cuts allowable soot particles by 25% to reflect new science on the harms from such pollution. The EPA in Biden’s time calculated the change would annually save as much as $46 billion, 4,500 premature deaths and 800,000 asthma incidents.

But the new EPA fact sheet only mentions the estimated costs of the change — about $614 million — and not benefits estimated at 76 times that amount.

“The human body count and human health toll of particulate matter alone is just absolutely massive,” said K. Sabeel Rahman, a Cornell law professor who was a top federal regulatory officer from 2021 to 2023. “Literally tens of thousands of people will lose their lives” if the standard is rolled back, he said.

A penguin-shaped nebulizer

In southwest Indiana, many people have noticed a positive difference from the EPA regulations. And they’re concerned about changes.

In Bloomfield, Jessica Blazier’s 11-year-old son Julian has multiple health conditions that make him more sensitive to air quality, including nonallergic rhinitis, which inflames his nasal passage and makes breathing “feel like a knife sometimes,” in his words. Jessica Blazier said the proposed EPA rule rollbacks are “almost adding insult to injury in our particular circumstance.”

In Evansville, Ethridge is now raising kids of his own, including a 5-year-old daughter who was born early and doesn’t tolerate respiratory illnesses well. Whenever Eliza gets sick, she uses a children’s nebulizer that is shaped like a penguin and stored in an igloo-shaped case.

“I want to raise my kids in Evansville,” he said. “I don’t want to raise my kids in a bowl of pollution.”

Borenstein and Daly reported from Washington, Walling and Bickel from Evansville, Indiana, and Wildeman from Hartford, Connecticut.

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American Lung Association.

Clearing the Air: How the New Particle Pollution Standards Work

May 2024

After years of waiting, people across the U.S. are finally celebrating a stronger limit on dangerous particulate matter air pollution. The new stronger standard will drive air pollution cleanup in communities across the country, preventing asthma attacks and saving lives.

But now that a stronger limit is across the finish line, the critical work of implementing it begins – and polluting industries are pushing back. Some are spreading misinformation in hopes of avoiding cleanup or filing lawsuits. They are even trying to get Congress to pass legislation that would prevent the public from receiving the health benefits of the new standards—or potentially any stronger standards.

EPA's New Particle Pollution Limit Will Prevent Thousands of Premature Deaths

The American Lung Association's mission is to save lives by improving lung health and preventing lung disease. The new, stronger limit on particle pollution that the U.S. Environmental Protection Agency (EPA) finalized in February 2024 will do just that.

Our "State of the Air" reports show that the air over time has gotten much cleaner, thanks to measures implemented under the Clean Air Act.[1] But it's not yet as clean as it needs to be to keep everyone healthy. Tens of millions of people live with unhealthy levels of particle pollution. This pollution comes from gasoline- and diesel-powered vehicles, coal and gas power plants, industrial facilities, woodstoves, wildfires and more. People who live near these sources, or near highways, railyards or ports, get a bigger dose of this deadly pollution.

Particle pollution is dangerous both in short-term spikes and in long-term, lower-level exposure. It causes serious respiratory and cardiovascular harm, cancer and premature death. It's especially dangerous for fetuses, babies, kids, seniors and people with lung and heart disease. It's also a health equity and environmental justice issue - people of color are disproportionately impacted by the health harms of particle pollution.

In 2024, EPA strengthened the annual limit on particulate matter from 12 micrograms per cubic meter (mg/m^3) to 9 mg/m^3. EPA estimates this will result in benefits - in the year 2032 alone - up to:

- 4,500 premature deaths avoided
- 800,000 cases of asthma symptoms avoided
- 290,000 lost workdays avoided
- $46 billion in health benefits to the public

This updated standard was necessary. The Lung Association and other leading national health organizations – including the American Medical Association, the American Academy of Pediatrics and the American Public Health Association – reviewed the research and agreed that more protective standards were needed to best protect health for people with lung disease and promote pollution cleanup in areas facing environmental injustice.[2] The independent experts on EPA's Clean Air Scientific Advisory Committee agreed that stronger standards were necessary.[3]

The Law is Smart and Science-Based

The new particle pollution limit was required by the Clean Air Act. Here's how: the Clean Air Act is a lifesaving law with a long history. One of its requirements is that the EPA set national limits on dangerous outdoor air pollutants – called the National Ambient Air Quality Standards (NAAQS). These standards are the legal limits on how much of these pollutants can be in the air. If a community's air has too much of one of these pollutants, they work with EPA and their state to create and implement a plan to clean up emissions. The new, stronger annual limit on particulate matter is one of the NAAQS.

The reason these standards are so successful is that they are required to be based on what the current scientific research shows is an acceptable level of that pollutant to breathe. And because the members of Congress who wrote the Clean Air Act knew that the science is always advancing, the law also requires that EPA review the science every five years and revise the standards if they no longer match what the research shows is safe to breathe.

Since these are health-based standards, EPA is required to consider only the health science when it sets the standards. That is because considerations like costs and technological feasibility are built into the process later, during implementation, when states write their plans to clean up pollution in places where the levels are too high. That way, the nation collectively works toward achieving pollution levels that the science shows adequately protect public health.

The Clean Air Act has a decades-long track record of success cleaning up pollution, but the work isn't done yet. Keeping these provisions in place – and opposing efforts to weaken or block them – is critical to protecting health from air pollution for the long term.

Implementation of the Standard is a Time-Tested, Reasonable Process

Now that the new standard is final, the work of implementing it begins. This process is critical for ensuring that the projected lifesaving benefits of the standard become reality.

The NAAQS implementation process is governed by the Clean Air Act and involves states, local air quality management agencies, Tribal nations and EPA. Within one year of the new particle pollution standard's finalization, states and Tribes will submit recommendations to EPA on whether or not areas within their jurisdiction are attaining the new standard, based on air quality data collected from monitors.

Then, the next step is for EPA to review the air quality data and the state and Tribal recommendations and then make designations. If the air quality in a geographic area meets or is cleaner than the NAAQS, EPA will designate the area as being in attainment of the standard (Geographic areas are determined by looking at factors like jurisdictional boundaries and topographical and meteorlogical data). The areas that do not meet the NAAQS are designated as nonattainment areas. Those areas that do not have adequate data to determine their attainment status are designated "unclassifiable."

Once the designations take effect, state and local governments develop State Implementation Plans (SIPs). For places that have too much particle pollution – those designated “nonattainment” – part of the nonattainment SIPs identify the specific emissions control requirements the state will rely on to attain and/or maintain the NAAQS. These SIPs contain control requirements like installing and operating pollution controls on power plants and incinerators and limiting woodburning on poor air quality days.

The process of implementing the standards is responsive to state and local situations and air quality challenges. SIPs are developed by the states, with input from the public. That’s because the best opportunities for emissions reductions in the Midwest may not be the same for the Western U.S. and vice versa. The flexibility and individuality of the SIPs is what makes the implementation process work so well. And EPA is rolling out new resources, maps and tools to help states develop the best possible SIP to achieve the required amount of emissions reductions.

Attainment designations for the new particle pollution standard will likely be finalized in early 2026 and will likely include monitoring data from 2022, 2023 and 2024. However, EPA projected in the final rule that of the counties that may not meet the new annual standard, the vast majority will attain the standard by the likely legal deadline of 2032 with just the existing pollution reductions that EPA is implementing now.

That’s because EPA’s other rulemakings and investments will help communities across the country attain the stronger particle pollution standards. For example, new nationwide rules to clean up cars and trucks and further cut down on emissions from power plants will help reduce emissions that form particle pollution from these sources. EPA is also implementing investments from the Bipartisan Infrastructure Law and Inflation Reduction Act that further reduce emissions by aiding in the transition to zero-emission technology, such as replacing diesel school buses with electric ones, providing tax incentives for electric vehicles, building out EV charging infrastructure and building out more clean, renewable electricity. These actions all help reduce particle pollution.

As Always, Permitting of New Sources Will Continue Under the Stronger Standards

Arguments from industry that the stronger standards will prevent new construction are nothing new. The reality is the Clean Air Act lays out permitting programs that ensure that industry can build and expand without adding to the burden of pollution in their area. The New Source Review (NSR) program offers two different pathways depending on whether an area meets or does not meet the NAAQS for a given pollutant.

In an area that meets the standard or hasn’t yet been designated, NSR ensures that when a big industrial source is being built or making modifications or upgrades, it will not contribute to violations of the NAAQS. The source has to document a Prevention of Significant Deterioration (PSD), meaning it must install and operate modern, effective and available pollution controls to ensure it won’t contribute to violations of the particle pollution standard. The process provides sources significant flexibility in how they design their facilities and control their emissions. EPA works with states, localities and Tribes to make this process work.

Under the updated annual PM standard, these provisions kicked in on May 6 – 60 days after the final standard was published in the Federal Register. This means that across the country, big new polluting sources that are planning to start construction, or existing polluting sources planning a modification, will have to install and operate pollution controls to ensure they don’t pollute enough to make their area violate the new standard. This requirement is the subject of fear-mongering from opponents of the new standard. Some have conflated the requirements that kicked in on May 6 with the requirements of writing and meeting a State Implementation Plan if the area is later designated nonattainment. The latter is years down the road; for now, new sources – which already had to get permits – simply have to make sure those permits reflect the new particulate matter limit.[4] If these large facilities encounter difficulties showing compliance with air quality standards, EPA provides them a pathway forward: they can offset their emissions and proceed with construction.

Not only is this protective of health, it's also commonsense. Ensuring modern pollution controls are installed on facilities being built now will help states meet their pollution reduction obligations later, including by potentially keeping them in attainment.[5]

This process isn't new; it was successfully employed the last time EPA updated the annual particle pollution standard in 2012, with a wide array of projects using cost-effective emissions controls to obtain permits. EPA has since updated its guidance and other resources to make the process even easier this time.[6]

Once areas are designated nonattainment, a similar New Source Review permitting process will kick in for those areas to determine how new facilities can be built and existing facilities can make modifications (Areas designated attainment continue under the Prevention of Significant Deterioration permitting program). Under the Clean Air Act, in communities with unhealthy levels of pollution, large new facilities and existing facilities that make modifications that would increase emissions are required to install and operate modern pollution controls and offset their emissions. This means ensuring that existing polluting sources in the area reduce their emissions the same amount that the new or modified facility will add.

A 2023 Chamber of Commerce report misleads on both the facts and the law.[7] While the report claims to project which places would need to institute cleanup measures, it actually uses substituted data and different methods from what EPA uses. It misrepresents the permitting obligations on facilities and the process. The reality is this: we have seen time and again that this permitting system results in economic growth and air quality improvement simultaneously.[8]

Opponents of the new standards also claim, paradoxically, that the New Source Review process *prevents* pollution control. For example, a March 2024 op-ed falsely claimed that plants operating pollution controls may see hourly emissions increases (triggering permitting processes) even though annual emissions decline.[9]

Things the op-ed doesn't mention: first, the EPA report they cite is from 2002 – a report that was false to the tune of two successful lawsuits challenging the false claim that permitting rollbacks leads to cleaner air overall. Second, simply running plants more efficiently does *not* mean they pollute less. In fact, research has shown that by limiting actions to just improving the efficiency of existing plants, plants would actually run *more* often resulting in an estimated annual 3% increase in harmful air pollution.[10]

Tired Claims about "Background" Levels are Unfounded

One frequent claim when the NAAQS are updated – for particle pollution and for other pollutants – is that the standards are too close to "background levels" to allow for cleanup.[11] Under the Clean Air Act, this is pollution "formed from emissions other than U.S. anthropogenic emissions."[12] The implementation of the NAAQS is designed to respond to the circumstances of each area with unhealthy levels of a given air pollutant. The law lays out pathways for areas to seek exemptions for exceedances of the standard due to “background” levels.[13] States can also receive exemptions for instances of pollution being transported from outside the U.S. Too often, opponents of stronger standards seek to undermine the entire process of setting or implementing the standards because of the individual circumstances of a specific location.

Addressing Wildfires is Critical – and EPA Provides a Path to Doing So under the New Standards

The misleading 2023 Chamber of Commerce Report also spreads misinformation about how wildfire smoke is addressed under the Clean Air Act. It falsely claims that wildfire smoke would mean that communities nationwide would fail to meet the standards.[14] Thankfully, the Clean Air Act has a process to address this. Its “exceptional events” provision allows states to write off air quality monitoring data for days when air pollution levels spike because of a natural event (or a one-time human-caused event) that isn’t reasonably controllable or predictable. It’s a key tool that communities use every year to avoid having their attainment status be affected by days where air quality was hampered by events like wildfires. The law recognizes that these types of events are far more outside of a community’s control than the pollution from smokestacks or vehicles within their borders.

The law also provides for communities to use this same process if air quality is harmed in a regulatorily meaningful way by prescribed fire, which the American Lung Association supports as a tool used under the right conditions to mitigate the risk of worse, catastrophic wildfires in the future.[15]

EPA has built out several new resources over the past few years to help states address this topic as it applies to the NAAQS. In 2016, EPA issued final rules on exceptional events that further clarified how wildfire and prescribed fire can qualify. The 2016 rule also added a mitigation plan requirement to address repeated air pollution events. Under the rule, areas that experience an event (of the same type and pollutant) that recurs three times in a three-year period must submit mitigation plans that include (i) public notification and education programs for potentially affected communities, (ii) steps to identify, study, and implement mitigating measures and (iii) periodic review of the mitigation plan.[16]

Some forest management groups and members of Congress have expressed concern that the new, stronger air quality standards would make it more difficult for land managers to implement prescribed fire at the scale needed to mitigate wildfire risk.[17] However, research shows that lack of capacity, funding, resources and coordination challenges across federal, state, and local agencies are the most significant barriers to implementing prescribed fire. Air quality standards, including the Clean Air Act, were *not* found to be a primary barrier to increasing use of prescribed fire.[18] Furthermore, the federal Wildland Fire Mitigation and Management Commission came to a consensus in its recent recommendations to Congress that there are “opportunities to work within the Clean Air Act and the associated regulatory systems and processes to accommodate both increased use of beneficial fire and protection of public health from smoke impacts.”[19]

EPA and other federal agencies are actively working to address these challenges. For example, in November 2023, EPA, the Department of Interior, the Department of Agriculture and the Centers for Disease Control and Prevention signed a Memorandum of Understanding in which they agreed to work together to develop a more efficient pathway for states to submit exceptional events demonstrations and accompanying guidance.[20] Since then, EPA has worked with the U.S. Forest Service, California and relevant air districts to develop an exceptional events demonstration for prescribed fire that can serve as an example for state and local agencies when a prescribed fire causes an exceedance of the standard.[21] The agency is also developing prescribed fire demonstration FAQs, a demonstration template and example analyses for clear causal relationship demonstrations that will help facilitate exceptional event demonstrations when appropriate.

All in All, Industry's "Sky is Falling" Claims are Baseless

Every time EPA updates air quality standards, the same arguments get recycled to oppose them – false and exaggerated claims that industry cannot possibly clean up to meet the standards and eye-popping, inaccurate claims about the number of counties that will be in nonattainment and the purported ramifications of nonattainment designations. Despite their griping, those same industries ultimately do clean up, the economy continues to grow and the air gets cleaner.

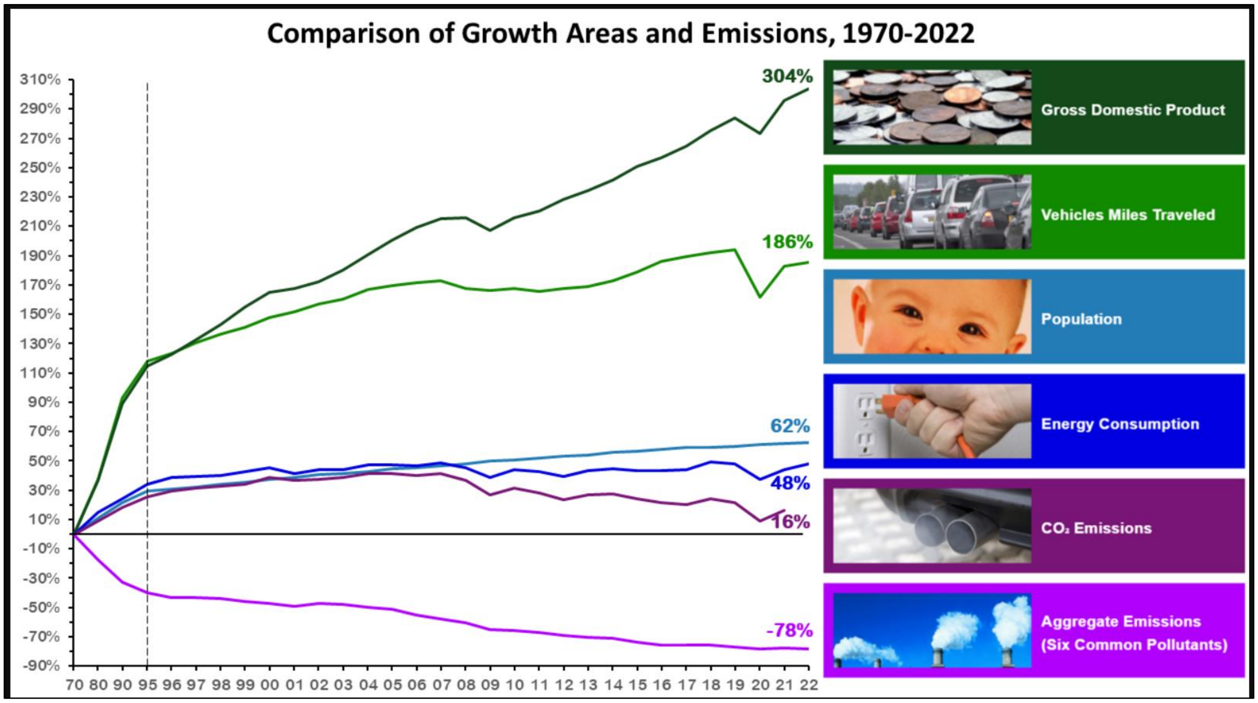
A 2023 report from the National Association of Manufacturers came up with a wildly inflated number of economic activity "exposed" to impacts from stronger standards. The report looked at places that would have to clean up under a standard of 8 mg/m^3, which is tighter than what EPA adopted, then simply tallied up all the manufacturing economic activity in those places. These numbers have nothing to do with the actual cost of reducing particulate matter pollution, nor will all these manufacturers be required to install and operate new pollution controls. The report explicitly states multiple times, "This is not a projection of the likely impact of a tighter $PM_{2.5}$ standard." But that qualifier did not appear in the TV ads, media releases or many other publicly available documents using the report.[22]

"Missing from National Association of Manufacturers' quote is the fact that clean air progress occurred thanks to increasingly strong National Ambient Air Quality Standards – and that they vehemently opposed those updated standards that led to the progress they are now celebrating."

A 2023 letter from several trade associations notes, "Our members have innovated and worked with regulators to lower $PM_{2.5}$ concentrations significantly, and further progress is being made as part of the energy transition investments. The EPA recently reported that $PM_{2.5}$ concentrations have declined by 42% since 2000, driven by major emissions reductions from both mobile sources and the power sector. As a result, America's air is cleaner than ever." Missing from National Association of Manufacturers' quote is the fact that clean air progress occurred thanks to increasingly strong National Ambient Air Quality Standards – and that they vehemently opposed those updated standards that led to the progress they are now celebrating.[23]

Too often, opponents of stronger standards attempt to downplay this logical inconsistency by calling for a need to "modernize" the Clean Air Act. The tools they propose to "modernize" the law – like taking into account factors other than human health when setting the standards, or weakening the permitting process – would actually undermine or remove the very parts of the law that have driven clean air progress to this point. For them, "modernize" means "weaken."

The nation does not have to choose between healthy air and a healthy economy. In 2011, EPA provided to Congress a projection of the costs and benefits of the Clean Air Act over the years from 1990 to 2020. EPA calculated that the benefits would exceed the costs by a minimum of $3 for every $1 spent. The benefits may have been as much as $30 to $90 for every $1 spent.[24] Furthermore, we have more than 50 years of evidence to show that the economy has improved even as we have cut pollution. The economy (gross domestic product) grew more than 300% from 1970 through 2022, while aggregate pollution has been cut by 78% (see this chart prepared by EPA).[25]



A 2023 Earthjustice analysis compared real GDP, unemployment rates, and $PM_{2.5}$ and ozone pollution air quality indices across 14 wide-ranging metropolitan areas, many of which have been designated nonattainment, from 2012 to 2021, and found that unemployment rates went down, GDP went up, and air pollution went down at the same time.[26]

Having to Clean Up Air Pollution Isn't the Problem – Air Pollution Is

Being designated in nonattainment of the new, more health-protective standard is not the problem; having pollution levels that harm public health is the problem.

The bottom line is that EPA's new annual limit on particle pollution will save lives. It's part of EPA's obligations under the Clean Air Act to set air quality standards at the level that protects health. The official Clean Air Scientific Advisory Committee and the broader health and medical community agreed that these standards were necessary to protect health. Now, local, state and Tribal governments and EPA must fully implement and enforce these lifesaving standards.

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[1] American Lung Association. (2023). State of the Air. https://www.lung.org/research/sota
[2] American Lung Association *et al*. (Mar 28, 2023). Comment on EPA's Proposed Rule in the Reconsideration of the National Ambient Air Quality Standards for Particulate Matter (Docket #EPA–HQ–OAR–2015–0072); Comment ID: EPA-HQ-OAR-2015-0072-2348, Tracking #: lft-03xd-ensu.
[3] CASAC. (Mar 18, 2022). Review of EPA's PA for $PM_{2.5}$ NAAQS Reconsideration.
[4] 89 FR 16,202, 16,218 (Mar. 6, 2024)

[5] U.S. EPA. “Implementing the Final Rule to Strengthen the National Air Quality Health Standard for Particulate Matter – Clean Air Act Permitting, Air Quality Designations, and State Planning Requirements Fact Sheet.” (2024.) Microsoft Word - PM NAAQS - Implementation - Fact Sheet.docx (epa.gov)
[6] U.S. EPA. “Implementing the Final Rule to Strengthen the National Air Quality Health Standard for Particulate Matter – Clean Air Act Permitting, Air Quality Designations, and State Planning Requirements Fact Sheet.” (2024.) Microsoft Word - PM NAAQS - Implementation - Fact Sheet.docx (epa.gov).
[7] U.S. Chamber of Commerce (2023). EPA’s Proposed Air Quality Standards Will Cause Permitting Gridlock Across Our Economy. https://www.globalenergyinstitute.org/sites/default/files/2023-11/Chamber%20PM2.5%20Report%20_%2011.8.23%20Final%20Draft.pdf
[8] Johnson, Seth (2023). “Chamber of Commerce’s Dubious Analysis of Clean Air Rules Is Wrong.” Earthjustice. https://earthjustice.org/experts/seth-johnson/chamber-of-commerces-dubious-analysis-of-clean-air-rules-is-wrong
[9] Bring the Clean Air Act into the 21st century | The Hill
[10] Driscoll C, Buonocore J, Levy J, Lambert K, et al. 2015 US power plant carbon standards and clean air and health co-benefits. Nature Climate Change 5: 525-540. Schwartz J, Buonocore J, Levy J, Driscoll C, Fallon Lambert K, and Reid S. Health Co-Benefits of Carbon Standard for existing Power Plants: Part 2 of the Co-Benefits of Carbon Standards Study. September 30, 2014. Harvard School of Public Health, Syracuse University, Boston University. Available at Health Co-Benefits of Carbon Standards for Existing Power Plants
[11] 89 FR 16,202, 16,218 (Mar. 6, 2024)
[12] 89 FR 16,202, 16,218 (Mar. 6, 2024)
[13] 42 U.S.C. § 7513(f).
[14] U.S. Chamber of Commerce (2023). EPA’s Proposed Air Quality Standards Will Cause Permitting Gridlock Across Our Economy. https://www.globalenergyinstitute.org/sites/default/files/2023-11/Chamber%20PM2.5%20Report%20_%2011.8.23%20Final%20Draft.pdf
[15] Johnson, Seth (2023). “Chamber of Commerce’s Dubious Analysis of Clean Air Rules Is Wrong.” Earthjustice. https://earthjustice.org/experts/seth-johnson/chamber-of-commerces-dubious-analysis-of-clean-air-rules-is-wrong
[16] 81 FR 68,216, 68,282 (Oct. 3, 2016)
[17] Padilla, Feinstein Lead California Members Urging EPA to Tighten Air Quality Standards While Preserving the Use of Prescribed Burns for Catastrophic Wildfire Prevention (2023.) https://www.padilla.senate.gov/newsroom/press-releases/padilla-feinstein-lead-california-members-urging-epa-to-tighten-air-quality-standards-while-preserving-the-use-of-prescribed-burns-for-catastrophic-wildfire-prevention/
[18] Schultz, C. A., McCaffrey, S. M., Huber-Stearns, H. R. (2019) Policy barriers and opportunities for prescribed fire application in the western United States. *International Journal of Wildland Fire, 28*, 874-884. https://doi.org/10.1071/WF19040
[19] Wildland Fire Mitigation and Management Commission (2023). ON FIRE: The Report of the Wildland Fire Mitigation and Management Commission. https://www.usda.gov/sites/default/files/documents/wfmmc-final-report-092023-508.pdf
[20] Memorandum of Understanding Between the United States Department of Agriculture Forest Service and the United States Department of the Interior and the United States Environmental Protection Agency and the United States Centers for Disease Control and Prevention: Wildland Fire and Air Quality Coordination. (2023). https://www.usda.gov/sites/default/files/documents/usda-epa-doi-cdc-mou.pdf
[21] U.S. EPA. (2024). *Exceptional Events Documents Particulate Matter - Nevada County, CA*. https://www.epa.gov/air-quality-analysis/exceptional-events-documents-particulate-matter-nevada-county-ca
[22] Business community Letter to White House Chief of Staff urging EPA maintain existing NAAQS for fine particulate matter. (2023). https://www.globalenergyinstitute.org/sites/default/files/2023-11/PM2.5%20Industry%20letter.pdf.
[23] National Association of Manufacturers (NAM). (Apr, 2023). NAM report on U.S. air quality standards and the manufacturing sector. https://documents.nam.org/COMM/NAM_Air_Quality_Standards_Analysis_Web_Version.pdf

[24] U.S. Environmental Protection Agency, Office of Air and Radiation and Office of Policy. (Nov 1999). "The Benefits and Costs of the Clean Air Act 1990 to 2010: EPA Report to Congress (1999)" https://nepis.epa.gov/Exe/ZyPDF.cgi/000037X2.PDF?Dockey=000037X2.PDF

[25] U.S. EPA. "Comparison of Growth Areas and Emissions, 1970-2022." https://www.epa.gov/system/files/images/2023-05/Baby%20Graphic%201970-2022.png

[26] Winz, Robyn (2023). "Putting Industry Claims to Rest: Data Reveals Economic Success Amidst Clean Air Rules." Earthjustice. https://earthjustice.org/experts/robyn-winz/putting-industry-claims-to-rest-data-reveals-economic-success-amidst-clean-air-rules

February 21, 2025

The Honorable Lee Zeldin, Administrator
U.S. Environmental Protection Agency
William J. Clinton Building
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Administrator Zeldin:

The undersigned health and medical organizations write to offer ourselves as a resource as you take charge as the new administrator of the Environmental Protection Agency. We strongly support the mission and lifesaving work of EPA. The Agency plays a critical role in protecting health for all people across the country, including by reducing air pollution. American prosperity depends on a healthy workforce and healthy children, and clean air is fundamental to good health.

Our organizations work across a variety of areas and activities – from representing healthcare providers who treat patients, to training health professionals, to running programs that reduce kids' risk of health harm from pollution – but we are united by our common focus on protecting people's health. Our organizations have worked together with EPA for decades to reduce pollutants in outdoor air and protect the health of all people. We look forward to helping EPA continue its work of reducing air pollution to ensure a clean and healthy environment for all.

One area of particular importance for our organizations is the National Ambient Air Quality Standards (NAAQS). The Clean Air Act has clearly laid out the schedules, the requirements, and the processes with which EPA is required to regulate air quality and reduce air pollution. For the most common pollutants, the criteria air pollutants, the Clean Air Act requires EPA to review the latest science on the health impacts of these pollutant exposures every five years, in order to determine if the existing primary human health-based NAAQS align with the science. If the science and the standards don't match, then the Act requires that the NAAQS be revised.

The multidisciplinary science that underlies the NAAQS encompasses a wide spectrum of research fields: epidemiology, toxicology, laboratory-based controlled exposure research, air quality modeling, atmospheric physics and chemistry, to name a few. As part of the NAAQS review process, the Clean Air Act requires that an independent Clean Air Scientific Advisory Committee (CASAC) constituting scientific experts evaluate current science and advise the EPA administrator on setting the NAAQS. CASAC is a critical part of EPA's work because of the expertise the committee has to offer. Also critical are the additional pollutant-specific panels that past EPA administrators have overseen under CASAC, which provide additional expertise on extremely complex air pollution topics.

To best serve the Agency and the public, we ask that as EPA works through the process of securing new CASAC members, it ensures strong representation from health science experts. We further ask the same for the pollutant-specific individual CASAC panels. The Clean Air Act has requirements for CASAC membership, and within these requirements, memberships should be drawn from the mainstream of scientific thinkers across various fields (represented by academia, health and medical institutions, non-profit organizations, and state and local government officials from different parts of the country). These individuals must have the depth of knowledge to evaluate research data objectively and rigorously and follow the NAAQS process with scientific integrity and without any conflict of interest.

Most immediately, the NAAQS of ozone and nitrogen dioxide that are currently in the review process require scientifically robust pollutant-specific panels to ensure that the standards align with current science to best protect public health.

We look forward to continuing to engage in all aspects of the NAAQS process, including these reviews and the implementation of the existing standards.

We are hopeful that under your leadership the EPA continues to build on its historic work in protecting human health and our environment. We look forward to working with you and engaging in the regulatory process.

Signed,

Allergy & Asthma Network
American College of Chest Physicians (CHEST)
American Heart Association
American Lung Association
American Public Health Association
American Thoracic Society
Asthma and Allergy Foundation of America
Children's Environmental Health Network
Climate Psychiatry Alliance
Medical Society Consortium on Climate and Health
Medical Students for a Sustainable Future
National Association of County and City Health Officials
National Association of Pediatric Nurse Practitioners
National Environmental Health Association
National League for Nursing
OUCH - International
Physicians for Social Responsibility

American Lung Association®

State of the Air

2025 Report

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We would like to thank Allen S. Lefohn, Ph.D., of A.S.L. and Associates, who compiled the data, and John Balmes, M.D., who served as expert volunteer reviewer for the health impacts section. Special thanks this year goes to the air quality professionals who agreed to share stories about how the work they do makes a difference.

Great appreciation goes to the National Association of Clean Air Agencies, who strove to make this report better through comments, review and concerns. Many of its members reviewed and commented on their state data to verify their accuracy. We also appreciate the assistance of members of the Association of Air Pollution Control Agencies, some of whom also reviewed data from their states. We appreciate them all as our partners in the fight against air pollution. The results in this report should in no way be construed as a comment on the work any of these agencies do.

"State of the Air" 2025 would not have been possible but for the first twenty formative years of inspiration, dedication and hard work of the late Janice E. Nolen. Her spirit still guides us all.

The American Lung Association assumes sole responsibility for the content of "State of the Air" 2025.

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Why "State of the Air"?

The Clean Air Act requires the U.S. Environmental Protection Agency (EPA) to set health-based limits, called National Ambient Air Quality Standards (NAAQS), for six dangerous outdoor air pollutants: particulate matter, ozone, nitrogen dioxide, sulfur dioxide, carbon monoxide and lead. "State of the Air" looks at two of the most widespread and dangerous pollutants from this group, fine particulate matter and ozone.

The NAAQS identify what is considered a safe level of each pollutant to breathe, based on the most recent health and medical science, including an adequate margin of safety for those most at risk. These standards require states and local governments to take steps to reduce emissions to attain the standards. The standards also serve to alert families with children, seniors, individuals with lung or heart conditions, and others about dangerous air pollution levels through color-coded air quality alerts. This enables them to take necessary precautions to minimize their exposure. Under the Clean Air Act, the standards must be based solely on what is needed to protect health and must be periodically updated as the science evolves.

Setting national health-based standards and requiring states that violate the standards to enact plans to clean up their air pollution problems have been a great benefit to the public health of the nation. Since the Clean Air Act was passed in 1970, the combined emissions of six key air pollutants have fallen by 78%, according to EPA. But as "State of the Air" 2025 shows, many millions of people in this country are still breathing unhealthy air.

Purpose and history of "State of the Air"

In the year 2000, the American Lung Association launched its annual "State of the Air" report to provide the public with easy-to-understand information about the quality of the air in their communities based on the credible data and sound science that EPA is required to use to set and enforce the air quality standards.

For the first several years, "State of the Air" focused solely on ozone pollution and included data for five populations at increased risk—children, older adults, children with asthma, adults with asthma and people with emphysema. In 2004, changes to the air quality standards and the deployment of air pollution monitoring enabled the addition of short-term and year-round fine particle pollution ($PM_{2.5}$) to the report. Over time, accumulating scientific evidence has shown significant health harms from both ozone and particle pollution among other groups of vulnerable individuals. "State of the Air" has accommodated this new information by gradually adding populations-at-risk categories to its reporting. "State of the Air" 2025 now includes data for 10 vulnerable groups.

Since its inception, "State of the Air" has been tremendously successful in raising awareness about particle pollution and ozone, two of the most dangerous and pervasive air pollutants nationwide. The American Lung Association is proud and grateful that the public, the media, clean air advocates and decision-makers have used this report every day, year after year, to call attention to the work that remains to be done to protect the public from the threat of air pollution.

How "State of the Air" can be used

We write and release "State of the Air" every year to make information on air quality and health clear and accessible to everyone. We show the progress each community has made and how much more needs to be done to achieve healthy air. In this report, you'll find information on local air quality nationwide. You'll also find the latest research on how air pollution affects health. With these tools, you can take proactive steps to safeguard both your lungs and your family's lungs from unhealthy air.

Every year, "State of the Air" also includes recommendations for actions that both policymakers and individual people can take to improve air quality. This year, the report highlights threats to the staff, funding and work of the U.S. Environmental Protection Agency that put clean air at risk for people across the country. We ask that you join us in taking advocacy action to protect EPA and its clean air progress. Your voice and your individual perspective are more powerful now than ever. Please share your story and add your name to our petition – and then, take the next step. Reach out to your representatives at every level of government, share the “State of the Air” results for your community, and call on them to take action to protect EPA in the interest of public health.

State of the Air 2025 Methodology

Statistical Methodology: The Air Quality Data

Data Sources

Ozone and short-term particle pollution. The data on air quality throughout the United States were obtained from the U.S. Environmental Protection Agency's Air Quality System (AQS). The American Lung Association contracted with Dr. Allen S. Lefohn, A.S.L. & Associates, Montana, to characterize the hourly averaged ozone concentration information and the 24-hour averaged $PM_{2.5}$ concentration information for the three-year period for 2021-2023 for each monitoring site.

Year-round particle pollution. Design values for the annual $PM_{2.5}$ concentrations by county for the period 2021-2023 were retrieved November 18, 2024 from data posted on August 8, 2024 at the U.S. Environmental Protection Agency's website at https://www.epa.gov/air-trends/air-quality-design-values.

The Lung Association received critical assistance from members of the National Association of Clean Air Agencies and the Association of Air Pollution Control Agencies. With their assistance, all state and local agencies were provided the opportunity to review and comment on the data in draft tabular form. The Lung Association reviewed any discrepancies with the agencies and, if needed, with Dr. Lefohn at A.S.L. & Associates. The American Lung Association wishes to express its continued appreciation to the state and local air directors for their willingness to assist in ensuring that the characterized data used in this report are correct.

Ozone Data Analysis

The 2021, 2022 and 2023 AQS hourly ozone data were used to calculate the daily 8-hour maximum concentration for each ozone-monitoring site. The hourly averaged ozone data were downloaded on June 26, 2024, following the close of the authorized period for quality review and assurance certification of data. Only the hourly average ozone concentrations derived from FRM and FEM monitors were used in the analysis. The data were considered for a three-year period for the same reason that EPA uses three years of data to determine compliance with the ozone standard: to prevent a situation in which anomalies of weather or other factors in any single year create air pollution levels that inaccurately reflect normal conditions. For each county, the highest 8-hour daily maximum concentration was identified for each day with sufficient data based on the EPA-defined ozone season for 2021, 2022, and 2023.

The current national ambient air quality standard for ozone is 70 parts per billion (ppb) measured over eight hours. The EPA's Air Quality Index (AQI) reflects the 70 ppb standard. A.S.L. & Associates prepared a table by county that summarized, for each of the three years, the number of days the ozone level was within the ranges identified by EPA based on the Air Quality Index:

8-hour Ozone Concentration	Air Quality Index Levels
0-54 ppb	Good (Green)
55-70 ppb	Moderate (Yellow)
71-85 ppb	Unhealthy for Sensitive Groups (Orange)
86-105 ppb	Unhealthy (Red)
106-200 ppb	Very Unhealthy (Purple)
>200 ppb	Hazardous (Maroon)

For this report, the objective was to identify the number of days that 8-hour daily maximum concentrations in each county occurred within the defined ranges. This approach provided an indication of the level of pollution for all monitored days, not just those days that fell under the requirements for attaining the national ambient air quality standards. Therefore, no data capture criteria were applied to eliminate monitoring sites or to require a number of valid days for the ozone season.

The daily maximum 8-hour average concentration for a given day is derived from the highest of the 17 consecutive 8-hour averages beginning with the 8-hour period from 7:00 a.m. to 3:00 p.m. and ending with the 8-hour period from 11:00 p.m. to 7:00 a.m. the following day. This follows the process EPA uses for the current ozone standard adopted in 2015. All valid days of data within the ozone season were used in the analysis. However, for computing an 8-hour average, at least 75 percent of the hourly concentrations (i.e., 6-8 hours) had to be available for the 8-hour period. In addition, an 8-hour daily maximum average was identified if valid 8- hour averages were available for at least 75 percent of possible hours in the day (i.e., at least 13 of the possible 17 8-hour averages). Because EPA includes days with inadequate data (i.e., not 75 percent complete) if the standard value is exceeded, our data capture methodology also included the site's 8-hour value if at least one valid 8-hour period were available, and it was 71 ppb or higher.

As instructed by the Lung Association, A.S.L. & Associates included the exceptional (e.g., wildfires) and natural events (e.g., stratospheric intrusions) that were identified in the database and identified for the Lung Association the dates and monitoring sites that experienced such events. Some data have been flagged by the state or local air pollution control agency to indicate that they had raised issues with EPA about those data. For each day across all sites within a specific county, the highest daily maximum 8-hour average ozone concentration was recorded and then the results were summarized by county for the number of days the ozone levels were within the ranges identified above.

Following receipt of the above information, the American Lung Association identified the number of days each county, with at least one ozone monitor, experienced air quality designated as orange (Unhealthy for Sensitive Groups), red (Unhealthy) or purple (Very Unhealthy). When some monitored data were collected sometime during the three-year period, but insufficient data were available in any year, an "incomplete" was identified for the 3-year period. Insufficient data exist for various reasons. For example, when a specific monitor was used for a special study and the monitor was then discontinued in other years, an "incomplete" is assigned.

ii Analysis of the daily $PM_{2.5}$ data for "State of the Air" 2024 was completed in January 2024, before EPA announced the finalization of the revised $PM_{2.5}$ NAAQS and Air Quality Index. The values used in this report are based on the 2012 Air Quality Index.

Short-Term Particle Pollution Data Analysis

For each county, A.S.L. & Associates identified the maximum daily 24-hour AQS $PM_{2.5}$ concentration for each day with sufficient monitoring information in 2021, 2022 and 2023. The 24-hour averaged $PM_{2.5}$ data were downloaded on August 27, 2024 from the EPA website following the correction of the hourly values by the EPA of the $PM_{2.5}$ data associated with monitors using method codes 236 and 238. Using the downloaded $PM_{2.5}$ daily data from the EPA website, A.S.L. & Associates prepared a table by county that summarized, for each of the three years, the number of days the $PM_{2.5}$ concentration was within the ranges identified by EPA based on the Air Quality Index, as adopted by the EPA on February 7, 2024:

24-hour $PM_{2.5}$ Concentration	Air Quality Index Levels
0.0 μg/m³ to 9.0 μg/m³	Good (Green)
9.1 μg/m³ to 35.4 μg/m³	Moderate (Yellow)
35.5 μg/m³ to 55.4 μg/m³	Unhealthy for Sensitive Groups (Orange)
55.5 μg/m³ to 125.4 μg/m³	Unhealthy (Red)
125.5 μg/m³ to 225.4 μg/m³	Very Unhealthy (Purple)
greater than or equal to 225.5 μg/m³	Hazardous (Maroon)

All previous data collected for 24-hour average $PM_{2.5}$ were characterized using the AQI thresholds listed above.

For this report, the objective was to identify the number of days that the maximum in each county of the daily $PM_{2.5}$ concentration occurred within the defined ranges. This approach provided an indication of the level of pollution for all monitored days, not just those days that fell under the requirements for attaining the national ambient air quality standards. Therefore, no data capture criteria were used to eliminate monitoring sites. Included in the analysis are data collected using only FRM and FEM methods, which reported 24-hour averaged data.

As instructed by the Lung Association, A.S.L. & Associates included the exceptional and natural events that were identified in the database and identified for the Lung Association the dates and monitoring sites that experienced such events. Some data have been flagged by the state or local air pollution control agency to indicate that they had raised issues with EPA about those data. For each day across all sites within a specific county, the highest daily maximum 24-hour $PM_{2.5}$ concentration was recorded and then the results were summarized by county for the number of days the concentration levels were within the ranges identified above.

Following receipt of the above information, the American Lung Association identified the number of days each county, with at least one $PM_{2.5}$ monitor, experienced air quality designated as orange (Unhealthy for Sensitive Groups), red (Unhealthy), purple (Very Unhealthy) or maroon (Hazardous).

Description of County Grading System

Ozone and Short-Term Particle Pollution (24-hour $PM_{2.5}$)

The grades for ozone and short-term particle pollution (24-hour $PM_{2.5}$) were based on a weighted average calculation. To determine weighted averages, the Lung Association followed these four steps separately for each pollutant in each county:

1. Assigned weighting factors to each category of the Air Quality Index. Days of poor air quality were given the following weighting factors:

   Orange days **1.0**
   Red days **1.5**
   Purple days **2.0**
   Maroon days **2.5**

This ensured that days when the air pollution levels were worse received appropriately greater weight.

2. Multiplied the total number of days within each AQI category by its assigned factor, and added all the categories to calculate a total:
   Total = [Orange days x 1] + [Red days x 1.5] + [Purple days x 2] + [Maroon days x 2.5]
3. Divided the total by three to determine the weighted average, since the monitoring data were collected over a three-year period:

   Weighted Average = Total ÷ 3

Weighted average was then used to determine each county's grades for ozone and 24-hour $PM_{2.5}$ according to the following table:

Weighted Average	Grade
0.0	A
0.3 to 0.9	B
1.0 to 2.0	C
2.1 to 3.2	D
3.3 or higher	F

All counties with a weighted average of zero (corresponding to no exceedances of the standard over the three-year period) were given a grade of "A."

For ozone, an "F" grade was set to generally correlate with the number of unhealthy air days that would place a county in nonattainment for the ozone standard.

For short-term particle pollution, fewer unhealthy air days are required for an F than for nonattainment under the $PM_{2.5}$ standard. The 2006 24-hour $PM_{2.5}$ standard is set to allow two percent of the days during the three years to exceed 35 µg/m^3 (called a "98th percentile" form) before violating the standard. That would be roughly 21 unhealthy days in three years. The grading used in this report would allow only about one percent of the days to be over 35 µg/m^3 (called a "99th percentile" form) of the $PM_{2.5}$. The American Lung Association supports using the tighter limits in a 99th percentile form as a more appropriate standard that is intended to protect the public from short-term episodes or spikes in pollution.

Weighted averages allow comparisons to be drawn based on severity of air pollution. For example, if one county had nine orange days and no red days, it would earn a weighted average of 3.0 and a D grade. However, another county that had only seven orange days but also two red days, which signify days with more serious air pollution, would have a weighted average of 3.3, and would receive an F.

Note that this system differs significantly from the methodology EPA uses to determine violations of both the ozone and the 24-hour $PM_{2.5}$ standards. EPA determines whether a county violates the ozone standard based on the fourth maximum daily 8-hour ozone reading each year averaged over three years. Multiple days of unhealthy air beyond the highest four in each year are not considered. By contrast, the system used in this report recognizes when a community's air quality repeatedly results in unhealthy air throughout the three years. Consequently, some counties will receive grades of "F" in this report, showing repeated instances of unhealthy air, while still meeting the EPA's 2015 ozone standard. The American Lung Association's position is that the evidence shows that the 2015 ozone standard fails to adequately protect public health.

Counties were ranked by weighted average. Metropolitan areas were ranked by the highest weighted average among the counties within a given Metropolitan Statistical Area as of 2023 as defined by the White House Office of Management and Budget (OMB).

Weighted average values that appeared in prior reports may not be directly comparable to values in the current report as standards and the AQI may have changed. Therefore, for use in the Lung Association's online resources for the "State of the Air" report at Lung.org/sota, values from earlier years are updated according to the current standard and Air Quality Index.

Year-Round Particle Pollution (Annual $PM_{2.5}$)

Since no comparable Air Quality Index exists for year-round particle pollution (annual $PM_{2.5}$), the grading was based on the 2024 National Ambient Air Quality Standard for annual $PM_{2.5}$ of 9.0 µg/m^3. Counties that EPA listed as being at or below 9.0 µg/m^3 were given grades of "Pass." Counties that EPA listed as being at or above 9.1 µg/m^3 were given grades of "Fail." Where insufficient data existed for EPA to determine a design value, those counties received a grade of "Incomplete."

A design value is the calculated concentration of a pollutant based on the form of the national ambient air quality standard and is used by EPA to determine whether the air quality in a county meets the standard. Counties were ranked by design value. Metropolitan areas were ranked by the highest design value among the counties within a given Metropolitan Statistical Area as of 2023 as defined by the OMB.

Statistical Methodology: Population Data

The Lung Association calculates the county populations at risk from these pollutants based on the population from the entire county where the monitor is located. The Lung Association then calculates the metropolitan populations at risk based upon the largest metropolitan area that contains that county. Not only do people from that county or metropolitan area circulate within the county and the metropolitan area, but the air pollution also circulates to that monitor from throughout the county and metropolitan area.

Details about how the populations-at-risk numbers are derived can be found in Understanding Grades and Tables.

Key Findings

Nearly half
of the U.S. population live with unhealthy levels of air pollution

A changing climate
is making the job of cleaning up the air more difficult

The “State of the Air” 2025 report finds that even after decades of successful efforts to reduce sources of air pollution, 46% of Americans—156.1 million people—are living in places that get failing grades for unhealthy levels of ozone or particle pollution. This is nearly 25 million more people breathing unhealthy air compared to last year’s report, and more than in any other “State of the Air” report in the last ten years.

Extreme heat, drought and wildfires are contributing to worsening levels of air pollution across much of the U.S., exposing a growing proportion of the population to ozone and particle pollution that put their health at risk.

The “State of the Air” report looks at two of the most widespread and dangerous air pollutants, fine particles and ozone. The air quality data used in the report are collected at official monitoring sites across the United States by federal, state, local and Tribal governments. The Lung Association calculates values reflecting the air pollution problem and assigns grades for daily and long-term measures of particle pollution and daily measures of ozone. Those values are also used to rank cities (metropolitan areas) and counties. This year’s report presents data from 2021, 2022 and 2023, the most recent three years of quality-assured nationwide air pollution data publicly available. See ***About This Report*** for more detail about the methodology for data collection and analysis.

“State of the Air” 2025 is the 26th edition of this annual report, which was first published in 2000. From the beginning, the findings in “State of the Air” have reflected the successes of the Clean Air Act, as emissions from transportation, power plants and manufacturing have been reduced over time. Over the last decade, however, the findings of the report have added to the extensive evidence that a changing climate is making it harder to protect this hard-fought progress on air quality and human health. Increases in high ozone days and spikes in particle pollution related to extreme heat, drought and wildfires are putting millions of people at risk and adding challenges to the work that states and cities are doing across the nation to clean up air pollution.

After several years of reporting that the worst of the nation’s air quality problems were increasingly concentrated in western states, “State of the Air” 2025 finds the geographic distribution of air pollution shifting back East. The year 2023, which is included in this year’s report for the first time, brought improved conditions to the west coast but also a deadly heat wave in Texas and an unprecedented blanket of smoke from wildfires in Canada that drove levels of ozone and particle pollution in dozens of central and eastern states higher than they have been in many years.

Again this year, “State of the Air” finds that the burden of living with unhealthy air is not shared equally. Research has shown that communities of color are disproportionately exposed to unhealthy air and are also more likely to be living with one or more chronic conditions that make them more vulnerable to air pollution, including asthma, diabetes and heart disease. Although people of color make up 41.2% of the overall population of the U.S., they are 50.2% of the people living in a county with at least one failing grade. Notably, Hispanic individuals are nearly three times as likely as white individuals to live in a community with three failing grades.

In “State of the Air” 2025, the metropolitan areas that ranked worst in the country for each of the three pollutant measures are unchanged from last year’s report. Bakersfield, California tops the list for worst short-term particle pollution for the third straight year. Bakersfield also continues to be the metropolitan area with the worst level of year-round particle pollution for the 6th year in a row. Los Angeles is the city with the worst ozone pollution in the nation, as it has been in 25 of the 26 years of reporting in “State of the Air”—although city residents are exposed to an average of 77 fewer days of unhealthy levels of ozone each year than they were in 2000.

More than 125 million people live in counties with **F grades** for ozone smog.

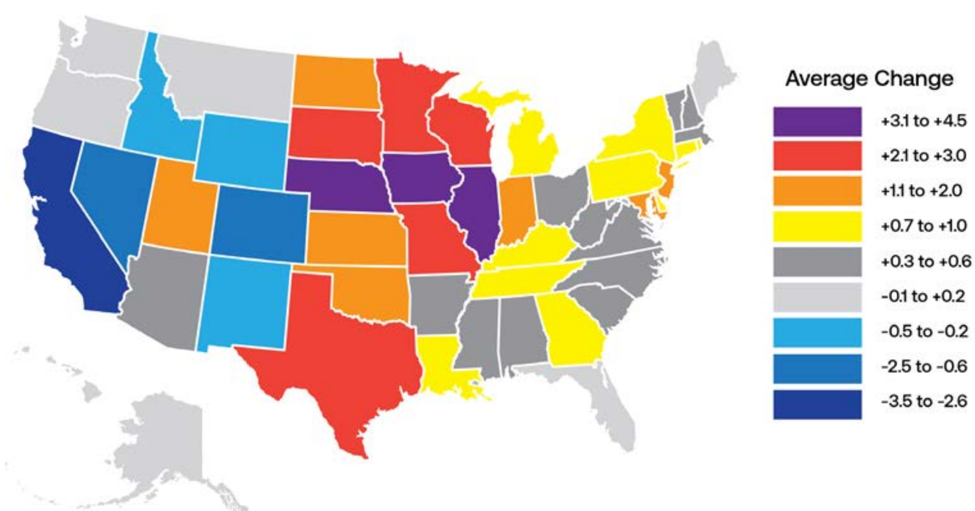
Ozone Pollution Trends

Ozone air pollution is making breathing difficult for more people living in the U.S. than any other single pollutant. In the years 2021, 2022, and 2023, 37% of the population, some 125.2 million people, were exposed to levels of ozone that put their health at risk. This is an increase of 24.6 million people over last year's figure, and includes tens of millions of infants and children, people age 65 or older and others whose conditions make them especially vulnerable to health harm from air pollution.

After several years of successful reductions in ozone pollution in many parts of the country thanks to clean-up measures enacted under the Clean Air Act, the results in "State of the Air" 2025 are a distressing reversal of that progress. The places that earned an "F" grade for ozone in this year's report were spread across 211 counties in 35 states and Washington DC. Ninety-three more counties earned an "F" grade than in last year's report, and 10 more states saw at least one of their counties added to the list. Many places that were considered untroubled by ozone smog in recent years of the report saw their air quality worsen, sometimes by quite a lot—137 counties lost their A grade, including 10 that went from an A to an F.

The hardest hit region of the country for this change is a large swath of states extending north to south from the Midwest and the Plains down to Texas. The worsening ozone was due in large part to two factors that came together in 2023—in the North, the transport of ozone-forming pollutants generated by the extensive, climate change-driven wildfires in Canada, and in the South, high temperatures combined with emissions creating ideal conditions for ozone formation.

Average Change in Ozone Weighted Average by State 2020-2022 to 2021-2023



The severity of the problem and the abruptness of the change are unprecedented in magnitude. Nationwide, nearly five times as many counties' ozone levels worsened as improved. Nine states saw the number of unhealthy days for ozone get worse in every one of their counties monitored for this pollutant, including all 27 monitored counties in Indiana, all 23 in Illinois, and all 17 in Missouri.

The Role of Wildfires in Ozone Formation

In May and June of 2023, Canada experienced its worst wildfire season on record. Smoke plumes from those fires spread across the states of the Upper Midwest and Northeast. In addition to smoke blanketing those states with high levels of particle pollution, the Upper Midwest experienced the highest regional-scale surface ozone levels ever recorded so early in the season. By analyzing findings from air quality monitors, satellites and measurements of atmospheric chemistry taken from research aircraft, scientists found a clear link between the fires and the extreme levels of ozone pollution hundreds of miles downwind.

Wildfire smoke is a very visible and well-recognized source of unhealthy levels of particle pollution. As worsening heat and drought driven by a changing climate have increased the number, size and intensity of wildfires in the U.S. and neighboring Canada, the number and severity of high particle pollution days have also been increasing.

At the same time, the role of wildfires in the development of ozone smog has been less obvious and less well-documented. The chemistry of ozone formation is complex and variable. Many different potential emission sources contribute its precursor components. That complexity, together with the variable mixture of pollutants in wildfire smoke, have made understanding and quantifying the relationship between wildfires and ozone a challenge for atmospheric scientists.

Burning of plants and other organic material, known as biomass, in wildland fires produces particulate matter along with hundreds of reactive gases, including nitrogen dioxide (NO_2), volatile organic compounds (VOCs) and carbon monoxide. All of these gases can play a role in ozone formation, especially in sunny and hot conditions. These emissions undergo a series of chemical reactions as the smoke plume moves away from the source of the fire. In general, ozone production increases as the plume ages and moves downwind. Plumes that drift over reservoirs of NO_2 pollution, such as urban centers and industrial corridors with highways, railroads and ports, are also more likely to produce elevated ozone levels.

Whether or not a particular wildfire event produces significantly elevated levels of ozone depends on a number of factors that affect the emission and transport of precursor gases. This includes the temperature of the combustion, the duration of active flame production (more NO_2 is produced during periods of active flaming than when a fire is smoldering), wind direction and how close to the surface the plume is transported.

Years of successful cleanup of emissions from transportation, energy generation and industrial processes have contributed to falling ozone levels across much of the country since the first "State of the Air" report was published in 2000. Unfortunately, as was shown in 2023, one bad fire season has the potential to offset that progress, at least temporarily, creating new challenges for air pollution control efforts and putting the health of the communities affected at increased risk.

Sources

Cooper O.R. et al. Early surface 2023 wildfires generated record-breaking surface ozone anomalies across the U.S. Upper Midwest. Geophysical Research Letters. 2024; 51:e2024GL111481.

Lin M et.al. Reactive nitrogen partitioning enhances the contribution of Canadian wildfire plumes to U.S. ozone air quality. Geophysical Research Letters. 2024; 51:e2024GL10969.

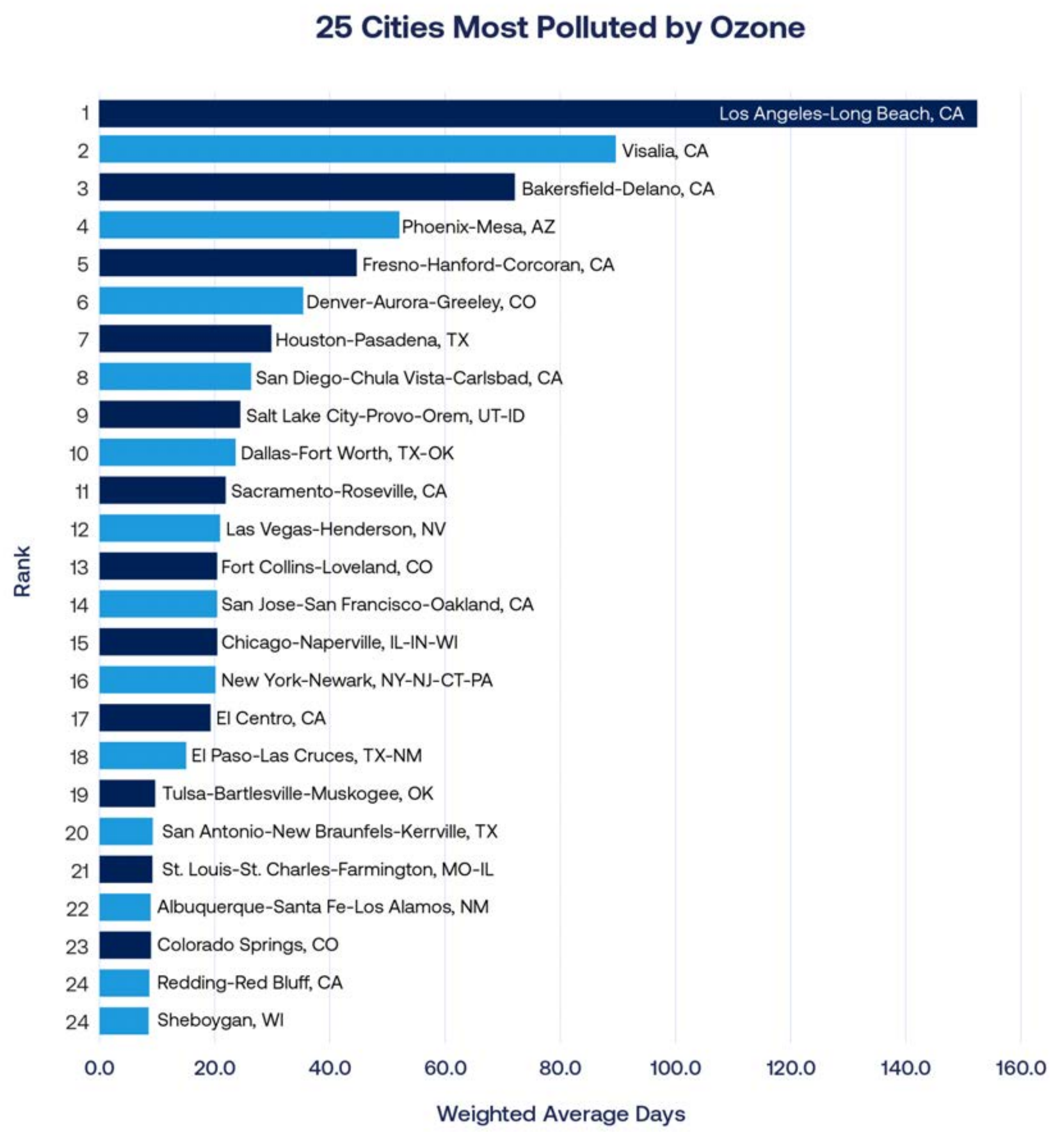
In spite of these startling results, it is worthwhile pointing out that a handful of western states experienced something of a respite in this year's report. More counties improved than worsened in California, Idaho, Nevada, New Mexico and Wyoming, even though ozone levels in many of their counties continued to be unhealthy on many days.

Despite the widespread worsening in parts of the country, the list of the Worst 25 cities for ozone pollution in "State of the Air" 2025 and their order of ranking remains relatively stable compared with last year's report.

The largest changes in rank are for Tulsa, OK, worsening from 31st to 19th worst, and for St. Louis, MO, from 30th to 21st worst. Both were most recently on the Worst 25 list in the 2016 report. Sheboygan, WI is the only other city to join the list this year, having last appeared on the 2021 most polluted list. Those three new cities take the places of San Luis Obispo, CA and Reno, NV, which improved enough to move off the worst 25 list, and Grand Rapids, MI, which worsened significantly, but not enough to remain on the list.

In one small piece of good news, none of the cities on the Worst 25 list reported a worst-ever average number of days of ozone smog. In fact, four cities, all in California—Fresno (for its fifth year in a row), Bakersfield, Sacramento, and Visalia—recorded their fewest-ever number of unhealthy days for ozone, though they all still earned "F" grades.

The geographical distribution of cities on the Worst 25 list repeats the pattern seen over



the last decade—the highest levels of ozone air pollution continue to occur in the West. California retains its position of being the state with the most metro areas on the list with 9 of the 25 most-polluted cities. Arizona, Colorado, Nevada, New Mexico, Oklahoma, Texas and Utah account for 12 others. They are joined this year by four more easterly cities, Chicago, New York, St. Louis, and Sheboygan.

Although cleanup of ozone precursor pollutants from industrial, power generation, and mobile sources has been working to reduce ozone concentrations, the impact of climate change has resulted in widespread wildfire disasters and has also meant higher temperatures, dry, sunny skies and more frequent stagnation events. Taken together, these conditions produced much higher numbers of unhealthy ozone days than would otherwise be the case.

Short-term Particle Pollution Trends

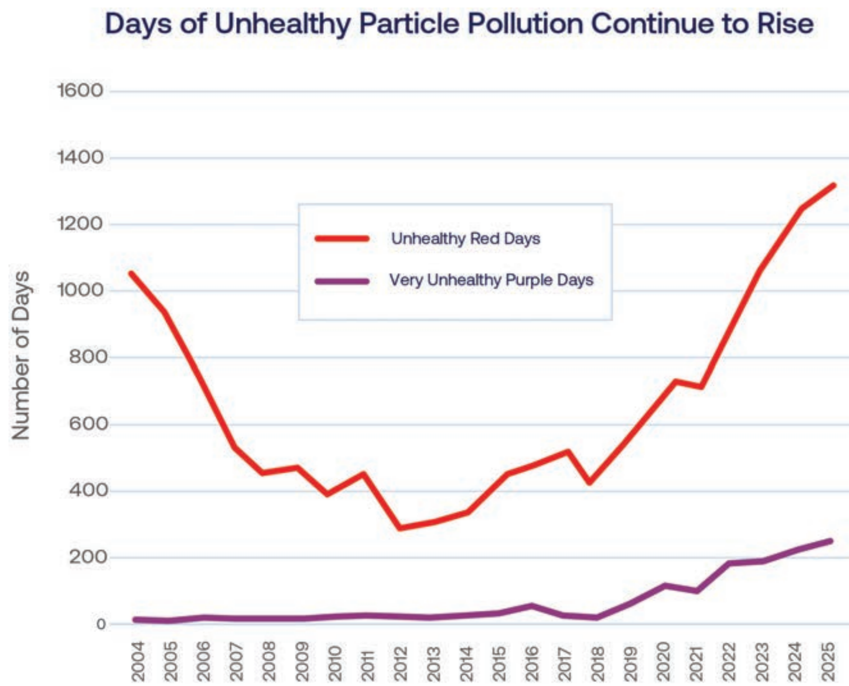
77 million people live in counties with **F grades** for daily particle pollution.

In the years 2021, 2022 and 2023, there were 77.2 million people living in counties across the U.S. that earned an F grade for unhealthy spikes in particle pollution. This represents an increase of 12.1 million more people than in last year's report, the seventh straight year of increasing health threat from this deadly pollutant.

Even compared with the past several years of "State of the Air" reports—in which many cities and counties experienced their highest weighted average number of days ever reported for fine particle pollution—results this year are again worse. In "State of the Air" 2025, 154 counties in 27 states get failing grades for short-term particle pollution. This is 44 more counties and 8 more states, plus Washington DC, than in last year's report. Although 27 counties in the West, including 17 counties in California, improved enough to get passing grades this year, those improvements are more than offset by the 68 counties that have been added, many of them in the Midwest and East. Connecticut, DC, Georgia, Illinois, New York, Ohio, South Dakota, Virginia and Wisconsin are all represented on the F list for the first time in years.

Wildfire has clearly emerged as a major driving factor in determining where in the country people are being exposed to unhealthy spikes in particle pollution. As states and counties experience shifting conditions of heat and precipitation—"good fire years" and "bad fire years"—their levels of air pollution can vary significantly. For example, compared to the disastrous 2020 fire year in California, the three years included in "State of the Air" 2025 were relatively better in the state, allowing counties like Santa Barbara and Marin to go from an F to an A grade in this year's report. In contrast, smoke from extensive wildfires in Canada in 2023 resulted in extremely high levels of fine particle pollution on many days throughout parts of the northeastern and north central U.S. that have not historically been thought of as "fire country."

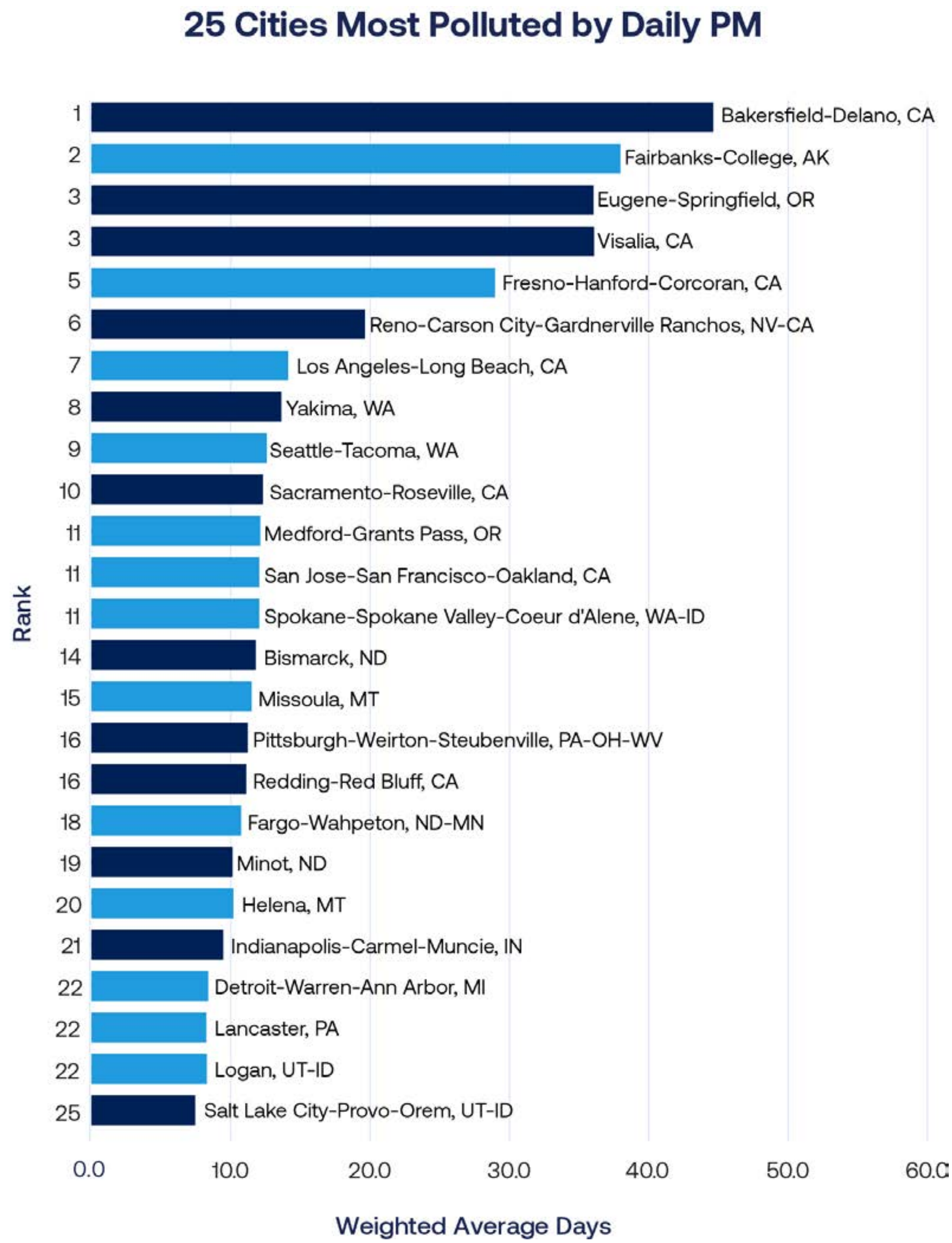
Wildfires are also continuing to increase the severity of pollution, with smoke in eastern states resulting in this report's highest ever number of red and purple days for particle pollution (1,280 and 231 days, respectively). These are levels on the Air Quality Index that carry strong health warnings. On red Unhealthy days, not only are members of sensitive groups likelier to "experience more serious health effects," but also "some members of the general public may experience health effects." On purple Very Unhealthy days, "the risk of health effects is increased for everyone."



There were also 27 maroon Hazardous days, the highest category, days on which a health warning of emergency conditions is issued, saying, “Everyone is more likely to be affected.” Although this is fewer maroon days than in “State of the Air” 2023 and 2024, it is a sharp change from the fewer than ten maroon days reported from 2004 to 2016.

This year’s report finds that the health of 56.3 million people across 140 counties in 25 states was put at risk on severely polluted Very Unhealthy (purple) and Hazardous (maroon) days for fine particle pollution. This is 24 million more people than in last year’s report. This is drastically worse than the findings in last year’s “State of the Air” and a shocking demonstration of a trend that not only is continuing but worsening as a consequence of climate change.

In better news, comparing cities ranked the worst 25 in last year’s report with those in this year’s, the average number of days per year that residents were exposed to high levels of fine particle pollution decreased by about three days. (However, it was to a still seriously poor weighted average of 16.5 days.) All but one of the ten worst cities on the list improved in this year’s report, including Bakersfield, California, which experienced a weighted average of 17.5 fewer bad air days in 2021-2023 for spikes in particle pollution. The exception was Visalia, California, which recorded its highest level of particle pollution spikes in the history of the report—for the third year in a row.



As a result of the geographic shifts in high levels of particle pollution, eight of last year's Worst 25 cities have been replaced in this year's report. Medford, Oregon and Lancaster and Pittsburgh, Pennsylvania rejoined the list after a one-year hiatus. Worsened air quality in Indianapolis, Indiana; Detroit, Michigan; and Bismarck, North Dakota led to them being added to the list. Helena, Montana and Minot, North Dakota, both newly designated Metropolitan Statistical Areas in 2023, join the list for the first time, though Helena's air quality would have put it among the worst 25 in last year's report had it been classified as a metro region.

Improved enough to leave the Worst 25 list this year are the western cities of Phoenix, Arizona; Chico, Salinas, and San Diego, California; Denver, Colorado; Boise City, Idaho; Las Vegas, Nevada and Portland, Oregon.

Year-round Particle Pollution Trends

“State of the Air” 2025 finds that 85 million people living in 115 counties across 31 states have been exposed to year-round levels of particle pollution that do not meet the annual air quality standard. This is a small improvement over the 90.7 million people living in places that got failing marks in last year’s report, but still a sobering reminder of the widespread, chronic nature of this deadly form of air pollution.

85 million people live in counties with failing grades for year-round particle pollution

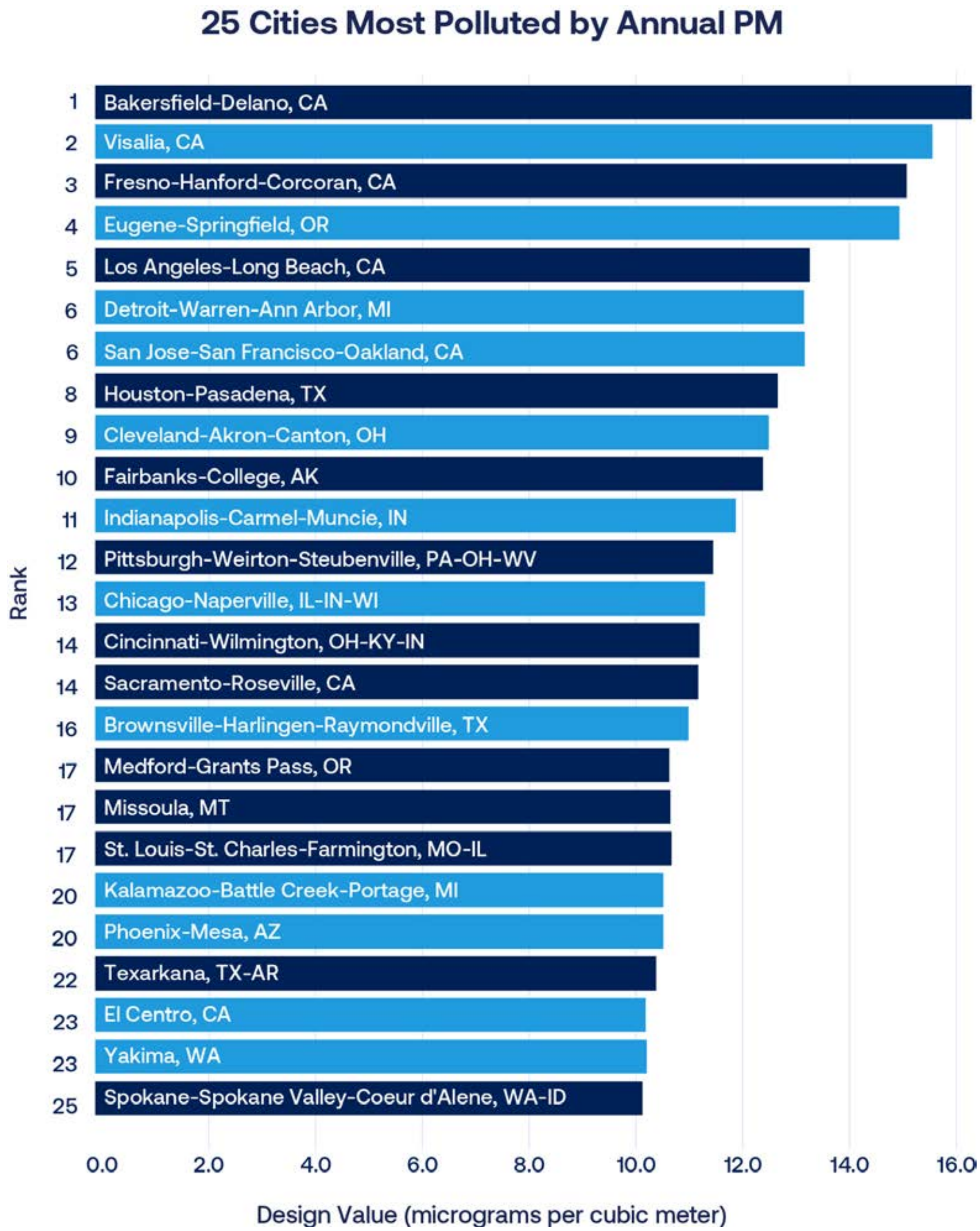
When looking nationwide at all the counties with measurements for this pollutant, the average severity of annual particle pollution is effectively unchanged since last year’s report. By its nature, the year-round measure of average particle pollution is not as changeable from year to year as the daily measure. Variations over time may look smaller, but because they typically represent recurring exposures over many days and weeks, seemingly minor differences can have a big impact on public health.

Annual particle pollution levels are most often highest in places that are subject to multiple sources of emissions all year long, such as from highways, oil and gas extraction, power generation and industry. The additional pollution load from wildfire smoke, though comparatively short-lived in any one location, can strongly influence that location’s annual average. In this year’s report, this influence can be seen reflected in geographic shifts similar to that seen with short-term particle pollution.

Unsurprisingly, given the transport of wildfire smoke across the country, the states with the worst changes from last year’s report are mainly in the north central and eastern parts of the U.S. Ten states, ranging from North Dakota to Maryland, saw the year-round average for fine particle pollution get worse in every one of their counties monitored for this pollutant.

In contrast, though California still ranks near the top for worst statewide average, there were 37 million more people living with improved levels than with worse levels compared with last year’s report. All but one of California’s 42 counties for which comparisons could be made show improvement.

In “State of the Air” 2025, the 25 most polluted cities for year-round particle pollution bucked the worsening trend of recent years by improving an average of about 0.4 micrograms per cubic meter (from 12.35 to 11.98 μg/m^3). Thirteen of them, all in western states, improved. Fresno-Hanford-Corcoran and Los Angeles-Long Beach, California, posted their lowest levels ever, though they are still among the worst five. Eleven metro areas worsened compared with their levels in last year’s report. One (Indianapolis-Carmel-Muncie, IN) was unchanged. None of the 25 most polluted cities for this measure posted their worst-ever levels of year-round particle pollution.



Because of the geographic shift in areas of worse or improved particle pollution, there are more shifts in the rankings on the Worst 25 list than usual. Though the four worst metro areas keep their same ranks as in last year's report, most of the others on the list have moved up or down quite a bit.

Six metro areas experienced levels of air pollution that moved them onto the Worst 25 list. Cleveland, Ohio posted the most dramatic shift in the country, resulting in its rank dropping from 54th to 9th worst. Kalamazoo, Michigan and Brownsville and Texarkana, Texas are all making an appearance on this list for the first time. Missoula, Montana rejoins the list after a three-year absence. St. Louis, Missouri rounds out the additions this year.

Improving enough to leave the list are Augusta, Georgia; Chico, California; Kansas City, Missouri; Las Vegas and Reno, Nevada; Oklahoma City, Oklahoma and Corpus Christi, Texas.

Populations at Risk

More than 265 million people live in the 885 counties with enough monitoring data to be assigned a grade for at least one pollutant in this year's report. The majority of U.S. counties actually don't have monitors—which means that many communities, especially rural ones, don't have official monitored information on their air quality.

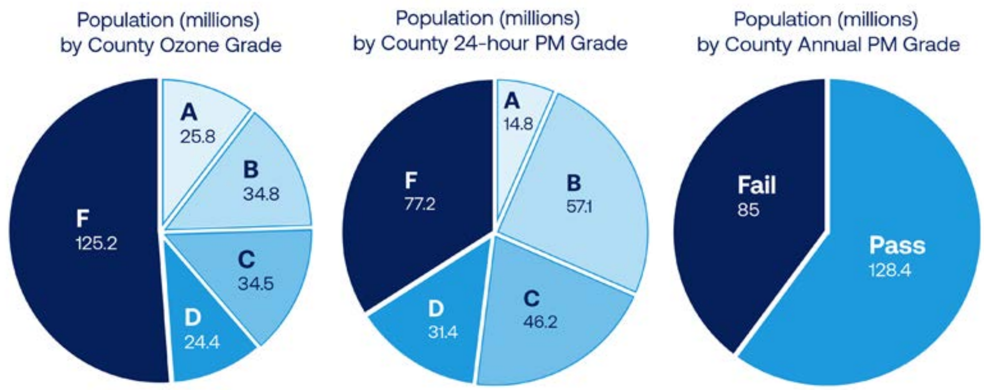
Addressing Data Gaps in Unmonitored Counties

"State of the Air" has long served as a trusted resource for tracking national trends in ozone and particle pollution, but many counties remain unmonitored, leaving communities without access to vital air quality information. To help close these gaps, the American Lung Association's "Something in the Air" reports explore the potential of using emerging technologies to expand the understanding of pollution exposure in under-monitored regions.

The "Something in the Air" series is intended to supplement the "State of the Air" report, providing a clearer picture of air quality where monitoring is limited. By utilizing satellite data and other emerging data tools to complement monitoring networks and expand air quality assessment, community members and decision-makers can better identify pollution hotspots, strengthen research and advocate for more comprehensive clean air protections. Together, these efforts work toward the same goal of ensuring all communities, especially those most at risk, have the information needed to fight for cleaner, healthier air. Learn more at Lung.org/something-in-the-air.

It is important to note that the population numbers included in this section are only for those places that collect air pollution data, and do not reflect the entire population of these groups in the U.S. The availability of data, and hence the population that is included in this report, differs for each pollutant.

All 156.1 million people in the U.S. living in places with failing grades for unhealthy levels of ozone or particle pollution are at risk of harm to their health. But some groups of people are especially vulnerable to illness and death from their exposure. See ***People at Risk*** for more detail about the factors that contribute to increased risk.



The number of people in these high-risk groups in "State of the Air" 2025 are as follows:

- **Children and older adults—**More than 34.6 million children under age 18 and some 25.2 million adults age 65 and over live in counties that received an F for at least one pollutant. Close to 9.5 million children and more than 6.7 million seniors live in counties failing all three measures.
- **People with underlying health conditions**
  - **Asthma—**More than 2.5 million children and nearly 11.8 million adults with asthma live in counties that received an F for at least one pollutant. More than 638,000 children and some 3.1 million adults with asthma live in counties failing all three measures.
  - **Chronic Obstructive Pulmonary Disease (COPD)—**Some 6.8 million people with COPD live in counties that received an F for at least one pollutant. Close to 1.7 million people with COPD live in counties failing all three measures.
  - **Lung Cancer—**Nearly 72,000 people diagnosed with lung cancer as of 2021 live in counties that received an F for at least one pollutant, and about 17,500 people ever diagnosed with lung cancer live in counties failing all three measures.
  - **Cardiovascular Disease—**Close to 9.7 million people with cardiovascular disease live in counties that received an F for at least one pollutant. Nearly 2.5 million people live in counties failing all three measures.
  - **Pregnancy—**Adverse impacts from air pollution have been shown both for those who are pregnant as well as for the developing fetus. More than 1.7 million pregnancies were recorded in 2023 in counties that received at least one failing grade for air pollution. Of those, close to 453,000 were in counties that received failing grades for all three measures.
- **People experiencing poverty**—Nineteen million people with incomes meeting the federal poverty definition live in counties that received an F for at least one pollutant. Close to 5.7 millig grade for ozone and/or particle pollution. Over 26.0 million people of color live in counties that received failing grades on all three measures, including some 15.2 million Hispanics.

For more detail about the number of people at risk by grade and by pollutant, see ***Data Table 1***. The populations at risk are also included by county in the ***State Data Tables***.

Most Polluted Places to Live

In addition to the 25 worst cities for each pollutant listed above, the 25 most polluted counties for ozone and particle pollution are ranked in the tables below.

Ozone Ranking	State	County	WA	PM Ranking	State	County	WA	Annual PM Ranking	State	County	DV
1	California	San Bernardino	153.7	1	California	Kern	44.3	1	California	Kern	16.2
2	California	Riverside	113.7	2	Alaska	Fairbanks North Star Borough	38.7	2	California	Tulare	15.7
3	California	Los Angeles	98.5	3	California	Tulare	36.5	3	California	Fresno	14.8
4	California	Tulare	88.7	3	Oregon	Lane	36.5	4	Oregon	Lane	14.4
5	California	Kern	72.8	5	California	Fresno	28.8	5	California	Kings	14.1
6	Arizona	Maricopa	54.8	6	California	Kings	26.5	6	California	Plumas	14
7	California	Fresno	46.8	7	California	Siskiyou	26.2	7	California	San Bernardino	13.1
8	Colorado	Jefferson	36.7	8	Oregon	Klamath	20.8	8	California	Stanislaus	13
9	Texas	Harris	34.8	9	Nevada	Douglas	19.2	8	Michigan	Wayne	13
10	California	San Diego	27.5	10	California	Inyo	18.7	10	Montana	Lincoln	12.8
11	Utah	Salt Lake	25.7	11	Nevada	Washoe	18.5	11	California	Riverside	12.6
12	Texas	Denton	25.5	12	Nevada	Carson City	17.5	12	Texas	Harris	12.5
13	Colorado	Douglas	25.2	13	California	Plumas	17.3	13	Washington	Okanogan	12.3
14	Utah	Uintah	24.5	14	Montana	Ravalli	14.5	14	California	Los Angeles	12.2
15	New Mexico	Eddy	24.3	15	California	Riverside	14	14	Ohio	Cuyahoga	12.2
16	California	Placer	22.5	16	Washington	Yakima	13.8	16	Alaska	Fairbanks North Star Borough	12.1
17	Nevada	Clark	22.2	17	Washington	Okanogan	13.3	17	Oregon	Klamath	12
18	Texas	Tarrant	21.5	18	Idaho	Lemhi	12.8	18	Indiana	Marion	11.9
19	Colorado	Larimer	20.8	19	Montana	Silver Bow	12.3	19	California	Siskiyou	11.7
20	California	Stanislaus	20.5	19	Washington	Snohomish	12.3	20	Pennsylvania	Allegheny	11.6
21	Illinois	Cook	20.3	21	California	Nevada	12.2	21	Illinois	Cook	11.3
22	Connecticut	Fairfield	20.2	22	California	Stanislaus	12	22	California	San Joaquin	11.2
23	Colorado	Arapahoe	19.5	22	Oregon	Jackson	12	22	California	Sutter	11.2
24	California	Imperial	19.3	22	Washington	Stevens	12	22	Ohio	Butler	11.2
25	Arizona	Pinal	19.2	25	North Dakota	Burleigh	11.7	25	California	Mendocino	11

Twenty-seven counties, listed alphabetically by state below, received failing grades for all three measures of pollution:

Arizona	Maricopa, Pinal
California	Fresno, Imperial, Kern, Kings, Los Angeles, Madera, Merced, Orange, Riverside, Sacramento, San Bernardino, Stanislaus, Sutter, Tulare
Illinois	Cook
Indiana	Lake, Marion
Michigan	Wayne
Ohio	Butler, Cuyahoga
Pennsylvania	Philadelphia
Nevada	Washoe
Utah	Salt Lake
Wisconsin	Milwaukee, Waukeshaw

Cleanest Places to Live

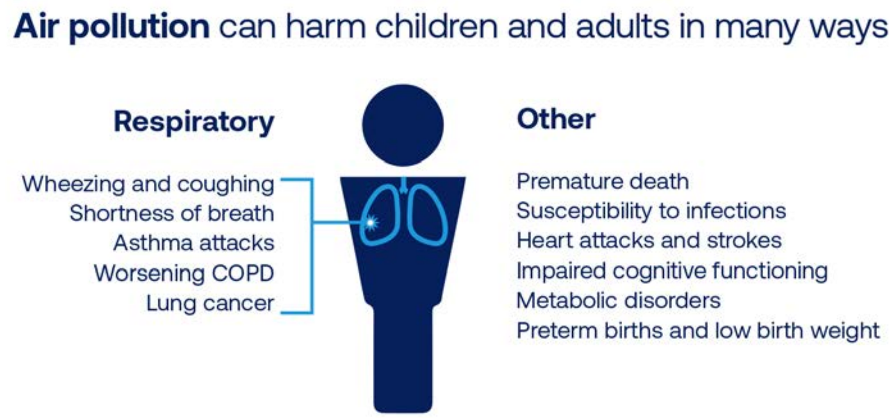
Many cities in the U.S. enjoy air that is considered clean for one or more of the pollution measures tracked in “State of the Air.” In this year’s report, 35 of the cities for which there is monitoring data had zero high ozone days and 22 cities had zero days with high levels of short-term particle pollution. This is a considerable worsening from last year’s report, when 55 cities had no days of high ozone and 75 had no spikes in particle pollution. Because year-round particle pollution is scored differently, the cleanest cities for this measure can be ranked, and the best 25 are considered cleanest. See ***Data Tables 3a-c.***

In another grim indicator of the deterioration of air quality nationwide in this year’s report, only two cities—Bangor, Maine and San Juan-Bayamón, Puerto Rico—rank on all three cleanest cities lists. They both earned an A for ozone and short-term particle pollution and are among the 25 cities with the lowest year-round particle levels.

The other four cities that made the Cleanest Places to Live list last year, Johnson City-Kingsport-Bristol, TN-VA, Lincoln-Beatrice, NE, Urban Honolulu, HI and Wilmington NC, all had at least one bad particle pollution day that cost them an A and a return to the cleanest cities list.

Health Impact of Air Pollution

Years of scientific research have clearly established that particle pollution and ozone are a threat to human health at every stage of life, increasing the risk of premature birth, causing or worsening lung and heart disease, and shortening lives. Some groups of people are more at risk of illness and death than others, because they are more likely to be exposed, or are more vulnerable to health harm, or often both.



Health Effects of Particle Pollution

Particle pollution – also known as particulate matter or soot – is a deadly and growing threat to public health in communities around the country. The more researchers learn about the health effects of particle pollution, the more dangerous it is recognized to be.

What is particle pollution?

Particle pollution refers to a mixture of tiny bits of solids and liquids in the air we breathe. Particle pollution comes from many sources. Factories, power plants, and diesel- and gasoline-powered vehicles and equipment either directly emit fine particles or generate other pollutants, such as nitrogen oxides (NO_X) and sulfur oxides (SO_X), known as precursors because they can then form into fine particles in the atmosphere. Other sources of particle pollution include wildfires, burning wood in wood stoves or residential fireplaces and burning biomass for electricity.

Researchers and regulators categorize particles according to size, grouping them as coarse, fine and ultrafine. Coarse particles, called PM_{10}, can include wind-blown dust, ash, pollen and smoke. Fine particles, $PM_{2.5}$, are most often a by-product of burning wood or fossil fuels, and may include components such as toxic compounds, salts and metals. The tiniest are called ultrafine particles, or $PM_{0.1}$. They are also produced by combustion and are included in the larger category of $PM_{2.5}$.

Individual fine particles are too small to be visible, but when pollution levels are high, they can make the air appear thick and hazy.

The differences in size make a difference in how particles affect our health. Our bodies' natural defenses help us to keep the coarse particles we inhale out of the deepest parts of our lungs, although these particles do deposit in the larger airways. However, those defenses do not keep smaller fine or ultrafine particles from penetrating deep into the lungs and even all the way into the air sacs. Many of these particles get trapped there, while the smallest are so tiny that they can pass from the air sacs into the bloodstream and disperse to other organs of the body.

What can particles do to your health?

Particle pollution can be very dangerous to breathe, especially at higher concentrations. It can trigger illness, hospitalization and premature death. Researchers estimate that $PM_{2.5}$ is responsible for more than 50,000 premature deaths in the United States every year.[1]

Short-Term Exposure

Short-term spikes in fine particle pollution that last from a few hours to a few days can kill. Premature deaths from breathing these particles can occur on the very day that particle levels are high, or up to a month or two afterward. Most premature deaths are from respiratory and cardiovascular causes. Fine particle pollution does not just make people die a few days earlier than they might otherwise—in many cases these deaths would not have occurred for years if the air were cleaner.[2]

Studies linking short-term exposure to $PM_{2.5}$ to death from all causes have been accumulating for a number of years. Taken together, this body of research provides consistent evidence of positive associations between fine particle pollution and mortality across diverse geographic locations and in populations with a wide range of demographic characteristics. In 2019, an international study looking at 499 cities across the globe reinforced these consistent findings.[3]

Exposure to even low levels of fine particles can be deadly. Looking nationwide in a 2017 study, researchers found that older adults faced a higher risk of premature death even when levels of short-term particle pollution remained well below the current national standard. This was consistent whether the older adults lived in cities, suburbs or rural areas.[4] Another study published in 2018 using data from 135 U.S. cities found a causal relationship between mortality and exposure to $PM_{2.5}$ at concentrations below the federal standard.[5]

Particle pollution also has many other harmful effects, ranging from decreased lung function to heart attacks. Extensive research has linked short-term increases in particle pollution to:

- increased mortality in infants;[6]
- increased hospital admissions for cardiovascular disease, including heart attacks and strokes;[7]
- increased hospital admissions and emergency department visits for chronic obstructive pulmonary disease (COPD);[8]
- increased severity of asthma attacks and hospitalization for asthma among children.[9,10]

Year-Round Exposure

Decades of research have firmly established that breathing particle pollution day in and day out can also be deadly. Across numerous seminal studies that looked at different groups of people living in different parts of the country, the results consistently showed a clear relationship between long-term exposure to particulate matter and mortality.[11]

Research using publicly available data on a cohort of more than one million adults in the U.S. reconfirmed that long-term exposure to $PM_{2.5}$ was associated with elevated risk of early death. The increased risk was primarily associated with death from cardiovascular and respiratory causes, including heart disease, stroke, influenza and pneumonia. Researchers also found a similar association between exposure to fine particle pollution and an increased risk of death from lung cancer among never-smokers.[12] Another study of 68.5 million Medicare-enrolled adults in the United States between 2000 and 2016 found a 6-8% increase in risk of all-cause mortality for every 10μg/m^3 increase in the annual average $PM_{2.5}$.[13]

Research has also linked year-round exposure to particle pollution to a wide array of serious health effects at every stage of life, from conception through old age. Among individuals who are pregnant, fetuses and children, long-term particle pollution exposure is linked to:

- Increased risk of preterm birth and low birth weight;[14]
- Increased fetal and infant mortality;[15]
- Impaired neurological development and cognition;[16]
- Reduced lung development and impaired lung function in children;[17]
- Higher likelihood of children developing asthma.[18]

In adults, long-term particle pollution exposure is linked to:

- Increased risk from existing cardiovascular and respiratory disease, including a worsening of heart disease, atherosclerosis and COPD;[19,20]
- Higher likelihood of developing diabetes and subsequent complications;[21,22]
- Higher likelihood of getting lung cancer and of dying from it;[23]
- Impaired cognitive functioning and an increased risk of Parkinson's disease, Alzheimer's disease and other dementias later in life;[24,25]
- Increased risk of clinical depression and anxiety.[26]

The good news is that cleaning up particle pollution makes a difference. Research has shown a consistent relationship between decreasing $PM_{2.5}$ concentrations and improving respiratory health in children and reduced mortality of adults in communities that have reduced their levels of year-round particle pollution.[27,28]

Who is most at risk from particle pollution?

Anyone who lives where particle pollution levels are high is at risk. Some people face greater risk, however, based on their underlying health and other characteristics. [See the ***People at Risk*** section for more information about vulnerable groups] Research has shown that the groups at the greatest risk from particle pollution include:

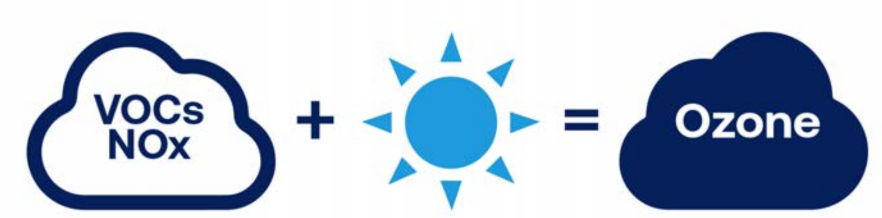
- Pregnant people and fetuses;[29]
- Infants, children and people age 65 and older;[30]
- People with lung disease, especially asthma, but also people with COPD;[31]
- People with cardiovascular disease;[32]
- People with lung cancer;[33]
- People of color;[34]
- Current or former smokers;[35]
- People with low incomes;[36] and
- People who are obese or have diabetes.[37]

Health Effects of Ozone Pollution

Ground-level ozone, sometimes known as smog, is one of the most widespread and dangerous pollutants in the United States. Scientists have studied the effects of ozone on human health for decades. Hundreds of studies have confirmed that ozone harms people at levels currently found in many parts of the United States.

What is Ozone Pollution?

Ozone is a gas composed of molecules with three oxygen atoms. (The oxygen we need for life is made up of molecules with two oxygen atoms.) Ozone forms in the lower atmosphere when a combination of pollutants, usually nitrogen oxides (NOx) and volatile organic compounds (VOCs), "cook" together in sunlight through a series of chemical reactions. NOx and VOCs are produced primarily when fossil fuels such as gasoline, diesel, oil, natural gas or coal are burned or when solvents and some other chemicals evaporate. NOx is emitted from power plants, motor vehicles and other sources of high-heat combustion. VOCs are emitted from motor vehicles, oil and gas operations, chemical plants, refineries, factories, gas stations, paint, consumer products and other sources. If these ingredients are present under the right conditions, they react to form ozone. Sunlight is key, with higher temperatures increasing ozone production. Because the reactions take place in the atmosphere, ozone often shows up downwind of the sources of the original emissions, sometimes many miles from where it formed.



Ozone air pollution is sometimes called ground-level ozone, to distinguish it from the much higher-altitude stratospheric ozone layer that protects people from damaging ultraviolet rays from the sun.

What Can Ozone Pollution Do to Your Health?

Ozone gas is a powerful lung irritant. When it is inhaled into the lungs, it reacts with the delicate lining of the small airways, causing inflammation and other damage that can impact multiple body systems. Ozone exposure can also shorten lives.

Ozone has a serious effect on the respiratory system, both in the short term and over the course of years of exposure.

When ozone levels are high, many people experience breathing problems such as chest tightness, coughing and shortness of breath, often within hours of exposure. Even healthy young adults may experience respiratory symptoms and decreased lung function.[38]

Other breathing problems that have been tied to short-term exposure to ozone include:

- Worsening of symptoms, increased medication use, and increased emergency department visits and hospital admissions for people with asthma and COPD;[39]
- Susceptibility to respiratory infections such as pneumonia, resulting in an increased likelihood of emergency department visits and hospitalizations.[40]

Living with ozone pollution long term may cause lasting damage to respiratory health, including:

- Development of new cases of asthma in children;[41]
- Damage to the airways, leading to development of COPD;[42]
- Increased allergic response.[43]

The inflammation and oxidative stress caused by short- and long-term exposure to ozone can also do damage to tissues, genes and proteins throughout the body, which can cause or worsen other disease conditions over time. These include:

- Potential increased risk of metabolic disorders, including glucose intolerance, hyperglycemia and diabetes;[44]
- Potential impact on the central nervous system, including brain inflammation, structural changes and increased risk of cognitive decline;[45,46]
- Increased likelihood of reproductive and developmental harm, including reduced fertility, pregnancy complications, preterm birth, stillbirth and low birth weight;[47,48]
- Possible cardiovascular effects.[49]

The damage ozone does to the body can be deadly. Recent research has affirmed earlier findings that short-term exposure to ozone, even at levels below the current standard, likely increases the risk of premature death, particularly for older adults.[50]

There is also a growing body of evidence that long-term exposures to ambient ozone may be associated with an increased risk of cardiovascular and respiratory disease mortality.[51]

Who is Most at Risk from Ozone Pollution?

Anyone who spends time outdoors where ozone pollution levels are high may be at risk. Some people face a higher-than-average risk, however, because of their underlying health and other characteristics. [See the ***People at Risk*** section for more information about vulnerable groups.] Research has shown that the groups at greatest risk from ozone pollution include:

- Pregnant people and fetuses;[52]
- Children;
- Anyone 65 and older;
- People with existing lung disease such as asthma and COPD;
- People who work or exercise outdoors.[53]

People at Risk

The health burden of air pollution is not evenly shared. Some people are more at risk of illness and death from air pollution than others. Several key factors affect an individual's level of risk:

- Exposure – Where someone lives, where they go to school and where they work makes a big difference in how much air pollution they breathe. In general, the higher the exposure, the greater the risk of harm.
- Susceptibility – Individuals who are pregnant and their fetuses, children, older adults and people living with chronic conditions, especially heart and lung disease, may be physically more susceptible to the health impacts of air pollution than other adults.
- Access to healthcare – Whether or not a person has health coverage, a healthcare provider, and access to linguistically and culturally appropriate health information may influence their overall health status and how they are impacted by environmental stressors like air pollution.
- Psychosocial stress – There is increasing evidence that non-physical stressors such as poverty, racial/ethnic discrimination and residency status can amplify the harmful effects of air pollution.

These risk factors are not mutually exclusive and often interact in ways that lead to significant health inequities among subgroups of the population. Taken all together, these high-risk categories account for a large proportion of the U.S. population.

People of color

Research has shown that people of color are more likely to be exposed to air pollution and more likely to suffer harm to their health from air pollution than white people.[54,55] Much of this inequity can be traced to the long history of systemic racism in the United States. Practices such as redlining, the discriminatory outlining of so-called "riskier" neighborhoods by mortgage lenders, institutionalized residential segregation in the 20th century, impairing the ability of many people of color to build wealth and limiting their mobility and political power. Over the years, decision-makers have found it easier to place sources of pollution such as power plants, industrial facilities, landfills and highways, in economically disadvantaged communities of color than in more affluent, predominantly white neighborhoods. The resulting disproportionate exposure to air pollution has contributed to high rates of emergency department visits for asthma and other diseases.[56,57]

People of color are also more likely than white people to be living with one or more chronic conditions that make them more susceptible to the health impacts of air pollution, including asthma and diabetes.[58]

People experiencing poverty

There is evidence that having low income or living in lower income areas puts people at increased risk from air pollution, although the correlation is not as strong as with race and ethnicity.[59,60] People living in poverty are more likely to live in close proximity to sources of pollution and have fewer resources to relocate than people with more financial security.[61] Poverty itself, along with the problems that beset many low-income communities, such as lack of safety, green space, and high-quality food access, have been associated with increased psychosocial distress and chronic stress, which in turn make people more vulnerable to pollution-related health effects.[62] People with low income also have lower rates of health coverage and less access to quality and affordable health care to provide relief to them when they get sick.

Children

Children are both more susceptible to harm from air pollution and more likely to be exposed than adults. The growth and development of a child's lungs and breathing ability start in utero and continue into early adulthood. Long-term exposure to particle pollution during pregnancy and early childhood has been linked to reduced lung growth and long-term exposure to ozone has been linked to increased potential for the development of asthma. The developing brain and heart may also be affected, with life-long consequences.[63] In addition, the body's defenses that help adults fight off infections are still developing in children. Children have more respiratory infections than adults, which also seem to increase their susceptibility to air pollution.[64]

Children breathe more rapidly and inhale more air relative to their size than do adults. They are more likely to spend time outdoors, running around, being active and breathing hard. Consequently, they are more exposed to polluted outdoor air than adults typically are.

Older adults

Much of the illness and premature death caused by air pollution occurs in older adults, who are at increased risk of harm for several reasons. As a person ages, the normal process of thinning and weakening of the lung tissue and the supporting muscle and bones of the ribcage results in diminishing lung function over time. The impairment that results from exposure to air pollutants then has an add-on effect, putting stress on the lungs and heart. Older people are also more likely to be living with chronic diseases, and there is evidence that co-existing chronic lung, heart or circulatory conditions may worsen following exposure to environmental pollutants.[65]

The strength of the immune system also declines with age, leaving older people at greater risk of contracting infections and less able to get them under control before they become serious. Because exposure to air pollution increases susceptibility to respiratory infections, it also increases the risk of severe illness and death in older adults.

People with underlying health conditions

For the millions of people in the U.S. living with illnesses such as asthma, COPD, diabetes, heart disease and lung cancer, exposure to air pollution places them at greater risk of harm to their health than those without disease. The cellular injury and systemic inflammation triggered by breathing ozone and particle pollution put additional stress on people's lungs, heart and other organs already compromised by disease. This can result in a worsening of symptoms, increased medication use, more frequent emergency department visits and hospitalizations, an overall reduced quality of life and far too often premature death.

Individuals who are pregnant and fetuses

Pregnancy is always a susceptible time for both the person who is pregnant and the developing fetus. The pregnant body undergoes dramatic physiological changes in hormone levels, metabolism and circulation throughout the months of gestation. The rapid and complex development of the fetus is a precisely timed and sequenced process. The inflammation and oxidative stress resulting from exposure to air pollution during pregnancy can increase the risk of hypertensive disorders, including preeclampsia, and lead to intrauterine inflammation and damage to the placenta that can disrupt the growth and development of the fetus. Fetal health may also be impacted in a number of ways by environmental contaminants that have been shown to cross the placenta.[66]

Exposure to both ozone and particle pollution during pregnancy is associated with premature birth, low birth weight and stillbirth. These risks are amplified when the individual who is pregnant is also at higher risk of health harm from air pollution in other ways, such living in poverty or having asthma.[67]

People with a smoking history

There is some evidence suggesting that current and former smokers are at greater risk of health harm from exposure to fine particle pollution compared with never-smokers. They are more likely to develop lung cancer and to die prematurely.[68] Smoking damages the lungs, heart, blood vessels and other organs.[69] This impairment leaves the person with a smoking history more vulnerable to the health impact of air pollution than a never-smoker.

Endnotes

1. Health Effects Institute. State of Global Air. Boston, MA. 2024.
2. U.S. EPA. Integrated Science Assessment for Particulate Matter. December 2019 EPA/600/R-19/188. Section 11.1.
3. Liu C, Chen R, Sera RF, Vicedo-Cabrera AM, Guo Y, Tong S, Coelho MSZS, Saldiva PHN, Lavigne E, Matus P, Valdes Ortega PN, Osorio Garcia S, Pascal M, Stafoggia M, Scortichini M, Hashizume M, Honda Y, Hurtado-Diaz M, Cruz J, Nunes B, Teixeira JP, Kim H, Tobias A, Íñiguez C, Forsberg B, Åström C, Ragettli MS, Guo Y-L, Chen B-Y, Bell ML, Wright CY, Scovronick N, Garland RM, Milojevic A, Kyselý J, Urban A, Orru H, Indermitte E, Jaakkola JJK, Ryti NRI, Katsouyanni K, Analitis A, Zanobetti A, Schwartz J, Chen J, Wu T, Cohen A, Gasparrini A, Kan H. Ambient Particulate Air Pollution and Daily Mortality in 652 Cities. *N Engl J Med.* 2019; 381(8):705-15.
4. Di Q, Dai L, Wang Y, Zanobetti A, Choirat C, Schwartz JD, Dominici F. Association of Short-Term Exposure to Air Pollution with Mortality in Older Adults. *JAMA*. 2017; 318:2446-2456.
5. Schwartz J, Fong K and Zanobetti A. A national multicity analysis of the causal effect of local pollution, NO2, and $PM_{2.5}$ on mortality. *Environ Health Perspect.* 2018; 126(8):087004-1- 087004-10.
6. U.S. EPA. 2019, Section 9.1.2.6.
7. U.S. EPA. 2019, Section 6.1.2.
8. U.S. EPA. 2019, Section 5.1.2.1.1.
9. U.S. EPA. 2019, Section 5.1.2.1.
10 .U.S. EPA. 2019, Section 5.1.2.2.1.
11. U.S. EPA. 2019, Section 11.2.
12. Pope CA, Lefler JS, Ezzati M, Higbee JD, Marshall JD, Kim S, Bechle M, Gilliat KS, Vernon SE, Robinson AL, Burnett RT. Mortality risk and fine particulate pollution in a large, representative cohort of U.S. Adults. *Environ Health Perspect.* 2019; 127(7):077007-1-077007-9.
13. Wu X, Braun D, Schwartz J, Kioumourtzoglou MA, Dominici F. Evaluating the impact of long-term exposure to fine particulate matter on mortality among the elderly. Sci Adv. 2020; 6.
14. Bekkar B, Pacheco S, Basu R, DeNicola N_Association of air pollution and heat exposure with preterm birth, low birth weight and stillbirth in the U.S.: A systemic review. *JAMA* Network Open. 2020; 3(6):e208243.
15. Bekkar B et al. 2020.
16. Ni Y, Loftus CT, Szpiro AA, Young MT, Hazlehurst MF, Murphy LE, Tylavsky FA, Mason WA, LeWinn KZ, Sathyanarayana S, Barrett ES, Bush NR, Karr CJ. Associations of pre- and postnatal air pollution exposures with child behavioral problems and cognitive performance: A U.S. multi-cohort study. *Environ Health Perspect.* 2022; 130(6).
17. U.S. EPA. 2019, Section 5.2.2.2.1.
18. U.S. EPA. 2019, Section 5.2.3.1.
19. U.S. EPA. 2019, Section 6.2.2.
20. U.S. EPA. 2019, Section 5.2.5.
21. Liu F, Chen G, Huo W, Wang C, Liu S, Li N, Mao S, Hou Y, Lu Y, Xiang H. Associations between long-term exposure to ambient air pollution and risk of type 2 diabetes mellitus: a systematic review and meta-analysis. *Environ Pollut.* 2019; 252(ptB):1235–1245.

22. Wu Y, Zhang S, Qian SE, Cai M, Li H, Wang C, Zou H, Chen H, Vaughn MG, McMillin SE, Lin H. Ambient air pollution associated with incidence and dynamic progression of type 2 diabetes: a trajectory analysis of a population-based cohort. *BMC Med.* 2022; 20:375.
23. U.S. EPA, 2019. Section 10.2.5.1.
24. Shi L, Wu X, Danesh Yazdi M, Braun D, Abu Awad Y, Wei Y, Liu P, Di Q, Wand Y, Schwartz J, Dominici F, Kioumourtzoglou M-A, Zanobetti A. Long-term effects of $PM_{2.5}$ on neurological disorders in the American Medicare population: a longitudinal cohort study. *Lancet Planet Health.* 2020; 4:e557-65.
25. Wilker EH, Osman M and Weisskopf MG. Ambient air pollution and clinical dementia: a systemic review and meta-analysis. *BMJ*. 2023; 381:e071620.
26. Gao X, Jiang M, Huang N, Guo X and Huang T. Long-term air pollution, genetic susceptibility, and the risk of depression and anxiety: a prospective study in the UK Biobank cohort. *Environ Health Perspect.* 2023; 131(1).
27. U.S. EPA. 2019, Section 5.2.11.
28. Pope CA, Ezzati M, Dockery DW. Fine particulate air pollution and life expectancy in the United States. *N Engl J Med.* 2009; 360:376-86.
29. Bekkar B et al. 2020.
30. U.S. EPA. 2019, Section 12.5.1.1.
31 .U.S. EPA. 2019, Section 12.3.5.
32. U.S. EPA. 2019, Section 12.3.1.
33. U.S. EPA. 2019, Section 10.2.5.1.
34. U.S. EPA. 2019, Section 12.5.4.
35. U.S. EPA. 2019, Section 12.6.1.
36. U.S. EPA. 2019, Section 12.5.3.
37. U.S. EPA. 2019, Section 12.3.3.
38. U.S.EPA. Integrated Science Assessment for Ozone and Related Photochemical Oxidants. April 2020. EPA/600/R-20/012. Section 3.1.4.1.
39. U.S. EPA. 2020, Sections 3.1.5 and 3.1.6.
40. U.S. EPA. 2020, Section 3.1.7.
41. U.S. EPA. 2020, Section 3.2.4.1.
42. U.S. EPA. 2020, Section 3.2.4.3.
43. U.S. EPA. 2020, Section 3.2.4.6.
44. U.S. EPA. 2020, Section 5.1.3.
45. U.S. EPA. 2020, Sections 7.2.1 and 7.2.2.
46. Gao Q, Zang E, Bi J, Dubrow R, Lowe SR, Chen H, Zeng Y, Shi L, Chen K. Long-term ozone exposure and cognitive impairment among Chinese older adults: A cohort study. *J Env Int.* 2022; 160:107072.
47. U.S. EPA. 2020, Section 7.1.3.
48. Hao H, Yoo SR, Strickland MJ, Darrow LA, D'Souza RR, Warren, JL, Moss S, Wang H, Zhang H, Chang HH. Effects of air pollution on adverse birth outcomes and pregnancy complication in the U.S state of Kansas (200-2015). *Sci Reports.* 2023; 13:21476.
49. U.S. EPA. 2020, Sections 4.1 and 4.2.
50. Di et al. 2017.
51. Lim CC, Hayes RB. Ahn J, Shao Y, Silverman DT, Jones RR, Garcia C, Bell ML, Thurston GD. Long-term exposure to ozone and cause-specific mortality risk in the United States. *Am J Respir Crit Care Med.* 2019; 200(8):1022–1031.
52. Bekkar B et al. 2020.
53. U.S. EPA. 2020, Section IS.4.4.
54. U.S. EPA. 2019, Section 12.5.4.
55. Liu J, Clark LP, Bechle MJ, Hajat A, Kim S-Y, Robinson AL, Sheppard L, Szpiro AA, Marshall JD. Disparities in air pollution exposure in the United States by race/ethnicity and income, 1990–2010. *Environ Health Perspect.* 2021; 129(12).
56. Lane HM, Morello-Frosch R, Marshall JD, Apte JS. Historical Redlining Is Associated with Present-Day Air Pollution Disparities in U.S. Cities. *Environ Sci Technol Let.* 2022; 9:345-350.
57. Nardone A, Casey JA, Morello-Frosch R, Mujahid M, Balmes JR, Thakur N. Associations Between Historical Residential Redlining and Current Age-Adjusted Rates of Emergency Department Visits Due to Asthma Across Eight Cities in California: An Ecological Study. *Lancet Planet Health.* 2020; 4(1):e24-e31.
58. Centers for Disease Control and Prevention. National Center for Health Statistics. National Health Interview Survey, 2022. Analysis performed by the American Lung Association Epidemiology and Statistics Unit using SPSS software.
59. U.S. EPA. 2019, Section 12.5.3.
60. Liu et al. 2021.
61. Mikati I, Benson AF, Luben TJ, Sacks JD, Richmond-Bryant J. Disparities in Distribution of Particulate Matter Emission Sources by Race and Poverty Status. *Am J Public Health*. 2018; 108(4):480–485.
62. Kioumourtzoglou M-A, Schwartz J, James P, Dominici F, Zanobetti A. $PM_{2.5}$ and mortality in 207 US cities: modification by temperature and city characteristics. *Epidemiology*. 2016; 27(2):221-7.
63. U.S. EPA. 2019, Section 9.1.3.
64. Johnson NM, Hoffmann AR, Behlen JC, Lau C, Pendleton D, Harvey N, Shore R, Li Y, Chen J, Tian Y, Zhang R. Air pollution and children's health—a review of adverse effects associated with prenatal exposure from fine to ultrafine particulate matter. *Environ Health Prev Med*. 2021; 26:72.
65. Yahzdi MD, Wang Y, Di Q, Wei Y, Requia WJ, Shi L, Sabath MB, Dominici F, Coull BA, Evans JS, Koutrakis P, Schwartz JD. Long-term association of Air Pollution and hospital admissions among Medicare patients using a doubly robust additive model. *Circulation*. 2021; 143:1584-1596.

66. Klepak P, Locatelli I, Korošec S, Künzli N, Kukec A. Ambient air pollution and pregnancy outcomes: a comprehensive review. *Environ Research*. 2018; 167:144-159. and identification of environmental public health challenges
67. Bekkar B et al. 2020.
68. U.S. EPA. 2019, Section 12.6.1.
69. U.S. Department of Health and Human Services. *The Health Consequences of Smoking - 50 Years of Progress: A Report of the Surgeon General.* 2014.

Recommendations for Action

"State of the Air" 2025 illustrates the profound impact that climate change is having on air quality and the continued urgency of reducing the sources of emissions that contribute to ozone and particle pollution.

Under the Clean Air Act, the U.S. Environmental Protection Agency has driven decades of progress in cleaning up the transportation, electricity, buildings and industrial sectors. At the same time, EPA has tracked, analyzed and expanded the nation's understanding of air pollution at the community level. Now, however, all of that progress is at risk.

Sweeping staff cuts and reduction of federal funding are stymieing the agency's ability to ensure that people have clean air to breathe. This year's "State of the Air" focuses on an overarching clarion call to people nationwide: support and defend EPA.

Defend EPA Staff and Funding

EPA is, first and foremost, a public health agency. The agency works at every level to address air pollution. People breathe easier every day because of the work of EPA's staff, but they may not realize just how much these workers matter.

EPA staff are the reason the nation has access to air quality data in the first place, including through "State of the Air." A team of environmental scientists, modelers and statisticians and other experts enable the Airnow.gov site to work, which allows people across the country to get air quality forecasts online. They work with state and local governments to share those forecasts with communities across the country. They review the health science and write and update guidance on what people should do to protect themselves when the air quality index hits yellow, orange, red, purple and maroon. They share resources with schools that help them keep students safe when air pollution reaches unhealthy levels.

EPA staff are vital to ensuring that unhealthy levels of air pollution are not just monitored but also cleaned up. This is done in part by writing strong, sound safeguards under the Clean Air Act. For example, EPA is required to regularly update the National Ambient Air Quality Standards – the national limits on ozone and particle pollution on which this report is based. The scientific staff keep abreast of what the scientific research shows about air pollution, come up with different policy options, lead the work of analyzing the benefits to health of each option, and gather public input. For other types of standards, like limits on specific pollutants from power plants and vehicles, EPA staff do complex technical analyses of what technologies are available to reduce pollution, how and where they're being used, and what the impacts would be to health and to industry of pursuing different options.

Another part of ensuring pollution cleanup is making sure these strong safeguards are enforced. EPA staff do that too. They work with state and local governments to make sure new facilities are reviewed before they get built so that they don't add to the burden of unhealthy air in a place that's already too polluted. They test cars and trucks in labs to make sure they're not emitting more pollutants than they're supposed to. They inspect facilities to ensure their compliance with air quality standards to protect communities in the area. They bring cases against companies that violate the laws that protect public health.

EPA also gives grants and other funding to state and local governments, community organizations, businesses and more to help them monitor and reduce air pollution. Many of these grants are from programs to reduce emissions and invest in clean transportation and clean electricity under the Inflation Reduction Act. Many more are under longstanding programs that fund the everyday efforts that state and local governments make to ensure clean air. Without these funds, state and local governments would have a hard time running local air quality monitors, tracking where pollution is coming from and writing and implementing plans to reduce that pollution.

For all of these funds, EPA staff work hand-in-hand with these partners to make sure the funding goes where it needs to go and supports the work that needs to be done.

EPA's key principles are to follow the science, follow the law, and be transparent. Those principles have guided decades of progress toward cleaner air. But efforts to undercut them put the agency's core mission at risk.

The bottom line is this: EPA staff, working in communities across country, are doing crucial work to keep your air clean. Staff cuts are already impacting people's health across the country. Further cuts mean more dirty air.

Defend EPA Rules

In "State of the Air" 2024, we celebrated the fact that several lifesaving new air pollution safeguards were finalized by EPA, thanks to the hard work of agency staff and the health and environmental advocates who supported them. Now, that progress is at risk.

Executive orders issued in January 2025 and EPA announcements in March seek to overturn regulatory policies that reduce pollution from electricity generation and transportation. But a regulation cannot be overturned simply by an executive order or a press statement. That means that the clean air safeguards are still on the books, still the law of the land, and still need to be defended and protected, especially as new actions are announced to reconsider these lifesaving programs. They include:

Updated national particle pollution standards. EPA strengthened the annual fine particulate matter pollution standards from 12 $\mu g/m^3$ to 9 $\mu g/m^3$. States have submitted to EPA their recommendations for which areas should be cleaned up. Now the agency is required to review those recommendations and conduct its own analyses to finalize the areas that need additional pollution control by February 6, 2026.

Rules to clean up methane and other air pollutants from the oil and gas industry. EPA finalized rules to address leaks of methane from the oil and gas production process, like drilling operations. This is a crucial climate measure and will also reduce emissions of dangerous volatile organic compounds (VOCs). While Congress voted in February to overturn a separate methane prevention rule, these limits are still on the books.

Stronger standards for future cars. EPA finalized a rule that will make future light- and medium-duty vehicles cleaner. The rule will help get more zero-emission vehicles on the road and make new gasoline-powered cars less polluting too.

Stronger carbon pollution limits on future trucks and buses. EPA finalized a rule that will make sure future heavy-duty vehicles emit fewer greenhouse gases, including trucks and buses. A separate, 2023 rule also ensures future trucks and buses emit less nitrogen oxide emissions.

Stronger limits on mercury and air toxics from power plants. EPA tightened limits on toxic emissions from coal- and oil-fired power plants and strengthened monitoring requirements to help ensure that cleanup happens quickly.

Limits on carbon pollution from power plants. EPA set limits on carbon emissions from future gas-fired power plants, current coal-fired power plants and some current gas plants.

These rules are on the books. They were adopted by following the law, and EPA must uphold the rule of law now. The rules must stay in place and be implemented and enforced. Anything less means people will suffer health harms from dirty air that could have been prevented.

Move Forward at the State, City, Community and Individual Levels

States and cities still have many tools in their toolbox to reduce emissions that harm people's health, like cleaning up vehicles by adopting the Advanced Clean Cars II and Advanced Clean Trucks policies, investing in charging infrastructure for electric vehicles, and requiring more electricity to come from truly clean sources like wind, solar, geothermal and tidal. They can also adopt policies to reduce emissions from buildings, manufacturing facilities and freight activities.

Cities, communities and individuals can also adopt a suite of "smart surfaces" solutions – things like cool roofs, porous pavement, more green space and solar panels that help reduce heat in their neighborhoods and protect health from the combined health harms of pollution and dangerously high temperatures.

Individuals can keep themselves safe and help their friends and families do the same – things like checking daily air pollution forecasts at Airnow.gov, preparing for wildfires, floods and other disasters at Lung.org/disaster, and reducing emissions from their vehicle or home energy use in their own lives.

Above all: you can also use the power of your personal voice. Even in a time when clean air protections are under threat, the fact remains: people nationwide want clean air. The need for clean air is universal, nonpartisan and knows no boundaries. And sharing a story is powerful–whether it's a time when you had asthma symptoms on a smoggy day, your child spent days indoors because of wildfire smoke, or the concerns you have about how losses of staff and funding at EPA may impact the air you breathe. That's true when you take your story to your elected officials, but it's also true with family, friends, and other members of your community.

Understanding Grades and Tables

*See **Methodology** for a full explanation of data sources and calculations made for state grades.*

Notes for state grades tables

1. Not all counties have monitors for either ozone or particle pollution. If a county does not have any monitoring data for either pollutant, that county's name is not on the list in these tables. The decision about siting monitors in a county is made by the state and the U.S. Environmental Protection Agency, not by the American Lung Association.
2. **INC** (Incomplete) indicates that monitoring data is available for at least one year in that county, but not all three years.
3. **DNC** (Data Not Collected) indicates that data on that particular pollutant was not collected in that county during the three years covered in the report.
4. The **Weighted Average (Wgt. Avg.)** is derived by adding the three years of individual level data (2021-2023), multiplying the sums of each level by the assigned standard weights (i.e., 1=orange, 1.5=red, 2.0=purple and 2.5=maroon) and calculating the average. Grades are assigned based on the weighted averages as follows: A=0.0, B=0.3-0.9, C=1.0-2.0, D=2.1-3.2, F=3.3+.
5. The **Design Value** is the calculated concentration of a pollutant based on the annual National Ambient Air Quality Standard for $PM_{2.5}$, which is 9.0 µg/m^3. Counties with design values of 9.0 or lower received a grade of "Pass" for Annual $PM_{2.5}$. Counties with design values of 9.1 or higher received a grade of "Fail."

Notes for at-risk groups tables

1. Adding across rows does not produce valid estimates. Adding the at-risk categories (asthma, COPD, poverty, etc.) will double-count people who fall into more than one category.
2. **Total Population** is based on 2023 U.S. Census and represents the at-risk populations in counties with ozone or $PM_{2.5}$ pollution monitors; it does not represent the entire state's sensitive populations.
3. Those **18 & under** and **65 & over** are vulnerable to ozone and $PM_{2.5}$. Do not use them as population denominators for disease estimates—that will lead to incorrect estimates.
4. **Pediatric asthm**a estimates are for those under 18 years of age and represent the estimated number of people in that age group who had asthma in 2023 based on the state rates, when available, or national rates when not (Behavioral Risk Factor Surveillance System, or BRFSS), applied to county population estimates (U.S. Census).
5. **Adult asthma** estimates are for those 18 years of age and older and represent the estimated number of people in that age group who had asthma during 2023 based on state rates (BRFSS) applied to county population estimates (U.S. Census).
6. **COPD** estimates are for adults 18 and over who had ever been diagnosed with chronic obstructive pulmonary disease, which includes chronic bronchitis and emphysema, based on state rates (BRFSS) applied to county population estimates (U.S. Census).
7. **Lung cancer** estimates are for all ages and represent the estimated number of people newly diagnosed with lung cancer in 2021 based on state rates (StateCancerProfiles.gov) applied to county population estimates (U.S. Census).
8. **Cardiovascular (CV) disease** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to county population estimates (U.S. Census). CV disease includes coronary heart disease, stroke and heart attack.
9. **Pregnancy** estimates are for females 18-49 and based on state rates of pregnancies resulting in live births applied to population estimates (U.S. Census).
10. **Poverty** estimates include all ages and come from the U.S. Census Bureau's Small Area Income and Poverty Estimates program. The estimates are derived from a model using estimates of income or poverty from the Annual Social and Economic Supplement and the Current Population Survey, 2023. Puerto Rico poverty estimates come from the U.S. Census Bureau's American Community Survey, 2019-2023.
11. **People of color** are defined as anyone Hispanic or as non-Hispanic Black, Asian, American Indian/Alaska Native, Native Hawaiian and Other Pacific Islander, or two or more races, based on 2023 county population estimates (U.S Census). Puerto Rico race and ethnicity estimates come from the U.S. Census Bureau's American Community Survey, 2019-2023.
12. Based on a request from Connecticut, the Census Bureau shifted from providing population estimates by county to county-equivalent Planning Regions for the state starting with 2022 data. As air quality data continues to be county-based and Planning Regions are incompatible with historic Connecticut counties, Census Bureau population estimates from 2021 are used in this year's report. Disease rates are still from the latest year available.

Table 1 Populations at Risk by Grade and by Pollutant

People at Risk from Short-Term Particle Pollution (Daily $PM_{2.5}$)

In Counties Where the Grades Were:	Chronic Diseases: Adult Asthma	Pediatric Asthma	COPD	Lung Cancer	CV Disease	Age Groups: Under 18	65 and Over	Pregnancies	Poverty	People of Color	Total Population	Number of Counties
Grade A (0.0)	1,124,915	247,119	762,250	7,208	1,092,866	3,102,575	2,727,090	157,238	2,130,229	6,588,285	14,764,458	62
Grade B (0.3-0.9)	4,289,395	902,647	2,777,553	28,165	3,969,488	12,088,644	9,863,933	633,944	7,077,114	27,984,148	57,142,408	160
Grade C (1.0-2.0)	3,578,296	777,059	2,115,172	22,314	2,924,564	10,284,615	7,315,386	518,938	5,392,423	22,628,156	46,214,218	132
Grade D (2.1-3.2)	2,494,526	488,473	1,516,172	16,743	2,033,166	6,701,796	5,520,433	333,157	3,772,420	12,136,398	31,357,228	100
Grade F (3.3+)	5,957,863	1,188,978	3,262,762	33,910	4,724,253	16,774,897	12,669,711	822,523	9,432,925	39,123,137	77,178,968	154
National Population in Counties with $PM_{2.5}$ Monitors	17,961,644	3,707,933	10,774,444	111,852	15,242,636	50,483,527	39,407,042	2,541,883	28,671,471	111,697,262	233,762,815	648

People at Risk from Year-Round Particle Pollution (Annual $PM_{2.5}$)

In Counties Where the Grades Were:	Chronic Diseases: Adult Asthma	Pediatric Asthma	COPD	Lung Cancer	CV Disease	Age Groups: Under 18	65 and Over	Pregnancies	Poverty	People of Color	Total Population	Number of Counties
Pass	10,122,909	2,011,982	6,078,482	63,610	8,596,829	26,953,506	22,409,791	1,381,553	15,058,221	55,546,609	128,380,895	426
Fail	6,258,046	1,379,394	3,663,712	38,256	5,202,276	19,216,717	13,211,682	946,632	11,101,103	48,309,996	84,997,574	115
National Population in Counties with $PM_{2.5}$ Monitors	17,961,644	3,707,933	10,774,444	111,852	15,242,636	50,483,527	39,407,042	2,541,883	28,671,471	111,697,262	233,762,815	648

People at Risk from Ozone

In Counties Where the Grades Were:	Chronic Diseases: Adult Asthma	Pediatric Asthma	COPD	CV Disease	Age Groups: Under 18	65 and Over	Pregnancies	Poverty	People of Color	Total Population	Number of Counties
Grade A (0.0)	1,948,670	361,826	1,370,724	2,035,209	5,050,342	5,443,296	255,197	3,091,849	10,345,036	25,758,934	137
Grade B (0.3-0.9)	2,702,269	568,383	1,781,636	2,536,346	7,307,754	6,368,314	364,608	4,330,183	14,141,417	34,802,173	148
Grade C (1.0-2.0)	2,789,756	579,640	1,821,933	2,442,236	7,631,976	6,005,211	364,325	3,849,007	12,587,711	34,492,823	174
Grade D (2.1-3.2)	1,977,825	394,791	1,186,794	1,635,315	5,233,078	4,212,129	266,456	2,646,545	9,154,408	24,448,296	81
Grade F (3.3+)	9,392,704	1,980,591	5,322,148	7,585,423	27,684,476	19,946,133	1,379,521	15,054,422	66,483,656	125,231,723	211
National Population in Counties with Ozone Monitors	19,014,829	3,932,701	11,597,147	16,401,883	53,502,295	42,448,315	2,657,497	29,329,395	113,897,030	247,396,139	780

Table 2a People at Risk in 25 U.S. Cities Most Polluted by Short-Term Particle Pollution (Daily $PM_{2.5}$)

2025 Rank	Metropolitan Statistical Areas	Total Population	Under 18	65 and Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	People of Color	Poverty
1	Bakersfield-Delano, CA	913,820	259,728	111,264	16,473	57,210	25,454	313	42,581	9,148	639,578	169,857
2	Fairbanks-College, AK	94,840	22,535	12,395	1,565	7,941	3,951	49	4,980	1,202	30,209	7,015
3	Eugene-Springfield, OR	381,181	65,661	81,956	4,563	37,332	20,889	159	26,719	3,537	78,370	54,725
3	Visalia, CA	479,468	140,917	58,469	8,938	29,621	13,260	164	22,217	4,853	355,437	83,050
5	Fresno-Hanford-Corcoran, CA	1,332,702	364,673	175,198	23,129	84,749	38,374	457	64,440	13,466	972,180	229,167
6	Reno-Carson City-Gardnerville Ranchos, NV-CA	699,307	139,687	141,044	9,992	49,010	41,135	289	44,011	6,481	258,037	67,410
7	Los Angeles-Long Beach, CA	18,316,743	3,923,848	2,876,482	248,870	1,263,845	602,613	6,262	1,025,571	189,174	13,036,866	2,228,294
8	Yakima, WA	256,643	73,483	37,805	5,371	19,664	7,921	121	12,204	2,502	154,962	40,910
9	Seattle-Tacoma, WA	4,993,725	1,019,521	804,469	74,525	426,849	171,424	2,352	263,032	53,000	1,964,673	453,095
10	Sacramento-Roseville, CA	2,706,315	593,708	474,959	37,656	185,863	91,589	924	156,808	27,170	1,368,720	297,127
11	Medford-Grants Pass, OR	308,589	61,414	76,999	4,268	29,192	18,034	129	23,597	2,417	62,148	40,445
11	San Jose-San Francisco-Oakland, CA	9,001,024	1,861,823	1,497,266	118,086	627,407	303,409	3,078	517,775	91,577	5,990,798	872,151
11	Spokane-Spokane Valley-Coeur d'Alene, WA-ID	785,302	168,696	148,630	12,182	65,934	30,875	359	45,908	8,007	126,868	90,163
14	Bismarck, ND	135,786	31,657	25,018	2,060	10,507	5,524	72	8,727	1,606	17,796	10,229
15	Missoula, MT	126,939	22,681	22,869	1,532	12,369	6,916	57	7,793	1,473	15,909	14,224
16	Pittsburgh-Weirton-Steubenville, PA-OH-WV	2,727,866	508,773	605,974	50,022	227,806	173,588	1,468	250,600	25,746	410,735	313,183
16	Redding-Red Bluff, CA	245,262	54,424	52,782	3,452	16,873	8,997	84	15,642	2,158	65,965	33,160
18	Fargo-Wahpeton, ND-MN	285,484	64,560	40,164	3,994	22,676	9,854	150	15,535	3,909	47,884	28,800
19	Minot, ND	75,742	18,142	11,835	1,180	5,912	2,825	40	4,353	931	13,526	5,684
20	Helena, MT	96,091	20,040	20,545	1,354	8,952	5,576	44	6,602	891	9,097	8,618
21	Indianapolis-Carmel-Muncie, IN	2,651,953	629,614	417,423	42,718	234,648	164,452	1,645	195,165	31,238	763,082	292,453
22	Detroit-Warren-Ann Arbor, MI	5,361,927	1,139,647	989,127	82,844	467,408	359,574	2,846	405,547	53,288	1,795,028	739,466
22	Lancaster, PA	558,589	127,940	112,749	12,689	43,953	32,546	298	46,971	5,306	111,949	46,567
22	Logan, UT-ID	157,887	45,666	16,972	2,851	12,407	4,168	41	6,457	2,211	26,848	15,751
25	Salt Lake City-Provo-Orem, UT-ID	2,805,734	771,304	314,357	47,547	225,519	74,264	690	121,225	37,296	720,985	235,887

Notes:

Cities are ranked using the highest weighted average for any county within that Combined Metropolitan Statistical Area or Metropolitan Statistical Area.

Adding across rows does not produce valid estimates. Adding the disease categories (asthma, COPD, etc.) will double-count people who fall into more than one category.

Table 2b People at Risk in 25 U.S. Cities Most Polluted by Year-Round Particle Pollution (Annual $PM_{2.5}$)

2025 Rank	Metropolitan Statistical Areas	Total Population	Under 18	65 and Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	People of Color	Poverty
1	Bakersfield-Delano, CA	913,820	259,728	111,264	16,473	57,210	25,454	313	42,581	9,148	639,578	169,857
2	Visalia, CA	479,468	140,917	58,469	8,938	29,621	13,260	164	22,217	4,853	355,437	83,050
3	Fresno-Hanford-Corcoran, CA	1,332,702	364,673	175,198	23,129	84,749	38,374	457	64,440	13,466	972,180	229,167
4	Eugene-Springfield, OR	381,181	65,661	81,956	4,563	37,332	20,889	159	26,719	3,537	78,370	54,725
5	Los Angeles-Long Beach, CA	18,316,743	3,923,848	2,876,482	248,870	1,263,845	602,613	6,262	1,025,571	189,174	13,036,866	2,228,294
6	Detroit-Warren-Ann Arbor, MI	5,361,927	1,139,647	989,127	82,844	467,408	359,574	2,846	405,547	53,288	1,795,028	739,466
6	San Jose-San Francisco-Oakland, CA	9,001,024	1,861,823	1,497,266	118,086	627,407	303,409	3,078	517,775	91,577	5,990,798	872,151
8	Houston-Pasadena, TX	7,706,626	1,967,004	990,110	148,098	486,725	282,905	3,288	429,147	97,728	5,106,048	1,058,803
9	Cleveland-Akron-Canton, OH	3,732,803	773,498	767,567	52,388	326,574	241,288	2,289	300,854	38,634	928,916	477,528
10	Fairbanks-College, AK	94,840	22,535	12,395	1,565	7,941	3,951	49	4,980	1,202	30,209	7,015
11	Indianapolis-Carmel-Muncie, IN	2,651,953	629,614	417,423	42,718	234,648	164,452	1,645	195,165	31,238	763,082	292,453
12	Pittsburgh-Weirton-Steubenville, PA-OH-WV	2,727,866	508,773	605,974	50,022	227,806	173,588	1,468	250,600	25,746	410,735	313,183
13	Chicago-Naperville, IL-IN-WI	9,794,558	2,121,326	1,642,328	135,642	747,355	491,566	5,583	611,557	99,967	4,756,478	1,066,086
14	Cincinnati-Wilmington, OH-KY-IN	2,313,417	530,030	395,801	38,809	197,431	151,078	1,509	177,422	25,551	527,325	251,071
14	Sacramento-Roseville, CA	2,706,315	593,708	474,959	37,656	185,863	91,589	924	156,808	27,170	1,368,720	297,127
16	Brownsville-Harlingen-Raymondville, TX	446,747	125,079	64,917	9,417	27,393	16,644	191	25,463	5,200	406,406	103,978
17	Medford-Grants Pass, OR	308,589	61,414	76,999	4,268	29,192	18,034	129	23,597	2,417	62,148	40,445
17	Missoula, MT	126,939	22,681	22,869	1,532	12,369	6,916	57	7,793	1,473	15,909	14,224
17	St. Louis-St. Charles-Farmington, MO-IL	2,900,730	625,580	538,402	47,592	224,152	182,663	1,746	229,436	30,409	777,225	302,295
20	Kalamazoo-Battle Creek-Portage, MI	456,459	100,251	80,613	7,287	39,453	29,110	242	32,526	4,841	105,192	58,511
20	Phoenix-Mesa, AZ	5,124,113	1,127,488	883,602	90,893	412,019	217,161	1,942	303,431	55,017	2,382,001	562,977
22	Texarkana, TX-AR	145,907	34,333	26,385	2,511	10,172	7,693	75	11,124	1,592	52,952	23,723
23	El Centro, CA	179,057	50,348	25,158	3,193	11,282	5,219	61	8,804	1,651	163,029	29,810
23	Yakima, WA	256,643	73,483	37,805	5,371	19,664	7,921	121	12,204	2,502	154,962	40,910
25	Spokane-Spokane Valley-Coeur d'Alene, WA-ID	785,302	168,696	148,630	12,182	65,934	30,875	359	45,908	8,007	126,868	90,163

Notes:

Cities are ranked using the highest design value for any county within that Combined Metropolitan Statistical Area or Metropolitan Statistical Area.

Adding across rows does not produce valid estimates. Adding the disease categories (asthma, COPD, etc.) will double-count people who have been diagnosed with more than one disease.

Table 2c People at Risk in 25 Most Ozone-Polluted Cities

2025 Rank	Metropolitan Statistical Areas	Total Population	Under 18	65 and Over	Pediatric Asthma	Adult Asthma	COPD	CV Disease	Pregnancies	People of Color	Poverty
1	Los Angeles-Long Beach, CA	18,316,743	3,923,848	2,876,482	248,870	1,263,845	602,613	1,025,571	189,174	13,036,866	2,228,294
2	Visalia, CA	479,468	140,917	58,469	8,938	29,621	13,260	22,217	4,853	355,437	83,050
3	Bakersfield-Delano, CA	913,820	259,728	111,264	16,473	57,210	25,454	42,581	9,148	639,578	169,857
4	Phoenix-Mesa, AZ	5,124,113	1,127,488	883,602	90,893	412,019	217,161	303,431	55,017	2,382,001	562,977
5	Fresno-Hanford-Corcoran, CA	1,332,702	364,673	175,198	23,129	84,749	38,374	64,440	13,466	972,180	229,167
6	Denver-Aurora-Greeley, CO	3,691,404	766,337	542,420	53,221	334,291	129,858	182,148	39,810	1,355,755	321,700
7	Houston-Pasadena, TX	7,706,626	1,967,004	990,110	148,098	486,725	282,905	429,147	97,728	5,106,048	1,058,803
8	San Diego-Chula Vista-Carlsbad, CA	3,269,973	675,125	520,284	42,820	227,652	107,004	181,254	34,028	1,859,156	319,714
9	Salt Lake City-Provo-Orem, UT-ID	2,805,734	771,304	314,357	47,547	225,519	74,264	121,225	37,296	720,985	235,887
10	Dallas-Fort Worth, TX-OK	8,654,750	2,133,317	1,119,043	160,881	554,301	322,518	488,815	110,764	4,832,096	895,943
11	Sacramento-Roseville, CA	2,706,315	593,708	474,959	37,656	185,863	91,589	156,808	27,170	1,368,720	297,127
12	Las Vegas-Henderson, NV	2,392,293	521,126	397,842	37,280	164,626	130,769	138,996	24,076	1,450,276	305,770
13	Fort Collins-Loveland, CO	370,771	66,613	65,986	4,626	34,727	14,077	19,851	4,094	72,996	36,698
14	San Jose-San Francisco-Oakland, CA	9,001,024	1,861,823	1,497,266	118,086	627,407	303,409	517,775	91,577	5,990,798	872,151
15	Chicago-Naperville, IL-IN-WI	9,794,558	2,121,326	1,642,328	135,642	747,355	491,566	611,557	99,967	4,756,478	1,066,086
16	New York-Newark, NY-NJ-CT-PA	22,731,508	4,585,113	4,014,254	380,490	1,720,642	881,039	1,353,213	240,627	12,232,605	2,789,907
17	El Centro, CA	179,057	50,348	25,158	3,193	11,282	5,219	8,804	1,651	163,029	29,810
18	El Paso-Las Cruces, TX-NM	1,098,541	274,904	156,492	20,500	72,104	39,813	61,937	13,219	940,363	202,525
19	Tulsa-Bartlesville-Muskogee, OK	1,165,140	282,064	195,327	27,637	99,871	68,921	91,038	13,481	448,694	168,495
20	San Antonio-New Braunfels-Kerrville, TX	2,785,647	667,183	406,533	50,232	180,151	107,861	164,557	34,720	1,836,422	367,038
21	St. Louis-St. Charles-Farmington, MO-IL	2,900,730	625,580	538,402	47,592	224,152	182,663	229,436	30,409	777,225	302,295
22	Albuquerque-Santa Fe-Los Alamos, NM	1,168,363	229,761	243,368	16,413	91,815	47,095	79,693	11,425	717,410	158,778
23	Colorado Springs, CO	768,832	173,860	114,069	12,074	68,042	26,518	37,167	7,835	251,164	55,091
24	Redding-Red Bluff, CA	245,262	54,424	52,782	3,452	16,873	8,997	15,642	2,158	65,965	33,160
24	Sheboygan, WI	117,752	25,055	23,936	1,543	10,063	5,698	8,928	1,088	21,989	10,197

Notes:

Cities are ranked using the highest weighted average for any county within that Combined Metropolitan Statistical Area or Metropolitan Statistical Area.

Adding across rows does not produce valid estimates. Adding the disease categories (asthma, COPD, etc.) will double-count people who have been diagnosed with more than one disease.

Table 3a Cleanest U.S. Cities for Short-Term Particle Pollution (Daily $PM_{2.5}$)

Metropolitan Statistical Area	Population
Asheville-Waynesville-Brevard, NC	513,720
Bangor, ME	155,312
Burlington-Fort Madison, IA-IL	76,906
Charleston-North Charleston, SC	849,417
College Station-Bryan, TX	281,445
Fayetteville-Springdale-Rogers, AR	590,337
Gadsden, AL	103,241
Gulfport-Biloxi, MS	421,916
Hot Springs-Malvern, AR	133,042
Killeen-Temple, TX	501,333
Little Rock-North Little Rock, AR	913,536
Midland-Odessa-Andrews, TX	365,482
Mobile-Daphne-Fairhope, AL	665,147
Montgomery-Selma, AL	421,645
Pensacola-Ferry Pass-Brent, FL	530,090
Peoria-Canton, IL	394,781
Ponce-Coamo, PR	319,592
San Juan-Bayamón, PR	2,360,082
San Luis Obispo-Paso Robles, CA	281,639
Santa Maria-Santa Barbara, CA	441,257
Shreveport-Bossier City-Minden, LA	418,533
Tuscaloosa, AL	278,290

Note:
Monitors in these cities reported no days when $PM_{2.5}$ levels reached the unhealthful range using the Air Quality Index based on the 2012 NAAQS.

Table 3b Top 25 Cleanest U.S. Cities for Year-Round Particle Pollution (Annual $PM_{2.5}$)

2025 Rank	Design Value	Metropolitan Statistical Area	Population
1	3.7	Casper, WY	79,941
1	3.7	Urban Honolulu, HI	989,408
3	4.0	Kahului-Wailuku, HI	164,264
4	4.1	Bozeman, MT	126,409
5	4.8	Bangor, ME	155,312
6	5.1	St. George, UT	202,452
6	5.1	Anchorage, AK	401,314
8	5.2	Cheyenne, WY	100,984
9	5.3	Colorado Springs, CO	768,832
9	5.3	Grand Junction, CO	159,681
11	5.4	Wilmington, NC	467,337
12	5.7	Lubbock-Plainview, TX	396,955
13	5.9	Elmira-Corning, NY	173,487
13	5.9	Salinas, CA	430,723
15	6.0	Duluth-Grand Rapids, MN-WI	326,968
15	6.0	Gainesville-Lake City, FL	425,189
15	6.0	Amarillo-Borger, TX	292,428
18	6.1	Syracuse-Auburn, NY	727,441
19	6.2	Santa Rosa-Petaluma, CA	481,812
20	6.3	Asheville-Waynesville-Brevard, NC	513,720
21	6.4	Burlington-South Burlington-Barre, VT	288,084
22	6.6	Pittsfield, MA	126,818
23	6.7	San Juan-Bayamón, PR	2,360,082
23	6.7	Portland-Vancouver-Salem, OR-WA	3,286,669
23	6.7	Lynchburg, VA	264,590

Notes:
Cities are ranked by using the highest design value for any county within that metropolitan area.

Table 3c Cleanest U.S. Cities for Ozone Air Pollution

Metropolitan Statistical Area	Population
Augusta-Richmond County, GA-SC	629,429
Bangor, ME	155,312
Bellingham, WA	231,919
Brunswick-St. Simons, GA	116,074
Charleston-Huntington-Ashland, WV-OH-KY	643,394
Charlottesville, VA	225,127
Crestview-Fort Walton Beach-Destin, FL	304,818
Fairbanks-College, AK	94,840
Florence, SC	199,630
Gadsden, AL	103,241
Gainesville-Lake City, FL	425,189
Grand Junction, CO	159,681
Greenville-Washington, NC	219,600
Johnson City-Kingsport-Bristol, TN-VA	598,800
Mayagüez-Aguadilla, PR	458,312
Middlesborough-Corbin, KY	172,880
Missoula, MT	126,939
Monroe-Ruston, LA	269,847
Montgomery-Selma, AL	421,645
Myrtle Beach-Conway, SC	463,209
North Port-Bradenton, FL	1,152,221
Palm Bay-Melbourne-Titusville, FL	643,979
Panama City-Panama City Beach, FL	216,371
Pocatello, ID	90,400
Prescott Valley-Prescott, AZ	249,081
Roanoke, VA	314,314
Rocky Mount-Wilson-Roanoke Rapids, NC	288,366
Salinas, CA	430,723
San Juan-Bayamón, PR	2,360,082
Santa Rosa-Petaluma, CA	481,812
Tallahassee-Bainbridge, FL-GA	421,732
Tuscaloosa, AL	278,290
Urban Honolulu, HI	989,408
Victoria-Port Lavaca, TX	118,504
Wilmington, NC	467,337

Notes:
1. This list represents cities with no monitored ozone air pollution in unhealthful ranges using the Air Quality Index based on 2015 NAAQS.

Table 4a Cleanest Counties for Short-Term Particle Pollution (Daily $PM_{2.5}$)

County	State	Metropolitan Statistical Area
Juneau City and Borough	AK	
Baldwin	AL	Mobile-Daphne-Fairhope, AL
Clay	AL	
DeKalb	AL	Huntsville-Decatur-Albertville, AL-TN
Etowah	AL	Gadsden, AL
Mobile	AL	Mobile-Daphne-Fairhope, AL
Montgomery	AL	Montgomery-Selma, AL
Sumter	AL	
Tuscaloosa	AL	Tuscaloosa, AL
Arkansas	AR	
Crittenden	AR	Memphis-Clarksdale-Forrest City, TN-MS-AR
Garland	AR	Hot Springs-Malvern, AR
Jackson	AR	
Polk	AR	
Pulaski	AR	Little Rock-North Little Rock, AR
Washington	AR	Fayetteville-Springdale-Rogers, AR
Apache	AZ	
Pima	AZ	Tucson-Nogales, AZ
Marin	CA	San Jose-San Francisco-Oakland, CA
San Francisco	CA	San Jose-San Francisco-Oakland, CA
San Luis Obispo	CA	San Luis Obispo-Paso Robles, CA
Santa Barbara	CA	Santa Maria-Santa Barbara, CA
Ventura	CA	Los Angeles-Long Beach, CA
Escambia	FL	Pensacola-Ferry Pass-Brent, FL
Polk	FL	Orlando-Lakeland-Deltona, FL
Clayton	GA	Atlanta--Athens-Clarke County--Sandy Springs, GA-AL
Hawaii	HI	
Lee	IA	Burlington-Fort Madison, IA-IL
Madison	IL	St. Louis-St. Charles-Farmington, MO-IL
Peoria	IL	Peoria-Canton, IL
Caddo Parish	LA	Shreveport-Bossier City-Minden, LA
Iberville Parish	LA	Baton Rouge-Hammond, LA
Orleans Parish	LA	New Orleans-Metairie-Slidell, LA-MS
St. Bernard Parish	LA	New Orleans-Metairie-Slidell, LA-MS
Tangipahoa Parish	LA	Baton Rouge-Hammond, LA
Androscoggin	ME	Portland-Lewiston-South Portland, ME
Hancock	ME	
Kennebec	ME	
Penobscot	ME	Bangor, ME
Allegan	MI	Grand Rapids-Wyoming, MI
Manistee	MI	
Cedar	MO	
Hancock	MS	Gulfport-Biloxi, MS
Harrison	MS	Gulfport-Biloxi, MS
Jackson	MS	Gulfport-Biloxi, MS
Buncombe	NC	Asheville-Waynesville-Brevard, NC
Essex	NY	
Suffolk	NY	New York-Newark, NY-NJ-CT-PA
Bayamón	PR	San Juan-Bayamón, PR
Caguas	PR	San Juan-Bayamón, PR
Fajardo	PR	San Juan-Bayamón, PR
Guaynabo	PR	San Juan-Bayamón, PR
Ponce	PR	Ponce-Coamo, PR
Charleston	SC	Charleston-North Charleston, SC
Edgefield	SC	Augusta-Richmond County, GA-SC
Lawrence	TN	Nashville-Davidson--Murfreesboro, TN
Shelby	TN	Memphis-Clarksdale-Forrest City, TN-MS-AR
Bell	TX	Killeen-Temple, TX
Brazos	TX	College Station-Bryan, TX
Ector	TX	Midland-Odessa-Andrews, TX
Carbon	UT	
Norfolk City	VA	Virginia Beach-Chesapeake, VA-NC

Notes:

Monitors in these counties reported no days when $PM_{2.5}$ levels reached the unhealthful range using the Air Quality Index based on the 2012 NAAQS.

Table 4b Top 25 Cleanest Counties for Year-Round Particle Pollution (Annual $PM_{2.5}$)

2024 Rank	County	State	Design Value	Metropolitan Statistical Area
1	Fremont	WY	2.1	
2	Cook	MN	2.7	
3	La Paz	AZ	3.4	
4	Hughes	SD	3.6	
5	Honolulu	HI	3.7	Urban Honolulu, HI
5	Hancock	ME	3.7	
5	Carlton	MN	3.7	Duluth-Grand Rapids, MN-WI
5	Natrona	WY	3.7	Casper, WY
5	Sublette	WY	3.7	
10	Hillsborough	NH	3.9	Boston-Worcester-Providence, MA-RI-NH
11	Maui	HI	4.0	Kahului-Wailuku, HI
11	Essex	NY	4.0	
11	Teton	WY	4.0	
14	Gallatin	MT	4.1	Bozeman, MT
15	Matanuska-Susitna Borough	AK	4.3	Anchorage, AK
16	Hawaii	HI	4.4	
17	Park	WY	4.5	
18	Juneau City and Borough	AK	4.6	
18	Scotts Bluff	NE	4.6	
18	Custer	SD	4.6	Rapid City-Spearfish, SD
21	Penobscot	ME	4.8	Bangor, ME
21	Belknap	NH	4.8	Boston-Worcester-Providence, MA-RI-NH
23	Lake	CA	4.9	
23	San Benito	CA	4.9	San Jose-San Francisco-Oakland, CA
23	Litchfield	CT	4.9	New Haven-Hartford-Waterbury, CT
23	Lake	MN	4.9	
23	Taos	NM	4.9	
23	Kent	RI	4.9	Boston-Worcester-Providence, MA-RI-NH

Notes:
Counties are ranked by Design Value.

Table 4c Cleanest Counties for Ozone Air Pollution

County	State	Metropolitan Statistical Area
Denali Borough	AK	
Fairbanks North Star Borough	AK	Fairbanks-College, AK
Baldwin	AL	Mobile-Daphne-Fairhope, AL
Elmore	AL	Montgomery-Selma, AL
Etowah	AL	Gadsden, AL
Montgomery	AL	Montgomery-Selma, AL
Russell	AL	Columbus-Auburn-Opelika, GA-AL
Sumter	AL	
Tuscaloosa	AL	Tuscaloosa, AL
Clark	AR	
Yavapai	AZ	Prescott Valley-Prescott, AZ
Colusa	CA	
Glenn	CA	
Humboldt	CA	
Lake	CA	
Marin	CA	San Jose-San Francisco-Oakland, CA
Mendocino	CA	
Monterey	CA	Salinas, CA
San Benito	CA	San Jose-San Francisco-Oakland, CA
San Francisco	CA	San Jose-San Francisco-Oakland, CA
San Mateo	CA	San Jose-San Francisco-Oakland, CA
Santa Cruz	CA	San Jose-San Francisco-Oakland, CA
Siskiyou	CA	
Sonoma	CA	Santa Rosa-Petaluma, CA
Archuleta	CO	
Mesa	CO	Grand Junction, CO
Alachua	FL	Gainesville-Lake City, FL
Baker	FL	Jacksonville-Kingsland-Palatka, FL-GA
Bay	FL	Panama City-Panama City Beach, FL
Brevard	FL	Palm Bay-Melbourne-Titusville, FL
Broward	FL	Miami-Port St. Lucie-Fort Lauderdale, FL
Collier	FL	Cape Coral-Fort Myers-Naples, FL
Columbia	FL	Gainesville-Lake City, FL
Flagler	FL	Orlando-Lakeland-Deltona, FL
Holmes	FL	
Indian River	FL	Miami-Port St. Lucie-Fort Lauderdale, FL
Lake	FL	Orlando-Lakeland-Deltona, FL
Leon	FL	Tallahassee-Bainbridge, FL-GA
Liberty	FL	
Manatee	FL	North Port-Bradenton, FL
Martin	FL	Miami-Port St. Lucie-Fort Lauderdale, FL
Okaloosa	FL	Crestview-Fort Walton Beach-Destin, FL
Osceola	FL	Orlando-Lakeland-Deltona, FL
Palm Beach	FL	Miami-Port St. Lucie-Fort Lauderdale, FL
Pasco	FL	Tampa-St. Petersburg-Clearwater, FL
Santa Rosa	FL	Pensacola-Ferry Pass-Brent, FL
Sarasota	FL	North Port-Bradenton, FL
Seminole	FL	Orlando-Lakeland-Deltona, FL
St. Lucie	FL	Miami-Port St. Lucie-Fort Lauderdale, FL
Volusia	FL	Orlando-Lakeland-Deltona, FL
Wakulla	FL	Tallahassee-Bainbridge, FL-GA
Chattooga	GA	Chattanooga-Cleveland-Dalton, TN-GA-AL
Columbia	GA	Augusta-Richmond County, GA-SC
Glynn	GA	Brunswick-St. Simons, GA
Richmond	GA	Augusta-Richmond County, GA-SC
Sumter	GA	
Honolulu	HI	Urban Honolulu, HI
Bannock	ID	Pocatello, ID
Neosho	KS	
Bell	KY	Middlesborough-Corbin, KY
Boyd	KY	Charleston-Huntington-Ashland, WV-OH-KY
Carter	KY	Charleston-Huntington-Ashland, WV-OH-KY
Greenup	KY	Charleston-Huntington-Ashland, WV-OH-KY
Morgan	KY	
Perry	KY	
Pike	KY	
Pulaski	KY	
Bossier Parish	LA	Shreveport-Bossier City-Minden, LA
Ouachita Parish	LA	Monroe-Ruston, LA
Garrett	MD	
Androscoggin	ME	Portland-Lewiston-South Portland, ME
Aroostook	ME	
Kennebec	ME	
Oxford	ME	
Penobscot	ME	Bangor, ME
Washington	ME	
Carlton	MN	Duluth-Grand Rapids, MN-WI
Lake	MN	
Lauderdale	MS	
Flathead	MT	
Missoula	MT	Missoula, MT
Avery	NC	
Buncombe	NC	Asheville-Waynesville-Brevard, NC
Caldwell	NC	Charlotte-Concord, NC-SC
Caswell	NC	
Durham	NC	Raleigh-Durham-Cary, NC
Edgecombe	NC	Rocky Mount-Wilson-Roanoke Rapids, NC
Macon	NC	
Martin	NC	
Montgomery	NC	
New Hanover	NC	Wilmington, NC

Note:
This list represents counties with no monitored ozone air pollution in unhealthful ranges using the Air Quality Index based on 2015 NAAQS.

Table 4c Cleanest Counties for Ozone Air Pollution (cont.)

County	State	Metropolitan Statistical Area
Pitt	NC	Greenville-Washington, NC
Yancey	NC	
Belknap	NH	Boston-Worcester-Providence, MA-RI-NH
Grafton	NH	
Atlantic	NJ	Philadelphia-Reading-Camden, PA-NJ-DE-MD
Warren	NJ	Allentown-Bethlehem-East Stroudsburg, PA-NJ
Hamilton	NY	
Lawrence	OH	Charleston-Huntington-Ashland, WV-OH-KY
Washington	OH	Parkersburg-Marietta-Vienna, WV-OH
Washington	OR	Portland-Vancouver-Salem, OR-WA
Somerset	PA	Johnstown-Somerset, PA
Tioga	PA	
Bayamón	PR	San Juan-Bayamón, PR
Mayagüez	PR	Mayagüez-Aguadilla, PR
Aiken	SC	Augusta-Richmond County, GA-SC
Anderson	SC	Greenville-Spartanburg-Anderson, SC
Charleston	SC	Charleston-North Charleston, SC
Chesterfield	SC	
Darlington	SC	Florence, SC
Edgefield	SC	Augusta-Richmond County, GA-SC
Horry	SC	Myrtle Beach-Conway, SC
DeKalb	TN	
Knox	TN	Knoxville-Morristown-Sevierville, TN
Loudon	TN	Knoxville-Morristown-Sevierville, TN
Sullivan	TN	Johnson City-Kingsport-Bristol, TN-VA
Polk	TX	
Rockwall	TX	Dallas-Fort Worth, TX-OK
Victoria	TX	Victoria-Port Lavaca, TX
Albemarle	VA	Charlottesville, VA
Charles City	VA	Richmond, VA
Hampton City	VA	Virginia Beach-Chesapeake, VA-NC
Prince Edward	VA	
Roanoke	VA	Roanoke, VA
Rockbridge	VA	
Wythe	VA	
Rutland	VT	
Clallam	WA	
Columbia	WA	
Pierce	WA	Seattle-Tacoma, WA
Skagit	WA	Seattle-Tacoma, WA
Whatcom	WA	Bellingham, WA
Cabell	WV	Charleston-Huntington-Ashland, WV-OH-KY
Greenbrier	WV	
Kanawha	WV	Charleston-Huntington-Ashland, WV-OH-KY
Tucker	WV	
Weston	WY	

Note:
This list represents counties with no monitored ozone air pollution in unhealthful ranges using the Air Quality Index based on 2015 NAAQS.

ALABAMA

American Lung Association in Alabama

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Baldwin	0	0	0	0.0	A	0	0	0	0	0.0	A	7.4	Pass
Clay	DNC	DNC	DNC	DNC	DNC	0	0	0	0	0.0	A	7.3	Pass
DeKalb	2	0	0	0.7	B	0	0	0	0	0.0	A	7.8	Pass
Elmore	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Etowah	0	0	0	0.0	A	0	0	0	0	0.0	A	INC	INC
Jefferson	15	0	0	5.0	F	2	0	0	0	0.7	B	9.6	Fail
Madison	4	0	0	1.3	C	1	0	0	0	0.3	B	7.7	Pass
Mobile	1	0	0	0.3	B	0	0	0	0	0.0	A	8.1	Pass
Montgomery	0	0	0	0.0	A	0	0	0	0	0.0	A	8.6	Pass
Morgan	2	0	0	0.7	B	1	0	0	0	0.3	B	7.8	Pass
Russell	0	0	0	0.0	A	3	0	0	0	1.0	C	9.5	Fail
Shelby	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Sumter	0	0	0	0.0	A	0	0	0	0	0.0	A	6.2	Pass
Tuscaloosa	0	0	0	0.0	A	0	0	0	0	0.0	A	7.8	Pass

ALABAMA

American Lung Association in Alabama

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
	AT-RISK GROUPS			Lung Diseases							
Baldwin	253,507	53,110	55,923	4,547	17,840	19,436	145	27,152	2,512	24,942	44,952
Clay	14,111	2,954	3,084	253	995	1,088	8	1,517	138	2,337	2,818
DeKalb	72,569	17,272	13,132	1,479	4,911	5,075	42	6,935	744	15,494	16,441
Elmore	90,441	19,431	15,445	1,664	6,291	6,301	52	8,510	1,038	10,562	25,360
Etowah	103,241	22,589	20,695	1,934	7,162	7,554	59	10,433	1,087	19,921	24,165
Jefferson	662,895	151,180	114,194	12,944	45,093	44,486	376	60,275	7,914	103,120	344,111
Madison	412,600	88,468	66,539	7,575	28,627	27,931	236	37,431	4,759	41,983	154,711
Mobile	411,640	95,366	73,219	8,165	27,932	28,064	234	38,218	4,704	65,684	184,204
Montgomery	224,980	54,247	37,666	4,645	15,047	14,810	127	20,036	2,661	39,395	158,506
Morgan	125,133	29,034	23,040	2,486	8,530	8,821	72	12,070	1,275	14,759	34,132
Russell	58,744	14,401	9,408	1,233	3,923	3,885	33	5,230	674	10,957	32,660
Shelby	233,000	52,318	40,691	4,480	16,031	16,294	133	22,111	2,610	19,207	61,029
Sumter	11,727	2,293	2,408	196	825	818	7	1,130	148	3,607	8,618
Tuscaloosa	237,373	48,286	34,292	4,134	16,491	14,799	135	19,472	3,275	41,429	97,183

ALASKA

American Lung Association in Alaska

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Anchorage Municipality	DNC	DNC	DNC	DNC	DNC	3	0	0	0	1.0	C	5.1	Pass
Denali Borough	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Fairbanks North Star Borough	0	0	0	0.0	A	51	39	2	1	38.7	F	12.1	Fail
Juneau City and Borough	DNC	DNC	DNC	DNC	DNC	0	0	0	0	0.0	A	4.6	Pass
Matanuska-Susitna Borough	DNC	DNC	DNC	DNC	DNC	3	1	0	0	1.5	C	4.3	Pass

ALASKA

American Lung Association in Alaska

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Anchorage Municipality	286,075	66,690	38,032	4,632	24,072	12,385	149	15,882	3,771	24,807	128,186
Denali Borough	1,584	293	213	20	142	76	1	100	19	123	407
Fairbanks North Star Borough	94,840	22,535	12,395	1,565	7,941	3,951	49	4,980	1,202	7,015	30,209
Juneau City and Borough	31,555	6,288	5,356	437	2,762	1,553	16	2,075	395	2,815	11,610
Matanuska-Susitna Borough	115,239	29,114	16,390	2,022	9,433	5,087	60	6,672	1,362	10,906	26,141

ARIZONA

American Lung Association in Arizona

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Apache	DNC	DNC	DNC	DNC	DNC	0	0	0	0	0.0	A	INC	INC
Cochise	4	0	0	1.3	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Coconino	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Gila	31	2	0	11.3	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
La Paz	2	0	0	0.7	B	1	0	0	0	0.3	B	3.4	Pass
Maricopa	149	9	1	54.8	F	8	6	1	0	6.3	F	10.1	Fail
Navajo	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Pima	13	0	0	4.3	F	0	0	0	0	0.0	A	6.2	Pass
Pinal	56	1	0	19.2	F	14	1	0	0	5.2	F	10.4	Fail
Santa Cruz	DNC	DNC	DNC	DNC	DNC	3	1	0	0	1.5	C	9.4	Fail
Yavapai	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Yuma	8	0	0	2.7	D	5	2	0	0	2.7	D	8.5	Pass

ARIZONA

American Lung Association in Arizona

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Apache	65,036	16,671	11,219	1,344	4,976	2,711	25	3,798	632	18,929	52,439
Cochise	124,640	25,421	31,957	2,049	10,149	6,423	47	9,081	1,073	19,759	55,187
Coconino	144,472	27,607	21,678	2,226	12,139	5,635	55	7,780	1,891	23,888	67,256
Gila	54,003	10,035	17,047	809	4,467	3,183	20	4,532	407	9,431	20,312
La Paz	16,710	2,554	7,281	206	1,429	1,182	6	1,693	107	3,097	6,923
Maricopa	4,585,871	1,013,496	762,598	81,703	368,476	191,419	1,738	267,191	50,097	498,844	2,145,576
Navajo	109,175	27,120	22,446	2,186	8,414	4,958	41	6,983	988	26,533	61,677
Pima	1,063,162	205,102	234,094	16,534	88,255	50,455	403	70,848	11,131	144,676	516,317
Pinal	484,239	103,957	103,957	8,381	39,076	22,559	184	31,708	4,513	54,702	216,113
Santa Cruz	49,158	12,346	9,762	995	3,781	2,173	19	3,055	484	9,831	41,385
Yavapai	249,081	37,931	86,556	3,058	21,401	15,827	94	22,584	1,780	31,465	52,930
Yuma	213,221	52,032	44,803	4,195	16,613	9,363	81	13,124	1,994	32,657	150,663

ARKANSAS

American Lung Association in Arkansas

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Arkansas	DNC	DNC	DNC	DNC	DNC	0	0	0	0	0.0	A	8.0	Pass
Ashley	DNC	DNC	DNC	DNC	DNC	1	0	0	0	0.3	B	8.1	Pass
Clark	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Crittenden	12	1	0	4.5	F	0	0	0	0	0.0	A	8.2	Pass
Garland	DNC	DNC	DNC	DNC	DNC	0	0	0	0	0.0	A	INC	INC
Jackson	DNC	DNC	DNC	DNC	DNC	0	0	0	0	0.0	A	INC	INC
Newton	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Polk	2	0	0	0.7	B	0	0	0	0	0.0	A	8.3	Pass
Pulaski	6	0	0	2.0	C	0	0	0	0	0.0	A	10.0	Fail
Union	DNC	DNC	DNC	DNC	DNC	1	0	0	0	0.3	B	9.3	Fail
Washington	8	0	0	2.7	D	0	0	0	0	0.0	A	7.7	Pass

ARKANSAS

American Lung Association in Arkansas

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Arkansas	16,307	3,758	3,342	261	1,248	1,194	11	1,624	171	2,697	5,272
Ashley	18,262	4,157	4,035	289	1,398	1,375	12	1,891	181	3,338	5,905
Clark	21,274	4,309	3,579	299	1,683	1,389	14	1,780	291	3,512	6,782
Crittenden	47,139	12,725	7,303	884	3,444	3,009	31	3,939	555	9,578	29,052
Garland	99,784	19,595	25,335	1,361	7,889	7,961	65	11,077	984	18,604	19,905
Jackson	16,784	3,318	3,071	230	1,340	1,178	11	1,549	192	3,513	4,136
Newton	7,071	1,313	1,970	91	565	592	5	836	61	1,313	484
Polk	19,436	4,295	4,578	298	1,495	1,493	13	2,067	184	3,619	2,586
Pulaski	400,009	92,612	68,573	6,432	30,633	26,789	261	35,145	4,846	61,392	204,294
Union	37,397	8,976	7,472	623	2,821	2,653	24	3,587	388	6,969	15,026
Washington	261,549	60,562	32,950	4,206	20,133	15,598	171	19,313	3,489	34,017	83,294

CALIFORNIA

American Lung Association in California

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Alameda	15	1	0	5.5	F	6	0	0	0	2.0	C	8.9	Pass
Amador	5	0	0	1.7	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Butte	9	0	0	3.0	D	8	7	0	0	6.2	F	8.9	Pass
Calaveras	6	0	0	2.0	C	4	3	0	0	2.8	D	6.7	Pass
Colusa	0	0	0	0.0	A	10	6	1	0	7.0	F	8.9	Pass
Contra Costa	6	0	0	2.0	C	5	0	0	0	1.7	C	9.6	Fail
El Dorado	37	2	0	13.3	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Fresno	121	13	0	46.8	F	71	9	1	0	28.8	F	14.8	Fail
Glenn	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Humboldt	0	0	0	0.0	A	6	1	4	0	5.2	F	6.9	Pass
Imperial	52	4	0	19.3	F	17	3	0	0	7.2	F	10.2	Fail
Inyo	14	0	0	4.7	F	28	13	3	1	18.7	F	7.4	Pass
Kern	172	31	0	72.8	F	104	18	1	0	44.3	F	16.2	Fail
Kings	46	2	0	16.3	F	66	9	0	0	26.5	F	14.1	Fail
Lake	0	0	0	0.0	A	0	1	0	0	0.5	B	4.9	Pass
Los Angeles	169	79	4	98.5	F	22	5	0	0	9.8	F	12.2	Fail
Madera	41	4	0	15.7	F	17	4	0	0	7.7	F	10.9	Fail
Marin	0	0	0	0.0	A	0	0	0	0	0.0	A	6.4	Pass
Mariposa	26	3	0	10.2	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Mendocino	0	0	0	0.0	A	12	2	0	0	5.0	F	11.0	Fail
Merced	42	1	0	14.5	F	19	2	0	0	7.3	F	10.4	Fail
Mono	DNC	DNC	DNC	DNC	DNC	11	11	0	0	9.2	F	8.0	Pass
Monterey	0	0	0	0.0	A	1	0	0	0	0.3	B	5.9	Pass
Napa	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC
Nevada	47	6	0	18.7	F	6	15	4	0	12.2	F	6.5	Pass
Orange	21	3	0	8.5	F	11	0	0	0	3.7	F	10.2	Fail
Placer	60	5	0	22.5	F	7	10	5	0	10.7	F	8.9	Pass
Plumas	DNC	DNC	DNC	DNC	DNC	30	12	2	0	17.3	F	14.0	Fail
Riverside	205	84	5	113.7	F	24	12	0	0	14.0	F	12.6	Fail
Sacramento	46	3	0	16.8	F	19	5	1	1	10.3	F	9.9	Fail
San Benito	0	0	0	0.0	A	1	0	0	0	0.3	B	4.9	Pass
San Bernardino	190	150	23	153.7	F	14	7	0	0	8.2	F	13.1	Fail
San Diego	81	1	0	27.5	F	1	0	0	0	0.3	B	9.2	Fail
San Francisco	0	0	0	0.0	A	0	0	0	0	0.0	A	INC	INC
San Joaquin	3	0	1	1.7	C	26	1	0	0	9.2	F	11.2	Fail
San Luis Obispo	13	0	0	4.3	F	0	0	0	0	0.0	A	8.0	Pass
San Mateo	0	0	0	0.0	A	1	0	0	0	0.3	B	7.0	Pass
Santa Barbara	1	0	0	0.3	B	0	0	0	0	0.0	A	7.5	Pass
Santa Clara	13	0	0	4.3	F	4	0	0	0	1.3	C	9.1	Fail

CALIFORNIA (cont.)

American Lung Association in California

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Santa Cruz	0	0	0	0.0	A	1	0	0	0	0.3	B	5.4	Pass
Shasta	15	0	0	5.0	F	5	3	0	0	3.2	D	INC	INC
Siskiyou	0	0	0	0.0	A	15	31	6	2	26.2	F	11.7	Fail
Solano	3	0	0	1.0	C	1	0	0	0	0.3	B	7.3	Pass
Sonoma	0	0	0	0.0	A	2	0	0	0	0.7	B	6.2	Pass
Stanislaus	57	3	0	20.5	F	30	4	0	0	12.0	F	13.0	Fail
Sutter	17	1	0	6.2	F	9	5	0	0	5.5	F	11.2	Fail
Tehama	29	0	0	9.7	F	10	15	0	0	10.8	F	7.5	Pass
Tulare	209	38	0	88.7	F	64	26	2	1	36.5	F	15.7	Fail
Tuolumne	5	0	0	1.7	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Ventura	32	0	0	10.7	F	0	0	0	0	0.0	A	7.5	Pass
Yolo	6	0	0	2.0	C	1	0	0	0	0.3	B	8.2	Pass

CALIFORNIA

American Lung Association in California

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
	AT-RISK GROUPS			Lung Diseases							
Alameda	1,622,188	315,933	261,127	20,038	114,690	54,586	554	92,845	17,467	151,872	1,169,893
Amador	41,811	6,512	11,749	413	3,139	1,823	14	3,219	271	4,400	10,582
Butte	207,172	42,199	38,881	2,676	14,503	7,075	71	12,053	2,167	40,532	69,617
Calaveras	46,565	8,156	13,834	517	3,425	2,062	16	3,663	334	5,639	10,667
Colusa	22,037	5,915	3,519	375	1,417	689	8	1,177	207	2,677	15,235
Contra Costa	1,155,025	250,439	204,829	15,884	79,697	40,145	394	69,177	11,214	95,369	708,220
El Dorado	192,215	37,109	46,788	2,354	13,764	7,746	66	13,622	1,566	13,438	49,095
Fresno	1,017,162	280,038	134,321	17,761	64,544	29,306	348	49,247	10,334	177,171	748,856
Glenn	28,129	7,470	4,853	474	1,819	908	10	1,559	254	3,769	14,758
Humboldt	133,985	24,839	27,304	1,575	9,615	4,851	46	8,330	1,398	21,856	38,892
Imperial	179,057	50,348	25,158	3,193	11,282	5,219	61	8,804	1,651	29,810	163,029
Inyo	18,527	3,668	4,751	233	1,319	747	6	1,312	149	2,169	7,602
Kern	913,820	259,728	111,264	16,473	57,210	25,454	313	42,581	9,148	169,857	639,578
Kings	152,682	40,721	17,031	2,583	9,770	4,163	53	6,884	1,409	23,950	109,842
Lake	67,878	14,900	16,670	945	4,702	2,653	23	4,660	538	11,790	23,796
Los Angeles	9,663,345	1,952,770	1,520,769	123,854	676,891	321,289	3,302	546,261	102,191	1,299,957	7,221,232
Madera	162,858	43,914	23,846	2,785	10,435	4,905	56	8,309	1,723	28,046	113,482
Marin	254,407	48,217	62,745	3,058	18,319	10,472	87	18,488	1,972	21,535	83,352
Mariposa	16,919	3,036	5,243	193	1,239	753	6	1,338	122	2,899	4,129
Mendocino	89,108	18,532	22,654	1,175	6,266	3,552	30	6,241	739	12,295	33,870
Merced	291,920	82,900	34,885	5,258	18,274	8,064	100	13,461	2,981	53,192	223,791
Mono	13,066	2,257	2,520	143	952	481	4	829	123	1,013	4,555
Monterey	430,723	109,668	66,686	6,956	28,193	13,461	147	22,887	4,142	58,136	313,544
Napa	133,216	25,378	29,031	1,610	9,534	5,076	46	8,831	1,206	11,581	67,693
Nevada	102,037	17,159	30,744	1,088	7,567	4,544	35	8,064	783	10,990	17,386
Orange	3,135,755	645,880	529,921	40,965	219,019	107,518	1,072	184,240	31,411	284,696	1,962,915
Placer	423,561	91,096	88,767	5,778	29,391	15,629	145	27,189	3,820	27,088	139,188
Plumas	19,131	3,233	6,306	205	1,421	887	7	1,584	137	2,418	3,459
Riverside	2,492,442	593,261	392,274	37,628	166,819	79,992	853	136,219	24,848	278,442	1,719,040
Sacramento	1,584,288	357,753	250,123	22,690	107,691	51,284	541	87,181	16,417	185,867	936,276
San Benito	68,175	17,040	9,503	1,081	4,484	2,090	23	3,540	675	6,204	48,484
San Bernardino	2,195,611	553,808	283,489	35,125	143,727	64,943	751	109,152	22,803	284,772	1,656,876
San Diego	3,269,973	675,125	520,284	42,820	227,652	107,004	1,119	181,254	34,028	319,714	1,859,156
San Francisco	808,988	110,389	149,189	7,001	61,356	29,395	277	49,982	8,980	95,298	505,899
San Joaquin	800,965	207,474	110,407	13,159	52,028	24,103	274	40,743	8,082	99,266	587,263
San Luis Obispo	281,639	48,467	64,370	3,074	20,582	10,717	96	18,502	2,703	34,227	95,701
San Mateo	726,353	139,218	135,673	8,830	51,727	26,063	248	44,880	7,100	52,747	468,135
Santa Barbara	441,257	98,119	75,338	6,223	30,126	14,357	151	24,344	4,585	62,891	258,914
Santa Clara	1,877,592	374,375	289,344	23,745	131,880	61,922	643	105,005	19,418	139,084	1,359,960

CALIFORNIA (CONT.)

American Lung Association in California

				AT-RISK GROUPS							
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Santa Cruz	261,547	47,101	51,848	2,987	18,889	9,494	89	16,308	2,684	31,840	117,201
Shasta	180,366	38,814	39,483	2,462	12,516	6,683	62	11,618	1,607	23,527	42,035
Siskiyou	42,905	8,468	12,308	537	3,067	1,820	15	3,222	319	7,273	11,133
Solano	449,218	97,528	80,908	6,186	30,961	15,423	154	26,470	4,292	45,402	299,076
Sonoma	481,812	90,254	107,472	5,724	34,625	18,507	165	32,207	4,431	43,143	196,911
Stanislaus	551,430	145,831	77,777	9,249	35,568	16,576	189	28,045	5,506	68,761	351,831
Sutter	97,948	24,291	16,478	1,541	6,479	3,186	33	5,451	940	14,849	57,146
Tehama	64,896	15,610	13,299	990	4,357	2,314	22	4,024	551	9,633	23,930
Tulare	479,468	140,917	58,469	8,938	29,621	13,260	164	22,217	4,853	83,050	355,437
Tuolumne	54,204	9,352	15,553	593	3,989	2,324	19	4,099	399	5,390	11,882
Ventura	829,590	178,129	150,029	11,298	57,389	28,871	284	49,699	7,921	80,427	476,803
Yolo	220,544	43,139	30,613	2,736	15,494	6,717	75	11,132	2,779	31,960	125,905

COLORADO

American Lung Association in Colorado

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Adams	38	0	0	12.7	F	3	3	0	0	2.5	D	8.5	Pass
Alamosa	DNC	DNC	DNC	DNC	DNC	INC	INC	INC	INC	INC	INC	INC	INC
Arapahoe	54	3	0	19.5	F	1	0	0	0	0.3	B	5.9	Pass
Archuleta	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Boulder	41	2	0	14.7	F	10	2	0	0	4.3	F	7.3	Pass
Chaffee	11	0	0	3.7	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Clear Creek	34	2	0	12.3	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Delta	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC
Denver	38	2	0	13.7	F	8	4	0	0	4.7	F	8.7	Pass
Douglas	65	7	0	25.2	F	4	2	0	0	2.3	D	5.5	Pass
El Paso	30	0	0	10.0	F	2	1	0	0	1.2	C	5.3	Pass
Garfield	12	0	0	4.0	F	INC	INC	INC	INC	INC	INC	INC	INC
Gilpin	26	1	0	9.2	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Grand	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Gunnison	3	0	0	1.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Jackson	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC
Jefferson	92	12	0	36.7	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
La Plata	4	0	0	1.3	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Larimer	55	5	0	20.8	F	3	0	0	0	1.0	C	7.1	Pass
Mesa	0	0	0	0.0	A	3	0	0	0	1.0	C	5.3	Pass
Montezuma	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Park	19	1	0	6.8	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Prowers	DNC	DNC	DNC	DNC	DNC	INC	INC	INC	INC	INC	INC	INC	INC
Pueblo	INC	INC	INC	INC	INC	1	0	0	0	0.3	B	INC	INC
Rio Blanco	8	1	0	3.2	D	3	1	0	0	1.5	C	7.2	Pass
San Miguel	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Weld	49	1	0	16.8	F	8	1	0	0	3.2	D	8.1	Pass

COLORADO

American Lung Association in Colorado

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Adams	533,365	129,601	61,708	9,001	46,373	16,768	183	23,155	5,802	51,247	289,604
Alamosa	16,655	3,983	2,583	277	1,452	567	6	793	181	3,416	9,062
Arapahoe	656,061	145,860	97,962	10,130	58,188	23,070	224	32,527	6,857	65,646	287,559
Archuleta	14,189	2,363	4,130	164	1,310	711	5	1,061	103	1,577	3,116
Boulder	326,831	55,707	55,764	3,869	30,918	12,462	112	17,599	3,548	34,478	77,878
Chaffee	20,617	3,008	5,401	209	1,973	975	7	1,431	162	1,829	3,203
Clear Creek	9,147	1,209	2,234	84	887	433	3	636	76	704	1,225
Delta	31,746	5,974	9,087	415	2,864	1,535	11	2,281	238	4,071	5,766
Denver	716,577	126,866	91,876	8,811	68,121	23,789	245	32,374	9,028	73,632	319,343
Douglas	383,906	87,740	55,644	6,093	33,580	13,727	131	19,581	3,748	14,173	83,231
El Paso	744,215	169,937	107,504	11,802	65,747	25,314	255	35,375	7,658	53,047	247,868
Garfield	62,707	15,110	9,523	1,049	5,410	2,209	21	3,139	596	5,606	22,824
Gilpin	5,926	765	1,271	53	575	276	2	408	52	425	891
Grand	15,935	2,431	3,473	169	1,519	700	5	1,018	140	1,311	2,299
Gunnison	17,321	2,697	2,633	187	1,676	635	6	885	188	1,741	2,462
Jackson	1,309	237	359	16	119	63	0	95	9	174	205
Jefferson	576,366	103,852	105,941	7,212	53,623	22,710	197	32,437	5,820	42,071	135,494
La Plata	56,407	9,598	12,270	667	5,275	2,418	19	3,505	539	6,305	12,113
Larimer	370,771	66,613	65,986	4,626	34,727	14,077	127	19,851	4,094	36,698	72,996
Mesa	159,681	32,013	34,642	2,223	14,405	6,621	55	9,586	1,488	18,546	32,051
Montezuma	26,531	5,499	6,665	382	2,351	1,185	9	1,744	215	3,664	7,454
Park	18,117	2,607	4,488	181	1,724	871	6	1,291	135	1,457	2,373
Prowers	11,751	3,007	2,226	209	989	442	4	637	104	2,286	5,252
Pueblo	169,422	36,514	33,884	2,536	15,012	6,747	58	9,741	1,568	22,336	81,610
Rio Blanco	6,569	1,527	1,282	106	569	256	2	370	58	688	1,082
San Miguel	7,868	1,226	1,484	85	748	331	3	479	73	618	1,269
Weld	359,442	90,702	47,427	6,299	30,758	11,713	123	16,359	3,716	32,284	133,581

CONNECTICUT

American Lung Association in Connecticut

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Fairfield	44	11	0	20.2	F	3	3	1	0	3.2	D	7.4	Pass
Hartford	9	0	0	3.0	D	4	3	0	0	2.8	D	7.0	Pass
Litchfield	8	0	0	2.7	D	3	4	0	0	3.0	D	4.9	Pass
Middlesex	20	1	0	7.2	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
New Haven	26	1	0	9.2	F	5	2	1	0	3.3	F	7.4	Pass
New London	15	0	0	5.0	F	3	3	0	0	2.5	D	6.3	Pass
Tolland	5	1	0	2.2	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Windham	3	0	0	1.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC

CONNECTICUT

American Lung Association in Connecticut

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Fairfield	959,768	195,188	158,603	15,463	81,758	35,190	537	56,117	9,064	85,452	386,212
Hartford	896,854	71,422	158,512	5,658	77,334	33,422	502	53,235	8,649	92,542	371,285
Litchfield	185,000	28,968	42,169	2,295	16,300	8,046	104	13,154	1,494	15,713	25,753
Middlesex	164,759	91,898	35,695	7,280	14,744	6,991	92	11,344	1,462	10,537	29,067
New Haven	863,700	17,576	156,201	1,392	75,199	32,671	483	52,088	8,557	100,433	345,820
New London	268,805	20,138	51,843	1,595	23,561	10,518	150	16,857	2,420	23,102	69,656
Tolland	150,293	110,222	25,398	8,732	13,667	5,537	84	8,685	1,598	15,039	26,007
Windham	116,418	53,152	20,814	4,211	10,221	4,456	65	7,117	1,097	13,043	21,471

DELAWARE

American Lung Association in Delaware

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Kent	5	0	0	1.7	C	3	2	1	0	2.7	D	INC	INC
New Castle	6	0	0	2.0	C	4	1	2	0	3.2	D	7.5	Pass
Sussex	2	0	0	0.7	B	2	2	1	0	2.3	D	INC	INC

DELAWARE

American Lung Association in Delaware

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Kent	189,789	42,989	35,338	2,986	16,588	9,479	103	12,377	2,043	21,471	82,407
New Castle	578,592	122,260	101,888	8,491	51,927	28,904	315	37,406	6,279	61,487	272,580
Sussex	263,509	46,689	82,092	3,243	22,776	17,525	143	24,189	1,987	26,244	68,739

DISTRICT OF COLUMBIA

American Lung Association in the District of Columbia

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
District of Columbia	15	1	0	5.5	F	5	4	0	0	3.7	F	8.9	Pass

DISTRICT OF COLUMBIA

American Lung Association in the District of Columbia

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
District of Columbia	678,972	126,592	88,732	12,235	59,581	21,881	293	30,313	7,799	98,811	423,333

FLORIDA

American Lung Association in Florida

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Alachua	0	0	0	0.0	A	1	0	0	0	0.3	B	6.0	Pass
Baker	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Bay	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Brevard	0	0	0	0.0	A	1	0	0	0	0.3	B	6.8	Pass
Broward	0	0	0	0.0	A	4	0	0	0	1.3	C	8.8	Pass
Collier	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Columbia	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Duval	1	0	0	0.3	B	1	0	0	0	0.3	B	7.8	Pass
Escambia	2	0	0	0.7	B	0	0	0	0	0.0	A	8.7	Pass
Flagler	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Highlands	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Hillsborough	4	0	0	1.3	C	1	0	0	0	0.3	B	7.4	Pass
Holmes	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Indian River	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lake	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lee	1	0	0	0.3	B	INC	INC	INC	INC	INC	INC	INC	INC
Leon	0	0	0	0.0	A	1	0	0	0	0.3	B	7.4	Pass
Liberty	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Manatee	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Marion	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Martin	0	0	0	0.0	A	INC	INC	INC	INC	INC	INC	INC	INC
Miami-Dade	1	1	0	0.8	B	1	1	0	0	0.8	B	7.3	Pass
Okaloosa	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Orange	1	0	0	0.3	B	INC	INC	INC	INC	INC	INC	INC	INC
Osceola	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Palm Beach	0	0	0	0.0	A	1	0	0	0	0.3	B	6.3	Pass
Pasco	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Pinellas	2	0	0	0.7	B	1	0	0	0	0.3	B	6.9	Pass
Polk	1	0	0	0.3	B	0	0	0	0	0.0	A	7.1	Pass
St. Lucie	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Santa Rosa	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Sarasota	0	0	0	0.0	A	1	0	0	0	0.3	B	6.9	Pass
Seminole	0	0	0	0.0	A	1	0	0	0	0.3	B	6.5	Pass
Volusia	0	0	0	0.0	A	1	0	0	0	0.3	B	7.4	Pass
Wakulla	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC

FLORIDA

American Lung Association in Florida

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
	AT-RISK GROUPS			Lung Diseases							
Alachua	285,994	50,729	45,118	3,108	19,999	12,755	146	19,578	3,810	49,524	117,957
Baker	28,368	7,073	4,308	433	1,834	1,266	15	1,986	275	3,328	5,785
Bay	190,769	40,382	35,303	2,474	12,934	9,494	98	14,968	1,857	22,023	50,842
Brevard	643,979	115,705	160,285	7,089	45,234	37,187	330	59,000	5,608	65,640	182,935
Broward	1,962,531	403,240	362,776	24,704	134,226	98,466	1,005	155,355	19,882	247,799	1,324,897
Collier	404,310	65,028	138,906	3,984	28,753	27,329	207	43,547	2,915	41,998	151,513
Columbia	73,063	16,043	15,098	983	4,883	3,742	38	5,900	645	11,715	21,075
Duval	1,030,822	229,643	161,965	14,069	68,732	46,700	528	72,890	11,445	146,043	518,317
Escambia	326,928	68,296	59,553	4,184	22,137	15,807	168	24,742	3,357	43,284	120,414
Flagler	131,439	20,919	41,510	1,282	9,428	8,652	67	13,812	1,002	11,598	34,599
Highlands	107,614	17,869	38,978	1,095	7,568	7,377	55	11,739	767	19,796	38,775
Hillsborough	1,535,564	329,560	235,977	20,190	103,675	70,074	787	109,540	17,133	198,734	831,761
Holmes	19,944	4,118	4,095	252	1,359	1,038	10	1,639	161	3,324	2,951
Indian River	169,795	25,228	60,382	1,546	12,252	11,798	87	18,820	1,200	19,049	44,487
Lake	424,462	80,409	113,393	4,926	29,331	24,891	217	39,461	3,732	44,765	150,267
Lee	834,573	142,314	242,429	8,719	58,929	51,559	428	81,859	7,004	99,505	306,723
Leon	296,913	54,405	45,376	3,333	20,641	13,098	152	20,118	4,050	49,251	136,258
Liberty	7,706	1,364	1,363	84	544	379	4	594	57	1,292	2,194
Manatee	441,095	75,946	127,826	4,653	31,138	27,383	226	43,552	3,616	45,410	136,259
Marion	409,959	76,633	118,006	4,695	28,341	24,867	210	39,454	3,446	60,125	139,442
Martin	163,315	25,995	53,457	1,593	11,676	10,854	84	17,305	1,151	20,806	39,244
Miami-Dade	2,686,867	532,595	467,615	32,629	185,663	132,611	1,376	208,939	27,715	372,520	2,313,925
Okaloosa	218,464	49,218	37,044	3,015	14,497	10,139	112	15,848	2,176	21,517	63,592
Orange	1,471,416	310,911	198,456	19,048	99,811	64,014	754	99,565	17,538	177,726	909,255
Osceola	437,784	103,922	59,260	6,367	28,758	18,841	224	29,418	4,899	47,450	314,515
Palm Beach	1,533,801	286,032	389,700	17,524	106,532	88,130	785	139,570	13,788	163,357	739,381
Pasco	632,996	128,089	138,120	7,847	43,281	33,824	324	53,475	6,064	65,506	205,127
Pinellas	961,596	145,573	259,872	8,919	69,791	58,692	492	93,213	8,600	106,728	266,166
Polk	818,330	179,846	158,775	11,018	54,600	40,317	419	63,265	8,366	103,623	404,542
St. Lucie	373,586	73,315	92,491	4,492	25,656	21,117	191	33,449	3,324	38,539	180,917
Santa Rosa	203,162	44,333	34,610	2,716	13,681	9,767	104	15,379	1,931	15,981	40,197
Sarasota	469,013	65,140	177,167	3,991	34,185	33,866	240	54,096	3,216	43,818	87,735
Seminole	484,271	98,743	82,400	6,049	33,136	23,250	248	36,474	5,284	44,094	215,475
Volusia	590,357	102,443	151,689	6,276	41,687	34,481	302	54,638	5,247	68,507	187,757
Wakulla	36,449	7,573	6,301	464	2,489	1,783	19	2,811	327	3,501	8,053

GEORGIA

American Lung Association in Georgia

County	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Bibb	4	0	0	1.3	C	1	1	0	0	0.8	B	9.4	Fail
Chatham	1	0	0	0.3	B	1	0	0	0	0.3	B	INC	INC
Chattooga	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Clarke	2	0	0	0.7	B	3	0	0	0	1.0	C	8.7	Pass
Clayton	DNC	DNC	DNC	DNC	DNC	0	0	0	0	0.0	A	8.9	Pass
Cobb	1	0	0	0.3	B	2	0	0	0	0.7	B	8.9	Pass
Coffee	DNC	DNC	DNC	DNC	DNC	1	0	0	0	0.3	B	7.3	Pass
Columbia	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Dawson	3	0	0	1.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
DeKalb	8	0	0	2.7	D	3	0	0	0	1.0	C	8.7	Pass
Dougherty	DNC	DNC	DNC	DNC	DNC	14	0	0	0	4.7	F	9.0	Pass
Douglas	9	0	0	3.0	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Fulton	12	3	0	5.5	F	2	0	0	0	0.7	B	9.7	Fail
Glynn	0	0	0	0.0	A	1	0	0	0	0.3	B	7.9	Pass
Gwinnett	6	0	0	2.0	C	5	0	0	0	1.7	C	INC	INC
Hall	DNC	DNC	DNC	DNC	DNC	3	0	0	0	1.0	C	8.2	Pass
Henry	10	0	0	3.3	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Houston	DNC	DNC	DNC	DNC	DNC	2	1	0	0	1.2	C	8.7	Pass
Lowndes	DNC	DNC	DNC	DNC	DNC	3	0	0	0	1.0	C	8.6	Pass
Murray	4	0	0	1.3	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Muscogee	2	0	0	0.7	B	3	2	0	0	2.0	C	10.0	Fail
Pike	5	0	0	1.7	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Richmond	0	0	0	0.0	A	7	0	0	0	2.3	D	9.7	Fail
Rockdale	4	0	0	1.3	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Sumter	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Walker	DNC	DNC	DNC	DNC	DNC	5	0	0	0	1.7	C	10.0	Fail
Washington	DNC	DNC	DNC	DNC	DNC	6	1	0	0	2.5	D	10.0	Fail

GEORGIA

American Lung Association in Georgia

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Bibb	156,512	38,212	26,499	3,310	11,103	7,467	83	10,445	1,748	33,515	102,345
Chatham	303,655	62,024	52,167	5,372	22,699	14,849	161	20,703	3,596	44,111	162,886
Chattooga	25,222	5,504	4,844	477	1,845	1,313	14	1,852	231	4,958	4,611
Clarke	129,933	21,551	16,791	1,867	10,262	5,501	69	7,432	2,000	28,637	58,323
Clayton	298,300	78,701	33,424	6,817	20,835	12,421	158	16,783	3,650	50,474	275,007
Cobb	776,743	172,922	109,539	14,978	57,050	36,258	413	49,739	9,015	67,115	401,555
Coffee	43,317	10,716	6,393	928	3,073	1,983	23	2,739	433	9,093	19,084
Columbia	165,162	40,674	25,637	3,523	11,717	7,708	88	10,695	1,812	11,211	60,694
Dawson	31,732	6,420	6,401	556	2,366	1,703	17	2,408	314	2,534	4,298
DeKalb	762,992	171,061	108,754	14,817	55,889	34,962	404	48,016	9,360	100,015	544,259
Dougherty	82,645	20,027	14,694	1,735	5,867	4,000	44	5,620	966	21,140	63,844
Douglas	149,160	37,458	18,617	3,245	10,581	6,677	79	9,094	1,730	17,596	103,998
Fulton	1,079,105	222,303	141,433	19,255	81,123	49,036	574	66,709	13,616	136,621	674,918
Glynn	86,172	17,677	20,059	1,531	6,364	4,877	46	6,996	847	13,245	32,083
Gwinnett	983,526	252,540	115,777	21,874	69,318	42,799	524	58,041	11,180	111,168	685,238
Hall	217,267	50,878	36,099	4,407	15,638	10,593	116	14,768	2,253	23,740	90,408
Henry	254,613	63,307	32,259	5,484	18,116	11,499	135	15,677	2,970	26,087	176,387
Houston	171,974	43,682	24,130	3,784	12,107	7,689	91	10,582	1,958	21,823	83,566
Lowndes	120,712	29,648	16,370	2,568	8,597	5,117	64	7,014	1,490	22,576	59,281
Murray	41,035	9,594	6,583	831	2,959	2,004	22	2,784	429	5,870	8,184
Muscogee	201,877	50,137	30,911	4,343	14,282	9,169	107	12,714	2,307	40,634	126,853
Pike	20,461	4,755	3,345	412	1,478	1,020	11	1,418	215	2,248	2,808
Richmond	205,414	46,852	32,308	4,058	14,922	9,503	109	13,178	2,371	43,227	140,711
Rockdale	95,987	22,493	15,433	1,948	6,917	4,733	51	6,576	1,044	12,310	73,950
Sumter	28,890	6,510	5,305	564	2,096	1,426	15	2,006	322	7,187	17,765
Walker	69,489	14,691	13,877	1,273	5,123	3,711	37	5,248	683	10,248	7,437
Washington	19,820	4,212	3,651	365	1,463	1,025	11	1,439	176	3,878	11,5250

HAWAII

American Lung Association in Hawaii

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Hawaii	DNC	DNC	DNC	DNC	DNC	0	0	0	0	0.0	A	4.4	Pass
Honolulu	0	0	0	0.0	A	1	0	0	0	0.3	B	3.7	Pass
Kauai	DNC	DNC	DNC	DNC	DNC	INC	INC	INC	INC	INC	INC	INC	INC
Maui	DNC	DNC	DNC	DNC	DNC	0	1	0	0	0.5	B	4.0	Pass

HAWAII

American Lung Association in Hawaii

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
	AT-RISK GROUPS			Lung Diseases							
Hawaii	207,615	42,623	50,726	2,857	16,268	7,544	78	14,156	2,011	33,847	143,184
Honolulu	989,408	201,494	199,441	13,505	77,456	32,970	371	60,750	10,329	87,196	815,942
Kauai	73,851	15,577	17,034	1,044	5,755	2,615	28	4,890	719	6,851	52,320
Maui	164,183	33,913	35,277	2,273	12,917	5,709	62	10,629	1,646	15,300	114,782

IDAHO

American Lung Association in Idaho

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Ada	17	0	0	5.7	F	3	1	0	0	1.5	C	INC	INC
Bannock	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Benewah	DNC	DNC	DNC	DNC	DNC	15	10	0	0	10.0	F	9.9	Fail
Butte	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Canyon	DNC	DNC	DNC	DNC	DNC	10	3	0	0	4.8	F	8.9	Pass
Franklin	DNC	DNC	DNC	DNC	DNC	8	0	0	0	2.7	D	6.6	Pass
Idaho	3	0	0	1.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lemhi	DNC	DNC	DNC	DNC	DNC	22	11	0	0	12.8	F	10.2	Fail
Shoshone	DNC	DNC	DNC	DNC	DNC	15	12	0	0	11.0	F	10.3	Fail

IDAHO

American Lung Association in Idaho

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
	AT-RISK GROUPS			Lung Diseases							
Ada	524,673	112,818	88,036	7,835	43,445	24,581	219	30,321	6,393	40,703	93,346
Bannock	90,400	22,442	14,099	1,559	7,149	3,917	38	4,822	1,140	10,518	16,391
Benewah	10,369	2,305	2,486	160	859	566	4	743	95	1,341	1,570
Butte	2,758	632	722	44	227	153	1	205	26	402	309
Canyon	257,674	67,745	37,917	4,705	19,993	10,967	107	13,381	3,138	25,683	79,819
Franklin	15,494	4,647	2,290	323	1,144	646	6	795	172	1,084	1,551
Idaho	17,890	3,610	5,285	251	1,527	1,071	7	1,458	142	2,382	1,805
Lemhi	8,441	1,537	2,655	107	739	526	4	722	73	1,090	635
Shoshone	14,026	2,945	3,287	205	1,179	761	6	993	138	2,175	1,376

ILLINOIS

American Lung Association in Illinois

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Adams	12	0	0	4.0	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Champaign	11	0	0	3.7	F	1	1	1	0	1.5	C	8.2	Pass
Clark	6	0	0	2.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Cook	52	6	0	20.3	F	5	1	2	0	3.5	F	11.3	Fail
DuPage	15	3	0	6.5	F	1	1	2	0	2.2	D	9.7	Fail
Effingham	10	0	0	3.3	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Hamilton	10	0	0	3.3	F	3	1	0	0	1.5	C	8.4	Pass
Jersey	23	0	0	7.7	F	2	1	0	0	1.2	C	7.9	Pass
Jo Daviess	8	1	0	3.2	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Kane	21	3	0	8.5	F	1	2	0	0	1.3	C	9.7	Fail
Lake	24	2	0	9.0	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
McHenry	20	3	0	8.2	F	3	2	1	0	2.7	D	8.9	Pass
McLean	13	0	0	4.3	F	2	2	1	0	2.3	D	9.0	Pass
Macon	16	0	0	5.3	F	3	1	1	0	2.2	D	8.8	Pass
Macoupin	12	0	0	4.0	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Madison	30	1	0	10.5	F	0	0	0	0	0.0	A	10.5	Fail
Peoria	21	1	0	7.5	F	0	0	0	0	0.0	A	INC	INC
Randolph	13	2	0	5.3	F	1	0	0	0	0.3	B	7.7	Pass
Rock Island	18	0	0	6.0	F	2	3	1	0	2.8	D	9.1	Fail
St. Clair	14	2	0	5.7	F	0	1	0	0	0.5	B	10.1	Fail
Sangamon	20	0	0	6.7	F	2	1	1	0	1.8	C	8.9	Pass
Will	18	1	0	6.5	F	2	2	2	0	3.0	D	9.8	Fail
Winnebago	14	1	0	5.2	F	4	1	2	0	3.2	D	9.0	Pass

ILLINOIS

American Lung Association in Illinois

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
	AT-RISK GROUPS			Lung Diseases							
Adams	64,441	14,469	13,635	920	4,671	3,367	37	4,358	563	7,631	6,137
Champaign	205,644	39,095	29,852	2,487	16,280	8,991	117	10,849	2,510	30,821	74,617
Clark	15,088	3,317	3,117	211	1,099	803	9	1,034	126	1,769	701
Cook	5,087,072	1,055,492	843,021	67,132	385,934	246,446	2,878	305,759	53,889	662,898	3,019,519
DuPage	921,213	201,578	166,141	12,821	68,137	46,391	522	58,474	8,718	59,722	340,338
Effingham	34,331	8,116	6,626	516	2,466	1,729	19	2,210	294	3,320	1,779
Hamilton	7,911	1,767	1,800	112	569	428	4	561	65	887	374
Jersey	21,091	4,157	4,525	264	1,581	1,157	12	1,492	184	2,204	1,114
Jo Daviess	21,756	3,879	6,704	247	1,607	1,379	12	1,879	148	1,849	1,621
Kane	514,982	120,525	83,142	7,666	37,558	24,959	292	31,028	4,875	42,685	232,110
Lake	708,760	162,209	116,830	10,317	51,993	34,694	402	43,222	6,602	56,595	305,714
McHenry	312,800	70,217	53,759	4,466	22,967	15,771	177	19,760	2,830	19,499	72,233
McLean	170,441	35,719	25,682	2,272	13,035	7,771	96	9,492	1,932	17,831	39,582
Macon	100,591	22,687	21,743	1,443	7,271	5,269	57	6,847	932	15,303	26,528
Macoupin	44,018	8,927	9,817	568	3,261	2,434	25	3,163	378	5,596	2,073
Madison	262,752	55,202	50,082	3,511	19,606	13,457	149	17,080	2,539	28,487	45,975
Peoria	177,513	42,247	33,157	2,687	12,795	8,665	100	11,024	1,709	29,050	58,384
Randolph	29,815	5,925	6,433	377	2,234	1,612	17	2,082	223	3,225	4,285
Rock Island	141,236	31,552	29,420	2,007	10,284	7,281	80	9,400	1,283	20,292	45,045
St. Clair	251,018	56,902	45,137	3,619	18,381	12,489	142	15,759	2,424	32,969	100,186
Sangamon	193,491	41,612	38,731	2,647	14,269	10,067	109	12,890	1,827	22,654	42,791
Will	700,728	163,101	105,745	10,374	51,377	33,629	397	41,388	6,788	49,733	287,900
Winnebago	280,922	65,428	53,385	4,161	20,307	14,108	159	17,981	2,603	40,617	100,140

INDIANA

American Lung Association in Indiana

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Allen	7	0	0	2.3	D	INC	INC	INC	INC	INC	INC	INC	INC
Bartholomew	7	0	0	2.3	D	2	0	1	0	1.3	C	7.6	Pass
Boone	10	1	0	3.8	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Brown	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Carroll	6	0	0	2.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Clark	6	0	0	2.0	C	5	1	0	0	2.2	D	9.8	Fail
Delaware	5	0	0	1.7	C	1	0	0	0	0.3	B	8.2	Pass
Dubois	DNC	DNC	DNC	DNC	DNC	1	0	0	0	0.3	B	8.9	Pass
Elkhart	4	0	0	1.3	C	5	2	0	0	2.7	D	8.9	Pass
Floyd	3	1	0	1.5	C	INC	INC	INC	INC	INC	INC	INC	INC
Greene	10	0	0	3.3	F	1	1	1	0	1.5	C	7.9	Pass
Hamilton	5	0	0	1.7	C	4	2	0	0	2.3	D	10.0	Fail
Hendricks	4	0	0	1.3	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Henry	DNC	DNC	DNC	DNC	DNC	6	2	0	0	3.0	D	8.1	Pass
Howard	12	0	0	4.0	F	3	2	0	0	2.0	C	8.0	Pass
Knox	10	0	0	3.3	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lake	21	0	0	7.0	F	6	2	1	0	3.7	F	10.5	Fail
LaPorte	19	0	0	6.3	F	1	0	0	0	0.3	B	8.3	Pass
Madison	9	0	0	3.0	D	6	1	1	0	3.2	D	8.7	Pass
Marion	12	2	0	5.0	F	23	3	1	0	9.8	F	11.9	Fail
Monroe	DNC	DNC	DNC	DNC	DNC	3	1	1	0	2.2	D	7.9	Pass
Perry	3	0	0	1.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Porter	24	0	0	8.0	F	6	2	1	0	3.7	F	9.0	Pass
Posey	7	0	0	2.3	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
St. Joseph	14	0	0	4.7	F	4	2	1	0	3.0	D	9.4	Fail
Shelby	6	0	0	2.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Spencer	DNC	DNC	DNC	DNC	DNC	0	1	0	0	0.5	B	8.4	Pass
Tippecanoe	DNC	DNC	DNC	DNC	DNC	3	1	1	0	2.2	D	8.3	Pass
Vanderburgh	7	0	0	2.3	D	1	1	0	0	0.8	B	9.4	Fail
Vigo	7	0	0	2.3	D	2	1	1	0	1.8	C	9.5	Fail
Wabash	5	0	0	1.7	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Warrick	9	0	0	3.0	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Whitley	DNC	DNC	DNC	DNC	DNC	5	2	1	0	3.3	F	8.6	Pass

INDIANA

American Lung Association in Indiana

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Allen	394,545	99,640	63,254	6,760	34,124	23,965	245	28,659	4,596	50,579	116,597
Bartholomew	84,003	20,215	14,485	1,372	7,369	5,315	52	6,404	917	8,261	17,912
Boone	76,120	19,240	11,702	1,305	6,617	4,737	47	5,599	850	3,502	10,721
Brown	15,653	2,588	4,263	176	1,490	1,304	10	1,646	132	1,538	839
Carroll	20,525	4,422	4,343	300	1,852	1,467	13	1,805	201	1,881	1,426
Clark	125,467	27,311	21,563	1,853	11,376	8,240	78	9,851	1,450	11,588	24,791
Delaware	112,321	20,365	20,083	1,382	10,597	7,261	70	8,755	1,502	20,252	16,715
Dubois	43,546	10,529	8,429	714	3,806	2,942	27	3,592	422	3,281	5,497
Elkhart	206,409	55,809	32,658	3,786	17,439	12,421	128	14,852	2,267	23,765	60,641
Floyd	80,809	17,837	14,612	1,210	7,283	5,388	50	6,492	911	8,065	11,369
Greene	31,196	6,704	6,426	455	2,822	2,217	19	2,715	311	3,665	1,432
Hamilton	371,645	92,760	53,693	6,294	32,535	22,887	231	26,775	4,376	17,814	76,201
Hendricks	186,387	45,504	28,842	3,087	16,380	11,628	116	13,748	2,102	10,215	43,687
Henry	48,929	9,815	9,698	666	4,512	3,434	31	4,177	468	5,752	3,665
Howard	83,831	19,245	16,886	1,306	7,420	5,683	52	6,989	893	10,491	14,267
Knox	36,070	7,788	6,920	528	3,253	2,392	22	2,920	379	5,378	3,409
Lake	500,598	115,228	91,656	7,818	44,502	33,097	310	40,060	5,616	70,594	240,769
LaPorte	111,706	23,540	22,343	1,597	10,147	7,700	70	9,419	1,080	14,984	24,875
Madison	132,504	28,216	25,091	1,914	12,035	8,977	82	10,887	1,420	16,422	23,019
Marion	968,460	240,626	131,576	16,326	84,645	55,558	600	64,893	12,472	148,329	485,628
Monroe	139,342	21,960	21,295	1,490	13,557	8,314	87	9,820	2,089	22,533	25,823
Perry	19,209	3,927	3,820	266	1,760	1,328	12	1,621	173	2,513	1,398
Porter	175,335	37,031	33,101	2,512	15,968	11,911	109	14,429	1,969	15,959	34,991
Posey	25,040	5,355	5,431	363	2,260	1,800	16	2,224	244	2,315	1,245
St. Joseph	272,848	63,119	47,027	4,282	24,197	17,091	169	20,615	3,270	36,928	83,013
Shelby	45,231	10,025	8,774	680	4,064	3,121	28	3,794	465	4,945	4,526
Spencer	19,910	4,284	4,182	291	1,799	1,429	12	1,754	193	1,712	1,291
Tippecanoe	188,792	38,169	23,795	2,590	17,477	10,292	118	11,902	2,610	29,604	51,966
Vanderburgh	179,810	38,818	33,660	2,634	16,234	11,804	111	14,360	2,092	23,903	34,290
Vigo	106,153	21,784	18,749	1,478	9,721	6,739	66	8,140	1,253	19,591	16,106
Wabash	30,670	6,457	6,819	438	2,773	2,202	19	2,736	311	3,472	2,078
Warrick	65,867	14,969	12,635	1,016	5,871	4,469	41	5,437	706	5,365	6,205
Whitley	34,742	7,877	6,920	534	3,094	2,389	22	2,923	352	2,919	2,057

IOWA

American Lung Association in Iowa

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Black Hawk	DNC	DNC	DNC	DNC	DNC	0	1	0	0	0.5	B	8.4	Pass
Bremer	9	1	0	3.5	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Clinton	12	1	0	4.5	F	3	2	1	0	2.7	D	9.2	Fail
Harrison	16	0	0	5.3	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Johnson	DNC	DNC	DNC	DNC	DNC	3	3	1	0	3.2	D	8.4	Pass
Lee	DNC	DNC	DNC	DNC	DNC	0	0	0	0	0.0	A	INC	INC
Linn	14	0	0	4.7	F	2	3	1	0	2.8	D	8.6	Pass
Montgomery	5	0	0	1.7	C	1	0	0	0	0.3	B	7.2	Pass
Muscatine	DNC	DNC	DNC	DNC	DNC	1	2	1	0	2.0	C	8.6	Pass
Palo Alto	12	1	0	4.5	F	2	1	0	0	1.2	C	INC	INC
Polk	9	0	0	3.0	D	4	3	0	0	2.8	D	8.2	Pass
Pottawattamie	DNC	DNC	DNC	DNC	DNC	1	1	0	0	0.8	B	8.7	Pass
Scott	19	0	0	6.3	F	1	3	1	0	2.5	D	8.9	Pass
Van Buren	3	0	0	1.0	C	1	0	0	0	0.3	B	7.5	Pass
Woodbury	DNC	DNC	DNC	DNC	DNC	0	3	0	0	1.5	C	8.6	Pass

IOWA

American Lung Association in Iowa

County	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Black Hawk	130,471	28,522	23,549	1,642	9,183	5,779	77	7,795	1,620	17,837	27,765
Bremer	25,307	5,690	5,067	328	1,758	1,188	15	1,634	285	1,848	1,573
Clinton	46,158	10,509	9,622	605	3,183	2,282	27	3,152	468	6,040	4,744
Harrison	14,670	3,419	3,025	197	1,004	728	9	1,004	142	1,414	694
Johnson	157,528	30,155	21,803	1,736	11,594	6,320	93	8,052	2,342	22,903	38,005
Lee	32,565	6,942	7,307	400	2,283	1,663	19	2,324	314	4,509	3,033
Linn	228,972	50,973	40,961	2,934	16,009	10,540	136	14,152	2,657	22,062	38,339
Montgomery	10,139	2,266	2,333	130	700	518	6	729	97	1,286	701
Muscatine	42,218	9,944	7,893	572	2,895	1,979	25	2,685	440	4,852	10,337
Palo Alto	8,810	2,031	2,030	117	603	439	5	621	83	911	673
Polk	505,255	121,524	72,542	6,995	34,746	21,161	300	27,386	6,200	57,161	131,322
Pottawattamie	93,179	21,132	17,944	1,216	6,458	4,429	55	6,032	1,004	10,542	13,847
Scott	174,270	39,970	31,566	2,301	12,068	8,029	103	10,821	1,986	18,741	38,387
Van Buren	7,266	1,738	1,678	100	491	368	4	520	65	1,064	303
Woodbury	105,951	27,116	16,871	1,561	7,110	4,521	63	5,990	1,192	13,286	34,443

KANSAS

American Lung Association in Kansas

County	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Johnson	6	1	0	2.5	D	5	0	0	0	1.7	C	8.3	Pass
Leavenworth	12	0	0	4.0	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Neosho	0	0	0	0.0	A	3	1	0	0	1.5	C	9.3	Fail
Sedgwick	8	0	0	2.7	D	4	1	0	0	1.8	C	9.7	Fail
Shawnee	7	0	0	2.3	D	3	2	0	0	2.0	C	INC	INC
Sherman	DNC	DNC	DNC	DNC	DNC	INC	INC	INC	INC	INC	INC	8.8	Pass
Sumner	5	0	0	1.7	C	4	1	0	0	1.8	C	8.9	Pass
Trego	2	0	0	0.7	B	5	1	0	0	2.2	D	6.8	Pass
Wyandotte	19	1	0	6.8	F	3	1	0	0	1.5	C	9.6	Fail

KANSAS

American Lung Association in Kansas

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Johnson	622,237	144,378	102,852	9,925	47,852	30,206	309	39,981	7,375	32,942	141,047
Leavenworth	83,518	19,682	13,788	1,353	6,392	4,028	42	5,335	858	6,431	17,974
Neosho	15,420	3,722	3,216	256	1,150	805	8	1,102	156	2,224	1,766
Sedgwick	528,469	130,091	86,384	8,943	39,916	24,743	263	32,798	6,265	70,379	180,527
Shawnee	177,746	40,606	35,517	2,791	13,555	9,189	88	12,479	1,981	21,878	49,524
Sherman	5,844	1,415	1,272	97	435	299	3	413	59	768	1,029
Sumner	22,334	5,348	4,571	368	1,672	1,172	11	1,599	225	2,464	2,649
Trego	2,731	524	754	36	212	168	1	237	24	289	182
Wyandotte	165,281	44,637	22,709	3,068	12,189	7,213	82	9,380	1,966	27,891	103,974

KENTUCKY

American Lung Association in Kentucky

County	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Bell	0	0	0	0.0	A	4	0	0	0	1.3	C	9.1	Fail
Boone	6	1	0	2.5	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Boyd	0	0	0	0.0	A	2	2	0	0	1.7	C	7.5	Pass
Bullitt	8	0	0	2.7	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Campbell	3	0	0	1.0	C	3	2	0	0	2.0	C	7.6	Pass
Carter	0	0	0	0.0	A	1	1	0	0	0.8	B	6.3	Pass
Christian	3	0	0	1.0	C	2	0	0	0	0.7	B	8.6	Pass
Daviess	7	0	0	2.3	D	2	1	0	0	1.2	C	INC	INC
Edmonson	4	0	0	1.3	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Fayette	1	0	0	0.3	B	2	1	0	0	1.2	C	7.8	Pass
Greenup	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Hancock	7	0	0	2.3	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Hardin	3	0	0	1.0	C	2	0	0	0	0.7	B	7.8	Pass
Jefferson	23	1	0	8.2	F	5	1	0	0	2.2	D	9.5	Fail
Jessamine	3	0	0	1.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Livingston	7	0	0	2.3	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
McCracken	8	0	0	2.7	D	4	0	0	0	1.3	C	INC	INC
Morgan	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Oldham	4	0	0	1.3	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Perry	0	0	0	0.0	A	5	2	0	0	2.7	D	8.0	Pass
Pike	0	0	0	0.0	A	2	1	0	0	1.2	C	6.8	Pass
Pulaski	0	0	0	0.0	A	2	0	0	0	0.7	B	7.5	Pass
Simpson	7	0	0	2.3	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Trigg	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Warren	1	0	0	0.3	B	3	1	0	0	1.5	C	7.4	Pass
Washington	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC

KENTUCKY

American Lung Association in Kentucky

				AT-RISK GROUPS							
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Bell	23,317	5,161	4,699	488	1,960	2,261	19	2,410	242	6,547	1,639
Boone	140,496	35,434	21,519	3,353	11,490	12,201	113	12,631	1,585	10,333	23,048
Boyd	47,826	10,134	9,896	959	4,064	4,691	39	5,016	487	8,249	3,530
Bullitt	84,863	17,812	15,254	1,686	7,292	8,122	68	8,493	948	7,130	7,131
Campbell	93,702	19,066	17,096	1,804	8,115	8,672	75	9,171	1,105	9,417	8,116
Carter	26,366	5,855	5,339	554	2,213	2,567	21	2,736	274	4,922	922
Christian	72,032	20,511	9,382	1,941	5,667	5,082	58	5,347	808	11,900	25,813
Daviess	103,458	25,134	18,874	2,378	8,491	9,323	83	9,903	1,138	16,349	14,511
Edmonson	12,448	2,235	2,689	212	1,101	1,302	10	1,385	133	1,968	680
Fayette	320,154	66,445	49,329	6,288	27,822	27,121	258	28,345	4,265	48,315	103,824
Greenup	35,221	7,370	8,002	697	2,985	3,586	28	3,876	359	5,522	1,539
Hancock	8,920	2,076	1,715	196	740	854	7	904	91	1,049	424
Hardin	112,273	27,780	17,403	2,629	9,239	9,663	90	10,049	1,278	15,567	28,006
Jefferson	772,144	170,854	137,441	16,168	65,385	69,832	620	73,828	9,191	122,737	289,234
Jessamine	55,017	12,919	9,384	1,223	4,584	4,937	44	5,182	643	5,485	7,501
Livingston	8,892	1,821	2,052	172	757	935	7	1,006	85	1,263	555
McCracken	67,428	14,581	14,120	1,380	5,692	6,543	54	7,032	735	10,425	12,350
Morgan	14,283	2,613	2,563	247	1,272	1,365	12	1,429	125	3,019	1,528
Oldham	70,183	16,986	10,604	1,607	5,826	6,304	57	6,466	724	3,801	9,188
Perry	27,133	6,351	5,025	601	2,252	2,560	22	2,698	289	7,849	1,325
Pike	55,973	11,384	11,629	1,077	4,810	5,614	45	5,978	581	12,737	2,025
Pulaski	66,191	14,387	13,415	1,361	5,591	6,500	53	6,917	699	11,056	4,617
Simpson	20,195	4,684	3,484	443	1,688	1,842	16	1,930	220	2,691	3,214
Trigg	14,369	3,089	3,381	292	1,205	1,505	12	1,627	132	1,939	1,855
Warren	142,229	33,475	19,422	3,168	11,972	11,395	114	11,780	1,872	19,312	36,297
Washington	12,267	2,847	2,366	269	1,019	1,173	10	1,243	124	1,582	1,508

LOUISIANA

American Lung Association in Louisiana

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Ascension Parish	3	2	0	2.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Bossier Parish	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Caddo Parish	1	0	0	0.3	B	0	0	0	0	0.0	A	9.6	Fail
Calcasieu Parish	4	1	0	1.8	C	1	0	0	0	0.3	B	7.6	Pass
East Baton Rouge Parish	10	1	0	3.8	F	3	0	0	0	1.0	C	8.9	Pass
Iberville Parish	21	2	0	8.0	F	0	0	0	0	0.0	A	7.9	Pass
Jefferson Parish	5	0	0	1.7	C	1	0	0	0	0.3	B	7.7	Pass
Lafayette Parish	2	0	0	0.7	B	1	0	0	0	0.3	B	7.9	Pass
Lafourche Parish	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Livingston Parish	5	0	0	1.7	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Orleans Parish	DNC	DNC	DNC	DNC	DNC	0	0	0	0	0.0	A	7.8	Pass
Ouachita Parish	0	0	0	0.0	A	1	0	0	0	0.3	B	7.8	Pass
Pointe Coupee Parish	4	0	0	1.3	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Rapides Parish	DNC	DNC	DNC	DNC	DNC	1	0	0	0	0.3	B	7.9	Pass
St. Bernard Parish	3	0	0	1.0	C	0	0	0	0	0.0	A	8.2	Pass
St. James Parish	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
St. John the Baptist Parish	5	0	0	1.7	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
St. Martin Parish	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
St. Tammany Parish	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Tangipahoa Parish	DNC	DNC	DNC	DNC	DNC	0	0	0	0	0.0	A	7.7	Pass
Terrebonne Parish	DNC	DNC	DNC	DNC	DNC	2	1	0	0	1.2	C	7.9	Pass
West Baton Rouge Parish	14	0	0	4.7	F	2	0	0	0	0.7	B	9.1	Fail

LOUISIANA

American Lung Association in Louisiana

County	AT-RISK GROUPS										
				Lung Diseases							
	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Ascension Parish	131,632	34,316	18,017	3,003	10,519	8,144	78	10,638	1,604	13,963	47,560
Bossier Parish	129,795	31,948	20,693	2,796	10,527	8,280	77	10,956	1,551	17,641	48,249
Caddo Parish	226,386	52,592	44,291	4,602	18,384	15,721	133	21,319	2,620	50,737	129,974
Calcasieu Parish	203,761	50,425	34,222	4,412	16,399	13,317	121	17,758	2,371	35,387	68,727
East Baton Rouge Parish	448,467	100,971	70,903	8,835	37,655	28,332	265	37,200	6,060	86,425	259,410
Iberville Parish	29,617	6,190	5,300	542	2,501	2,051	18	2,741	334	5,422	15,842
Jefferson Parish	421,777	93,320	82,284	8,166	34,753	29,743	250	40,269	4,795	71,376	218,348
Lafayette Parish	249,750	60,283	38,539	5,275	20,424	15,928	148	20,984	3,091	41,666	93,475
Lafourche Parish	95,056	21,505	16,421	1,882	7,846	6,477	56	8,650	1,087	17,950	23,922
Livingston Parish	150,145	38,300	21,341	3,351	12,087	9,336	89	12,222	1,855	20,924	29,102
Orleans Parish	364,136	70,990	66,128	6,212	31,411	25,159	214	33,543	4,904	80,769	251,398
Ouachita Parish	157,568	38,561	25,711	3,374	12,762	10,225	93	13,578	1,917	32,634	69,144
Pointe Coupee Parish	20,000	4,256	4,633	372	1,638	1,514	12	2,093	202	3,978	7,910
Rapides Parish	126,260	31,500	22,178	2,756	10,084	8,403	75	11,280	1,423	24,624	50,376
St. Bernard Parish	44,463	11,455	6,131	1,002	3,575	2,728	26	3,559	568	7,958	19,748
St. James Parish	19,191	4,196	3,921	367	1,578	1,386	11	1,888	209	2,879	9,635
St. John the Baptist Parish	39,592	9,458	6,479	828	3,217	2,655	23	3,535	457	6,589	27,846
St. Martin Parish	51,057	12,116	9,074	1,060	4,135	3,495	30	4,695	566	9,158	18,401
St. Tammany Parish	275,583	64,546	52,409	5,648	22,294	19,286	163	26,110	3,028	32,491	73,355
Tangipahoa Parish	138,064	33,831	21,576	2,960	11,232	8,762	82	11,561	1,715	25,447	53,651
Terrebonne Parish	103,616	25,668	17,018	2,246	8,326	6,837	62	9,109	1,157	16,450	36,406
West Baton Rouge Parish	28,266	6,893	4,331	603	2,302	1,807	17	2,381	335	3,749	13,486

MAINE

American Lung Association in Maine

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Androscoggin	0	0	0	0.0	A	0	0	0	0	0.0	A	5.3	Pass
Aroostook	0	0	0	0.0	A	3	1	0	0	1.5	C	5.5	Pass
Cumberland	5	0	0	1.7	C	3	0	0	0	1.0	C	7.0	Pass
Hancock	4	0	0	1.3	C	0	0	0	0	0.0	A	3.7	Pass
Kennebec	0	0	0	0.0	A	0	0	0	0	0.0	A	5.8	Pass
Knox	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Oxford	0	0	0	0.0	A	1	0	0	0	0.3	B	5.3	Pass
Penobscot	0	0	0	0.0	A	0	0	0	0	0.0	A	4.8	Pass
Sagadahoc	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Washington	0	0	0	0.0	A	INC	INC	INC	INC	INC	INC	INC	INC
York	5	0	0	1.7	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC

MAINE

American Lung Association in Maine

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
	AT-RISK GROUPS			Lung Diseases							
Androscoggin	113,765	23,176	21,935	1,669	11,855	7,375	72	8,702	1,007	14,094	13,462
Aroostook	67,351	12,654	17,619	911	6,988	4,975	43	6,239	477	7,949	4,657
Cumberland	310,230	55,120	65,145	3,970	33,294	21,049	197	25,080	2,815	20,708	35,848
Hancock	56,526	8,937	15,485	644	6,089	4,301	36	5,392	431	5,586	3,619
Kennebec	127,259	23,651	27,641	1,703	13,453	8,759	81	10,558	1,075	14,132	8,674
Knox	40,977	6,829	11,729	492	4,350	3,143	26	3,982	291	3,414	2,341
Oxford	59,905	10,476	14,705	755	6,349	4,390	38	5,426	452	8,529	3,192
Penobscot	155,312	27,076	32,201	1,950	16,739	10,572	99	12,571	1,370	18,810	11,660
Sagadahoc	37,513	6,648	9,447	479	3,967	2,734	24	3,387	290	3,229	2,285
Washington	31,555	5,838	8,516	420	3,281	2,353	20	2,965	227	6,178	3,513
York	218,586	38,068	50,517	2,742	23,357	15,514	139	18,882	1,793	17,462	15,886

MARYLAND

American Lung Association in Maryland

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Anne Arundel	3	0	0	1.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Baltimore	19	1	1	7.5	F	2	3	0	0	2.2	D	8.3	Pass
Calvert	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Carroll	6	0	0	2.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Cecil	7	0	0	2.3	D	1	4	0	0	2.3	D	7.4	Pass
Charles	3	0	0	1.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Dorchester	7	0	0	2.3	D	1	3	0	0	1.8	C	6.9	Pass
Frederick	8	0	0	2.7	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Garrett	0	0	0	0.0	A	0	2	0	0	1.0	C	5.6	Pass
Harford	17	0	0	5.7	F	1	3	0	0	1.8	C	7.3	Pass
Howard	DNC	DNC	DNC	DNC	DNC	1	3	0	0	1.8	C	7.4	Pass
Kent	6	0	0	2.0	C	1	3	0	0	1.8	C	6.0	Pass
Montgomery	7	0	0	2.3	D	0	3	0	0	1.5	C	7.1	Pass
Prince George's	14	1	0	5.2	F	0	3	0	0	1.5	C	6.5	Pass
Washington	3	0	0	1.0	C	3	2	0	0	2.0	C	7.0	Pass
Baltimore City	5	1	0	2.2	D	1	3	0	0	1.8	C	INC	INC

MARYLAND

American Lung Association in Maryland

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Anne Arundel	594,582	133,550	97,887	8,017	49,905	25,216	276	35,742	6,188	36,637	225,578
Baltimore	844,703	183,157	157,919	10,995	71,368	37,440	391	53,932	9,053	80,251	408,996
Calvert	94,728	21,783	16,037	1,308	7,850	4,079	44	5,861	920	4,626	24,039
Carroll	176,639	39,177	32,310	2,352	14,759	7,843	82	11,375	1,678	11,031	25,901
Cecil	105,672	23,340	18,651	1,401	8,852	4,644	49	6,700	1,038	10,384	19,344
Charles	171,973	40,744	24,347	2,446	14,193	7,003	80	9,835	1,823	13,202	117,874
Dorchester	32,879	6,783	7,760	407	2,776	1,611	15	2,418	308	5,094	12,731
Frederick	293,391	68,563	45,824	4,116	24,347	12,180	136	17,192	3,071	18,475	101,464
Garrett	28,423	4,943	7,163	297	2,487	1,472	13	2,226	242	2,993	1,256
Harford	264,644	58,594	47,686	3,517	22,169	11,657	123	16,826	2,627	19,117	73,524
Howard	336,001	79,057	53,280	4,746	27,756	14,059	156	19,966	3,517	18,652	180,155
Kent	19,303	2,910	5,519	175	1,741	1,050	9	1,597	176	2,349	4,444
Montgomery	1,058,474	238,759	187,319	14,333	88,234	46,193	491	66,553	10,861	75,263	628,434
Prince George's	947,430	206,709	148,087	12,409	80,237	39,944	439	56,260	10,190	101,680	843,359
Washington	155,813	33,592	28,617	2,017	13,160	6,919	72	9,984	1,457	16,984	42,227
Baltimore City	565,239	117,753	89,474	7,069	48,947	23,522	261	32,486	7,045	110,261	414,893

MASSACHUSETTS

American Lung Association in Massachusetts

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Barnstable	6	0	0	2.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Berkshire	1	0	0	0.3	B	5	3	0	0	3.2	D	6.6	Pass
Bristol	7	0	0	2.3	D	4	0	0	0	1.3	C	5.9	Pass
Dukes	6	0	0	2.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Essex	5	0	0	1.7	C	3	0	0	0	1.0	C	7.2	Pass
Franklin	1	0	0	0.3	B	6	1	0	0	2.5	D	7.2	Pass
Hampden	5	0	0	1.7	C	4	2	0	0	2.3	D	5.8	Pass
Hampshire	2	0	0	0.7	B	5	0	0	0	1.7	C	6.0	Pass
Middlesex	1	0	0	0.3	B	0	1	0	0	0.5	B	5.8	Pass
Norfolk	7	0	0	2.3	D	1	0	0	0	0.3	B	INC	INC
Plymouth	3	0	0	1.0	C	3	0	0	0	1.0	C	7.9	Pass
Suffolk	3	0	0	1.0	C	1	0	0	0	0.3	B	7.1	Pass
Worcester	2	0	0	0.7	B	5	0	0	0	1.7	C	8.2	Pass

MASSACHUSETTS

American Lung Association in Massachusetts

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Barnstable	231,735	31,794	78,708	1,866	23,240	14,827	109	20,227	1,457	20,388	26,633
Berkshire	126,818	20,097	33,191	1,179	12,556	7,053	60	9,306	1,013	15,266	17,347
Bristol	581,841	118,224	106,264	6,938	55,135	27,207	275	34,369	5,282	72,670	129,345
Dukes	20,819	3,633	5,836	213	2,010	1,200	10	1,603	145	1,755	2,792
Essex	810,089	167,210	154,361	9,813	76,385	38,179	382	48,541	7,241	76,541	273,889
Franklin	70,836	11,591	18,241	680	6,974	3,895	33	5,131	570	8,325	7,989
Hampden	460,291	95,008	86,320	5,576	43,484	21,290	217	27,000	4,261	78,475	185,452
Hampshire	162,502	22,556	32,314	1,324	16,755	7,709	77	9,732	1,896	17,279	29,995
Middlesex	1,623,952	313,933	273,933	18,424	156,598	72,696	766	90,577	16,035	120,838	517,572
Norfolk	727,473	147,400	133,070	8,651	69,011	33,925	343	42,856	6,787	54,608	215,816
Plymouth	535,308	109,171	109,361	6,407	50,442	26,311	253	33,776	4,463	42,087	111,833
Suffolk	768,425	121,787	106,606	7,148	78,242	31,030	362	37,206	9,552	109,289	422,523
Worcester	866,866	176,462	152,994	10,356	82,218	39,902	409	50,163	7,883	91,666	236,561

MICHIGAN

American Lung Association in Michigan

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Allegan	23	3	0	9.2	F	0	0	0	0	0.0	A	INC	INC
Bay	DNC	DNC	DNC	DNC	DNC	3	3	0	0	2.5	D	7.3	Pass
Benzie	4	2	0	2.3	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Berrien	18	1	0	6.5	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Cass	12	0	0	4.0	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Clinton	3	0	0	1.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Genesee	11	1	0	4.2	F	3	3	0	0	2.5	D	8.1	Pass
Huron	7	0	0	2.3	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Ingham	2	1	0	1.2	C	5	4	0	0	3.7	F	8.9	Pass
Kalamazoo	5	0	0	1.7	C	5	2	1	0	3.3	F	10.4	Fail
Kent	14	0	0	4.7	F	4	2	1	0	3.0	D	9.3	Fail
Lenawee	4	0	0	1.3	C	3	2	0	0	2.0	C	INC	INC
Macomb	13	0	0	4.3	F	2	4	0	0	2.7	D	8.7	Pass
Manistee	12	2	0	5.0	F	0	0	0	0	0.0	A	INC	INC
Mason	6	1	0	2.5	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Missaukee	6	0	0	2.0	C	0	1	1	0	1.2	C	9.4	Fail
Muskegon	24	2	0	9.0	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Oakland	10	1	0	3.8	F	1	1	0	0	0.8	B	INC	INC
Ottawa	9	2	0	4.0	F	4	2	1	0	3.0	D	INC	INC
St. Clair	15	0	0	5.0	F	5	4	0	0	3.7	F	8.4	Pass
Schoolcraft	5	0	0	1.7	C	1	0	0	0	0.3	B	INC	INC
Tuscola	7	1	0	2.8	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Washtenaw	8	1	0	3.2	D	3	1	2	0	2.8	D	9.3	Fail
Wayne	17	1	0	6.2	F	19	3	1	0	8.5	F	13.0	Fail
Wexford	8	0	0	2.7	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC

MICHIGAN

American Lung Association in Michigan

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Allegan	121,939	28,000	23,125	2,035	10,382	8,208	65	9,331	1,113	11,987	15,769
Bay	102,500	19,742	22,983	1,435	9,100	7,494	54	8,653	935	12,966	11,390
Benzie	18,441	3,124	5,392	227	1,665	1,528	10	1,824	143	1,765	1,245
Berrien	152,261	32,181	33,509	2,339	13,201	10,892	81	12,586	1,376	20,324	38,590
Cass	51,642	10,336	11,910	751	4,536	3,842	27	4,466	440	6,256	7,404
Clinton	79,720	16,777	15,530	1,220	6,956	5,495	42	6,248	763	5,502	9,245
Genesee	401,522	88,219	77,829	6,413	34,608	27,275	213	31,019	3,898	70,895	115,357
Huron	30,927	5,835	8,590	424	2,732	2,484	16	2,955	230	4,377	1,779
Ingham	284,637	54,858	43,269	3,988	25,577	17,017	151	18,392	3,542	42,961	89,923
Kalamazoo	262,215	55,388	43,432	4,026	22,954	16,144	139	17,784	3,004	33,110	63,610
Kent	661,354	153,510	102,130	11,159	56,468	39,958	351	43,920	7,184	68,064	185,978
Lenawee	97,520	19,807	20,515	1,440	8,564	6,911	52	7,925	876	9,887	13,944
Macomb	875,101	179,163	164,492	13,024	77,031	59,914	464	67,734	8,599	91,776	221,044
Manistee	25,562	4,256	7,368	309	2,317	2,090	14	2,488	182	3,434	2,956
Mason	29,159	5,553	7,830	404	2,574	2,286	15	2,706	235	4,204	2,764
Missaukee	15,311	3,381	3,460	246	1,309	1,101	8	1,279	127	1,741	1,050
Muskegon	176,564	39,294	33,437	2,856	15,171	11,772	94	13,336	1,685	24,094	42,722
Oakland	1,270,426	254,657	242,408	18,511	112,385	87,516	675	99,032	12,391	103,791	381,452
Ottawa	303,372	68,744	52,010	4,997	26,005	19,012	161	21,176	3,217	26,507	51,856
St. Clair	159,874	32,050	33,468	2,330	14,098	11,575	85	13,295	1,408	18,488	15,190
Schoolcraft	8,149	1,465	2,386	106	726	684	4	820	57	1,162	1,308
Tuscola	52,826	10,517	11,856	764	4,652	3,897	28	4,513	446	7,469	3,922
Washtenaw	365,536	65,633	60,189	4,771	33,331	23,031	194	25,199	4,313	50,467	113,670
Wayne	1,751,169	411,479	299,646	29,911	148,527	111,710	929	125,092	17,911	357,796	897,563
Wexford	34,122	7,738	7,189	562	2,904	2,375	18	2,736	301	4,520	2,387

MINNESOTA

American Lung Association in Minnesota

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Anoka	15	1	0	5.5	F	5	3	0	0	3.2	D	7.4	Pass
Becker	3	0	0	1.0	C	10	6	1	0	7.0	F	8.6	Pass
Beltrami	DNC	DNC	DNC	DNC	DNC	9	3	2	0	5.8	F	6.9	Pass
Carlton	0	0	0	0.0	A	8	1	0	0	3.2	D	3.7	Pass
Cass	DNC	DNC	DNC	DNC	DNC	10	4	1	0	6.0	F	8.9	Pass
Cook	DNC	DNC	DNC	DNC	DNC	4	1	0	0	1.8	C	2.7	Pass
Crow Wing	5	0	0	1.7	C	5	3	1	0	3.8	F	6.7	Pass
Dakota	DNC	DNC	DNC	DNC	DNC	7	5	0	0	4.8	F	8.0	Pass
Goodhue	5	0	0	1.7	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Hennepin	6	1	0	2.5	D	6	5	0	0	4.5	F	8.6	Pass
Lake	0	0	0	0.0	A	4	1	0	0	1.8	C	4.9	Pass
Lyon	4	0	0	1.3	C	9	7	0	0	6.5	F	7.8	Pass
Mille Lacs	5	0	0	1.7	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Olmsted	10	0	0	3.3	F	8	1	0	0	3.2	D	7.2	Pass
Ramsey	DNC	DNC	DNC	DNC	DNC	10	3	0	0	4.8	F	9.0	Pass
St. Louis	2	0	0	0.7	B	11	3	0	0	5.2	F	6.0	Pass
Scott	9	1	0	3.5	F	3	4	0	0	3.0	D	7.8	Pass
Stearns	6	1	0	2.5	D	6	4	1	0	4.7	F	INC	INC
Washington	9	0	0	3.0	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Wright	13	1	0	4.8	F	5	4	0	0	3.7	F	7.9	Pass

MINNESOTA

American Lung Association in Minnesota

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
	AT-RISK GROUPS			Lung Diseases							
Anoka	372,441	87,993	59,551	4,696	28,154	12,310	194	22,591	3,938	23,998	93,875
Becker	35,283	8,068	8,263	431	2,627	1,348	18	2,630	317	4,094	4,774
Beltrami	46,718	11,425	8,358	610	3,459	1,524	24	2,862	501	7,612	13,377
Carlton	36,825	7,980	6,978	426	2,831	1,314	19	2,468	336	3,194	4,617
Cass	31,446	6,234	8,662	333	2,410	1,338	16	2,658	246	4,571	5,089
Cook	5,639	809	1,820	43	457	262	3	530	49	598	930
Crow Wing	68,304	13,759	17,067	734	5,253	2,745	35	5,380	605	6,191	3,909
Dakota	447,440	106,392	73,682	5,678	33,685	14,823	232	27,350	4,795	26,470	119,487
Goodhue	48,035	10,428	10,212	557	3,662	1,788	25	3,423	455	3,433	4,469
Hennepin	1,258,713	269,227	204,631	14,368	97,823	41,290	654	75,754	14,770	125,382	422,128
Lake	10,855	2,036	3,080	109	841	468	6	933	87	927	598
Lyon	25,427	6,694	4,614	357	1,834	838	13	1,581	260	2,758	4,706
Mille Lacs	27,427	6,337	5,134	338	2,070	970	14	1,823	260	2,893	3,074
Olmsted	164,784	38,963	28,679	2,079	12,372	5,443	85	10,145	1,850	12,929	39,113
Ramsey	536,075	122,184	87,785	6,521	40,831	17,183	278	31,682	6,333	62,146	221,832
St. Louis	200,514	36,720	43,779	1,960	15,937	7,502	104	14,365	2,146	25,750	19,020
Scott	155,814	39,577	20,368	2,112	11,618	4,843	81	8,640	1,701	8,230	37,037
Stearns	160,977	37,887	26,736	2,022	12,129	5,174	84	9,575	1,777	16,996	31,135
Washington	278,936	66,121	48,070	3,529	20,978	9,487	145	17,620	2,881	13,645	61,956
Wright	151,150	40,678	21,247	2,171	10,986	4,681	79	8,475	1,577	8,100	16,379

MISSISSIPPI

American Lung Association in Mississippi

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Bolivar	3	0	0	1.0	C	1	0	0	0	0.3	B	8.2	Pass
DeSoto	11	0	0	3.7	F	2	0	0	0	0.7	B	8.7	Pass
Forrest	DNC	DNC	DNC	DNC	DNC	1	0	0	0	0.3	B	9.2	Fail
Hancock	1	0	0	0.3	B	0	0	0	0	0.0	A	7.8	Pass
Harrison	1	0	0	0.3	B	0	0	0	0	0.0	A	8.0	Pass
Hinds	2	0	0	0.7	B	2	0	0	0	0.7	B	9.3	Fail
Jackson	3	0	0	1.0	C	0	0	0	0	0.0	A	7.6	Pass
Lauderdale	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lee	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Yalobusha	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC

MISSISSIPPI

American Lung Association in Mississippi

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Bolivar	28,968	7,131	5,139	494	1,563	1,661	19	2,415	331	10,583	19,603
DeSoto	193,247	47,541	26,803	3,293	10,506	10,738	129	15,040	2,393	17,574	85,740
Forrest	78,208	17,784	11,055	1,232	4,262	4,138	52	5,775	1,114	13,807	34,448
Hancock	46,159	8,692	10,727	602	2,718	3,125	31	4,692	463	7,157	7,387
Harrison	210,612	49,023	36,304	3,396	11,599	12,272	141	17,716	2,429	32,963	80,941
Hinds	214,870	49,758	36,389	3,447	11,796	12,299	143	17,697	2,677	43,453	165,373
Jackson	146,389	33,114	26,026	2,294	8,166	8,764	98	12,698	1,645	19,431	49,038
Lauderdale	70,527	16,383	13,596	1,135	3,888	4,234	47	6,223	754	15,955	34,862
Lee	82,799	20,572	13,144	1,425	4,479	4,697	55	6,715	964	11,003	30,973
Yalobusha	12,386	2,605	2,794	180	705	801	8	1,203	126	2,493	5,190

MISSOURI

American Lung Association in Missouri

County	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Andrew	7	0	0	2.3	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Boone	5	0	0	1.7	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Buchanan	DNC	DNC	DNC	DNC	DNC	5	0	0	0	1.7	C	8.6	Pass
Callaway	5	0	0	1.7	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Cass	5	0	0	1.7	C	1	0	0	0	0.3	B	INC	INC
Cedar	4	0	0	1.3	C	0	0	0	0	0.0	A	6.8	Pass
Clay	23	0	0	7.7	F	1	0	0	0	0.3	B	6.0	Pass
Clinton	12	0	0	4.0	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Greene	4	0	0	1.3	C	1	0	0	0	0.3	B	INC	INC
Jackson	DNC	DNC	DNC	DNC	DNC	5	1	0	0	2.2	D	7.6	Pass
Jasper	4	0	0	1.3	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Jefferson	20	2	0	7.7	F	1	1	0	0	0.8	B	8.2	Pass
Lincoln	16	0	0	5.3	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Monroe	3	0	0	1.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Perry	13	0	0	4.3	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
St. Charles	24	0	0	8.0	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Ste. Genevieve	12	0	0	4.0	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
St. Louis	19	2	0	7.3	F	0	1	0	0	0.5	B	7.2	Pass
St. Louis City	14	2	0	5.7	F	5	1	0	0	2.2	D	9.6	Fail

MISSOURI

American Lung Association in Missouri

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
	AT-RISK GROUPS			Lung Diseases							
Andrew	18,127	4,075	3,787	326	1,390	1,285	11	1,623	174	1,504	1,247
Boone	189,463	37,878	26,784	3,035	15,456	10,752	116	13,341	2,621	25,749	44,114
Buchanan	82,956	18,451	14,958	1,478	6,450	5,442	51	6,814	851	11,962	15,646
Callaway	44,731	9,216	8,273	738	3,546	3,031	28	3,790	453	5,393	4,922
Cass	111,732	25,852	20,521	2,071	8,551	7,503	69	9,381	1,140	7,698	16,723
Cedar	14,672	3,574	3,439	286	1,089	1,073	9	1,371	122	2,163	971
Clay	259,772	60,538	40,778	4,850	20,026	16,144	160	20,005	2,918	20,019	58,322
Clinton	21,548	4,905	4,162	393	1,651	1,498	13	1,876	205	2,041	1,580
Greene	304,611	62,952	53,107	5,043	24,324	19,265	187	24,163	3,608	41,389	44,732
Jackson	718,560	165,358	117,328	13,248	55,629	44,568	441	55,534	8,284	84,520	285,225
Jasper	125,056	30,541	20,724	2,447	9,488	7,725	77	9,648	1,366	18,915	23,146
Jefferson	231,230	51,611	39,902	4,135	17,929	15,412	142	19,135	2,382	20,986	16,455
Lincoln	64,699	16,151	9,728	1,294	4,877	3,960	40	4,889	682	5,382	5,035
Monroe	8,698	1,911	2,181	153	664	672	5	859	71	1,049	706
Perry	18,950	4,185	3,907	335	1,461	1,347	12	1,697	180	1,869	1,124
St. Charles	416,659	92,794	73,375	7,434	32,367	27,474	256	34,262	4,419	22,647	66,609
Ste. Genevieve	18,642	3,994	4,052	320	1,447	1,353	11	1,713	164	1,708	1,077
St. Louis	987,059	215,244	194,144	17,244	76,830	67,372	605	84,869	10,585	94,080	360,289
St. Louis City	281,754	50,849	45,784	4,074	23,357	17,655	173	21,981	3,689	54,810	153,057

MONTANA

American Lung Association in Montana

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Beaverhead	DNC	DNC	DNC	DNC	DNC	INC	INC	INC	INC	INC	INC	INC	INC
Custer	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC
Fergus	5	0	0	1.7	C	16	3	0	0	6.8	F	5.4	Pass
Flathead	0	0	0	0.0	A	16	4	0	0	7.3	F	8.6	Pass
Gallatin	DNC	DNC	DNC	DNC	DNC	6	0	0	0	2.0	C	4.1	Pass
Glacier	DNC	DNC	DNC	DNC	DNC	INC	INC	INC	INC	INC	INC	INC	INC
Hill	DNC	DNC	DNC	DNC	DNC	INC	INC	INC	INC	INC	INC	INC	INC
Lewis and Clark	1	0	0	0.3	B	19	8	0	0	10.3	F	8.7	Pass
Lincoln	DNC	DNC	DNC	DNC	DNC	17	10	0	0	10.7	F	12.8	Fail
Missoula	0	0	0	0.0	A	24	7	0	0	11.5	F	10.5	Fail
Phillips	1	0	0	0.3	B	7	7	0	0	5.8	F	INC	INC
Powder River	2	0	0	0.7	B	16	8	0	0	9.3	F	8.3	Pass
Ravalli	DNC	DNC	DNC	DNC	DNC	20	13	2	0	14.5	F	7.8	Pass
Richland	1	0	0	0.3	B	8	4	1	0	5.3	F	6.2	Pass
Rosebud	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC
Silver Bow	DNC	DNC	DNC	DNC	DNC	25	8	0	0	12.3	F	8.3	Pass
Yellowstone	DNC	DNC	DNC	DNC	DNC	13	3	0	0	5.8	F	7.8	Pass

MONTANA

American Lung Association in Montana

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Beaverhead	9,885	1,729	2,393	117	949	604	4	724	95	1,224	1,063
Custer	11,985	2,348	2,520	159	1,136	697	5	819	113	1,571	1,163
Fergus	11,772	2,456	2,969	166	1,080	721	5	881	100	1,292	843
Flathead	113,679	24,449	24,164	1,651	10,497	6,535	51	7,737	1,064	11,138	9,976
Gallatin	126,409	23,541	17,634	1,590	12,350	6,304	57	6,747	1,519	10,694	13,377
Glacier	13,609	4,025	1,863	272	1,151	630	6	699	135	3,754	9,564
Hill	16,276	4,571	2,709	309	1,387	799	7	914	154	3,004	5,212
Lewis and Clark	75,011	15,806	15,560	1,068	6,978	4,284	34	5,041	716	6,827	7,351
Lincoln	21,895	3,885	6,690	262	2,061	1,499	10	1,892	163	3,287	1,734
Missoula	121,849	21,725	21,390	1,467	11,894	6,578	55	7,370	1,435	13,548	15,370
Phillips	4,249	1,004	1,013	68	378	252	2	308	33	700	744
Powder River	1,743	306	537	21	164	119	1	150	12	200	148
Ravalli	47,738	8,813	13,140	595	4,495	3,105	21	3,843	382	5,076	4,118
Richland	11,173	2,815	1,969	190	994	587	5	677	101	1,059	1,325
Rosebud	8,160	2,357	1,438	159	688	414	4	482	72	1,633	3,712
Silver Bow	36,360	7,295	7,097	493	3,440	2,042	16	2,364	348	5,634	3,643
Yellowstone	170,843	38,840	31,795	2,623	15,630	9,208	77	10,629	1,724	16,465	26,230

NEBRASKA

American Lung Association in Nebraska

	High Ozone Days 2021–2023					High Particle Pollution Days 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Douglas	23	1	0	8.2	F	4	1	0	0	1.8	C	8.1	Pass
Gage	DNC	DNC	DNC	DNC	DNC	3	1	0	0	1.5	C	INC	INC
Hall	DNC	DNC	DNC	DNC	DNC	2	3	0	0	2.2	D	6.8	Pass
Knox	18	1	0	6.5	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lancaster	2	0	0	0.7	B	0	1	0	0	0.5	B	7.2	Pass
Sarpy	DNC	DNC	DNC	DNC	DNC	3	1	0	0	1.5	C	7.8	Pass
Scotts Bluff	DNC	DNC	DNC	DNC	DNC	0	0	1	0	0.7	B	4.6	Pass
Washington	DNC	DNC	DNC	DNC	DNC	4	1	0	0	1.8	C	6.6	Pass

NEBRASKA

American Lung Association in Nebraska

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Douglas	589,540	147,751	85,827	6,067	37,699	22,671	312	30,480	7,658	66,643	196,737
Gage	21,634	4,879	4,877	200	1,393	1,030	11	1,461	220	2,198	1,520
Hall	62,197	16,992	9,935	698	3,833	2,457	33	3,356	708	6,595	24,148
Knox	8,298	2,023	2,137	83	514	410	4	595	75	1,121	1,254
Lancaster	326,716	72,610	51,559	2,982	21,606	12,927	173	17,514	4,418	33,770	69,022
Sarpy	199,886	51,804	26,484	2,127	12,698	7,481	106	9,940	2,557	9,803	44,497
Scotts Bluff	35,699	8,546	7,654	351	2,261	1,619	19	2,290	395	5,374	10,117
Washington	21,152	4,959	4,155	204	1,360	954	11	1,329	224	1,276	1,418

NEVADA

American Lung Association in Nevada

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	**Orange**	**Red**	**Purple**	**Wgt. Avg.**	**Grade**	**Orange**	**Red**	**Purple**	**Maroon**	**Wgt. Avg.**	**Grade**	**Design Value**	**Pass/ Fail**
Churchill	9	1	0	3.5	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Clark	65	1	0	22.2	F	8	3	0	0	4.2	F	8.7	Pass
Douglas	DNC	DNC	DNC	DNC	DNC	8	25	6	0	19.2	F	8.4	Pass
Elko	7	1	0	2.8	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lyon	8	0	0	2.7	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Washoe	24	2	0	9.0	F	8	14	12	1	18.5	F	9.7	Fail
White Pine	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Carson City	9	0	0	3.0	D	13	14	8	1	17.5	F	7.5	Pass

NEVADA

American Lung Association in Nevada

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
	AT-RISK GROUPS			Lung Diseases							
Churchill	25,803	5,886	5,062	421	1,744	1,468	11	1,570	225	2,736	7,399
Clark	2,336,573	511,912	380,462	36,621	160,644	126,738	966	134,643	23,693	297,404	1,434,103
Douglas	49,545	7,170	16,804	513	3,613	3,778	20	4,085	328	4,047	9,904
Elko	54,293	14,200	7,346	1,016	3,546	2,674	22	2,833	518	4,834	19,050
Lyon	62,583	12,885	13,823	922	4,329	3,803	26	4,074	526	5,991	18,197
Washoe	498,022	101,584	91,139	7,267	34,864	28,196	206	30,082	4,880	48,394	200,329
White Pine	8,522	1,719	1,807	123	593	513	4	549	65	959	2,382
Carson City	58,036	11,461	12,429	820	4,063	3,513	24	3,758	485	5,757	20,983

NEW HAMPSHIRE

American Lung Association in New Hampshire

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Belknap	0	0	0	0.0	A	2	0	0	0	0.7	B	4.8	Pass
Cheshire	1	0	0	0.3	B	3	0	0	0	1.0	C	7.0	Pass
Coos	4	0	0	1.3	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Grafton	0	0	0	0.0	A	1	0	0	0	0.3	B	5.1	Pass
Hillsborough	2	0	0	0.7	B	4	0	0	0	1.3	C	3.9	Pass
Merrimack	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Rockingham	4	0	0	1.3	C	1	0	0	0	0.3	B	5.6	Pass

NEW HAMPSHIRE

American Lung Association in New Hampshire

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Belknap	65,027	11,037	16,232	789	6,260	4,074	36	4,572	482	5,139	3,803
Cheshire	77,703	13,767	17,814	984	7,554	4,622	42	5,033	654	6,709	5,526
Coos	31,372	5,070	8,223	362	3,029	2,007	17	2,283	213	4,051	1,864
Grafton	93,146	14,179	22,235	1,013	9,341	5,670	51	6,185	821	8,045	9,778
Hillsborough	427,354	82,637	76,503	5,905	41,844	23,859	234	24,149	3,789	27,070	78,765
Merrimack	157,103	28,516	32,117	2,038	15,401	9,101	86	9,564	1,353	11,623	13,663
Rockingham	320,689	58,396	67,810	4,173	31,116	19,036	175	20,317	2,577	17,152	28,099

NEW JERSEY

American Lung Association in New Jersey

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Atlantic	0	0	0	0.0	A	3	2	1	0	2.7	D	6.7	Pass
Bergen	13	1	0	4.8	F	2	3	0	0	2.2	D	8.5	Pass
Camden	7	0	0	2.3	D	4	2	1	0	3.0	D	9.8	Fail
Cumberland	4	0	0	1.3	C	3	1	1	0	2.2	D	INC	INC
Essex	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC
Gloucester	11	1	0	4.2	F	0	2	0	0	1.0	C	7.4	Pass
Hudson	7	0	0	2.3	D	1	3	1	0	2.5	D	7.8	Pass
Hunterdon	5	1	0	2.2	D	1	3	1	0	2.5	D	8.1	Pass
Mercer	13	2	0	5.3	F	3	3	1	0	3.2	D	INC	INC
Middlesex	9	2	0	4.0	F	3	3	1	0	3.2	D	8.4	Pass
Monmouth	6	2	0	3.0	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Morris	3	1	0	1.5	C	1	1	0	0	0.8	B	6.1	Pass
Ocean	10	0	0	3.3	F	5	1	1	0	2.8	D	7.4	Pass
Passaic	4	0	0	1.3	C	INC	INC	INC	INC	INC	INC	INC	INC
Union	DNC	DNC	DNC	DNC	DNC	2	3	1	0	2.8	D	9.4	Fail
Warren	0	0	0	0.0	A	2	4	0	0	2.7	D	8.4	Pass

NEW JERSEY

American Lung Association in New Jersey

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
	AT-RISK GROUPS			Lung Diseases							
Atlantic	275,213	56,590	56,571	3,839	18,454	10,200	129	15,859	2,806	32,219	124,335
Bergen	957,736	198,334	179,022	13,453	64,310	34,486	449	52,774	10,170	62,866	460,757
Camden	527,196	119,354	89,335	8,096	34,386	17,699	247	26,770	5,933	64,241	246,915
Cumberland	152,326	37,110	24,690	2,517	9,711	4,951	72	7,462	1,541	24,394	88,843
Essex	851,117	198,853	125,156	13,488	55,132	27,203	398	40,256	9,924	117,764	603,125
Gloucester	308,423	65,192	53,605	4,422	20,545	10,653	144	16,127	3,423	25,292	78,955
Hudson	705,472	137,155	92,495	9,303	47,582	21,539	331	31,009	9,328	106,193	502,487
Hunterdon	130,183	24,726	28,277	1,677	8,957	5,105	61	7,975	1,242	6,126	24,766
Mercer	381,671	83,627	63,220	5,673	25,195	12,904	179	19,411	4,239	38,798	217,264
Middlesex	863,623	183,504	144,285	12,447	57,417	29,297	405	44,075	9,717	72,101	536,859
Monmouth	642,799	132,784	127,345	9,007	43,246	23,818	301	36,787	6,420	42,424	171,196
Morris	514,423	105,264	96,546	7,140	34,685	18,655	241	28,549	5,288	24,591	170,039
Ocean	659,197	164,894	151,535	11,185	41,476	24,413	309	39,090	5,834	65,276	115,858
Passaic	513,395	120,459	84,482	8,171	33,151	16,972	240	25,590	5,636	70,313	315,874
Union	572,726	133,643	89,297	9,065	37,178	18,828	268	28,126	6,294	50,389	363,120
Warren	111,252	21,390	22,536	1,451	7,617	4,198	52	6,489	1,106	9,107	27,812

NEW MEXICO

American Lung Association in New Mexico

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Bernalillo	29	1	0	10.2	F	10	4	0	0	5.3	F	8.0	Pass
Doña Ana	38	5	0	15.2	F	6	2	1	0	3.7	F	8.6	Pass
Eddy	70	2	0	24.3	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lea	12	1	0	4.5	F	2	0	0	0	0.7	B	6.6	Pass
Rio Arriba	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Sandoval	4	0	0	1.3	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
San Juan	14	0	0	4.7	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Santa Fe	2	0	0	0.7	B	1	0	0	0	0.3	B	INC	INC
Taos	DNC	DNC	DNC	DNC	DNC	1	0	0	0	0.3	B	4.9	Pass
Valencia	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC

NEW MEXICO

American Lung Association in New Mexico

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Bernalillo	671,586	133,049	126,639	9,504	53,038	25,715	203	43,624	6,983	89,525	414,492
Doña Ana	225,210	50,882	39,142	3,634	17,204	7,840	68	13,532	2,420	43,762	164,360
Eddy	60,275	15,891	9,104	1,135	4,409	2,000	18	3,394	587	9,810	34,092
Lea	72,101	20,738	8,619	1,481	5,155	2,129	22	3,625	721	11,871	49,724
Rio Arriba	39,876	8,888	9,052	635	3,003	1,659	12	2,798	343	7,359	34,048
Sandoval	155,936	33,287	31,878	2,378	11,999	6,232	47	10,495	1,479	18,196	91,273
San Juan	120,675	29,703	21,005	2,122	8,972	4,337	36	7,337	1,183	23,759	76,643
Santa Fe	155,956	24,194	45,205	1,728	12,579	7,599	47	12,853	1,310	18,759	84,597
Taos	34,405	5,277	10,764	377	2,760	1,761	10	2,969	266	6,340	20,305
Valencia	79,141	18,054	15,042	1,290	6,000	3,028	24	5,099	741	13,484	54,710

NEW YORK

American Lung Association in New York

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Albany	2	0	0	0.7	B	4	3	0	0	2.8	D	6.8	Pass
Bronx	13	0	0	4.3	F	0	4	1	0	2.7	D	7.9	Pass
Chautauqua	9	0	0	3.0	D	1	0	0	0	0.3	B	6.7	Pass
Dutchess	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Erie	2	0	0	0.7	B	3	0	0	0	1.0	C	7.7	Pass
Essex	5	0	0	1.7	C	0	0	0	0	0.0	A	4.0	Pass
Hamilton	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Jefferson	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Kings	DNC	DNC	DNC	DNC	DNC	0	1	0	0	0.5	B	8.0	Pass
Monroe	2	0	0	0.7	B	2	3	0	0	2.2	D	7.2	Pass
New York	12	0	0	4.0	F	1	1	0	0	0.8	B	7.8	Pass
Niagara	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Onondaga	2	0	0	0.7	B	2	3	1	0	2.8	D	6.1	Pass
Orange	INC	INC	INC	INC	INC	1	0	0	0	0.3	B	6.6	Pass
Oswego	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Putnam	4	0	0	1.3	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Queens	18	0	0	6.0	F	2	4	1	0	3.3	F	8.1	Pass
Richmond	9	0	0	3.0	D	2	0	0	0	0.7	B	8.3	Pass
Rockland	4	1	0	1.8	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Saratoga	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Steuben	1	0	0	0.3	B	3	4	1	0	3.7	F	5.9	Pass
Suffolk	28	1	0	9.8	F	0	0	0	0	0.0	A	7.0	Pass
Tompkins	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Wayne	4	0	0	1.3	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Westchester	8	1	0	3.2	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC

NEW YORK

American Lung Association in New York

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Albany	316,659	56,536	59,276	5,193	25,880	13,148	163	20,358	3,591	38,586	97,208
Bronx	1,356,476	324,773	207,403	29,833	103,208	51,037	697	77,966	14,782	367,107	1,233,915
Chautauqua	124,891	25,610	27,416	2,352	9,871	5,629	64	8,778	1,136	20,232	18,888
Dutchess	297,150	54,124	58,558	4,972	24,271	13,138	153	20,255	2,934	22,541	96,547
Erie	946,147	189,430	188,291	17,401	75,335	40,602	487	62,977	9,512	130,014	254,274
Essex	36,775	5,652	10,087	519	3,086	1,925	19	3,028	289	4,587	2,607
Hamilton	5,082	627	1,767	58	439	307	3	489	34	534	309
Jefferson	114,787	27,507	17,943	2,527	8,684	4,150	59	6,404	1,103	14,427	21,846
Kings	2,561,225	557,288	413,894	51,191	199,904	98,006	1,316	150,569	29,439	482,728	1,607,724
Monroe	748,482	150,962	144,644	13,867	59,504	31,600	385	48,947	7,729	95,055	233,144
New York	1,597,451	216,031	299,787	19,844	137,407	67,661	821	104,641	20,381	255,002	850,108
Niagara	209,457	41,366	44,893	3,800	16,741	9,462	108	14,701	1,939	28,300	34,648
Onondaga	467,873	97,236	90,044	8,932	36,918	19,684	241	30,483	4,783	61,032	117,436
Orange	407,470	104,208	61,204	9,572	30,387	15,264	210	23,260	4,023	50,244	168,428
Oswego	118,162	24,083	21,895	2,212	9,399	4,999	61	7,693	1,138	16,742	8,710
Putnam	98,060	18,967	19,472	1,742	7,914	4,403	51	6,773	885	7,076	27,811
Queens	2,252,196	430,689	422,104	39,562	181,958	96,420	1,159	148,390	23,223	307,761	1,712,219
Richmond	490,687	105,259	87,117	9,669	38,570	20,423	253	31,315	4,869	63,638	218,903
Rockland	340,807	101,965	54,364	9,366	23,844	12,441	176	19,154	3,066	50,990	132,622
Saratoga	238,711	45,085	49,297	4,141	19,327	10,775	123	16,657	2,252	17,032	26,767
Steuben	92,162	19,739	19,755	1,813	7,212	4,129	48	6,420	812	12,857	6,538
Suffolk	1,523,170	312,783	281,959	28,731	121,143	65,346	785	100,284	14,439	104,291	568,305
Tompkins	103,558	14,445	17,448	1,327	8,847	4,030	53	6,235	1,387	14,034	24,976
Wayne	90,829	18,894	19,540	1,736	7,170	4,121	47	6,398	785	9,922	10,436
Westchester	990,817	207,881	185,878	19,095	78,298	42,446	510	65,266	9,711	90,348	489,572

NORTH CAROLINA

American Lung Association in North Carolina

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Alexander	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Avery	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Buncombe	0	0	0	0.0	A	0	0	0	0	0.0	A	6.3	Pass
Caldwell	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Carteret	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Caswell	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Catawba	DNC	DNC	DNC	DNC	DNC	3	0	0	0	1.0	C	8.5	Pass
Cumberland	1	0	0	0.3	B	2	0	0	0	0.7	B	8.4	Pass
Davidson	DNC	DNC	DNC	DNC	DNC	3	0	0	0	1.0	C	9.2	Fail
Durham	0	0	0	0.0	A	3	0	0	0	1.0	C	7.6	Pass
Edgecombe	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Forsyth	3	0	0	1.0	C	8	1	0	0	3.2	D	8.0	Pass
Graham	7	0	0	2.3	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Granville	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Guilford	1	0	0	0.3	B	3	0	0	0	1.0	C	8.6	Pass
Haywood	4	0	0	1.3	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Jackson	DNC	DNC	DNC	DNC	DNC	INC	INC	INC	INC	INC	INC	INC	INC
Johnston	1	0	0	0.3	B	1	0	0	0	0.3	B	7.7	Pass
Lenoir	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lincoln	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Macon	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Martin	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Mecklenburg	8	0	0	2.7	D	4	0	0	0	1.3	C	9.2	Fail
Mitchell	DNC	DNC	DNC	DNC	DNC	1	0	0	0	0.3	B	6.3	Pass
Montgomery	0	0	0	0.0	A	4	0	0	0	1.3	C	8.2	Pass
New Hanover	0	0	0	0.0	A	1	0	0	0	0.3	B	5.4	Pass
Northampton	DNC	DNC	DNC	DNC	DNC	1	0	0	0	0.3	B	7.2	Pass
Person	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Pitt	0	0	0	0.0	A	2	0	0	0	0.7	B	6.8	Pass
Rockingham	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Rowan	1	0	0	0.3	B	3	0	0	0	1.0	C	8.2	Pass
Swain	1	0	0	0.3	B	2	0	0	0	0.7	B	6.4	Pass
Union	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Wake	1	0	0	0.3	B	5	0	0	0	1.7	C	8.3	Pass
Yancey	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC

NORTH CAROLINA

American Lung Association in North Carolina

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Alexander	36,473	7,132	7,554	820	2,943	2,183	21	3,180	330	4,350	5,350
Avery	17,561	2,550	4,248	293	1,512	1,152	10	1,674	152	2,469	2,195
Buncombe	275,901	48,293	60,275	5,550	22,827	16,780	161	23,990	3,043	34,611	50,204
Caldwell	80,574	15,754	17,365	1,810	6,516	4,922	47	7,216	757	10,843	11,885
Carteret	69,615	11,545	19,399	1,327	5,912	4,865	41	7,239	577	7,295	9,467
Caswell	22,807	4,238	5,356	487	1,873	1,445	13	2,114	189	3,564	8,862
Catawba	164,645	35,247	31,389	4,050	12,937	9,366	96	13,540	1,651	19,276	44,768
Cumberland	337,890	85,264	44,854	9,798	24,853	15,441	197	20,542	3,931	49,047	202,831
Davidson	174,804	37,458	33,888	4,305	13,745	10,038	102	14,573	1,734	24,163	41,498
Durham	336,892	65,434	50,717	7,519	26,769	17,039	196	23,009	4,422	33,994	192,197
Edgecombe	48,832	11,179	10,519	1,285	3,789	2,860	28	4,133	493	10,936	31,811
Forsyth	392,921	87,995	68,335	10,112	30,343	21,047	228	29,748	4,460	56,249	180,591
Graham	8,052	1,535	2,046	176	660	524	5	769	71	1,344	1,228
Granville	62,192	12,611	11,428	1,449	4,948	3,543	37	5,140	593	6,722	27,644
Guilford	549,866	119,813	89,625	13,768	42,648	28,732	319	40,161	6,629	77,550	294,931
Haywood	62,969	10,864	16,420	1,248	5,281	4,204	37	6,168	578	6,869	5,865
Jackson	44,574	7,292	9,174	838	3,720	2,607	26	3,620	528	6,787	9,261
Johnston	241,955	59,373	33,935	6,823	18,052	11,981	141	17,000	2,652	25,952	93,021
Lenoir	54,895	12,496	11,901	1,436	4,268	3,233	32	4,684	533	12,425	28,743
Lincoln	95,675	19,527	18,924	2,244	7,629	5,640	56	8,274	909	10,126	16,534
Macon	38,412	7,018	11,200	806	3,207	2,677	22	3,950	319	5,155	5,540
Martin	21,447	4,322	5,624	497	1,740	1,407	12	2,067	194	4,173	10,245
Mecklenburg	1,163,701	262,068	143,690	30,116	88,527	54,727	678	74,511	14,912	116,447	652,485
Mitchell	14,999	2,716	3,835	312	1,245	993	9	1,466	131	2,203	1,347
Montgomery	26,085	5,380	5,934	618	2,088	1,606	15	2,348	246	3,955	9,494
New Hanover	238,852	41,794	46,870	4,803	19,652	13,817	139	19,465	2,838	28,150	56,594
Northampton	16,715	2,957	5,096	340	1,409	1,200	10	1,782	131	3,395	10,064
Person	39,737	8,196	8,542	942	3,172	2,401	23	3,515	375	5,646	14,115
Pitt	175,119	37,244	26,398	4,280	13,606	8,709	102	11,754	2,326	32,930	84,429
Rockingham	92,518	18,702	20,123	2,149	7,426	5,637	54	8,262	883	12,424	27,058
Rowan	151,661	33,377	27,394	3,836	11,796	8,363	89	11,989	1,550	21,559	48,260
Swain	13,916	3,010	2,795	346	1,093	802	8	1,156	140	2,125	5,694
Union	256,452	64,733	35,466	7,439	18,970	12,757	150	18,383	2,730	21,166	84,702
Wake	1,190,275	270,737	159,366	31,112	90,615	58,185	694	81,028	14,339	85,051	510,380
Yancey	18,938	3,356	5,034	386	1,582	1,275	11	1,879	167	2,984	1,636

NORTH DAKOTA

American Lung Association in North Dakota

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Billings	4	0	0	1.3	C	7	3	1	0	4.5	F	6.1	Pass
Burke	5	0	0	1.7	C	13	10	1	0	10.0	F	7.6	Pass
Burleigh	7	0	0	2.3	D	15	12	1	0	11.7	F	8.8	Pass
Cass	3	0	0	1.0	C	15	10	1	0	10.7	F	9.2	Fail
Dunn	4	0	0	1.3	C	14	8	0	1	9.5	F	7.1	Pass
McKenzie	3	0	0	1.0	C	13	6	1	0	8.0	F	INC	INC
Mercer	4	0	0	1.3	C	12	9	0	1	9.3	F	6.6	Pass
Oliver	6	0	0	2.0	C	14	12	0	1	11.5	F	8.0	Pass
Ward	6	0	0	2.0	C	16	9	1	0	10.5	F	7.2	Pass

NORTH DAKOTA

American Lung Association in North Dakota

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
	AT-RISK GROUPS			Lung Diseases							
Billings	1,034	222	261	14	80	48	1	79	10	108	84
Burke	2,134	535	494	35	157	95	1	156	19	192	188
Burleigh	100,012	23,179	18,506	1,508	7,755	4,073	53	6,436	1,184	7,402	13,278
Cass	196,362	43,407	25,873	2,824	15,929	6,943	104	10,384	2,846	18,222	35,045
Dunn	4,019	1,044	786	68	297	165	2	264	39	440	785
McKenzie	14,252	4,547	1,496	296	1,008	445	8	660	167	1,141	3,711
Mercer	8,309	1,938	1,933	126	626	379	4	620	80	663	707
Oliver	1,879	445	492	29	139	89	1	148	16	202	128
Ward	68,332	16,387	10,204	1,066	5,354	2,494	36	3,815	860	4,874	13,023

OHIO

American Lung Association in Ohio

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Allen	4	0	0	1.3	C	3	3	0	0	2.5	D	7.5	Pass
Ashtabula	9	0	0	3.0	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Athens	DNC	DNC	DNC	DNC	DNC	0	1	0	0	0.5	B	6.1	Pass
Belmont	DNC	DNC	DNC	DNC	DNC	0	1	0	0	0.5	B	7.8	Pass
Butler	11	0	0	3.7	F	8	4	0	0	4.7	F	11.2	Fail
Clark	3	0	0	1.0	C	4	3	0	0	2.8	D	8.8	Pass
Clermont	3	0	0	1.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Clinton	5	0	0	1.7	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Cuyahoga	13	2	0	5.3	F	6	3	1	0	4.2	F	12.2	Fail
Delaware	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Fayette	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Franklin	3	0	0	1.0	C	6	3	1	0	4.2	F	9.3	Fail
Geauga	3	0	0	1.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Greene	5	0	0	1.7	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Hamilton	17	2	0	6.7	F	6	2	0	0	3.0	D	10.1	Fail
Harrison	DNC	DNC	DNC	DNC	DNC	INC	INC	INC	INC	INC	INC	INC	INC
Jefferson	2	0	0	0.7	B	2	1	2	0	2.5	D	10.0	Fail
Knox	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lake	16	0	0	5.3	F	1	2	0	0	1.3	C	7.2	Pass
Lawrence	0	0	0	0.0	A	2	2	0	0	1.7	C	7.9	Pass
Licking	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lorain	1	0	0	0.3	B	INC	INC	INC	INC	INC	INC	INC	INC
Lucas	21	0	0	7.0	F	1	1	0	0	0.8	B	9.4	Fail
Madison	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Mahoning	3	0	0	1.0	C	3	2	1	0	2.7	D	INC	INC
Medina	6	0	0	2.0	C	4	2	1	0	3.0	D	7.4	Pass
Miami	5	0	0	1.7	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Montgomery	8	0	0	2.7	D	4	3	0	0	2.8	D	9.0	Pass
Noble	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Portage	6	2	0	3.0	D	INC	INC	INC	INC	INC	INC	INC	INC
Preble	4	0	0	1.3	C	5	2	1	0	3.3	F	8.0	Pass
Scioto	DNC	DNC	DNC	DNC	DNC	4	2	0	0	2.3	D	7.7	Pass
Stark	8	0	0	2.7	D	6	1	2	0	3.8	F	9.4	Fail
Summit	8	0	0	2.7	D	3	2	1	0	2.7	D	8.6	Pass
Trumbull	3	1	0	1.5	C	7	2	1	0	4.0	F	8.7	Pass
Warren	10	0	0	3.3	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Washington	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Wood	4	0	0	1.3	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC

OHIO

American Lung Association in Ohio

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
				AT-RISK GROUPS							
				Lung Diseases							
Allen	100,838	23,604	19,555	1,599	8,523	6,190	62	7,697	1,009	13,724	20,230
Ashtabula	96,845	21,061	19,969	1,426	8,378	6,329	60	7,899	884	16,603	11,620
Athens	62,706	9,037	9,631	612	5,936	3,507	39	4,184	900	13,648	6,701
Belmont	64,918	12,060	14,655	817	5,818	4,439	40	5,580	575	9,327	5,536
Butler	393,043	90,755	64,335	6,147	33,566	22,658	241	27,572	4,412	45,064	96,444
Clark	134,610	30,242	27,727	2,048	11,514	8,638	83	10,799	1,343	19,949	23,908
Clermont	211,972	46,229	40,271	3,131	18,365	13,311	130	16,452	2,162	18,649	17,160
Clinton	41,938	9,432	8,122	639	3,595	2,623	26	3,255	425	5,080	3,269
Cuyahoga	1,233,088	250,704	247,380	16,980	108,355	78,178	755	97,180	13,571	193,220	524,954
Delaware	231,636	56,566	35,858	3,831	19,572	13,520	142	16,353	2,483	11,360	46,454
Fayette	28,817	6,766	5,314	458	2,447	1,780	18	2,197	294	4,064	2,524
Franklin	1,326,063	306,699	179,213	20,773	113,480	69,674	814	82,862	16,622	195,004	548,099
Geauga	95,407	20,964	21,927	1,420	8,198	6,551	59	8,287	824	5,953	5,001
Greene	169,691	34,620	32,428	2,345	14,904	10,433	104	12,898	1,873	15,986	29,039
Hamilton	827,058	188,768	140,997	12,785	70,638	47,714	507	58,368	9,456	109,421	303,975
Harrison	14,159	2,913	3,277	197	1,239	983	9	1,242	130	2,011	819
Jefferson	64,026	12,462	14,672	844	5,666	4,360	39	5,501	639	9,884	6,854
Knox	63,320	14,395	12,635	975	5,394	3,949	39	4,924	647	6,835	3,478
Lake	231,640	44,026	51,878	2,982	20,673	15,836	142	19,895	2,281	23,146	33,500
Lawrence	56,118	11,982	11,163	812	4,890	3,640	34	4,519	569	9,382	3,297
Licking	183,201	41,512	32,774	2,812	15,732	11,192	112	13,748	1,926	17,281	26,211
Lorain	317,910	68,131	65,110	4,615	27,602	20,637	195	25,731	3,162	34,018	74,796
Lucas	425,484	96,339	77,039	6,525	36,432	25,587	261	31,506	4,661	75,810	140,928
Madison	44,602	8,762	7,548	593	3,996	2,755	28	3,345	406	3,714	5,990
Mahoning	225,596	45,617	51,997	3,090	19,749	15,243	138	19,275	2,191	42,602	56,560
Medina	184,042	38,831	37,648	2,630	16,088	12,172	113	15,152	1,775	13,795	13,857
Miami	110,876	25,246	22,034	1,710	9,463	7,016	68	8,735	1,097	10,565	10,496
Montgomery	533,796	117,960	101,018	7,990	45,907	32,498	327	40,221	5,822	79,116	169,376
Noble	14,311	2,747	4,346	186	1,257	1,135	9	1,480	98	1,733	929
Portage	162,665	29,230	30,494	1,980	14,767	10,199	100	12,525	1,910	20,077	20,349
Preble	40,556	8,961	8,429	607	3,494	2,664	25	3,329	386	4,192	1,824
Scioto	71,969	15,499	13,847	1,050	6,248	4,516	44	5,590	728	12,775	5,309
Stark	372,716	79,977	78,127	5,417	32,266	24,141	229	30,210	3,768	45,043	57,178
Summit	535,733	109,966	107,060	7,448	47,054	34,339	328	42,646	5,664	68,166	136,577
Trumbull	200,373	41,176	45,598	2,789	17,497	13,546	123	17,101	1,916	33,696	28,423
Warren	252,148	59,494	41,173	4,030	21,500	15,052	155	18,301	2,573	14,544	43,166
Washington	58,577	11,400	13,486	772	5,185	4,007	36	5,058	572	7,334	3,287
Wood	132,650	26,558	22,544	1,799	11,732	7,686	81	9,362	1,600	12,420	18,011

OKLAHOMA

American Lung Association in Oklahoma

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Adair	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Canadian	12	0	0	4.0	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Carter	INC	INC	INC	INC	INC	1	1	0	0	0.8	B	7.4	Pass
Cleveland	7	0	0	2.3	D	3	0	0	0	1.0	C	9.3	Fail
Comanche	6	0	0	2.0	C	1	0	0	0	0.3	B	7.1	Pass
Creek	6	0	0	2.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Dewey	3	0	0	1.0	C	1	0	0	0	0.3	B	6.9	Pass
Jefferson	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Johnston	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Kay	DNC	DNC	DNC	DNC	DNC	6	1	0	0	2.5	D	9.0	Pass
Kiowa	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Love	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
McClain	15	0	0	5.0	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Mayes	3	0	0	1.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Nowata	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC
Oklahoma	13	0	0	4.3	F	2	0	0	0	0.7	B	9.1	Fail
Osage	11	2	0	4.7	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Ottawa	10	0	0	3.3	F	14	4	0	0	6.7	F	INC	INC
Pittsburg	10	0	0	3.3	F	6	0	0	0	2.0	C	8.2	Pass
Pontotoc	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Sequoyah	1	0	0	0.3	B	1	0	0	0	0.3	B	8.1	Pass
Tulsa	25	5	0	10.8	F	5	1	0	0	2.2	D	8.8	Pass
Washington	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC

OKLAHOMA

American Lung Association in Oklahoma

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
	AT-RISK GROUPS			Lung Diseases							
Adair	19,627	5,270	3,135	516	1,627	1,150	12	1,511	208	4,480	11,842
Canadian	175,829	44,698	24,208	4,380	14,861	9,572	108	12,336	2,165	13,705	52,302
Carter	48,596	12,073	8,324	1,183	4,131	2,914	30	3,860	543	8,208	15,792
Cleveland	301,193	60,379	46,474	5,916	27,236	17,302	185	22,511	3,986	37,151	96,990
Comanche	121,574	28,859	17,249	2,828	10,491	6,577	75	8,513	1,419	21,799	55,117
Creek	73,332	16,997	13,781	1,665	6,369	4,657	45	6,223	780	11,405	19,202
Dewey	4,286	1,141	826	112	355	265	3	358	42	581	847
Jefferson	5,347	1,317	1,151	129	454	352	3	481	51	1,277	1,270
Johnston	10,216	2,365	1,945	232	886	639	6	858	112	1,953	3,397
Kay	43,641	10,799	8,557	1,058	3,703	2,702	27	3,658	459	8,006	12,336
Kiowa	8,398	2,032	1,785	199	718	553	5	754	82	1,795	2,369
Love	10,296	2,447	1,961	240	886	646	6	867	110	1,468	3,334
McClain	47,072	11,636	7,458	1,140	4,016	2,787	29	3,645	534	4,458	11,341
Mayes	39,889	9,330	7,608	914	3,453	2,537	25	3,400	424	6,652	14,808
Nowata	9,438	2,203	1,862	216	818	615	6	826	96	1,628	3,322
Oklahoma	808,866	203,852	119,648	19,974	68,477	44,759	497	58,298	10,001	127,113	382,919
Osage	46,130	9,589	10,132	940	4,121	3,159	28	4,300	457	6,328	17,112
Ottawa	30,287	7,750	5,457	759	2,545	1,814	19	2,428	327	6,322	11,391
Pittsburg	43,479	9,923	8,792	972	3,786	2,799	27	3,787	431	7,603	14,022
Pontotoc	38,396	9,676	6,641	948	3,244	2,258	24	3,005	442	5,238	14,373
Sequoyah	40,291	9,652	7,582	946	3,464	2,559	25	3,423	425	8,866	15,797
Tulsa	682,868	169,744	105,691	16,632	58,065	38,746	420	50,717	8,233	101,475	288,317
Washington	53,706	12,945	10,884	1,268	4,593	3,382	33	4,597	570	7,954	15,802

OREGON

American Lung Association in Oregon

County	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Clackamas	4	1	0	1.8	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Columbia	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Crook	DNC	DNC	DNC	DNC	DNC	8	6	0	0	5.7	F	7.5	Pass
Deschutes	DNC	DNC	DNC	DNC	DNC	INC	INC	INC	INC	INC	INC	INC	INC
Harney	DNC	DNC	DNC	DNC	DNC	8	4	0	0	4.7	F	10.0	Fail
Jackson	3	0	0	1.0	C	5	14	5	0	12.0	F	10.5	Fail
Josephine	DNC	DNC	DNC	DNC	DNC	9	7	4	0	9.2	F	10.2	Fail
Klamath	DNC	DNC	DNC	DNC	DNC	21	25	2	0	20.8	F	12.0	Fail
Lake	DNC	DNC	DNC	DNC	DNC	9	2	0	0	4.0	F	9.1	Fail
Lane	1	0	0	0.3	B	21	29	10	10	36.5	F	14.4	Fail
Marion	4	0	0	1.3	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Multnomah	2	0	0	0.7	B	2	1	0	0	1.2	C	6.7	Pass
Umatilla	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Washington	0	0	0	0.0	A	2	1	0	0	1.2	C	6.6	Pass

OREGON

American Lung Association in Oregon

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Clackamas	423,173	86,933	86,560	6,042	39,990	23,179	177	29,252	3,562	29,176	91,582
Columbia	53,880	10,849	11,260	754	5,122	3,014	23	3,803	429	5,248	7,608
Crook	26,952	5,254	6,951	365	2,566	1,628	11	2,130	199	3,416	3,469
Deschutes	208,513	38,766	45,403	2,694	20,144	11,736	87	14,949	1,776	17,944	30,889
Harney	7,440	1,465	2,027	102	704	455	3	603	51	1,111	1,084
Jackson	220,768	44,562	52,660	3,097	20,824	12,588	92	16,378	1,792	27,404	48,532
Josephine	87,821	16,852	24,339	1,171	8,368	5,446	37	7,219	625	13,041	13,616
Klamath	70,003	15,165	15,989	1,054	6,487	3,887	29	5,034	546	13,321	16,689
Lake	8,293	1,667	2,129	116	784	502	3	656	53	1,317	1,557
Lane	381,181	65,661	81,956	4,563	37,332	20,889	159	26,719	3,537	54,725	78,370
Marion	346,741	80,631	59,193	5,604	31,645	16,914	145	21,011	3,059	47,544	131,988
Multnomah	789,698	136,429	120,183	9,482	77,908	38,833	330	46,890	8,424	99,712	264,489
Umatilla	80,053	19,425	13,339	1,350	7,212	3,840	34	4,762	642	12,500	29,847
Washington	598,865	126,504	91,767	8,792	56,355	28,925	250	35,114	5,746	48,317	233,724

PENNSYLVANIA

American Lung Association in Pennsylvania

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Adams	4	0	0	1.3	C	6	3	1	0	4.2	F	8.7	Pass
Allegheny	6	1	0	2.5	D	26	3	1	0	10.8	F	11.6	Fail
Armstrong	6	0	0	2.0	C	2	2	1	0	2.3	D	8.3	Pass
Beaver	3	0	0	1.0	C	5	0	2	0	3.0	D	8.8	Pass
Berks	13	0	0	4.3	F	2	3	2	0	3.5	F	8.3	Pass
Blair	2	0	0	0.7	B	2	4	1	0	3.3	F	7.9	Pass
Bradford	1	0	0	0.3	B	1	0	0	0	0.3	B	INC	INC
Bucks	16	1	0	5.8	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Cambria	1	0	0	0.3	B	1	3	0	0	1.8	C	8.8	Pass
Centre	2	0	0	0.7	B	2	5	0	0	3.2	D	7.6	Pass
Chester	3	0	0	1.0	C	3	2	2	0	3.3	F	8.1	Pass
Clearfield	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Cumberland	DNC	DNC	DNC	DNC	DNC	5	2	2	0	4.0	F	7.8	Pass
Dauphin	8	0	0	2.7	D	5	3	2	0	4.5	F	9.8	Fail
Delaware	7	0	0	2.3	D	3	2	2	0	3.3	F	8.5	Pass
Elk	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Erie	3	0	0	1.0	C	1	3	0	0	1.8	C	INC	INC
Fayette	2	0	0	0.7	B	1	0	0	0	0.3	B	INC	INC
Franklin	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Greene	2	0	0	0.7	B	1	0	0	0	0.3	B	INC	INC
Indiana	4	0	0	1.3	C	4	2	1	0	3.0	D	7.3	Pass
Lackawanna	3	0	0	1.0	C	2	4	1	0	3.3	F	7.5	Pass
Lancaster	3	0	0	1.0	C	15	4	1	1	8.5	F	9.5	Fail
Lawrence	3	0	0	1.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lebanon	4	0	0	1.3	C	4	3	2	0	4.2	F	8.4	Pass
Lehigh	1	0	0	0.3	B	0	5	0	1	3.3	F	INC	INC
Luzerne	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Lycoming	3	0	0	1.0	C	1	0	0	0	0.3	B	INC	INC
Mercer	5	0	0	1.7	C	3	2	0	0	2.0	C	INC	INC
Monroe	3	0	0	1.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Montgomery	6	0	0	2.0	C	2	3	2	0	3.5	F	8.1	Pass
Northampton	4	1	0	1.8	C	3	4	0	1	3.8	F	8.3	Pass
Philadelphia	16	2	0	6.3	F	7	4	1	1	5.8	F	10.0	Fail
Somerset	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Susquehanna	DNC	DNC	DNC	DNC	DNC	1	0	0	0	0.3	B	INC	INC
Tioga	0	0	0	0.0	A	1	0	0	0	0.3	B	INC	INC
Washington	3	0	0	1.0	C	6	1	2	0	3.8	F	9.0	Pass
Westmoreland	1	0	0	0.3	B	1	0	0	0	0.3	B	INC	INC
Wyoming	DNC	DNC	DNC	DNC	DNC	1	0	0	0	0.3	B	INC	INC
York	2	0	0	0.7	B	4	3	1	0	3.5	F	9.3	Fail

PENNSYLVANIA

American Lung Association in Pennsylvania

				AT-RISK GROUPS							
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Adams	106,748	20,487	23,904	2,032	8,760	6,751	57	9,899	947	9,485	12,911
Allegheny	1,224,825	226,158	254,947	22,429	102,122	74,462	652	106,710	12,505	137,660	284,276
Armstrong	64,074	12,053	15,796	1,195	5,249	4,237	34	6,366	525	7,512	2,339
Beaver	165,631	31,791	38,555	3,153	13,564	10,601	88	15,704	1,451	17,014	20,018
Berks	432,821	94,177	79,873	9,340	34,671	25,150	231	35,348	4,199	50,100	142,390
Blair	120,273	24,008	26,630	2,381	9,782	7,497	64	10,985	1,086	16,835	7,684
Bradford	59,695	13,194	13,704	1,309	4,706	3,719	32	5,543	493	8,189	2,809
Bucks	645,984	127,508	137,710	12,646	52,686	40,506	344	58,766	5,751	42,929	120,302
Cambria	130,668	24,985	32,112	2,478	10,683	8,497	70	12,765	1,112	16,576	11,855
Centre	157,795	22,922	25,891	2,273	13,997	9,032	85	11,965	1,807	23,648	24,506
Chester	549,784	119,592	101,244	11,861	44,009	32,157	293	45,198	5,291	33,085	127,918
Clearfield	77,090	14,170	17,430	1,405	6,381	4,974	41	7,296	616	11,254	4,742
Cumberland	270,738	55,072	52,515	5,462	22,084	15,956	144	22,590	2,700	21,063	52,086
Dauphin	289,234	64,271	53,618	6,374	23,040	16,650	154	23,453	2,870	36,562	112,333
Delaware	576,720	126,232	103,693	12,519	46,206	33,012	307	46,081	5,905	60,085	213,940
Elk	30,198	5,762	7,416	571	2,464	2,004	16	3,010	232	2,988	968
Erie	267,571	54,886	54,370	5,443	21,722	16,017	143	22,975	2,568	36,783	45,838
Fayette	123,915	23,360	28,839	2,317	10,187	7,991	66	11,825	1,055	22,787	11,147
Franklin	157,854	34,496	32,571	3,421	12,557	9,513	84	13,773	1,441	12,729	23,004
Greene	34,357	6,417	7,390	636	2,844	2,154	18	3,119	291	4,880	2,436
Indiana	83,094	14,854	17,482	1,473	6,981	5,067	44	7,267	850	12,709	5,967
Lackawanna	216,123	44,107	45,269	4,374	17,530	13,150	115	19,014	2,041	33,535	41,988
Lancaster	558,589	127,940	112,749	12,689	43,953	32,546	298	46,971	5,306	46,567	111,949
Lawrence	84,472	16,745	20,172	1,661	6,853	5,415	45	8,092	729	11,209	8,024
Lebanon	144,252	32,290	29,944	3,202	11,399	8,612	77	12,506	1,316	12,219	30,659
Lehigh	377,754	83,731	68,317	8,304	30,139	21,645	201	30,293	3,765	44,748	153,783
Luzerne	327,388	66,543	66,598	6,599	26,606	19,850	175	28,483	3,013	51,977	85,350
Lycoming	112,724	22,853	23,837	2,266	9,160	6,859	60	9,936	1,063	13,762	12,088
Mercer	108,503	20,454	25,728	2,029	8,919	6,994	58	10,399	939	12,920	11,215
Monroe	166,053	31,246	33,856	3,099	13,728	10,401	89	14,878	1,510	15,684	63,434
Montgomery	868,742	183,193	168,332	18,168	70,048	51,589	463	73,278	8,412	58,209	238,410
Northampton	319,091	60,437	66,409	5,994	26,394	19,606	170	28,164	3,064	29,639	87,359
Philadelphia	1,550,542	324,477	235,398	32,180	127,049	83,258	824	110,525	18,640	304,389	1,023,238
Somerset	72,197	12,995	17,700	1,289	5,982	4,779	39	7,149	548	8,149	4,095
Susquehanna	38,109	7,103	9,914	704	3,120	2,565	20	3,906	292	4,509	1,969
Tioga	40,840	7,958	9,791	789	3,327	2,630	22	3,930	350	5,091	1,821
Washington	210,232	41,042	47,424	4,070	17,167	13,310	112	19,576	1,869	19,620	18,860
Westmoreland	351,163	63,299	87,503	6,278	29,070	23,319	187	35,039	2,941	37,249	25,921
Wyoming	25,902	4,943	6,013	490	2,124	1,660	14	2,456	226	3,417	1,459
York	464,640	100,940	89,418	10,011	37,141	27,491	248	39,073	4,334	38,942	93,615

PUERTO RICO

American Lung Association in Puerto Rico

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Adjuntas	DNC	DNC	DNC	DNC	DNC	INC	INC	INC	INC	INC	INC	INC	INC
Bayamón	0	0	0	0.0	A	0	0	0	0	0.0	A	6.7	Pass
Caguas	DNC	DNC	DNC	DNC	DNC	0	0	0	0	0.0	A	INC	INC
Cataño	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Fajardo	DNC	DNC	DNC	DNC	DNC	0	0	0	0	0.0	A	INC	INC
Guayama	DNC	DNC	DNC	DNC	DNC	INC	INC	INC	INC	INC	INC	INC	INC
Guaynabo	DNC	DNC	DNC	DNC	DNC	0	0	0	0	0.0	A	INC	INC
Mayagüez	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Ponce	DNC	DNC	DNC	DNC	DNC	0	0	0	0	0.0	A	INC	INC

PUERTO RICO

American Lung Association in Puerto Rico

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Adjuntas	17,900	2,945	4,204	472	1,801	786	3	1,584	107	11,107	56
Bayamón	180,835	27,017	45,194	4,333	18,414	8,017	27	16,077	950	61,516	1,641
Caguas	124,608	19,031	28,789	3,052	12,538	5,441	18	10,848	727	46,022	1,407
Cataño	22,108	3,553	5,593	570	2,209	966	3	1,954	119	10,066	218
Fajardo	31,166	5,042	7,555	809	3,130	1,367	5	2,762	178	13,114	188
Guayama	34,765	5,603	7,415	899	3,497	1,491	5	2,858	193	16,414	174
Guaynabo	89,039	11,901	23,596	1,909	9,335	4,096	13	8,353	485	21,393	889
Mayagüez	69,798	10,611	18,873	1,702	7,394	3,193	10	6,274	401	37,469	534
Ponce	130,251	21,642	33,887	3,471	13,194	5,776	19	11,716	689	66,952	699

RHODE ISLAND

American Lung Association in Rhode Island

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Kent	4	0	0	1.3	C	3	0	0	0	1.0	C	4.9	Pass
Providence	7	0	0	2.3	D	3	0	0	0	1.0	C	7.7	Pass
Washington	12	1	0	4.5	F	4	0	0	0	1.3	C	5.1	Pass

RHODE ISLAND

American Lung Association in Rhode Island

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Kent	171,278	30,557	35,957	2,608	17,359	9,758	96	12,730	1,423	15,274	26,476
Providence	660,615	131,950	111,084	11,260	65,594	33,297	369	42,422	6,178	80,793	279,234
Washington	129,982	19,503	31,550	1,664	13,506	7,879	73	10,505	1,080	11,250	13,150

SOUTH CAROLINA

American Lung Association in South Carolina

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Aiken	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Anderson	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Berkeley	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Charleston	0	0	0	0.0	A	0	0	0	0	0.0	A	INC	INC
Chesterfield	0	0	0	0.0	A	1	0	0	0	0.3	B	6.8	Pass
Darlington	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Edgefield	0	0	0	0.0	A	0	0	0	0	0.0	A	8.1	Pass
Florence	DNC	DNC	DNC	DNC	DNC	1	0	0	0	0.3	B	7.7	Pass
Greenville	1	0	0	0.3	B	2	0	0	0	0.7	B	8.4	Pass
Horry	0	0	0	0.0	A	INC	INC	INC	INC	INC	INC	INC	INC
Lexington	DNC	DNC	DNC	DNC	DNC	1	0	0	0	0.3	B	INC	INC
Richland	4	0	0	1.3	C	2	0	0	0	0.7	B	7.4	Pass
Spartanburg	3	0	0	1.0	C	2	0	0	0	0.7	B	8.4	Pass
York	3	0	0	1.0	C	1	0	0	0	0.3	B	7.5	Pass

SOUTH CAROLINA

American Lung Association in South Carolina

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
	AT-RISK GROUPS			Lung Diseases							
Aiken	177,130	38,104	37,638	2,569	12,298	10,927	93	14,842	1,780	24,516	63,330
Anderson	213,076	47,938	39,704	3,232	14,627	12,520	112	16,816	2,229	28,239	51,554
Berkeley	255,217	59,484	38,856	4,010	17,188	13,676	135	17,952	2,852	24,616	98,568
Charleston	424,367	81,669	78,368	5,506	30,062	24,913	224	33,140	4,914	45,722	143,272
Chesterfield	44,031	9,792	8,639	660	3,046	2,668	23	3,607	430	8,818	18,301
Darlington	62,416	13,895	12,541	937	4,300	3,771	33	5,103	657	13,658	29,049
Edgefield	27,607	4,567	5,677	308	2,038	1,755	15	2,361	245	4,264	11,485
Florence	137,214	32,289	25,047	2,177	9,271	7,886	72	10,573	1,499	25,245	69,316
Greenville	558,036	127,137	95,536	8,571	37,960	31,389	295	41,718	6,179	61,870	188,663
Horry	397,478	66,411	107,430	4,477	29,517	28,340	210	39,315	3,589	50,083	91,047
Lexington	309,528	70,740	54,364	4,769	21,142	17,778	163	23,748	3,285	34,255	90,124
Richland	425,138	91,073	61,710	6,140	29,096	22,332	224	28,964	5,400	63,343	256,494
Spartanburg	356,698	83,262	58,315	5,613	24,100	19,712	188	26,106	3,923	48,674	121,794
York	298,320	69,973	47,392	4,717	20,231	16,570	158	21,949	3,303	28,093	98,193

SOUTH DAKOTA

American Lung Association in South Dakota

County	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023 24-Hour						Annual	
	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Brookings	6	0	0	2.0	C	5	3	1	0	3.8	F	5.6	Pass
Brown	DNC	DNC	DNC	DNC	DNC	7	3	1	0	4.5	F	6.0	Pass
Clay	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC
Codington	11	0	0	3.7	F	6	3	1	0	4.2	F	8.5	Pass
Custer	1	1	0	0.8	B	6	2	1	0	3.7	F	4.6	Pass
Hughes	DNC	DNC	DNC	DNC	DNC	3	4	2	0	4.3	F	3.6	Pass
Jackson	1	0	0	0.3	B	2	5	2	0	4.5	F	5.6	Pass
Meade	8	0	0	2.7	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Minnehaha	23	1	0	8.2	F	4	5	0	0	3.8	F	INC	INC
Pennington	DNC	DNC	DNC	DNC	DNC	6	4	1	0	4.7	F	7.8	Pass
Union	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC

SOUTH DAKOTA

American Lung Association in South Dakota

County	Total Population	Under 18	65 & Over	Lung Diseases: Pediatric Asthma	Lung Diseases: Adult Asthma	Lung Diseases: COPD	Lung Diseases: Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
	AT-RISK GROUPS										
Brookings	35,980	7,467	5,048	519	2,544	1,447	19	2,066	553	3,659	4,554
Brown	37,733	8,849	7,082	615	2,849	1,805	20	2,611	472	3,680	5,663
Clay	15,431	2,668	1,988	185	1,107	603	8	857	286	2,266	2,113
Codington	28,971	6,533	5,890	454	2,248	1,462	15	2,118	335	3,243	2,678
Custer	9,117	1,267	3,161	88	843	663	5	967	76	763	956
Hughes	17,624	4,288	3,329	298	1,338	849	9	1,231	217	1,455	3,458
Jackson	2,776	977	379	68	176	105	1	151	30	814	1,737
Meade	30,954	6,408	5,434	445	2,370	1,445	16	2,085	392	2,363	4,295
Minnehaha	206,930	52,235	29,185	3,628	15,011	8,541	107	12,320	2,704	19,711	43,173
Pennington	115,903	25,374	23,722	1,762	9,071	5,893	60	8,539	1,330	13,052	24,087
Union	17,183	4,082	3,394	283	1,326	854	9	1,238	198	970	1,822

TENNESSEE

American Lung Association in Tennessee

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Anderson	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Blount	6	0	0	2.0	C	5	0	0	0	1.7	C	7.4	Pass
Claiborne	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Davidson	6	0	0	2.0	C	3	0	0	0	1.0	C	9.6	Fail
DeKalb	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Dyer	DNC	DNC	DNC	DNC	DNC	2	0	0	0	0.7	B	7.7	Pass
Hamilton	3	0	0	1.0	C	2	0	0	0	0.7	B	8.4	Pass
Jefferson	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Knox	0	0	0	0.0	A	6	0	0	0	2.0	C	9.1	Fail
Lawrence	DNC	DNC	DNC	DNC	DNC	0	0	0	0	0.0	A	6.8	Pass
Loudon	0	0	0	0.0	A	1	0	0	0	0.3	B	6.9	Pass
McMinn	DNC	DNC	DNC	DNC	DNC	2	0	0	0	0.7	B	7.8	Pass
Madison	DNC	DNC	DNC	DNC	DNC	2	0	0	0	0.7	B	8.1	Pass
Maury	DNC	DNC	DNC	DNC	DNC	1	0	0	0	0.3	B	7.3	Pass
Montgomery	DNC	DNC	DNC	DNC	DNC	2	0	0	0	0.7	B	7.2	Pass
Putnam	DNC	DNC	DNC	DNC	DNC	1	0	0	0	0.3	B	7.2	Pass
Roane	DNC	DNC	DNC	DNC	DNC	2	1	0	0	1.2	C	7.3	Pass
Sevier	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Shelby	21	2	0	8.0	F	0	0	0	0	0.0	A	8.9	Pass
Sullivan	0	0	0	0.0	A	2	0	0	0	0.7	B	6.7	Pass
Sumner	9	0	0	3.0	D	1	0	0	0	0.3	B	7.6	Pass
Williamson	4	0	0	1.3	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Wilson	5	0	0	1.7	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC

TENNESSEE

American Lung Association in Tennessee

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Anderson	80,234	16,840	16,165	1,640	6,951	6,721	50	7,951	845	11,386	10,042
Blount	141,456	27,869	30,401	2,714	12,452	12,332	88	14,716	1,454	13,528	15,096
Claiborne	32,654	6,230	6,721	607	2,898	2,807	20	3,321	351	5,818	1,861
Davidson	712,334	145,337	95,020	14,155	62,304	50,749	442	55,736	10,109	85,007	323,504
DeKalb	21,225	4,568	4,034	445	1,829	1,773	13	2,086	218	3,408	2,703
Dyer	36,498	8,805	6,521	858	3,040	2,870	23	3,354	402	6,368	8,196
Hamilton	379,864	80,074	71,134	7,799	32,876	30,583	236	35,690	4,414	47,922	115,769
Jefferson	57,838	11,090	12,105	1,080	5,130	5,080	36	6,040	591	7,279	5,388
Knox	500,669	104,121	82,873	10,141	43,533	38,648	311	44,146	6,205	67,213	99,972
Lawrence	46,114	11,562	8,170	1,126	3,794	3,608	29	4,223	478	6,770	3,453
Loudon	60,591	11,318	17,024	1,102	5,378	5,802	38	7,210	517	6,316	8,756
McMinn	55,678	11,849	11,441	1,154	4,806	4,713	35	5,601	581	8,141	6,573
Madison	99,193	22,186	18,285	2,161	8,447	7,895	61	9,220	1,137	17,629	46,064
Maury	110,760	25,217	19,670	2,456	9,387	8,691	69	10,101	1,257	11,685	25,548
Montgomery	239,872	63,729	24,720	6,207	19,384	15,175	149	16,249	3,160	29,603	97,042
Putnam	83,844	17,394	14,021	1,694	7,291	6,432	52	7,346	995	13,884	12,043
Roane	56,096	10,539	13,363	1,026	4,989	5,119	35	6,201	543	7,448	4,684
Sevier	99,415	20,634	20,860	2,010	8,639	8,554	62	10,195	1,005	12,045	14,174
Shelby	910,042	231,052	139,302	22,503	74,584	66,442	563	75,799	10,988	163,297	609,321
Sullivan	162,135	30,752	36,430	2,995	14,394	14,395	101	17,271	1,656	21,649	12,932
Sumner	207,994	47,358	35,517	4,612	17,649	16,416	129	19,013	2,336	18,409	41,623
Williamson	264,460	67,157	40,744	6,541	21,724	20,417	164	23,528	2,877	12,845	46,754
Wilson	163,674	37,990	26,449	3,700	13,817	12,694	102	14,598	1,855	10,673	32,304

TEXAS

American Lung Association in Texas

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Atascosa	DNC	DNC	DNC	DNC	DNC	2	0	0	0	0.7	B	9.0	Pass
Bell	12	0	0	4.0	F	0	0	0	0	0.0	A	7.3	Pass
Bexar	32	0	0	10.7	F	2	0	0	0	0.7	B	8.9	Pass
Bowie	DNC	DNC	DNC	DNC	DNC	2	0	0	0	0.7	B	10.3	Fail
Brazoria	35	2	0	12.7	F	INC	INC	INC	INC	INC	INC	INC	INC
Brazos	DNC	DNC	DNC	DNC	DNC	0	0	0	0	0.0	A	7.9	Pass
Brewster	1	0	0	0.3	B	1	0	0	0	0.3	B	INC	INC
Cameron	1	0	0	0.3	B	7	0	0	0	2.3	D	10.9	Fail
Collin	33	3	0	12.5	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Culberson	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Dallas	45	2	0	16.0	F	1	0	0	0	0.3	B	9.9	Fail
Denton	63	9	0	25.5	F	1	0	0	0	0.3	B	7.7	Pass
Ector	DNC	DNC	DNC	DNC	DNC	0	0	0	0	0.0	A	7.3	Pass
Ellis	3	0	0	1.0	C	INC	INC	INC	INC	INC	INC	INC	INC
El Paso	42	0	0	14.0	F	1	0	0	0	0.3	B	9.0	Pass
Galveston	27	3	0	10.5	F	1	0	0	0	0.3	B	8.3	Pass
Gregg	2	1	0	1.2	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Harris	71	21	1	34.8	F	4	0	0	0	1.3	C	12.5	Fail
Harrison	2	0	0	0.7	B	3	2	0	0	2.0	C	9.5	Fail
Hidalgo	1	0	0	0.3	B	4	0	0	0	1.3	C	9.6	Fail
Hood	23	0	0	7.7	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Hunt	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Jefferson	14	0	0	4.7	F	2	1	0	0	1.2	C	8.8	Pass
Johnson	27	1	0	9.5	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Kaufman	11	0	0	3.7	F	INC	INC	INC	INC	INC	INC	INC	INC
Kleberg	DNC	DNC	DNC	DNC	DNC	5	0	0	0	1.7	C	9.9	Fail
Lubbock	DNC	DNC	DNC	DNC	DNC	2	1	0	0	1.2	C	5.7	Pass
McLennan	7	0	0	2.3	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Maverick	DNC	DNC	DNC	DNC	DNC	2	0	0	0	0.7	B	7.9	Pass
Montgomery	16	1	0	5.8	F	1	0	0	0	0.3	B	INC	INC
Navarro	1	0	0	0.3	B	INC	INC	INC	INC	INC	INC	INC	INC
Nueces	4	0	0	1.3	C	1	0	0	0	0.3	B	8.4	Pass
Orange	2	0	0	0.7	B	1	0	0	0	0.3	B	8.3	Pass
Parker	22	0	0	7.3	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Polk	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Potter	DNC	DNC	DNC	DNC	DNC	3	0	0	0	1.0	C	6.0	Pass
Randall	8	0	0	2.7	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Rockwall	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Smith	10	0	0	3.3	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Tarrant	52	7	1	21.5	F	3	0	0	0	1.0	C	9.6	Fail
Travis	17	0	0	5.7	F	2	0	0	0	0.7	B	9.6	Fail
Victoria	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Webb	3	0	0	1.0	C	3	0	0	0	1.0	C	9.7	Fail

TEXAS

American Lung Association in Texas

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
	AT-RISK GROUPS			Lung Diseases							
Atascosa	51,784	13,776	7,812	1,037	3,253	2,010	22	3,092	602	9,468	35,721
Bell	393,193	107,999	47,818	8,131	23,963	13,510	168	20,266	5,052	44,369	224,642
Bexar	2,087,679	510,639	273,263	38,446	133,156	76,581	891	115,628	27,102	301,255	1,531,649
Bowie	91,687	21,746	16,221	1,637	6,025	3,887	39	6,033	1,014	12,857	35,400
Brazoria	398,938	101,544	52,042	7,645	25,285	14,841	170	22,584	4,909	36,476	233,478
Brazos	244,703	49,477	26,002	3,725	16,018	8,043	105	11,601	3,849	52,926	112,090
Brewster	9,513	1,607	2,292	121	688	481	4	758	107	1,233	4,699
Cameron	426,710	120,413	61,905	9,066	26,095	15,878	182	24,302	4,992	99,161	388,270
Collin	1,195,359	291,387	142,320	21,939	76,750	43,964	510	66,627	15,442	75,716	598,755
Culberson	2,196	521	433	39	145	98	1	153	21	448	1,662
Dallas	2,606,358	645,638	317,636	48,610	165,385	93,581	1,112	140,880	34,226	354,670	1,913,958
Denton	1,007,703	231,932	120,688	17,462	65,705	37,306	430	56,368	13,452	60,723	474,566
Ector	164,494	50,301	16,473	3,787	9,547	5,152	70	7,649	1,992	18,966	118,317
Ellis	222,829	58,582	29,218	4,411	13,983	8,263	95	12,597	2,753	16,224	107,228
El Paso	869,880	223,607	117,006	16,835	54,651	31,851	371	48,230	10,763	157,986	773,227
Galveston	361,744	84,684	58,751	6,376	23,830	14,998	154	23,194	4,295	41,008	163,516
Gregg	126,243	32,477	20,557	2,445	8,030	5,041	54	7,771	1,489	19,723	56,407
Harris	4,835,125	1,239,210	586,125	93,301	303,648	172,540	2,063	260,118	62,795	764,979	3,529,941
Harrison	70,895	17,004	12,705	1,280	4,649	3,021	30	4,696	821	11,735	27,372
Hidalgo	898,471	274,020	106,589	20,631	52,661	30,095	383	45,359	11,031	239,489	843,534
Hood	67,774	13,788	17,530	1,038	4,772	3,547	29	5,658	657	5,455	12,522
Hunt	113,347	27,979	17,498	2,107	7,305	4,506	48	6,929	1,360	13,951	39,448
Jefferson	251,496	61,829	40,050	4,655	16,239	10,102	108	15,553	2,763	47,706	159,577
Johnson	202,906	52,074	28,653	3,921	12,866	7,747	87	11,852	2,406	19,799	72,333
Kaufman	185,690	53,451	19,347	4,024	11,107	6,091	79	9,099	2,441	17,588	99,079
Kleberg	30,069	7,202	4,149	542	1,910	1,077	13	1,607	409	6,341	23,761
Lubbock	320,940	74,957	43,685	5,644	20,628	11,708	137	17,552	4,432	52,974	154,171
McLennan	268,583	64,148	41,797	4,830	17,352	10,487	114	15,995	3,458	43,162	121,464
Maverick	57,762	17,819	6,891	1,342	3,371	1,934	25	2,918	681	13,047	56,091
Montgomery	711,354	183,341	99,841	13,804	45,120	27,259	303	41,777	8,565	71,419	292,967
Navarro	55,635	14,873	9,263	1,120	3,511	2,252	24	3,493	619	8,526	27,181
Nueces	352,289	83,141	57,765	6,260	23,031	14,359	150	22,105	4,251	59,695	247,875
Orange	85,722	21,966	14,023	1,654	5,482	3,477	37	5,381	978	12,295	19,106
Parker	173,494	42,478	28,026	3,198	11,303	7,179	74	11,134	1,952	14,141	35,352
Polk	54,186	11,127	10,265	838	3,757	2,509	23	3,938	489	9,090	15,518
Potter	114,647	30,535	16,643	2,299	7,160	4,328	49	6,615	1,306	19,265	65,549
Randall	148,255	35,123	23,864	2,644	9,651	5,950	63	9,129	1,836	12,644	49,325
Rockwall	131,307	34,701	16,728	2,613	8,237	4,861	56	7,417	1,591	6,600	49,741
Smith	245,209	58,935	43,372	4,437	16,008	10,279	104	15,919	2,942	31,655	102,942
Tarrant	2,182,947	547,594	276,400	41,229	138,502	79,901	930	120,970	28,337	236,391	1,262,658
Travis	1,334,961	263,112	152,219	19,810	89,634	48,279	572	71,667	19,125	133,858	695,488
Victoria	91,664	22,941	16,078	1,727	5,901	3,787	39	5,862	1,070	12,747	52,154
Webb	269,148	83,126	28,470	6,259	15,642	8,679	115	12,998	3,282	59,745	258,642

UTAH

American Lung Association in Utah

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Box Elder	4	0	0	1.3	C	INC	INC	INC	INC	INC	INC	INC	INC
Cache	2	1	0	1.2	C	18	5	0	0	8.5	F	7.9	Pass
Carbon	4	0	0	1.3	C	0	0	0	0	0.0	A	INC	INC
Davis	37	2	0	13.3	F	13	0	0	0	4.3	F	7.3	Pass
Duchesne	28	10	1	15.0	F	14	1	0	0	5.2	F	7.0	Pass
Garfield	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Grand	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC	INC
Iron	2	0	0	0.7	B	2	1	0	0	1.2	C	5.7	Pass
Salt Lake	65	8	0	25.7	F	19	4	0	0	8.3	F	9.3	Fail
San Juan	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Tooele	12	0	0	4.0	F	10	2	0	0	4.3	F	6.4	Pass
Uintah	39	19	3	24.5	F	4	1	0	0	1.8	C	6.3	Pass
Utah	18	0	0	6.0	F	11	0	0	0	3.7	F	7.0	Pass
Washington	1	1	0	0.8	B	1	1	0	0	0.8	B	5.1	Pass
Weber	17	0	0	5.7	F	10	0	0	0	3.3	F	6.7	Pass

UTAH

American Lung Association in Utah

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
	AT-RISK GROUPS			Lung Diseases							
Box Elder	62,684	18,839	8,255	1,161	4,839	1,687	15	2,884	738	5,272	8,739
Cache	142,393	41,019	14,682	2,528	11,263	3,522	35	5,662	2,039	14,667	25,297
Carbon	20,609	5,180	4,021	319	1,688	647	5	1,197	237	2,853	3,600
Davis	373,207	109,915	42,481	6,774	29,155	9,778	92	16,136	4,736	22,191	72,172
Duchesne	20,477	6,472	2,818	399	1,543	549	5	954	232	2,513	3,020
Garfield	5,314	1,177	1,262	73	450	182	1	350	53	521	703
Grand	9,706	1,984	2,027	122	845	324	2	601	118	1,018	2,150
Iron	64,211	17,084	9,040	1,053	5,204	1,773	16	3,045	851	7,283	10,506
Salt Lake	1,185,813	292,797	146,590	18,045	98,862	33,184	291	54,967	15,875	110,632	382,865
San Juan	14,358	3,991	2,268	246	1,139	420	4	743	162	2,651	7,703
Tooele	82,051	25,121	7,727	1,548	6,322	2,059	20	3,276	1,056	5,573	17,782
Uintah	37,747	11,500	4,783	709	2,899	1,002	9	1,700	456	4,165	6,947
Utah	719,174	223,925	58,010	13,801	55,200	16,620	177	25,543	10,168	63,310	154,280
Washington	202,452	48,734	45,347	3,003	16,757	6,603	50	12,628	2,233	21,205	36,606
Weber	271,926	70,898	34,556	4,369	22,232	7,566	67	12,664	3,499	22,794	69,128

VERMONT

American Lung Association in Vermont

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Bennington	1	0	0	0.3	B	6	1	0	0	2.5	D	5.4	Pass
Chittenden	1	0	0	0.3	B	5	1	0	0	2.2	D	6.4	Pass
Rutland	0	0	0	0.0	A	3	0	0	0	1.0	C	6.7	Pass

VERMONT

American Lung Association in Vermont

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Bennington	37,183	6,821	9,402	522	3,434	2,094	20	2,570	254	4,272	2,823
Chittenden	169,481	28,587	29,744	2,190	15,811	7,991	89	9,285	1,607	12,459	22,670
Rutland	60,271	10,337	15,271	792	5,643	3,410	32	4,179	408	6,900	3,365

VIRGINIA

American Lung Association in Virginia

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Albemarle	0	0	0	0.0	A	4	2	0	0	2.3	D	7.1	Pass
Arlington	7	0	0	2.3	D	0	2	0	0	1.0	C	7.9	Pass
Caroline	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Charles City	0	0	0	0.0	A	3	0	0	0	1.0	C	6.7	Pass
Chesterfield	1	0	0	0.3	B	1	0	0	0	0.3	B	6.9	Pass
Fairfax	7	0	0	2.3	D	5	2	1	0	3.3	F	8.5	Pass
Fauquier	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Frederick	2	0	0	0.7	B	4	3	0	0	2.8	D	7.8	Pass
Giles	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Hanover	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Henrico	1	0	0	0.3	B	4	1	0	0	1.8	C	7.6	Pass
Loudoun	5	0	0	1.7	C	1	2	0	0	1.3	C	7.3	Pass
Madison	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Prince Edward	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Prince William	4	0	0	1.3	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Roanoke	0	0	0	0.0	A	4	1	0	0	1.8	C	7.1	Pass
Rockbridge	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Rockingham	1	0	0	0.3	B	2	1	0	0	1.2	C	7.4	Pass
Stafford	2	1	0	1.2	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Wythe	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Bristol City	DNC	DNC	DNC	DNC	DNC	2	0	0	0	0.7	B	7.3	Pass
Hampton City	0	0	0	0.0	A	1	1	0	0	0.8	B	6.9	Pass
Lynchburg City	DNC	DNC	DNC	DNC	DNC	2	0	0	0	0.7	B	6.7	Pass
Norfolk City	DNC	DNC	DNC	DNC	DNC	0	0	0	0	0.0	A	7.1	Pass
Richmond City	DNC	DNC	DNC	DNC	DNC	3	2	0	0	2.0	C	8.1	Pass
Salem City	DNC	DNC	DNC	DNC	DNC	1	0	0	0	0.3	B	7.2	Pass
Suffolk City	2	0	0	0.7	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Virginia Beach City	DNC	DNC	DNC	DNC	DNC	0	1	0	0	0.5	B	7.3	Pass

VIRGINIA

American Lung Association in Virginia

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Albemarle	115,676	22,094	24,602	1,737	9,599	6,737	56	9,550	1,250	8,610	29,423
Arlington	234,162	42,055	29,077	3,306	19,160	11,534	114	14,865	3,110	16,535	95,152
Caroline	32,640	7,436	5,673	585	2,583	1,764	16	2,452	320	2,993	12,649
Charles City	6,610	953	1,809	75	597	461	3	681	51	748	3,589
Chesterfield	383,876	90,352	63,434	7,103	30,001	20,224	186	27,907	4,077	26,042	166,304
Fairfax	1,141,878	257,792	177,855	20,266	90,143	59,773	556	81,609	12,135	69,309	597,071
Fauquier	75,165	17,416	13,440	1,369	5,953	4,144	37	5,811	703	4,570	18,891
Frederick	95,994	21,439	18,557	1,685	7,686	5,406	47	7,642	908	7,040	21,587
Giles	16,457	3,226	3,654	254	1,377	1,008	8	1,453	146	1,835	967
Hanover	114,148	24,439	22,514	1,921	9,272	6,570	56	9,315	1,074	5,891	21,006
Henrico	334,760	72,241	58,689	5,679	26,828	18,172	162	25,172	3,636	30,898	166,980
Loudoun	436,347	113,954	49,711	8,958	32,684	20,636	213	27,217	4,772	17,860	212,530
Madison	14,128	2,777	3,356	218	1,185	883	7	1,286	126	1,409	2,301
Prince Edward	22,049	3,517	3,788	276	1,858	1,183	11	1,590	260	4,430	8,696
Prince William	489,640	128,216	57,805	10,079	36,545	23,008	239	30,361	5,293	32,529	302,454
Roanoke	97,026	18,712	21,875	1,471	8,122	5,906	47	8,505	936	6,804	16,521
Rockbridge	22,358	3,670	6,320	289	1,965	1,525	11	2,269	185	2,480	2,032
Rockingham	86,568	19,113	17,765	1,503	6,956	4,944	42	7,040	840	8,476	13,306
Stafford	165,428	43,026	19,491	3,382	12,368	7,769	81	10,240	1,756	8,608	77,799
Wythe	28,104	5,454	6,375	429	2,360	1,736	14	2,510	251	3,757	1,937
Bristol City	16,807	3,356	3,797	264	1,394	1,015	8	1,463	159	3,601	2,238
Hampton City	137,098	29,512	23,421	2,320	10,916	7,235	66	9,922	1,541	17,827	88,616
Lynchburg City	79,535	15,519	11,538	1,220	6,359	3,872	38	5,066	1,102	13,198	30,319
Norfolk City	230,930	46,629	31,305	3,666	18,370	11,201	113	14,613	2,750	38,185	134,075
Richmond City	229,247	39,809	33,293	3,129	18,916	11,646	111	15,291	3,147	38,475	130,899
Salem City	25,600	4,999	5,170	393	2,112	1,470	12	2,071	274	2,459	4,634
Suffolk City	100,659	23,582	15,699	1,854	7,856	5,213	49	7,124	1,058	11,033	53,990
Virginia Beach City	453,649	98,433	74,911	7,738	36,116	23,941	220	32,775	4,919	38,630	183,519

WASHINGTON

American Lung Association in Washington

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Benton	3	0	0	1.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Clallam	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Clark	0	1	0	0.5	B	4	1	0	0	1.8	C	6.6	Pass
Columbia	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
King	12	2	0	5.0	F	10	2	0	0	4.3	F	8.3	Pass
Kitsap	DNC	DNC	DNC	DNC	DNC	5	0	0	0	1.7	C	5.5	Pass
Kittitas	DNC	DNC	DNC	DNC	DNC	5	3	2	0	4.5	F	6.6	Pass
Okanogan	DNC	DNC	DNC	DNC	DNC	18	8	5	0	13.3	F	12.3	Fail
Pierce	0	0	0	0.0	A	8	5	0	0	5.2	F	7.3	Pass
Skagit	0	0	0	0.0	A	2	1	0	0	1.2	C	INC	INC
Snohomish	DNC	DNC	DNC	DNC	DNC	18	7	3	1	12.3	F	8.2	Pass
Spokane	3	0	0	1.0	C	6	9	1	1	8.0	F	8.1	Pass
Stevens	DNC	DNC	DNC	DNC	DNC	14	12	2	0	12.0	F	10.1	Fail
Thurston	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Whatcom	0	0	0	0.0	A	4	2	0	0	2.3	D	INC	INC
Yakima	DNC	DNC	DNC	DNC	DNC	13	15	3	0	13.8	F	10.2	Fail

WASHINGTON

American Lung Association in Washington

County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
	AT-RISK GROUPS			Lung Diseases							
Benton	215,219	55,701	34,934	4,072	17,116	7,065	101	11,003	2,091	23,890	74,506
Clallam	77,616	12,334	25,603	902	6,937	3,743	37	6,495	574	9,120	14,312
Clark	521,150	115,802	89,049	8,465	43,527	18,304	245	28,462	5,257	38,572	138,400
Columbia	4,053	728	1,180	53	354	183	2	312	32	546	688
King	2,271,380	434,851	329,254	31,787	197,458	75,587	1,069	113,475	25,763	197,703	1,050,595
Kitsap	277,658	53,588	56,397	3,917	23,996	10,462	131	16,727	2,569	23,273	72,442
Kittitas	45,508	7,903	8,642	578	4,030	1,670	21	2,630	491	6,869	8,038
Okanogan	43,712	9,507	10,420	695	3,655	1,754	21	2,901	354	7,229	15,621
Pierce	928,696	211,883	141,379	15,488	77,015	30,669	437	46,828	9,687	89,696	351,945
Skagit	131,417	27,014	30,591	1,975	11,159	5,237	62	8,605	1,172	12,671	36,010
Snohomish	844,761	184,346	129,207	13,475	71,002	28,539	398	43,455	8,751	73,606	315,377
Spokane	551,455	117,592	98,180	8,596	46,534	19,468	259	30,504	5,601	67,235	99,581
Stevens	48,837	10,151	12,667	742	4,131	2,080	23	3,477	380	5,791	6,818
Thurston	299,003	61,434	57,785	4,491	25,459	10,982	141	17,438	3,040	29,265	86,531
Whatcom	231,919	42,135	44,643	3,080	20,328	8,491	109	13,433	2,542	29,187	54,112
Yakima	256,643	73,483	37,805	5,371	19,664	7,921	121	12,204	2,502	40,910	154,962

WEST VIRGINIA

American Lung Association in West Virginia

County	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Berkeley	4	0	0	1.3	C	1	1	0	0	0.8	B	9.1	Fail
Brooke	DNC	DNC	DNC	DNC	DNC	1	1	0	0	0.8	B	8.7	Pass
Cabell	0	0	0	0.0	A	1	0	0	0	0.3	B	7.6	Pass
Gilmer	INC	INC	INC	INC	INC	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Greenbrier	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Hancock	4	0	0	1.3	C	1	1	0	0	0.8	B	8.3	Pass
Harrison	DNC	DNC	DNC	DNC	DNC	0	1	0	0	0.5	B	7.5	Pass
Kanawha	0	0	0	0.0	A	0	1	0	0	0.5	B	8.1	Pass
Marion	DNC	DNC	DNC	DNC	DNC	0	1	0	0	0.5	B	INC	INC
Marshall	DNC	DNC	DNC	DNC	DNC	2	1	1	0	1.8	C	8.9	Pass
Monongalia	1	0	0	0.3	B	0	1	0	0	0.5	B	7.7	Pass
Ohio	3	0	0	1.0	C	1	1	0	0	0.8	B	8.3	Pass
Tucker	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Wood	3	0	0	1.0	C	0	1	0	0	0.5	B	8.1	Pass

WEST VIRGINIA

American Lung Association in West Virginia

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Berkeley	132,440	30,454	20,592	2,867	14,378	11,883	99	12,634	1,348	14,758	26,061
Brooke	21,373	3,633	5,495	342	2,468	2,354	16	2,681	181	2,910	1,195
Cabell	92,082	18,223	18,487	1,716	10,230	8,725	69	9,651	979	17,413	9,852
Gilmer	7,254	1,107	1,348	104	856	702	6	760	51	1,477	1,486
Greenbrier	32,149	6,188	8,112	583	3,616	3,472	24	3,957	274	5,769	2,415
Hancock	28,145	5,162	7,010	486	3,210	3,069	21	3,480	238	3,933	2,046
Harrison	64,639	13,638	13,527	1,284	7,139	6,440	48	7,146	594	9,135	4,501
Kanawha	174,805	34,395	39,460	3,238	19,578	17,936	131	20,113	1,635	26,860	22,699
Marion	55,807	11,048	11,428	1,040	6,227	5,428	42	6,008	553	7,962	4,309
Marshall	29,405	5,494	7,187	517	3,340	3,171	22	3,588	240	4,309	1,286
Monongalia	107,718	17,291	15,092	1,628	12,512	9,059	81	9,437	1,365	18,255	14,025
Ohio	41,194	8,038	9,555	757	4,599	4,203	31	4,744	386	5,689	3,644
Tucker	6,604	942	1,888	89	790	787	5	905	53	1,137	209
Wood	83,052	17,296	18,279	1,628	9,201	8,469	62	9,464	744	11,200	4,643

WISCONSIN

American Lung Association in Wisconsin

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Ashland	1	0	0	0.3	B	6	1	0	0	2.5	D	5.4	Pass
Brown	8	0	0	2.7	D	7	5	0	0	4.8	F	7.7	Pass
Columbia	16	2	0	6.3	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Dane	18	1	0	6.5	F	6	1	3	0	4.5	F	8.7	Pass
Dodge	15	0	0	5.0	F	4	2	2	0	3.7	F	7.7	Pass
Door	14	1	0	5.2	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Eau Claire	8	0	0	2.7	D	10	5	0	0	5.8	F	7.9	Pass
Fond du Lac	5	0	0	1.7	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Forest	4	0	0	1.3	C	8	4	0	0	4.7	F	5.9	Pass
Grant	DNC	DNC	DNC	DNC	DNC	4	2	1	0	3.0	D	8.6	Pass
Jackson	DNC	DNC	DNC	DNC	DNC	5	2	0	0	2.7	D	INC	INC
Jefferson	16	0	0	5.3	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Kenosha	33	4	0	13.0	F	1	2	1	0	2.0	C	7.6	Pass
Kewaunee	11	3	0	5.2	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
La Crosse	6	1	0	2.5	D	2	5	0	0	3.2	D	7.8	Pass
Manitowoc	9	3	0	4.5	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Marathon	8	1	0	3.2	D	INC	INC	INC	INC	INC	INC	INC	INC
Milwaukee	23	2	0	8.7	F	6	1	2	0	3.8	F	9.2	Fail
Monroe	DNC	DNC	DNC	DNC	DNC	4	2	0	0	2.3	D	INC	INC
Outagamie	8	0	0	2.7	D	7	5	0	0	4.8	F	8.1	Pass
Ozaukee	23	2	1	9.3	F	3	2	1	0	2.7	D	INC	INC
Racine	24	3	0	9.5	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Rock	20	2	0	7.7	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Sauk	13	2	0	5.3	F	5	2	1	0	3.3	F	7.5	Pass
Sheboygan	24	2	1	9.7	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Taylor	5	0	0	1.7	C	5	7	0	0	5.2	F	6.8	Pass
Vilas	6	0	0	2.0	C	7	2	0	0	3.3	F	5.5	Pass
Walworth	21	0	0	7.0	F	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Waukesha	21	0	0	7.0	F	5	1	2	0	3.5	F	9.1	Fail

WISCONSIN

American Lung Association in Wisconsin

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Ashland	16,079	3,325	3,624	205	1,380	809	8	1,286	145	2,185	2,863
Brown	271,417	61,506	45,825	3,788	22,889	12,031	142	18,355	2,822	25,827	59,214
Columbia	58,091	11,715	11,792	722	5,040	2,873	30	4,495	528	4,496	5,128
Dane	575,347	111,383	89,584	6,861	50,669	24,438	300	36,410	6,992	56,180	132,826
Dodge	88,231	16,855	17,213	1,038	7,769	4,337	46	6,730	777	7,118	10,548
Door	30,562	4,714	10,207	290	2,759	1,888	16	3,160	221	2,654	2,290
Eau Claire	107,903	21,116	18,868	1,301	9,448	4,729	56	7,177	1,271	11,136	12,203
Fond du Lac	103,948	21,702	21,168	1,337	8,928	5,033	54	7,881	1,008	9,301	13,593
Forest	9,325	1,822	2,422	112	809	514	5	834	72	1,452	1,846
Grant	51,409	10,873	9,749	670	4,403	2,333	27	3,605	494	6,609	3,192
Jackson	20,855	4,417	4,467	272	1,782	1,034	11	1,633	165	2,479	2,923
Jefferson	85,743	16,578	16,543	1,021	7,527	4,145	45	6,420	867	7,607	10,571
Kenosha	167,488	35,829	27,739	2,207	14,379	7,600	87	11,553	1,753	18,389	45,518
Kewaunee	20,690	4,280	4,739	264	1,776	1,064	11	1,696	176	1,785	1,492
La Crosse	120,486	23,093	22,316	1,422	10,591	5,460	63	8,365	1,397	14,068	14,339
Manitowoc	81,331	16,250	18,868	1,001	7,041	4,226	42	6,745	702	7,436	9,771
Marathon	138,612	30,980	27,302	1,908	11,692	6,586	72	10,291	1,292	13,122	18,268
Milwaukee	916,205	215,270	139,123	13,259	76,546	37,953	477	56,910	10,635	153,720	472,541
Monroe	46,151	11,665	8,516	718	3,750	2,096	24	3,262	415	5,848	5,099
Outagamie	193,234	43,816	33,166	2,699	16,290	8,670	101	13,269	1,937	11,991	28,111
Ozaukee	93,460	19,366	20,870	1,193	8,021	4,714	49	7,486	845	4,403	9,540
Racine	196,613	44,050	36,578	2,713	16,602	9,171	103	14,211	1,901	20,528	60,331
Rock	164,278	36,388	30,234	2,241	13,922	7,632	86	11,799	1,624	18,138	31,667
Sauk	65,920	14,542	13,589	896	5,573	3,182	34	5,004	609	6,097	7,313
Sheboygan	117,752	25,055	23,936	1,543	10,063	5,698	61	8,928	1,088	10,197	21,989
Taylor	20,058	4,594	4,412	283	1,675	1,009	10	1,608	163	2,254	1,087
Vilas	23,885	3,825	7,756	236	2,146	1,490	12	2,486	150	2,941	3,269
Walworth	105,822	20,174	21,892	1,243	9,298	5,199	55	8,129	1,038	10,790	16,604
Waukesha	412,591	85,573	86,963	5,271	35,480	20,508	215	32,295	3,836	22,694	57,432

WYOMING

American Lung Association in Wyoming

	HIGH OZONE DAYS 2021–2023					HIGH PARTICLE POLLUTION DAYS 2021–2023							
						24-Hour						Annual	
County	Orange	Red	Purple	Wgt. Avg.	Grade	Orange	Red	Purple	Maroon	Wgt. Avg.	Grade	Design Value	Pass/ Fail
Albany	9	1	0	3.5	F	2	0	0	0	0.7	B	INC	INC
Big Horn	1	0	0	0.3	B	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Campbell	10	0	0	3.3	F	12	1	0	0	4.5	F	INC	INC
Converse	3	0	0	1.0	C	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Fremont	7	0	0	2.3	D	3	0	0	0	1.0	C	2.1	Pass
Johnson	7	0	0	2.3	D	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC
Laramie	10	0	0	3.3	F	4	1	0	0	1.8	C	5.2	Pass
Lincoln	3	0	0	1.0	C	2	0	0	0	0.7	B	INC	INC
Natrona	4	0	0	1.3	C	3	0	0	0	1.0	C	3.7	Pass
Park	DNC	DNC	DNC	DNC	DNC	1	0	0	0	0.3	B	4.5	Pass
Sheridan	DNC	DNC	DNC	DNC	DNC	2	1	0	0	1.2	C	7.0	Pass
Sublette	11	0	0	3.7	F	3	0	0	0	1.0	C	3.7	Pass
Sweetwater	12	0	0	4.0	F	1	0	0	0	0.3	B	INC	INC
Teton	1	0	0	0.3	B	10	0	0	0	3.3	F	4.0	Pass
Weston	0	0	0	0.0	A	DNC	DNC	DNC	DNC	DNC	DNC	DNC	DNC

WYOMING

American Lung Association in Wyoming

	AT-RISK GROUPS										
				Lung Diseases							
County	Total Population	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	COPD	Lung Cancer	CV Disease	Pregnancies	Poverty	People of Color
Albany	38,257	5,761	5,287	387	3,297	2,008	13	2,145	545	5,922	7,104
Big Horn	12,018	2,838	2,657	191	918	719	4	887	107	1,479	1,621
Campbell	47,498	12,477	6,560	838	3,557	2,406	17	2,716	505	3,987	6,748
Converse	13,809	3,306	2,625	222	1,058	791	5	948	133	1,422	1,674
Fremont	39,815	9,665	8,164	649	3,024	2,300	14	2,793	370	5,248	11,888
Johnson	8,759	1,737	2,437	117	697	589	3	754	73	730	768
Laramie	100,984	22,278	17,994	1,496	7,941	5,666	35	6,634	1,048	9,587	22,718
Lincoln	20,880	5,171	4,257	347	1,578	1,219	7	1,487	188	1,450	1,891
Natrona	79,941	18,562	14,209	1,247	6,191	4,443	28	5,218	849	8,266	11,587
Park	30,735	6,241	7,882	419	2,438	1,984	11	2,498	277	2,930	2,968
Sheridan	32,519	6,710	7,575	451	2,581	2,033	11	2,512	306	2,993	2,973
Sublette	8,969	1,909	2,196	128	704	570	3	713	80	681	1,066
Sweetwater	41,249	10,087	6,463	678	3,155	2,197	14	2,527	440	4,056	8,814
Teton	23,232	3,892	4,304	261	1,954	1,393	8	1,627	256	1,429	4,690
Weston	6,808	1,265	1,585	85	555	434	2	535	54	710	794

Smoggy Skies Act Will Codify Unhealthy Air

The undersigned health, medical and nursing organizations strongly oppose the **Air Quality Standards Implementation Act of 2024 – better named the Smoggy Skies Act**. Many versions of this bill have tried and failed to become law in the past because at the end of the day, this bill would undermine sound science and public health.

Clean air is fundamental for good health and the Clean Air Act promises all Americans air that is safe to breathe. The Clean Air Act works – decades of implementation have shown that the law's provisions have cleaned up pollution at the same time as the economy has grown, with the benefits far outweighing the costs. Since the passage of the 1970 Clean Air Act amendments, the United States Gross Domestic Product has grown by 304% while emissions of criteria air pollutants have been reduced by 78%, evidence that cleaner air supports economic growth. **This bill would permanently weaken the Clean Air Act by gutting one of its most important programs: the National Ambient Air Quality Standards.**

Despite decades of progress, air pollution still kills. In 2019, deaths in the United States attributable to particle pollution was estimated to be nearly 48,000. Air pollution also contributes to morbidities such as asthma attacks, cardiovascular harm, emergency room visits, onset of lung cancer and more every year. The National Ambient Air Quality Standards are a critical path to continued pollution reductions and more lives saved. But despite the clear evidence of the need for greater protection from air pollution matched with the Clean Air Act's balanced process for continued cleanup, **the Smoggy Skies Act would impose additional delays and sweeping changes that threaten health, particularly the health of children, seniors and people with chronic disease.**

The National Ambient Air Quality Standards have driven much of the Clean Air Act progress. Under the law, EPA must regularly review the scientific evidence of health harms from six common and dangerous outdoor air pollutants, including particulate matter. If the science shows that the current limit on a given pollutant does not accurately reflect the science, EPA must update it. **Under the Smoggy Skies Act, EPA would have to wait as much as a decade to consider new evidence when setting standards. Ten years is far too long to wait to protect public health from levels of pollution that science shows are dangerous.**

A key success of the National Ambient Air Quality Standards is the requirement that standards be set based on what the latest science says is necessary to protect health. Cost and feasibility are fully considered in the implementation phase of the standard, where states work with EPA to develop a flexible plan to clean up air pollution if their levels are unhealthy. This health-based approach has been upheld by the Supreme Court in an opinion issued by Justice Antonin Scalia. **The Smoggy Skies Act would permanently weaken the core health-based premise of the Clean Air Act by incorporating considerations of technological feasibility into the standard-setting – basically, siding with the polluters.**

While the text might have modifications from previous versions, make no mistake: This bill is a wolf in sheep's clothing. It is the same failed attempt to weaken the Clean Air Act and codify unhealthy air that the public health community has strongly opposed in the past and will continue to oppose.

Please prioritize the health of your constituents and vote NO on the Air Quality Standards Implementation Act – the Smoggy Skies Act.

Sincerely,

Allergy & Asthma Network
Alliance of Nurses for Healthy Environments
American Heart Association
American Lung Association
American Public Health Association
American Thoracic Society
Asthma and Allergy Foundation of America
Children's Environmental Health Network
Climate Psychiatry Alliance
Health Care Without Harm
Medical Students for a Sustainable Future
National Association of Pediatric Nurse Practitioners
National Environmental Health Association
National Hispanic Health Foundation
National Hispanic Medical Association
National League for Nursing
Oncology Advocates United for Climate and Health - International
Physicians for Social Responsibility
Public Health Institute

Environmental Protection Network

Breathing Easy

An Assessment of Public Health Benefits from EPA Air Pollution Standards (2021-24)

September 2024

Environmental Protection Network

Principal authors (in alphabetical order)

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"America needs a strong EPA.

An EPA that can respond to the communities shattered by catastrophic wildfires and hurricanes...

An EPA that partners with the advocates who have dedicated their lives to fighting for cleaner air, safer water, and healthier communities...

An EPA that empowers the parents who are working tirelessly to protect their children from PFAS and lead exposure...

And an EPA that invests in young leaders who are dedicating their lives to protecting our planet."

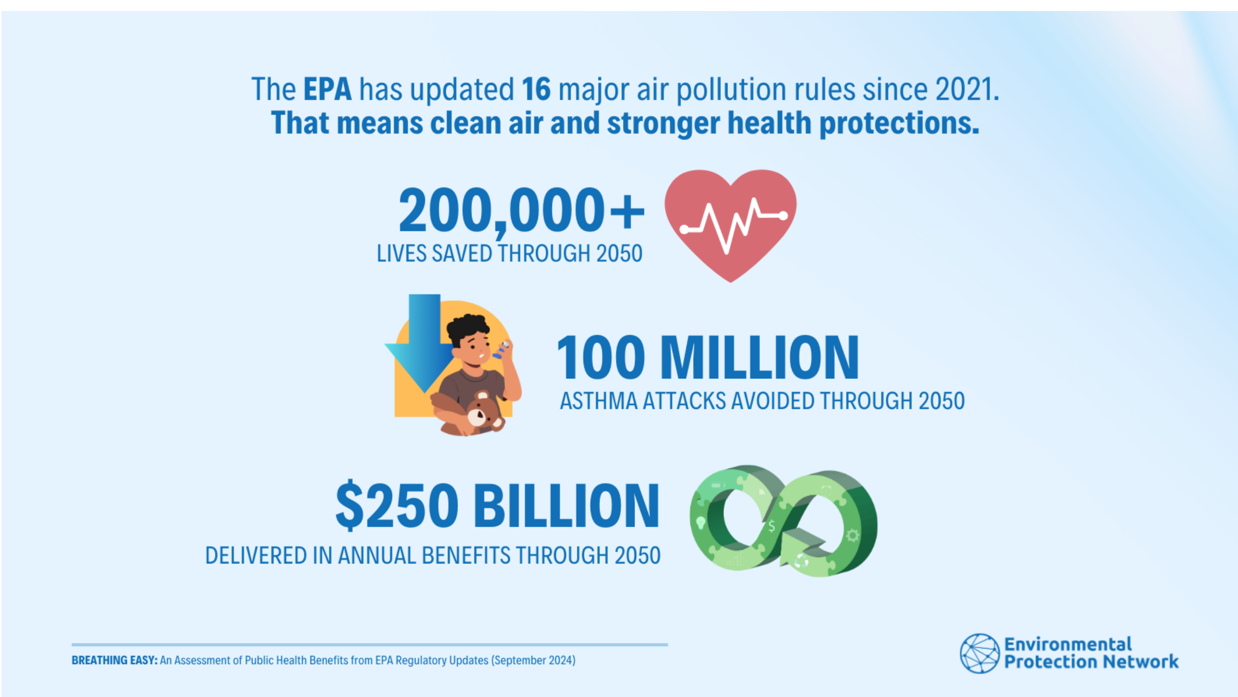
— EPA Administrator Michael Regan, 2024

I. Executive Summary

Environmental Protection Network (EPN), an association of 650 former Environmental Protection Agency (EPA) staff who volunteer their time to support EPA's mission, analyzed sixteen major EPA air pollution rule updates issued from 2021 to 2024. Based on data published by EPA for these rules, EPN concludes that the air pollution reductions from smokestacks, tailpipes, and pipelines will:

- Save over 200,000 lives through 2050. That's the equivalent of a convoy of thousands of buses stretching along the highway from Philadelphia to New York City. The children, grandparents, moms, and dads on those buses will live longer, healthier lives thanks to these rules.
- Avoid over 100 million asthma attacks in the United States through 2050. That means fewer missed school days, missed work days, and trips to the school nurse or the emergency room.
- Deliver over $250 billion in net benefits annually, with total monetized public health and climate benefits exceeding regulatory costs by a ratio of six-to-one. That is, the public health and climate benefits of the rules will exceed compliance costs by trillions of dollars through 2050

These figures likely ***significantly underestimate*** the benefits of EPA's regulatory updates for two reasons. First, this assessment focused on air pollution regulations and therefore reflects only a portion of EPA's recent achievements. EPA's work on toxic chemicals, clean water, and other environmental threats likely multiply these numbers. Second, numerous health benefits are often left unquantified in EPA assessments due to technical limitations, including the health benefits of reducing a number of hazardous air pollutants known to be dangerous carcinogens and otherwise harmful to human health, including benzene, formaldehyde, arsenic, lead, and more.



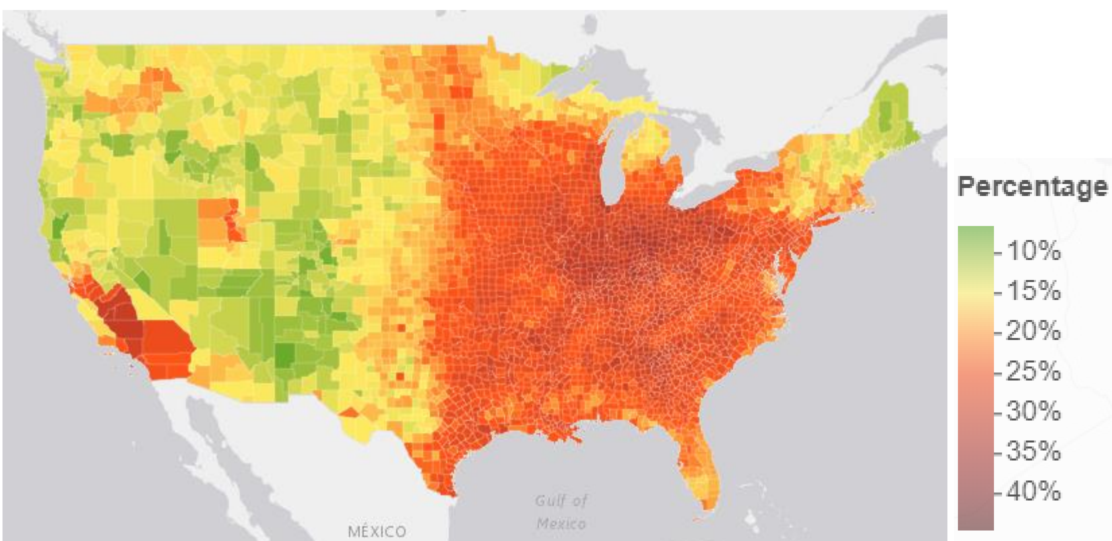
Life with Asthma

Asthma is one of the most common and costly diseases in the United States. Imagine trying to live your life while struggling to breathe. That's what life is like for the asthmatic children and adults who have uncontrolled asthma, frequently sending them to the emergency department or forcing them to miss work.

- One in 12 people in the U.S. have asthma. That's over 27 million people, including 4.5 million children!
- Asthma is a leading chronic disease in children.
- Asthma rates are highest in American Indian or Alaska Native adults, and non-Hispanic Black children are nearly 2 times more likely to have asthma compared to non-Hispanic White children.
- Asthma accounts for 5 million doctors' office visits and one million emergency department visits annually.
- Severe asthma can also be fatal; an average of 10 Americans die every day because of it.

Source: Asthma and Allergy Foundation of America

Burden of Childhood Asthma Due to PM 2.5 (2010)



Source: Texas A&M (2019)

II. Overview of EPA Accomplishments, 2021-2024

By the end of President Donald Trump's four years in office nearly 700 had scientists left EPA. Ignoring advice from staff scientists, Trump's political appointees orchestrated a series of regulatory rollbacks undermining America's bedrock environmental laws, including the Clean Air Act and the Clean Water Act. The rollbacks came with potentially heavy public health costs—millions of avoidable asthma attacks, emergency room visits, heart and respiratory illnesses, and premature deaths.

In 2020, EPN, supported by six former EPA administrators who served in Republican and Democratic administrations, offered a blueprint to "Reset the Course of EPA." It addressed the most significant and pervasive threats to public health and our environment. Many of its recommendations were advanced by the Biden administration to correct damaging actions by the Trump administration that limited health protections.

By any standard, EPA has undergone an impressive reset in the past three and a half years. EPA has:

- Reestablished scientific integrity at EPA and reversed Trump EPA rules intended to undermine science, including benefit-cost analysis;
- Issued 60 final rules, including historic actions to address climate pollution, boost environmental justice, and protect America's waters, air, and lands; and
- Invested tens of billions of dollars in underserved communities, to support clean air, clean water, and clean energy.

Protecting Public Health and Drinking Water

In the past three years, EPA has also taken huge strides to protect public health and drinking water, including:

- Stronger clean air standards to reduce harmful soot pollution — preventing up to 4,500 premature deaths and 290,000 lost workdays. This yields up to $46 billion in net health benefits in 2032. According to EPA, for every $1 spent to meet the new fine particle air quality standards, there could be as much as $77 in human health benefits in 2032;
- The first-ever national drinking water standard to protect 100 million people from "forever chemicals" (PFAS) pollution;
- Funding replacement of more than 220,000 lead service lines to ensure healthier drinking water for communities across the country;
- A ban on ongoing uses of asbestos linked to more than 40,000 deaths in the U.S. each year; and
- A proposal for stronger air pollution standards for municipal solid waste incinerators.

A Focus on Environmental Justice

EPA has taken unprecedented steps to advance environmental justice. EPA elevated environmental justice to its highest levels, establishing a new Office of Environmental Justice and External Civil Rights with more than 200 staff focused on solving environmental challenges in underserved communities.

In April 2024, EPA strengthened clean air standards for chemical plants in order to reduce the number of people with elevated cancer risk in nearby communities by 96%.

Under the Inflation Reduction Act ("IRA"), the EPA is making the largest investment in environmental justice history, awarding $3 billion to help thousands of communities overcome the legacy of toxic pollution. To put this funding in perspective, it is 80 times more money than EPA has awarded over the last 30 years under its Environmental Justice Small Grants Program.

Combating Climate Change

Over the past three years, EPA has updated a number of critical rules to cut future climate pollution from the leading sources of emissions, including:

- A Carbon Pollution Plan to cut emissions from coal and natural gas power plants that will avoid more than 1.3 billion metric tons of greenhouse gas pollution, which is equivalent to preventing emissions from 328 million gasoline cars for one year.
- New standards to reduce harmful air pollutants from new passenger cars, light trucks, and larger pickups and vans, which EPA estimates will reduce 7.2 billion metric tons of CO2 over the life of the program;
- A final rule that will sharply reduce methane, a climate "super pollutant," and other air pollutants from the oil and natural gas industry;
- A proposed rule that assesses a fee on large emitters of methane from the oil and gas sector (as authorized in the IRA);
- A final rule to cap and phase down the production and consumption of hydrofluorocarbons (HFCs), which are potent greenhouse gasses; and
- The strongest-ever greenhouse gas standards for heavy-duty vehicles. (EPA estimates the standards will avoid 1 billion tons of greenhouse gas emissions and also reduce dangerous air pollution, especially for the 72 million people in the United States who live near truck freight routes.)

> *"This is the challenge of our collective lifetimes. The existential threat to human existence as we know it. And every day we delay, the cost of inaction increases... So let this be the moment that we answer history's call."*
>
> — President Biden, 2021

BROAD PUBLIC AND STAKEHOLDER SUPPORT FOR EPA'S ACTIONS

EPA has taken an approach that is ambitious and meticulous with attention to law and science, ensuring agency actions are more durable in the courts. Many of EPA's actions have won praise not only from public health organizations and environmental groups, but also from labor and businesses.

The United Auto Workers, for example, applauded EPA for "taking seriously the concerns of workers and communities" when finalizing the agency's landmark clean car rule, which will eliminate billions of tons of pollution from tailpipes.

A number of major oil companies praised EPA for its final rule that will slash methane emissions from oil and gas operations by 80%.

Some of the biggest, highest impact actions taken in the past three plus years by EPA enjoy strong, bipartisan public support. For example, 82% of voters support EPA setting stricter limits on power plant pollution, 78% of voters support EPA's new, stricter clean air standards for soot, and 72% of voters support EPA's new rule setting tighter limits on carbon emissions from heavy-duty vehicles.

PRODUCING A STRONGER ECONOMY, SAFER ENVIRONMENT, AND BETTER HEALTH

EPA is making unprecedented investments to build a clean energy economy, tackle climate change, and protect public health. These investments are leveraging vast amounts of private capital in support of these goals. The overall impact is an expansion of aggregate investment with a growth-inducing effect on the US economy. Pursuant to the 2022 IRA and the 2021 Bipartisan Infrastructure Law, EPA is investing:

- $7 billion in grants to install affordable community solar for 900,000 low-income and disadvantaged households nationwide;
- $20 billion in grants to finance tens of thousands of clean energy and climate solution projects, ensuring communities have access to the capital they need to participate in and benefit from a cleaner, more sustainable economy;
- $50 billion dollars to replace lead pipes, protect our nation's treasured waters, and build drinking water and wastewater systems that are resilient to the climate crisis;
- $5 billion dollars for cleaner school buses, reducing pollution exposure and risk for millions of kids across this country as they go to and from school;
- $5 billion to clean up Superfund and brownfield sites in every region; and
- $3 billion in clean ports investments, funding zero-emission port equipment.

III. Assessment of Health Benefits

This report compiles economic impact and health incidence data from Regulatory Impact Analyses (RIAs) prepared for 16 different economically significant rules finalized during the past three years by the EPA's Office of Air and Radiation (OAR).

Results – Monetized Costs and Benefits

From the 16 air quality rules analyzed for this report, total monetized benefits, including health and climate benefits, total $303 billion dollars on an annualized basis. Total costs, including compliance and implementation costs, add up to $50 billion dollars, resulting in total net benefits of $253 billion dollars. That's a benefits-to-cost ratio of six-to-one.

RULE	ANNUAL COSTS* (2023 $, IN MILLIONS)	ANNUAL BENEFITS* (2023 $, IN MILLIONS)	ANNUAL NET BENEFITS* (2023 $, IN MILLIONS)
Air Quality Standards for Fine Particle Pollution (Soot)	$573	$43,903	$43,330
Boiler Rule	$62	$150	$88
Carbon Pollution Standards for Fossil Fuel-Fired Power Plants	$1,067	$23,568	$22,501
Clean Car Rule (2027)	$28,945	$125,290	$96,345
Clean Trucks Rule (Phase 3)	$1,137	$11,371	$10,234
Cross-State Air Pollution Rule	$31	$3,463	$3,432
Federal Good Neighbor Rule	$1,130	$17,342	$16,212
Gasoline Distribution Facilities and Terminals Standards	-$4	$19	$23
Heavy-Duty Vehicle Standards	$4,634	$21,952	$17,317
HFC Phasedown (Allocation Framework)	-$646	$15,739	$16,385
HFC Phasedown (Technology Transitions Rule)	-$569	$360	$929
Iron and Steel NESHAP	$5	$207	$201
Light Duty Vehicle Emissions Standards (Model Years 2023 and Later)	$11,684	$29,567	$17,883
Mercury and Air Toxic Standards	$108	$53	-$55
Oil & Gas Methane Rule	$1,759	$10,600	$8,841
Polymers and Resins Rule	$166	$7	-$159
TOTAL	**$50,082**	**$303,591**	**$253,509**

*Equivalent Annualized Value, 3% Discount Rate

Results – Health Benefits

EPN analyzed the health benefits of the ten air pollution rules since 2021 that have the most significant quantified health impacts. Health incidence benefits were compiled for three categories, chosen because of the inclusiveness and confidence in the statistical data supporting analysis, with the following results:

- 202,632 avoided all-cause premature mortality.
- 107 million avoided symptomatic asthma incidents.

  94 million avoided minor-restricted activity days. Minor-restricted activity days result when individuals reduce most usual daily activities and replace them with less strenuous activities or rest, yet not to the point of missing work or school.

RULE	Avoided Premature Mortality	Avoided Symptomatic Asthma Incidents	Avoided Minor Restricted-Activity Days
Air Quality Standards for Fine Particle Pollution (Soot)	85,595	15,200,000	32,300,000
Carbon Pollution Standards for Fossil Fuel-Fired Power Plants	14,973	5,168,800	5,142,000
Clean Car Rule (2027)	3,026	1,043,857	2,267,465
Clean Trucks Rule (Phase 3)	142	48,769	106,746
Cross-State Air Pollution Rule	4,999	5,940,010	3,060,010
Federal Good Neighbor Rule	35,800	33,214,000	18,568,000
Heavy-Duty Vehicle Standards	54,580	43,790,000	29,870,000
Light Duty Vehicle Emissions Standards (Model Years 2023 and Later)	1,778	865,622	1,921,705
Mercury and Air Toxic Standards	52	7,466	13,536
Oil & Gas Methane Rule	1,689	2,185,000	990,000
COMBINED STREAM TOTALS TO 2050	**202,632**	**107,463,525**	**94,239,462**

Methodology and Uncertainties

The analysis uses estimated annualized values (EAVs) for total costs and benefits reported in each RIA, at a 3% discount rate, adjusted to 2023 dollars using the GDP deflator. The health incidence data presented report here, on a cumulative basis up to the year 2050, is compiled using a combination of methods. These reflect the differing ways in which the data is calculated by the EPA across different RIAs.

For rules where multiple single-year snapshots of health incidence data are provided, linear interpolation and extrapolation is used in correspondence with the monetized stream estimates of health benefits. For rules without health incidence snapshots, the EPA's sector-specific incidence-per-ton tables are used to produce health incidence data from estimated changes in emissions.

Unquantified Benefits

EPA does not currently quantify the benefits of air pollution rules that arise from alleviating the following impacts of air pollution:

- Cancer
- Respiratory effects, including pulmonary function, non-asthma ER visits, and chronic diseases beyond bronchitis
- Nervous system effects, including autism, cognitive decline, and dementia
- Metabolic effects, such as diabetes
- Reproductive and developmental effects
- Decreased outdoor worker productivity

"The [Hazardous Air Pollutants (HAPs)] for which benefits remained unquantified include a long list of chemicals known to be dangerous to human health, like benzene, formaldehyde, polycyclic organic matter (POM), toluene, MTBE, arsenic, chromium, lead, and many more. Many of these compounds have been listed for many years as known or probable carcinogens. Many are also linked to a variety of other impacts on human health, including immunotoxicity, genotoxicity, nervous system disorders, respiratory effects, and reproductive and developmental effects."

–Amy Sinden, "The Problem of Unquantified Benefits," Temple University, 2019

The cumulative benefits laid out in this report only represent a subset of EPA's work, based on air pollution regulations updated since 2021. Even these estimates are highly likely to underestimate the true real-world benefits that will accrue as a result of the analyzed rules. There are a large number of different types of benefits resulting from the analyzed rules, which have not been quantified or monetized.

In addition, the analysis in this report takes a conservative approach to calculating benefits, using a 3% discount rate for future monetized benefits when in some cases a lower discount rate may be more appropriate, and using the smaller amount when multiple estimates are provided for a benefit.

Although there is some potential for double counting, it is limited by the fact that EPA estimates benefits of each rule on top of a 'baseline' of the then-current regulatory environment, meaning pre-existing rules are already accounted for. When multiple rules are being finalized in parallel, or rules are in different realms of EPA's jurisdiction (for instance, air vs. water pollution), their impacts may not be represented in each rule's RIA. This creates a risk for the summation of monetized benefits in this analysis to include some double-counting. We minimized this risk by limiting our analysis to air pollution regulations.

Using EAVs means that the combined monetized estimate may not be representative of a particular time period. This is due to differing years of analysis between RIAs and differing average estimates if narrower periods of analysis are used than in the RIAs. As such, the combined EAV estimates provided in this report should be interpreted primarily as an indication of the combined scale and impact of the analyzed rules, rather than a precise empirical evaluation of a specific year.

The New York Times

How Lee Zeldin Went From Environmental Moderate to Dismantling the E.P.A.

He once talked about the need to fight climate change. Now, he embraces Elon Musk, lavishes praise on the president and strives to stand out in a MAGA world.

He once talked about the need to fight climate change. Now, he embraces Elon Musk, lavishes praise on the president and strives to stand out in a MAGA world.

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By Lisa Friedman

Published March 29, 2025 Updated March 30, 2025

When President Trump's cabinet secretaries clashed with Elon Musk this month over the billionaire's chain saw approach to shrinking government, Lee Zeldin, the administrator of the Environmental Protection Agency, made it clear where he stood.

Mr. Musk had just traded barbs with Sean Duffy, the transportation secretary, and Marco Rubio, the secretary of state. Things were tense. That's when Mr. Zeldin chimed in to say he had no complaints about Mr. Musk, according to three people briefed on the March 6 meeting.

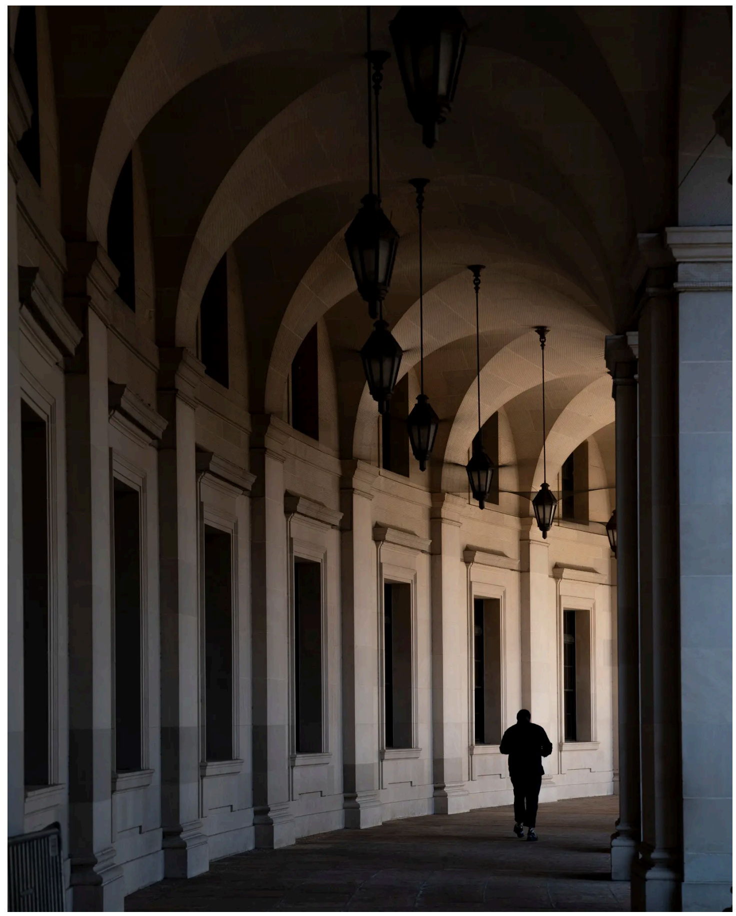
It was a telling moment for Mr. Zeldin, who has evolved from moderate blue state Republican to full MAGA warrior, taken to dismantling the agency he oversees with zeal.

Over the past nine weeks, Mr. Zeldin has withheld billions of dollars in climate funds approved by Congress, tried to fire hundreds of employees, recommended the elimination of thousands more E.P.A. scientists, and started trying to repeal dozens of environmental regulations that limit toxic pollution. He has filled the leadership ranks at the agency with lobbyists and lawyers from industries that have fought environmental regulations.

He has embraced Mr. Musk, calling theirs "an incredible partnership" and requiring that any expenditure at the E.P.A. over $50,000 be approved by Mr. Musk's advisory group, the Department of Government Efficiency. Two members of the DOGE team, Kathryn Loving and Cole Killian, occupy an office outside Mr. Zeldin's wood-paneled executive suite on the third floor of the E.P.A. headquarters. A handwritten note was recently taped to the door that said "Welcome to DOGE."

Mr. Zeldin, 45, has canceled programs focused on marginalized communities that are disproportionately burdened by pollution, including an area in Louisiana known as Cancer Alley. He says he wants clean air and water, yet is taking steps scientists say will endanger both, while also working to ensure that the E.P.A. can never again limit the greenhouse gases that are dangerously heating the planet.

The New York Times



Haiyun Jiang for The New York Times

And throughout, Mr. Zeldin has been running an aggressive public relations campaign, appearing on Fox News and Fox Business nearly two dozen times, writing opinion pieces for the New York Post and The Wall Street Journal, and using his taxpayer-funded press office to excoriate news outlets that fact-check his assertions. He posts direct-to-the-camera videos on X, demonstrating the communications skills he has polished throughout several political campaigns.

“He’s doing the job in a way that is a lot more visible than many of his predecessors of both parties,” said Kevin S. Minoli, a lawyer who worked in the E.P.A. Office of General Counsel from the Clinton through the Trump administrations. “I would imagine that he’s motivated to do things that his boss is going to like and see and reward.”

The E.P.A. did not respond to several requests to interview Mr. Zeldin. In a written statement, Mr. Zeldin said the Biden administration had used environmental regulations “to put a stranglehold on the American auto industry in their quest to destroy the American economy in the name of climate change.”

He was referring to strict limits imposed by the Biden E.P.A. on tailpipe emissions, regulations that were designed to speed the transition to electric vehicles.

“This administration does not support that policy posture, and we are doing everything in our power to revitalize this quintessential American industry,” he said.

Mr. Zeldin has sought the president’s notice by trying to claw back $20 billion that had been approved by Congress under the Biden administration for clean energy projects around the country.

He has framed the money as a slush fund for Democratic issues, citing a hidden-camera video made by Project Veritas, a conservative group known for using covert recordings to embarrass its political opponents.

In the video, which was made in the final weeks of the Biden administration, an E.P.A. employee likened the efforts to spend federal money on climate programs to throwing “gold bars” off the Titanic.

Demonstrators rallied in Philadelphia this month to protest cuts at the Environmental Protection Agency. Tyger Williams/The Philadelphia Inquirer, via Associated Press

Mr. Zeldin has made the most of the "gold bars" line, claiming that he has discovered rampant fraud in the clean energy program, which he has shut down. Despite a request from a federal judge, the Trump administration has not provided evidence of fraud in that program and some of the nonprofit organizations that had been approved to receive the funds are now suing the administration.

John Podesta, who oversaw the implementation of the clean energy program during the Biden administration, said it had followed "extremely" stringent rules when selecting grantees. "We followed the law and they're breaking the law," he said of the Trump administration.

Mr. Zeldin's other priorities at the E.P.A. have little to do with the agency's half-century mission of protecting public health and the environment. They include increasing fossil fuel use, fast-tracking permits for energy projects, increasing jobs in the auto industry and advancing artificial intelligence.

“It’s quite shocking to have an administrator who in announcing his own vision did not even mention protecting public health and the environment,” said Daniel C. Esty, professor of environmental law and policy at Yale Law School.

Christine Todd Whitman, who led the E.P.A. under President George W. Bush, called Mr. Zeldin “a water boy for the president and Elon.”

A lawyer, leukemia survivor and a former Army captain who is now a reservist, Mr. Zeldin comes from a small coastal community on Long Island that borders a national wildlife refuge and is struggling with rising sea levels linked to climate change. During four years in the New York State Legislature and four terms on Capitol Hill, he was a moderate on environmental issues. Mr. Zeldin joined a bipartisan caucus to address climate change and supported solar energy and offshore wind. He voted to protect the E.P.A.’s budget and against a Republican effort to restrict the agency’s ability to curb carbon dioxide emissions.

But he moved to the right during his unsuccessful bid for governor of New York in 2022. He campaigned to end New York’s ban on hydraulic fracturing and to slow the state’s landmark law designed to reduce greenhouse gas emissions.

“It’s very hard for me to rectify the Lee Zeldin I’ve known and met with for over a decade with the person we see now,” said Adrienne Esposito, the executive director of the Citizens Campaign for the Environment, an environmental group in Farmingdale, N.Y., in Mr. Zeldin’s former congressional district.

Mr. Zeldin would say “things like ‘science tells us climate change is real and we must act,’” Ms. Esposito said. “Now, it’s as if he has transformed into a completely different person. Was he acting for his first decade in elected office?”

Mr. Zeldin’s spokeswoman, Molly Vaseliou, said that his values have remained consistent.

Lee Zeldin met with volunteers for an environmental group in East Moriches, N.Y., in 2015 when he was a member of Congress. Brian Harkin for The New York Times

Mr. Zeldin's admirers say he is a workhorse, someone who prefers staying up late reading briefing books to socializing. When he ran for Congress, he'd ask his staff each morning how much money he needed to raise that day and then he'd meet the goal.

As E.P.A. administrator, Mr. Zeldin has kept a peripatetic travel schedule. Five days after he was sworn in, he was in East Palestine, Ohio, the site of a 2023 train derailment and toxic chemical spill, with Vice President JD Vance. Then he was in Los Angeles to survey wildfire damage, and North Carolina to visit families rebuilding after a devastating hurricane. Last week, he was in the Midwest talking to farmers and in the Southwest meeting with tribal leaders.

"He's the kind of guy who feels guilty taking a day off," said Matt Scott, who worked for Mr. Zeldin during his first two terms in Congress.

Mr. Zeldin hitched his wagon early to Mr. Trump. He was one of the first Republicans in Congress to endorse Mr. Trump in 2016. He led Mr. Trump's impeachment defense and then helped to sow doubt about the 2020 election result. Mr. Trump showed his appreciation, reposting Mr. Zeldin's statements about the impeachment proceedings on social media and later endorsing him for governor.

Mr. Zeldin spoke at a Trump campaign event in Hazel Township, Penn., on the Sunday before Election Day. Eric Lee/The New York Times

Chapin Fay, who managed Mr. Zeldin's first campaign for Congress, said that Mr. Zeldin has a keen understanding of Republican voters and was taking his cues from them as much as from the president.

The E.P.A. is one of the most disliked federal agencies among conservatives, according to a Pew Research Center poll, with only 32 percent of Republicans having a favorable view of the agency.

"Opponents are going to say this is against the American people's interests, but Lee believes what he is doing is good for the American people," Mr. Fay said.

So far, Mr. Zeldin appears to be adhering to Project 2025, the conservative blueprint for a government overhaul that was published by the Heritage Foundation. It recommends deep cuts at the E.P.A. and an end to the agency's legal authority to regulate carbon dioxide and other gases that are heating the planet. It also calls for weakening the agency's independent science office.

Mandy Gunasekara, who served as chief of staff at the E.P.A. during the first Trump administration and who wrote the E.P.A. section of Project 2025, said Mr. Zeldin was off to a good start. "He's very good at communicating to the public what he's doing and why he's doing it," she said.

Mr. Zeldin showed his political instincts by winning campaigns for both the State Legislature and Congress despite the feeling among some in the New York Republican Party that he wasn't ready. And while Mr. Zeldin lost the governor's race to Kathy Hochul, a Democrat, he came closer to winning than any Republican had in the previous 20 years.

Benji Backer is a Republican environmental advocate whose new organization, Nature is Nonpartisan, said it was too early to judge the E.P.A. administrator.

"He expressed to me that he wants to be remembered as somebody who cares about the environment," Mr. Backer said.

Harry Allen, the Los Angeles team lead for the E.P.A., center, with Mr. Zeldin in Altadena, Calif., after a wildfire swept the area. Mark Abramson for The New York Times

Mr. Backer said he believed Americans wanted sensible environmental regulation. While the Trump administration is in a "burn it to the ground" mode, Mr. Zeldin must protect air and water quality, reduce plastic pollution and address climate change, or the Trump administration will lose popular support, Mr. Backer said.

"My call to him would be, leave your legacy on this," Mr. Backer said. "This is your opportunity to build something really positive for the environment."

One thing that comes naturally to Mr. Zeldin's is building his own profile, Mr. Fay said, and that is happening.

Mr. Fay recalled that during Mr. Zeldin's campaign for governor, he hammered the Democratic incumbent on crime and carefully timed almost-daily appearances in front of bodegas and subway stops where violence had occurred.

“He understood that if you have the press conference in the afternoon, you’ll be on the B-roll all day,” Mr. Fay said, referring to the supplementary film that is used to enhance storytelling and add visual variety in newscasts.

“Lee is trying to break through the clutter and make a name for himself,” he said. “One of his political talents is not getting left behind.”

Jonathan Swan and Maggie Haberman contributed reporting.

A correction was made on March 30, 2025*: An earlier version of this article incorrectly cited the year of the East Palestine train derailment. It was 2023, not 2024.*

When we learn of a mistake, we acknowledge it with a correction. If you spot an error, please let us know at nytnews@nytimes.com. Learn more

Lisa Friedman is a Times reporter who writes about how governments are addressing climate change and the effects of those policies on communities.

A version of this article appears in print on , Section A, Page 1 of the New York edition with the headline: Environmental Moderate Turns MAGA Warrior

REPORT JUN 3, 2025

The Trump Administration's Assault on Environmental Protections Will Give Polluters a Free Pass While Causing Millions of Asthma Attacks

AUTHORS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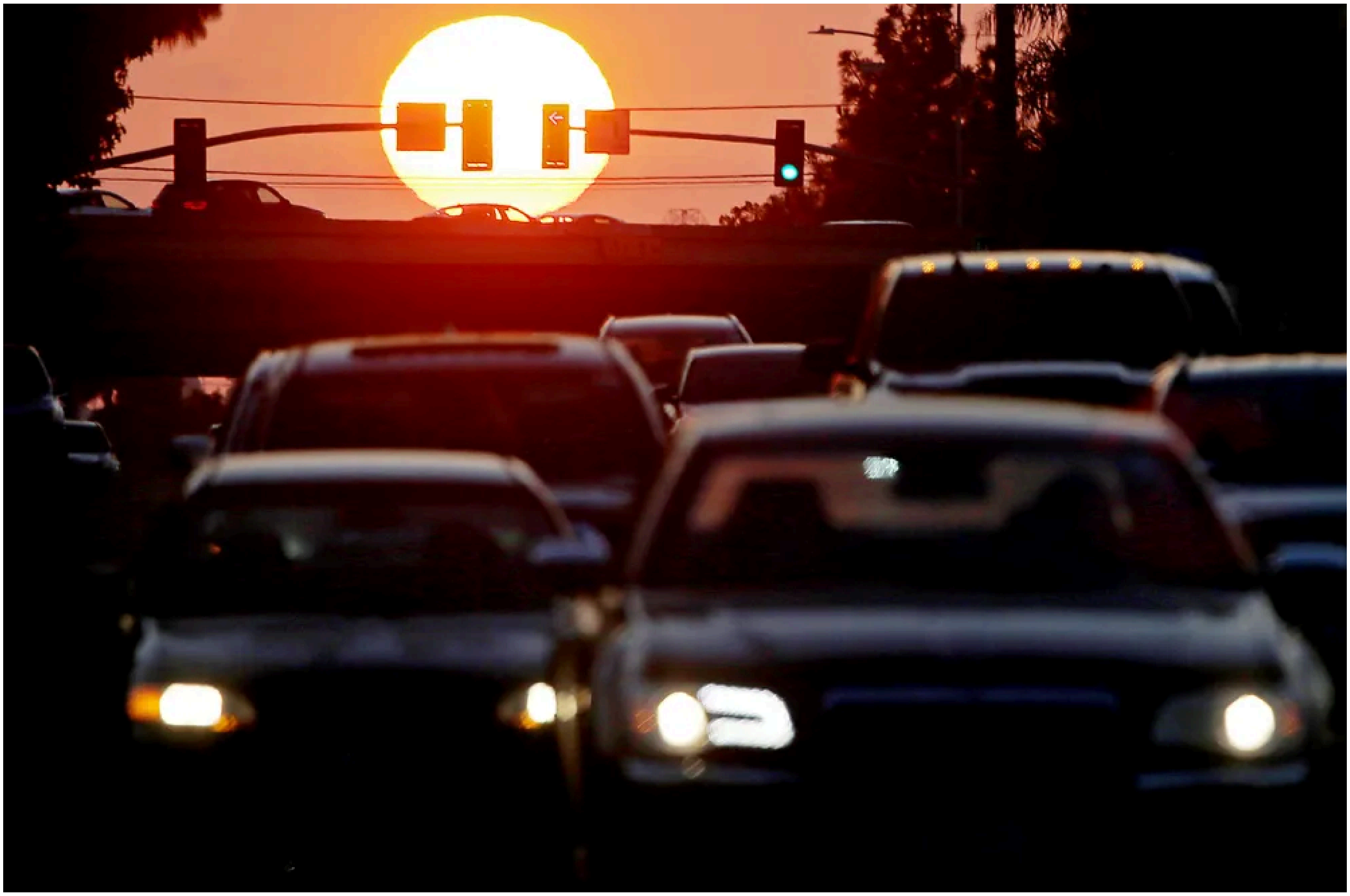
Tackling Climate Change and Environmental Injustice, Climate Change, DOGE, +9 More

The Trump administration's plan to weaken clean air protections could cause more than 10,000 asthma attacks per day while cutting lifesaving asthma prevention programs and as House Republicans seek to slash pollution reduction efforts, clean technology investments, and essential health care coverage—all to give tax breaks to billionaires.



Cars sit in traffic as the sun sets behind a veil of smog in Long Beach, California, on September 20, 2023. (Getty/Luis Sinco/*The Los Angeles Times*)

Introduction and summary

Asthma is a serious chronic lung disease that affects more than 26.8 million adults and 4.5 million children in the United States, harming people's health and the U.S. economy.[1] Asthma attacks can trigger coughing, wheezing, chest tightness, and gasping for breath, which interfere with everyday life, work, and school and may require emergency care.[2] For Angela Garcia, a longtime resident of Globeville, a community in Denver, Colorado, that is surrounded by multiple sources of pollution, asthma is a constant worry. Garcia said: "Having to use an inhaler is a scary thing because you can't breathe. I can walk outside and know I'm going to have to use it because of the smell that's in the air."[3]

Air pollution from fossil fuels, wildfire smoke, and hot days that cause smog to form is a leading trigger for asthma attacks, which is why eliminating fossil fuel combustion in cars and power plants alone could mean more than 2 million fewer asthma attacks by 2050, according to the American Lung Association.[4] However, the Trump administration is pursuing policies that will worsen asthma in America, including an aggressive assault on environmental protections; the gutting of public health programs that support lifesaving asthma prevention, research, and care;[5] and proposed pharmaceutical tariffs, which could increase the price of asthma medications by 13 percent or higher.[6] The administration's plan to roll back tailpipe and smokestack standards alone will likely cause more than 100 million asthma attacks over the next 25 years—or more than 10,000 asthma attacks daily—in the United States that could be avoided if the standards were left in place.[7] Moreover, House Republican plans to drastically cut pollution reduction programs, clean energy incentives, and the Medicaid program—which covers critical health services for more than 71 million Americans—could compound these harms.[8]

This report analyzes how asthma affects Americans and how increasing pollution will cause people with asthma to experience more asthma attacks and more people to develop asthma. It also assesses the slew of actions by the Trump administration to weaken or eliminate environmental and climate protections that reduce pollution, to reverse the EPA's scientific finding that planet-warming pollutants endanger Americans' health and well-being and must be regulated, and to cancel funding to improve and monitor air quality and accelerate the adoption of clean energy and transportation. Lastly, it examines how the administration's plans to eviscerate the U.S. public health system, including asthma prevention programs; the administration's proposed pharmaceutical tariffs; and the House Republican plan to slash pollution reduction efforts, clean energy incentives, and essential health care coverage for low-income and working-class families will affect Americans with asthma and other pollution-related health conditions. Together, these actions would partially pay for tax cuts for billionaires and would increase pollution while boosting the profits of corporate polluters at the expense of American's health.

Methodology

The data for the estimated number of asthma attacks were sourced from an Environmental Protection Network (EPN) analysis of the impacts of the Trump administration's potential rollback of U.S. Environmental Protection Agency (EPA) standards.[9] The EPN compiled EPA estimates of avoided asthma attacks from EPA Regulatory Impact Analyses for eight of the 12 EPA pollution standards for which asthma data were available that have been targeted by EPA Administrator Lee Zeldin for reconsideration or rollback. The EPN then tallied the sum of the EPA's estimates for each of the eight standards and found that together, the standards would prevent 100,657,893 asthma attacks between 2025 and 2050 if left in place. If these standards are rolled back, it is expected that these asthma attacks would not be avoided. To estimate how many asthma attacks would not be avoided per day, the authors and the EPN divided 100,657,893 by 26 (2025 plus all the 25 total years through 2050) to arrive at an estimate of 3,871,457 attacks per year. They then divided this number by 365, the number of days in a year, to arrive at 10,606 attacks per day that could be avoided if the standards were left in place.

Air pollution is a leading cause of asthma

Asthma attacks can be life-threatening, interfere with everyday tasks, and may require emergency care, leading to millions of hospitalizations and averaging more than $50 billion in health care costs in the United States annually.[10] Furthermore, children with asthma are more likely to miss school, disrupting their academic performance, and adults may be limited in their work productivity, even when taking medication.[11] Asthma in the United States increased by about 10 million cases between 1990 and 2019.[12] In 2018, 2.2 million children ages 5 to 17 missed 7.9 million school days due to asthma, and adults missed 10.9 million workdays[13] These losses have economic ramifications: From 2008 to 2013, the average costs associated with asthma-related health care, deaths, and missed school and work days totaled $81.9 billion each year.[14] While asthma affects millions of Americans, it hits children; older adults; and Black, Hispanic, Native American, and low-income communities the hardest.[15]

From 2008 to 2013, the average costs associated with asthma-related health care, deaths, and missed school and workdays totaled $81.9 billion each year.

Asthma causes inflamed airways that can flare into asthma attacks when exposed to environmental triggers, such as secondhand smoke, dust mites, and air pollution.[16] According to the American Lung Association (ALA), despite decades of improvements in air quality, almost half of Americans—more than 156 million people—live with unhealthy levels of air pollution, an increase of nearly 25 million people in the past year and the highest number of people in roughly the last decade.[17] The ALA found that more intense wildfires, extreme heat, and drought fueled by climate change are worsening air pollution throughout the country, putting the health of more Americans at risk. Americans' exposure to ozone and soot pollution rose between 2021 and 2023, when Canada had its worst wildfire season on record.[18] This increase in pollution is a departure from air quality trends that have steadily improved since the passage of the Clean Air Act of 1970—which authorized the federal government and states to limit pollution from industrial and mobile sources—and more recent lifesaving air pollution safeguards.[19]

Despite decades of improvements in air quality, almost half of Americans—more than 156 million people—live with unhealthy levels of air pollution.

Air pollutants, including ozone (smog or haze) and particle pollution (commonly called soot), can cause asthma and worsen asthma attacks.[20] These pollutants also shorten lives and increase the risk of cancer, other lung diseases such as chronic obstructive pulmonary disease (COPD), heart diseases such as heart attacks and strokes, premature birth, and other health conditions.[21] When pollution surges, breathing unhealthy air can become a hazard, especially for children whose lungs are still developing.

Power plants, industrial facilities, diesel- and gas-powered vehicles and equipment, and other sources emit soot, nitrogen oxides, and sulfur oxides into the air.[22] Soot can travel deep into the lungs and bloodstream, decreasing lung function and damaging heart health. It can harm vital organs such as the heart, brain, and cardiovascular system.[23] Even short-term and low-level exposure to soot can worsen asthma attacks.[24] Short-term exposure is linked to increased hospital admissions and emergency room visits for heart attacks and strokes, COPD, and increased likelihood of death in infants.[25] Exposure to soot is estimated to cause more than 50,000 premature deaths in the United States every year.[26]

Ozone pollution also seriously affects lung function and can lead to premature death. It is linked to breathing problems, new cases of asthma in children, and increased hospitalizations and emergency department visits for people with asthma and COPD, among other health conditions.[27]

ALA's 2025 "State of the Air" report found that more than 638,000 children and more than 3 million adults with asthma live in counties with failing grades on three air pollutants—ozone and two measures of fine particulate matter pollution.[28]

Air pollution is particularly harmful for working-class, Black, Hispanic, and low-income communities where pollution is often concentrated.[29] Black Americans are more likely than people of other races and ethnicities to live in areas with unhealthy air quality and be diagnosed with asthma.[30] In 2021, the asthma death rate among Black Americans was more than twice as high as that for white Americans.

More than 26 million people of color live in counties that failed on all three measures of air pollution, including more than 15 million Hispanic Americans;[31] Hispanic Americans are three times more likely than white Americans to live in a community with failing grades for all three air pollutants.[32] According to Angela Garcia of Globeville, Colorado—a predominantly Hispanic and Latino neighborhood in Denver—people originally moved there to work for the railroad and the smelters to make money for their families. Garcia said: "We live here, we pay our taxes, we work hard. We give so much with our different cultures to the community to make it what it is—a good place to grow and exist." At the same time, Garcia said, "We all have breathing problems. … It could be better if we didn't have the pollutants that we have in our air."[33]

OF THOSE LIVING IN COUNTIES WITH A FAILING GRADE FOR AT LEAST ONE POLLUTANT:

34M
are children under age 18

American Lung Association, "State of the Air 2025 Report."

25M
are age 65 and older

19M
are people experiencing poverty

14.3M
people are living with asthma

Despite these troubling trends, the Trump administration is dismantling environmental protections at a staggering pace, with steep costs and consequences for Americans and their health.

The Trump administration's harmful actions

Eliminating environmental protections will increase asthma and other health risks for Americans

Starting on his first day in office in his second term, Trump and his administration have orchestrated an aggressive assault on environmental and public health protections, as outlined in Project 2025 and promised by President Trump on the campaign trail to oil executives to pad their profits in exchange for campaign contributions.[34] EPA Administrator Lee Zeldin has committed to strip away air quality standards for ozone, soot, and air toxics—as well as emission requirements for power plants, vehicles, coal waste, and oil refineries, among other safeguards—even though studies show that roughly 75 percent of Americans are worried about air and water pollution.[35]

Trump and his administration have orchestrated an aggressive assault on environmental and public health protections, as outlined in Project 2025 and promised by President Trump on the campaign trail to oil executives.

In addition, the Trump administration has offered power plants the opportunity to emit more toxic pollution by simply submitting an email request for a temporary exemption from clean air rules, including limits on mercury, which can damage the brain and nervous system and lead to severe developmental problems for children.[36] The administration has also offered nearly 70 coal-fired power plants, including some of the nation's top emitters of toxic air pollutants, two-year exemptions from EPA's latest mercury and air toxics standards.[37] Industry groups representing hundreds of chemical and petrochemical manufacturers have also requested exemptions from these rules.[38] The EPA had projected that these standards would reduce asthma attacks and other asthma symptoms; brain, nervous system, and kidney damage; cancer; premature deaths; and other health problems among Americans.[39]

In another series of radical moves, President Trump issued an avalanche of executive orders (EOs) to eviscerate environmental protections, including an EO that directed agencies to review existing regulations and take immediate steps to repeal any they deem "unlawful."[40] The order also directs agencies to end or slow-walk enforcement of rules that do not align with this administration's priorities. This unprecedented effort to erase or ignore existing scientifically backed safeguards that were established after years of research and public input could have an alarming effect on the health and safety of people and communities across the country.[41] For example, the administration could target clean air and water protections, as detailed in Project 2025.[42] Targeted protections could include the tailpipe emissions limits for cars and light-duty trucks and pollution standards for power plants, among other safeguards that protect Americans from the effects of climate change and harmful pollution that causes asthma and other health problems.[43]

To further accelerate its assault on environmental protections, the Trump administration directed agencies to "sunset" environmental regulations that affect energy production, including safeguards for air quality,[44] as soon as October 2026.[45] The idea to simply "delete" regulations has been touted by Elon Musk, the former head of the Department of Government Efficiency, whose companies have historically sparred with federal regulators over alleged violations of environmental protections.[46] Legal experts predict that efforts to sunset and abruptly repeal regulations will run afoul of the Administrative Procedures Act, which requires a thorough and transparent process and public input for agencies to create, change, or cancel rules.[47]

The majority of American voters are concerned about climate change and say that it is already affecting weather in the United States, with two-thirds of voters expecting their community to be affected.[48] In addition, a majority of American voters want federal agencies to do more than they are already doing to protect people from climate change health risks.[49] Despite these concerns, the Trump administration has taken steps to overturn the EPA's scientific finding that planet-warming pollutants endanger Americans' health and well-being and must be regulated under the Clean Air Act.[50] In April 2025, EPA Administrator Zeldin announced that the agency will reconsider the EPA's endangerment finding—the backbone and legal foundation for nearly every climate and environmental safeguard enacted to curtail asthma-inducing pollution from power plants, cars, diesel trucks, and oil and gas operations.[51] In May, *The New York Times* reported that internal EPA documents revealed the agency's plans to eliminate all limits on greenhouse gas emissions from U.S. power plants that burn coal and natural gas.[52] Reversing the science-based endangerment finding and emissions limits would boost the bottom line for big polluters while increasing pollution and causing more asthma and other health conditions, particularly in communities where pollution is concentrated.[53] Overturning the endangerment finding would also increase the risk of more frequent and dangerous heat waves, more devastating and costly wildfires, and other extreme weather events that increase the pollution that causes asthma.[54]

The Trump administration has also canceled funding authorized by Congress through the Inflation Reduction Act (IRA) and the Infrastructure Investment and Jobs Act (IIJA) to reduce and monitor air pollution—despite multiple court orders to reinstate the funds.[55] For example, the administration is canceling nearly 800 grants aimed at helping communities across the country improve air and water quality and protect against more extreme weather events.[56] The administration has also canceled grants to improve access to trees and green spaces in urban areas, which can help to reduce air pollution and make neighborhoods cooler, healthier, and more resilient to heat waves made worse by climate change.[57] As Angela Garcia said: "A community-based organization [in Globeville] had received funds under the Biden administration to put trees and natural grasses on both sides of the highway, to help alleviate the pollution. We found out a month ago that that funding is going to be cut."[58]

The House Republicans' budget plan would take these actions a step further by eliminating funding for key IRA programs designed to monitor and reduce harmful pollution in communities—sacrificing Americans' health to partially pay for tax cuts that primarily benefit the wealthy.[59]

The Trump administration has also eliminated the EPA's environmental justice and science and research offices while instating fossil fuel and chemical industry insiders and lobbyists in leadership positions.[60] It additionally committed to ending enforcement action against major polluters in communities of color that are unfairly bombarded with dangerous pollution if the aim of the action is to protect against climate change or if the enforcement could "shut down" energy production.[61] To further undermine the EPA, President Trump and Administrator Zeldin plan to slash the agency's budget by 65 percent, which would make itimpossible for the agency to fulfill its mission to protect public health and the environment.[62]

All of these actions would increase pollution while boosting the profits of corporate polluters at the expense of Americans' health. According to the EPN, if implemented, these rapid rollbacks would cause more than 10,000 asthma attacks daily—or more than 100 million asthma attacks over the next 25 years—in communities across the country that could be avoided if the standards were left in place. (see Table 1)[63]

TABLE 1

The Trump administration's attack on environmental protections could cause millions of avoidable asthma attacks

Estimated number of asthma incidents prevented through 2050 by EPA regulations that the Trump administration is targeting for rollback

EPA standard	Estimated number of symptomatic asthma incidents prevented
Air quality standards for fine-particle pollution	15.2M
Carbon pollution standards for fossil fuel-fired power plants	5.17M
Clean cars rule (model year 2027 and later)	1.04M
Clean trucks rule (phase 3)	48.77K
Federal good neighbor rule	33.21M
Heavy-duty vehicle emission standards (model year 2027 and later)	43.79M
Mercury and air toxics standards	7.47K
Oil and gas methane rule	2.19M
Total	**100.66M**

Note: The above estimates do not include prevented asthma incidents from the following EPA standards for which data were not available: national emission standards for hazardous air pollutants for boilers, hydrofluorocarbon phasedown - technology transition rule, national emission standards for hazardous air pollutants for iron and steel, and national emission standards for hazardous air pollutants.

Source: Environmental Protection Network, "Facts: Rollbacks of Pollution Rules Will Cost 200k Lives"; Jeremy Symons and others, "Breathing Easy: An Assessment of Public Health Benefits from EPA Air Pollution Standards (2021-24)" (2024); U.S. Environmental Protection Agency, "EPA Launches Biggest Deregulatory Action in U.S. History."

Table: Center for American Progress

Canceling clean energy investments will worsen asthma among Americans and increase energy costs

Alongside its efforts to gut pollution standards and cut funding to monitor and improve air quality, the Trump administration is also working to end federal investments in clean energy, which would otherwise reduce pollution and, thus, asthma.[64] Issued on the first day of Trump's second term as president, Executive Order 14154 directs federal agencies to freeze funding for IRA and IIJA clean energy programs. These include the Greenhouse Gas Reduction Fund, which would help more than 900,000 working-class and lower-income households access the benefits of solar energy, and the Home Energy Rebates program, which assists families in making home energy efficiency improvements to save money on their electricity bills, improve indoor air quality, and reduce asthma risks in their homes.[65] The Trump administration has assembled a list of 300 clean energy projects funded by the U.S. Department of Energy to potentially eliminate.[66] Examples include household solar installations and energy efficiency projects that would reduce demand on power plants, decreasing particulate pollution and ground-level ozone concentrations.[67]

Increasing household electricity costs

Eliminating clean energy and energy efficiency programs would have significant economic ramifications for families. The U.S. Department of Energy estimates that home appliance updates made possible by the Home Energy Rebates program would save families up to $1 billion annually.[68] Despite these benefits, the Trump administration's funding freeze denies families needed support to cut their energy costs and improve their homes' energy efficiency and indoor air quality, as well as their health and safety.[69] In addition, the House Republican budget bill would essentially repeal the IRA's clean energy incentives and could cause annual home electric bills to jump $110 by 2026.[70]These moves come on top of a host of other actions taken by the Trump administration that will raise electricity costs for consumers, such as imposing tariffs on key electrical components and encouraging ratepayer subsidization of new data centers.[71]

Cutting clean energy and energy efficiency programs will compound the financial and health struggles that too many American families face—many of which are deeply interconnected. Across the country, 33 million families experience energy insecurity, 4.9 million lack basic heating, and 6.3 million lack air conditioning.[72] As climate change makes extreme weather more common, American families will face higher asthma risks from stifling heat and cold as well as from dry air, which can trigger asthma attacks. They will also face higher energy bills as their heating and cooling needs soar.[73]In fact, extreme heat causes more death and injury than any other weather phenomena in the United States, creating $1 billion in health care costs every summer.[74]

Over the past two years, even before the Trump administration attempted to withhold IRA funds that Congress obligated, Republicans in Congress made repeated attempts to overturn the IRA, voting 54 times to do so.[75] Recently, House Republicans passed a budget bill that would functionally do the same.[76] Repealing the IRA would not only prevent the funding described above from reaching Americans but would also discontinue incentives for clean energy that are essential to lowering energy costs and decreasing asthma-inducing air pollution by reducing reliance on fossil fuels.

Meanwhile, the administration has also taken unprecedented steps that have propped up corporate polluters and promoted fossil fuels.[77] For example, President Trump issued an EO mandating agencies to bail out the coal industry, which has been in decline for decades, by opening federal lands to coal leasing and attempting to extend the operating life of coal plants to keep them running as long as possible.[78]The EO also directs agencies to review and consider weakening or canceling regulations, programs, and incentives that support the transition away from coal use—the dirtiest and most carbon-intensive fossil fuel —to clean renewable energy.[79] An Energy Innovation study found that renewable energy, such as wind and solar, would provide cheaper energy than 99 percent of coal plants.[80] Coal plants are not only cost inefficient, they are dangerous. Researchers at Harvard University, George Mason University, and the University of Texas, Austin, found that soot pollution from coal plants has killed a "staggering" number of Americans—460,000 between 1999 and 2020.[81]

These actions come at a time when power demand is expected to rapidly increase due to demand from artificial intelligence-focused data centers.[82] If cleaner technologies are not available to supply power to these data center projects, it is estimated that existing facilities and new build-outs in the United States could cause an additional 600,000 asthma cases and 1,300 premature deaths in 2030.[83]

Freezing funds for clean transportation will increase pollution

Eliminating environmental protections and freezing funding for energy efficiency, community solar, and wind projects are not the only Trump administration actions that will increase pollution and, as a result, asthma. The transportation sector is one of the most significant sources of air pollution because combustion engine vehicles emit pollution directly into densely populated environments and therefore have an outsize impact on public health. This is especially true of medium and heavy-duty trucks and buses, which are far more likely to use diesel engines.[84] Diesel-powered heavy-duty vehicles make up less than 10 percent of vehicles on U.S. roads but are responsible for 20 percent of vehicle nitrogen oxide and 25 percent of vehicle soot emissions, two major contributors to asthma.[85]Diesel exhaust is also known to contain at least 40 cancer-causing substances.[86] In 2010, roughly 18 percent of all new childhood asthma cases wereestimated to be attributable to nitrogen dioxide pollution, most of which comes from transportation.[87] Electrifying transportation is an efficient way to reduce pollution from the sector and therefore decrease the risk of asthma.

Despite these dangers, the Trump administration has wasted no time trying to freeze federal programs to electrify heavy-duty trucks. Executive Order 14154 directed the EPA to freeze funding through the IRA and IIJA's Clean Ports, Clean School Bus, and Clean Heavy-Duty Vehicles programs.[88] These programs supported the electrification of heavy-duty vehicles that have a significant impact, such as school buses that carry kids through communities every school day and port drayage trucks that move thousands of containers around and through port-side communities.[89] The ALA estimates that electrifying all new heavy-duty vehicles by 2040, alongside 100 percent clean electricity generation, would prevent 1.75 million asthma attacks by 2050.[90]

The Trump administration has also attacked efforts to electrify passenger cars and trucks by attempting to pause funding under the National Electric Vehicle

Infrastructure program.[91] While emitting less per vehicle than heavy-duty trucks, passenger vehicles still contribute significantly to asthma. The ALA estimates that moving to 100 percent electrified passenger vehicle sales and 100 percent clean electricity generation by 2035 would prevent 2.2 million asthma attacks by 2050.[92]

To take these actions even further, House Republicans' budget plan would rapidly phase out IRA tax credits for clean vehicles; functionally eliminate a critical clean energy manufacturing tax credit; and rescind unspent funding for grants supporting the electrification of heavy-duty trucking, port operations, and school buses.[93] In addition, it would add a $250 registration fee for electric vehicles and a $100 registration fee for hybrid vehicles—punishing Americans who switch to vehicles that are less reliant on gasoline.[94] The House Republican budget bill would also raise gasoline prices by 25 cents to 37 cents per gallon by 2035 as demand for oil increases due to the bill's termination of federal electric vehicle affordability programs, fuel economy standards, and tailpipe emission standards. [95]

Furthermore, on May 22, Senate Republicans improperly voted through three Congressional Review Act (CRA) resolutions targeting California's vehicle emission standards, functionally breaking the chamber's own rules by evading the Senate parliamentarian's ruling that California's standards are not subject to the CRA. As noted by more than 100 public health and environmental organizations, overturning California's standards will lead to "more children suffering asthma attacks and missing school, more grandparents dying prematurely, and more death and destruction from extreme weather."[96]

Cutting funds for asthma prevention, education, and treatment will increase asthma complications

Among the programs and staff gutted by Health and Human Services Secretary Robert F. Kennedy Jr. are programs to address asthma, smoking, and tuberculosis, even though he claims that reducing chronic disease is a priority.[97]

Housed within the U.S. Centers for Disease Control and Prevention, the National Center for Environmental Health (NCEH) includes a variety of education, research, and prevention programs designed to reduce the harms of asthma.[98] Gutting the NCEH—including its support for state and local health departments—will diminish public health protections from environmental hazards such as air pollution, climate change, and chemical exposures. These cuts affect the following programs that reduce asthma risks for Americans:

- The National Asthma Control Program and its work to reduce asthma-related deaths, hospitalizations, and emergency department visits by promoting policies to reduce air pollution. This includes supporting communities, schools, and families in identifying asthma triggers, managing asthma, and improving asthma health care by providing health care providers and schools with evidence-based treatment guidelines.[99] From 1999 through 2018, this program helped reduce asthma-related death rates by more than 45 percent, saving $71 in health care costs and lost income for every dollar spent.[100] Experts predict that cuts will leave schools less prepared to support students with asthma, which could lead to more hospitalizations and emergency department visits, poorer health, preventable deaths, and higher health care costs.[101]

- The Climate and Health Program, which supports state and local health departments in identifying and preparing for climate-related health threats, including wildfires and other extreme weather events that lower air quality and trigger asthma.[102] Efforts to help states identify the most at-risk populations and communities have also been cut.
- The Office on Smoking and Health, which works to identify trends in tobacco product use, which exacerbates asthma.[103] Public education campaigns and support to those who want to quit smoking have also been cut.[104] These cuts threaten to unwind progress in reducing smoking rates among adults and teens.
- The National Institute for Occupational Safety and Health, which identifies, prevents, and reduces occupational asthma and respiratory hazards in the workplace.[105] Even with some recent staff reinstatements, sweeping layoffs have significantly hampered federal efforts to protect the respiratory health of firefighters, medical providers, and construction workers, among others.[106]
- The Trump administration has also cut and undermined regulation and enforcement of tobacco products, which are known asthma triggers reducing protections against chronic diseases.[107]

In addition, the administration is expected to slash funding for the Department of Housing and Urban Development—including millions of dollars in funding for projects that improve housing energy efficiency, indoor air quality, and climate resilience—despite evidence that poor housing quality affects asthma.[108] The administration's cuts at the National Institutes of Health threaten research on asthma, translation of research into strategies to reduce disease, support for effective asthma treatments, and education and outreach to help people with asthma stay healthy.[109]

These cuts come at a time of rising asthma rates and costs. As noted above, asthma in the United States increased by about 10 million cases between 1990 and 2019, with an average annual cost of approximately $82 billion from 2008 to 2013.[110] The Trump administration cuts to asthma and tobacco prevention programs and other federal programs focusing on air pollution and worker health and safety are expected to lead to more avoidable hospitalizations and emergency department visits, poorer quality air, higher health care costs, and poorer health outcomes.[111]

Medicaid cuts could dramatically reduce the ability of working-class families to pay for health care appointments, medicine such as inhalers, and emergency care if needed.

Although asthma can be controlled with proper medical care and other precautions, it cannot be cured,[112] and thus access to quality health care is critical. Yet at the same time that the Trump administration is increasing pollution and is cutting asthma-related prevention, outreach, and education programs, House Republicans' budget bill includes historic cuts to the Medicaid program—threatening access to asthma care for millions of children and adults.[113] Medicaid and the Children's Health Insurance Program cover health care costs for almost half of all children with asthma in the United States, and Medicaid also covers costs for many adults with asthma.[114] Adults under age 65 with Medicaid or other public insurance coverage are about twice as likely to have asthma compared with those covered by private insurance.[115] Approximately 1 in 10 children and adults covered by the Medicaid program have asthma.[116] Therefore, Medicaid cuts could dramatically reduce the ability of working-class families to pay for health care appointments, medicine such as inhalers, and emergency care if needed.

These moves are compounded by the Trump administration's proposed pharmaceutical tariffs, which, if enacted, could drive up the cost of asthma medications, cause medication shortages, and slow research and development of new asthma treatments.[117] The Budget Lab at Yale found that a 25 percent tariff would raise prescription medication prices by an average of 15 percent, with increases likely to be passed on to individuals and families.[118] Another study commissioned by a U.S. pharmaceutical lobby group predicted an average price increase of roughly 13 percent, not including the impact of potential retaliatory tariffs.[119] This could mean that the average retail price of an albuterol inhaler, a commonly used asthma medication, at slightly more than $98 in 2024, would climb by roughly $13 to about $111 or higher.[120]

Conclusion

The Trump administration is aggressively rolling back environmental protections and cutting funds for asthma research and prevention, even as half of Americans are breathing unhealthy air and climate disasters are worsening air quality.Health experts warn that stripping away environmental safeguards will have dangerous consequences, including increasing harmful air pollution, threatening Americans' health, and increasing cases of asthma and asthma attacks.[121] As President Trump breaks his promise to deliver "the cleanest air and water on the planet" and his administration's tariffs threaten to increase medication prices and limit availability—alongside House Republicans' plan to eliminate clean energy incentives and funding for pollution reduction programs and rip away health care coverage for millions—more children and adults will gasp for breath.[122] These moves will worsen all Americans' health and quality of life, but they will have the greatest impact on people with asthma and in places where pollution levels are the highest.[123]

"Our most vulnerable and our most valuable, our children and our elders, deserve so much better," said Garcia. "We need and deserve a government that works for everyone, not just large corporate developers, not just polluters, not just the rich."[124]

> "We need and deserve a government that works for everyone, not just large corporate developers, not just polluters, not just the rich."
>
> Angela Garcia

Americans need a government that will strengthen and accelerate actions to protect their health, not strip away clean air and public health safeguards. In addition, Americans deserve a government that works for all people—not just billionaires and fossil fuel executives. To reduce asthma risks, protect public health, lower health care costs, and reduce productivity losses tied to poor health, Americans need a government that will improve environmental protections. An administration that truly wants to make America healthy could implement strong pollution standards, expand access to clean renewable energy, incentivize clean energy storage to replace fossil-fueled peaker plants, and prevent the permitting or expansion of fossil fuel projects and polluting industrial facilities in communities already struggling to cope with the health risks tied to pollution.[125] An administration committed to protecting Americans' health and safety could also ensure cool and healthy homes for all by investing in efficient and cost-effective heat pump air conditioning and programs to lower household electricity costs, reduce pollution, and protect low-income and working-class families from dangerous heat.[126]

These actions—along with adequately and sustainably supporting asthma prevention, education, and treatment—are essential to protect public health; control preventable disease; and safeguard the right of all Americans to breathe clean air, drink clean water, and live in healthy communities. The Trump administration's agenda to abandon environmental and public health protections would rob everyday Americans of this right and threaten their health, lives, and economic security—all to let big polluters off the hook and boost their own bottom lines.[127]

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Endnotes

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1 American Lung Association, "Asthma Trend Brief," available at https://www.lung.org/research/trends-in-lung-disease/asthma-trends-brief (last accessed May 2025).

2 U.S. Centers for Disease Control and Prevention, "Living with Asthma," available at https://www.cdc.gov/asthma/living-with/index.html (last accessed May 2025).

3 Angela Garcia, advocate for the Globeville and Elyria-Swansea community and former employee of the Colorado Department of Public Health and Environment, interview via Zoom with Margaret Cooney, senior campaign manager at CAP, and Olivia Mowry, video producer at CAP, April 18, 2025, on file with authors.

4 Harvard University T.H. Chan School of Public Health, "Asthma and Air Pollution: Protecting Children's Health," available at https://hsph.harvard.edu/research/climate-health-c-change/climate-kids-and-health/asthma/ (last accessed May 2025); University of Pennsylvania, "Managing Asthma Amid the Summer Heat and Dips in Air Quality,", June 27, 2019, available at https://penntoday.upenn.edu/news/managing-asthma-amid-summer-heat-and-dips-air-quality; American Lung Association, "Driving to Clean Air: Health Benefits of Zero-Emission Cars and Electricity" (Chicago, IL: 2023), available at https://www.lung.org/getmedia/9e9947ea-d4a6-476c-9c78-cccf7d49ffe2/ala-driving-to-clean-air-report.pdf.

5 Coral Davenport, "Inside Trump's Plan to Halt Hundreds of Regulations," *The New York Times*, April 15, 2025, available at https://www.nytimes.com/2025/04/15/us/politics/trump-doge-regulations.html; Cathleen Kelly and Jasia Smith, "How the Trump Administration's Agenda To Eliminate Environmental Protections and Promote the Fossil Fuel Industry Harms Public Health," Center for American Progress, April 2, 2025, available at https://www.americanprogress.org/article/how-the-trump-administrations-agenda-to-eliminate-environmental-protections-and-promote-the-fossil-fuel-industry-harms-public-health/; Lisa Friedman and Hiroko Tabuchi, "E.P.A. Targets Dozens of Environmental Rules as It Reframes Its Purpose," *The New York Times*, March 12, 2025, available at https://www.nytimes.com/2025/03/12/climate/epa-zeldin-rollbacks-pollution.html; Jill Rosenthal, Marquisha Johns, and Jasia Smith, "Project 2025 Would Make It Easier for Big Corporations To Dump Dangerous Toxins That Poison Americans," Center for American Progress, August 7, 2024, available at https://www.americanprogress.org/article/project-2025-would-make-it-easier-for-big-corporations-to-dump-dangerous-toxins-that-poison-americans/; Earthjustice, "What Project 2025 Would Do to the Environment – and How We Will Respond," November 12, 2024, available at https://earthjustice.org/article/what-project-2025-would-do-to-the-environment-and-how-we-will-respond; Josh Dawsey and Maxine Joselow, "What Trump promised oil CEOs as he asked them to steer $1 billion to his campaign," *The Washington Post*, May 9, 2024, available at https://www.washingtonpost.com/politics/2024/05/09/trump-oil-industry-campaign-money/; Ariel Wittenberg and E&E News, "Childhood Asthma Will Worsen with Pollution Rollbacks and CDC Cuts," *Scientific American*, April 22, 2025, available at https://www.scientificamerican.com/article/child-asthma-will-worsen-with-trumps-pollution-rollbacks-and-rfk-jr-s-cdc/; Nick Valencia and others, "'It's a bloodbath': Massive wave of job cuts underway at US health agencies," CNN, April 2, 2025, available at https://www.cnn.com/2025/04/01/health/staff-cuts-at-federal-health-agencies-have-begun/index.html.

6 Mary Kekatos, "Trump's proposed pharmaceutical tariffs could drive up costs, lead to drug shortages: Experts," ABC News, April 9, 2025, available at https://abcnews.go.com/Health/trumps-proposed-pharmaceutical-tariffs-drive-costs-lead-drug/story?id=120630296; The Budget Lab at Yale, "The Fiscal and Economic Effects of the Revised April 9 Tariffs," April 10, 2025, available at https://budgetlab.yale.edu/research/fiscal-and-economic-effects-revised-april-9-tariffs.

7 Environmental Protection Network, "Facts: The Trump Administration's Attacks on EPA Will Harm Public Health and Safety," available at https://www.environmentalprotectionnetwork.org/epafacts/the-trump-administrations-attacks-on-epa-will-harm-public-health-safety/ (last accessed May 2025); Oliver Milman, Dharna Noor, and Aliya Uteuova, "Trump's EPA aims to cut pollution rules projected to save nearly 200,000 lives: 'People will be hurt,'" *The Guardian*, March 19, 2025, available at https://www.theguardian.com/us-

news/2025/mar/19/trump-epa-pollution-regulation-cuts; Hayley Smith, "Trump is cutting the nation's environmental programs. Here are the health risks to Americans," *Los Angeles Times*, April 5, 2025, available at https://www.latimes.com/environment/story/2025-04-05/trump-is-gutting-the-nations-environmental-programs-heres-how-much-it-will-cost-americans; Environmental Protection Network, "Facts: Rollbacks of Pollution Rules Will Cost 200k Lives," available at https://www.environmentalprotectionnetwork.org/epafacts/facts-rollbacks-of-pollution-rules-will-cost-over-200k-lives/ (last accessed May 2025).

8 Natasha Murphy and Andrea Ducas, "Congressional Republicans' Proposals To Slash Medicaid Could Cost Tens of Thousands of Lives," Center for American Progress, April 23, 2025, available at https://www.americanprogress.org/article/congressional-republicans-proposals-to-slash-medicaid-could-cost-tens-of-thousands-of-lives/; U.S. Centers for Medicare and Medicaid Services, "December 2024 Medicaid & CHIP Enrollment Data Highlights," available at https://www.medicaid.gov/medicaid/program-information/medicaid-and-chip-enrollment-data/report-highlights#:~:text=78%2C532%2C341%20people%20were%20enrolled%20in,Medicaid%20and%20CHIP%20program%20enrollment (last accessed May 2025); Colin Seeberger and others, "The Devastating Harms of House Republicans' Big 'Beautiful' Bill by State and Congressional District," Center for American Progress, May 21, 2025, available at https://www.americanprogress.org/article/the-devastating-harms-of-house-republicans-big-beautiful-bill-by-state-and-congressional-district/.

9 Environmental Protection Network, "Facts: Rollbacks of Pollution Rules Will Cost 200k Lives."

10 Ibid; Mayo Clinic, "Asthma," available at https://www.mayoclinic.org/diseases-conditions/asthma/symptoms-causes/syc-20369653 (last accessed May 2025); American Lung Association, "Asthma Trends Brief"; American Lung Association, "Asthma Trends and Burden," available at https://www.lung.org/research/trends-in-lung-disease/asthma-trends-brief/trends-and-burden (last accessed May 2025).

11 Daphne Koinis-Mitchell and others, "Asthma and Academic Performance in Urban Children," *Annuals of Allergy, Asthma & Immunology* 122 (5) (2019): 471–477, available at https://pmc.ncbi.nlm.nih.gov/articles/PMC6538301/; Kevin Gruffydd-Jones and others, "Asthma impacts on workplace productivity in employed patients who are symptomatic despite background therapy: a multinational survey," *Journal of Asthma and Allergy* 12 (2019): 183–194, available at https://pmc.ncbi.nlm.nih.gov/articles/PMC6636188/#:~:text=This%20survey%20showed%20that%20workers,by%20more%20than%20a%20third.

12 Tamara Thomas, "Asthma Cases in the US Surge By 10 Million Over 3 Decades," Urban Health Today, May 23, 2024, available at https://urbanhealthtoday.com/post/asthma-cases-in-the-us-surge-by-10-million-over-3-decades.

13 American Lung Association, "Asthma Trends and Burden."

14 Ibid.

15 Asthma and Allergy Foundation of America, "Asthma Facts," available at https://aafa.org/asthma/asthma-facts/ (last accessed May 2025); Shyamali C. Dharmage, Jennifer L. Perret, and Adnan Custovic, "Epidemiology of Asthma in Children and Adults," *Frontiers in Pediatrics* 7 (246) (2019), available at https://pmc.ncbi.nlm.nih.gov/articles/PMC6591438/#:~:text=It%20is%20well%2Dknown%20that,mortality%20are%20higher%20in%20adults.

16 Adrian Gillissen and Maria Paparoupa, "Inflammation and infections in asthma," *The Clinical Respiratory Journal* 9 (3) (2014): 257–269, available at https://pmc.ncbi.nlm.nih.gov/articles/PMC7162380/; U.S. Centers for Disease Control and Prevention, "Controlling Asthma," available at https://www.cdc.gov/asthma/control/index.html (last accessed May 2025).

17 American Lung Association, "State of the Air 2025 Report" (Chicago, IL: 2025), available at https://www.lung.org/getmedia/5d8035e5-4e86-4205-b408-865550860783/State-of-the-Air-2025.pdf; U.S. Environmental Protection Agency, "Air Quality – National Summary," available at https://www.epa.gov/air-trends/air-quality-national-summary (last accessed May 2025).

18 American Lung Association, "New Report: Nearly Half of People in U.S. Exposed to Dangerous Air Pollution Levels," Press release, April 23, 2025, available at https://www.lung.org/media/press-releases/state-of-the-air-2025.

19 U.S. Environmental Protection Agency, "Air Quality – National Summary"; U.S. Environmental Protection Agency, "Evolution of the Clean Air Act," available at https://www.epa.gov/clean-air-act-overview/evolution-clean-air-act#:~:text=The%20Clean%20Air%20Act%20of,monitoring%20and%20controlling%20air%20pollution (last accessed May 2025); American Lung Association, "Recommendations for Action," available at https://www.lung.org/research/sota/protect-yourself-community (last accessed May 2025).

20 Asthma and Allergy Foundation of America, "Air Pollution and Asthma," available at https://aafa.org/asthma/asthma-triggers-causes/air-pollution-smog-asthma/ (last accessed May 2025).

21 American Lung Association, "Health Impact of Air Pollution," available at https://www.lung.org/research/sota/health-risks#:~:text=Long%2Dterm%20exposure%20to%20particle,%2C%20with%20life%2Dlong%20consequences (last accessed May 2025).

22 Ibid.

23 Dr. Vijay Limaye, John Walke, and Emily Davis, "Local Air Quality Monitoring Lagging Across U.S., NRDC Finds," Natural Resources Defense Council, January 6, 2023, available at https://www.nrdc.org/bio/vijay-limaye/local-air-quality-monitoring-lagging-across-us-nrdc-finds.

24 American Lung Association, "Health Impact of Air Pollution."

25 American Lung Association, "State of the Air 2025 Report."

26 American Lung Association, "Health Impact of Air Pollution."

27 American Lung Association, "State of the Air 2025 Report"; Alden Woods, "Children exposed to higher ozone levels early in life are more likely to develop asthma," University of Washington News, April 2, 2025, available at https://www.washington.edu/news/2025/04/02/children-exposed-to-higher-ozone-levels-early-in-life-are-more-likely-to-develop-asthma/#:~:text=They%20found%20that%20a%20relatively,at%20age%204%2D6%20years.

28 American Lung Association, "Populations at Risk," available at https://www.lung.org/research/sota/key-findings/people-at-risk (last accessed May 2025).

29 American Lung Association, "Disparities in the Impact of Air Pollution," available at https://www.lung.org/clean-air/outdoors/who-is-at-risk/disparities (last accessed May 2025); Harvard University T.H. Chan School of Public Health, "Communities of color disproportionately exposed to PFAS pollution in drinking water," May 15, 2023, available at https://hsph.harvard.edu/news/communities-of-color-disproportionately-exposed-to-pfas-pollution-in-drinking-water/#:~:text=Boston%2C%20MA%20%E2%80%93%20People%20who%20live,study%20led%20by%20researchers%20from; Harvard University T.H. Chan School of Public Health, "Racial, ethnic minorities and low-income groups in U.S. exposed to higher levels of air pollution," January 12, 2022, available at https://hsph.harvard.edu/news/racial-ethnic-minorities-low-income-groups-u-s-air-

pollution/#:~:text=Previous%20research%20has%20shown%20that,air%20pollution%20among%20these%20groups.

30 American Lung Association, "Asthma Trends and Burden."

31 American Lung Association, "State of the Air 2025 Report."

32 American Lung Association, "Key Findings," available at https://www.lung.org/research/sota/key-findings (last accessed May 2025).

33 Angela Garcia, interview via Zoom with Margaret Cooney and Olivia Mowry, on file with authors.

34 Executive Office of the President, "Executive Order 14154: Unleashing American Energy," *Federal Register* 90 (18) (2025): 8353–8359, available at https://www.federalregister.gov/documents/2025/01/29/2025-01956/unleashing-american-energy#page-; Davenport, "Inside Trump's Plan to Halt Hundreds of Regulations"; Oliver Milman, "Trump has launched more attacks on the environment in 100 days than his entire first term," *The Guardian*, May 1, 2025, available at https://www.theguardian.com/environment/2025/may/01/trump-air-climate-pollution-regulation-100-days; Friedman and Tabuchi, "E.P.A. Targets Dozens of Environmental Rules as It Reframes Its Purpose"; Rosenthal, Johns, and Smith, "Project 2025 Would Make It Easier for Big Corporations To Dump Dangerous Toxins That Poison Americans"; Earthjustice, "What Project 2025 Would Do to the Environment – and How We Will Respond"; Dawsey and Joselow, "What Trump promised oil CEOs as he asked them to steer $1 billion to his campaign."

35 U.S. Environmental Protection Agency, "EPA Launches Biggest Deregulatory Action in U.S. History," Press release, March 12, 2025, available at https://www.epa.gov/newsreleases/epa-launches-biggest-deregulatory-action-us-history; Anthony Leiserowitz and others, "Climate Change in the American Mind: Beliefs & Attitudes, Fall 2024" (New Haven, CT: Yale University Program on Climate Change Communication: 2025), available at https://climatecommunication.yale.edu/publications/climate-change-in-the-american-mind-beliefs-attitudes-fall-2024/toc/2/.

36 Leo Banks and Lucero Marquez, "The Trump Administration Has Invited Power Plants to Emit More Toxic Pollution in a Giveaway to Corporate Polluters," Center for American Progress, April 4, 2025, available at https://www.americanprogress.org/article/the-trump-administration-has-invited-power-plants-to-emit-more-toxic-pollution-in-a-giveaway-to-corporate-polluters/; Hiroko Tabuchi, "E.P.A. Offers a Way to Avoid Clean-Air Rules: Send an Email," *The New York Times*, March 27, 2025, available at https://www.nytimes.com/2025/03/27/climate/epa-air-pollution-exemption-mercury-coal-ash.html?smid=nytcore-ios-share&referringSource=articleShare; Lisa Friedman, "E.P.A. to Tighten Limits on Mercury and Other Pollutants From Power Plants," *The New York Times*, April 5, 2023, available at https://www.nytimes.com/2023/04/05/climate/epa-mercury-coal-plants.html; U.S. Environmental Protection Agency, "Biden-Harris Administration Proposes to Strengthen the Mercury and Air Toxics Standards for Power Plants," Press release, April 5, 2023, available at https://www.epa.gov/newsreleases/biden-harris-administration-proposes-strengthen-mercury-and-air-toxics-standards-power.

37 Matthew Daly, "Trump exempts nearly 70 coal plants from Biden-era rule on mercury and other toxic air pollution," The Associated Press, April 15, 2025, available at https://apnews.com/article/trump-coal-power-plants-epa-exemptions-zeldin-2cd9f2697b5f46a88ab9882ab6fd1641; U.S. Environmental Protection Agency, "Presidential Proclamation – Regulatory Relief for Certain Stationary Sources to Promote American Energy," available at https://www.epa.gov/stationary-sources-air-pollution/presidential-proclamation-regulatory-relief-certain-stationary (last accessed May 2025); U.S. Environmental Protection Agency, "Final Rule – National Emission

Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units Review of the Residual Risk and Technology Review," available at https://www.epa.gov/stationary-sources-air-pollution/final-rule-national-emission-standards-hazardous-air-pollutants-0 (last accessed May 2025).

38 Matthew Daly, "Chemical industry seeks exemptions from US pollution rules as part of Trump administration offer," The Associated Press, April 4, 2025, available at https://apnews.com/article/trump-epa-toxic-chemicals-exemption-mercury-97feb73daa61df0cfbe537bf580ef99a.

39 U.S. Environmental Protection Agency Office of Air and Radiation, "Regulatory Impact Analysis for the Final National Emissions Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Steam Generating United Review of the Residual Risk and Technology Review" (Research Triangle Park, NC: 2024), available at https://www.epa.gov/system/files/documents/2024-04/2024-mats-rtr-final-ria-final.pdf.

40 Milman, "Trump has launched more attacks on the environment in 100 days than his entire first term"; Executive Office of the President, "Executive Order 14219: Ensuring Lawful Governance and Implementing the President's 'Department of Government Efficiency' Deregulatory Initiative," *Federal Register* 90 (36) (2025): 10583–10585, available at https://www.federalregister.gov/documents/2025/02/25/2025-03138/ensuring-lawful-governance-and-implementing-the-presidents-department-of-government-efficiency; The White House, "Directing the Repeal of Unlawful Regulations," April 9, 2025, available at https://www.whitehouse.gov/presidential-actions/2025/04/directing-the-repeal-of-unlawful-regulations/.

41 Davenport, "Inside Trump's Plan to Halt Hundreds of Regulations"; Julie McNamara, "The Illegal Trump Scheme to Have Agencies Obliterate Critical Rules and Safeguards," Union of Concerned Scientists, March 24, 2025, available at https://blog.ucs.org/julie-mcnamara/the-illegal-trump-scheme-to-have-agencies-obliterate-critical-rules-and-safeguards/.

42 Rosenthal, Johns, and Smith, "Project 2025 Would Make It Easier for Big Corporations To Dump Dangerous Toxins That Poison Americans."

43 U.S. Environmental Protection Agency, "Final Rule: Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles," available at https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-multi-pollutant-emissions-standards-model (last accessed May 2025); U.S. Environmental Protection Agency, "Biden-Harris Administration Finalizes Suit of Standards to Reduce Pollution from Fossil Fuel-Fired Power Plants," Press release, April 25, 2024, available at https://www.epa.gov/newsreleases/biden-harris-administration-finalizes-suite-standards-reduce-pollution-fossil-fuel#:~:text=The%20final%20rule%20reduces%20the,accurate%20data%20to%20regulators%2C%20facility; Union of Concerned Scientists, "Cars, Trucks, Buses and Air Pollution," available at https://www.ucs.org/resources/cars-trucks-buses-and-air-pollution#:~:text=VOCs%20emitted%20from%20cars%2C%20trucks,and%20particulate%20matter%20(secondary) (last accessed May 2025).

44 Executive Office of the President, "Zero-Based Regulatory Budgeting to Unleash American Energy," *Federal Register* 90 (71) (2025): 15643–15646, available at https://www.federalregister.gov/documents/2025/04/15/2025-06466/zero-based-regulatory-budgeting-to-unleash-american-energy.

45 Ibid.

46 Matt O'Brien, Tom Krisher, and The Associated Press, "Elon Musk's own businesses sit front and center as he says he and Trump have a 'mandate to delete' regulations with DOGE," *Fortune*, November 14, 2024, available athttps://fortune.com/2024/11/14/elon-musk-tesla-spacex-x-trump-mandate-to-delete-regulations-doge/; Stephen Fowler and Shannon Bond, "What has DOGE done in Trump's first 100 days?", NPR, April 28, 2025, available at https://www.npr.org/2025/04/28/nx-s1-5377445/doge-musk-trump-

100-days; House Committee on the Judiciary Democrats, "Fact Sheet: Trump Administration, DOGE Punish Agencies Investigating Elon Musk's Companies," available at https://democrats-judiciary.house.gov/uploadedfiles/2025.02.13_fact_sheet_re_musk_investigations.pdf (last accessed May 2025).

47 Mark C. Kalpin and others, "Trump Executive Order Requires FERC, Other Agencies to Add Sunset Rule into Regulations," Holland & Knight, April 15, 2025, available at https://www.hklaw.com/en/insights/publications/2025/04/trump-executive-order-requires-ferc-other-agencies-to-add-sunset.

48 Leiserowitz and others, "Climate Change in the American Mind: Beliefs & Attitudes, Fall 2024"; Eva Brungard, Grace Adcox, and Catherine Fraser, "On Earth Day's 55th Anniversary, a Majority of Voters Say the U.S. Is Already Experiencing the Effects of Climate Change," Data For Progress, April 22, 2025, available at https://www.dataforprogress.org/blog/2025/4/21/on-earth-days-55th-anniversary-a-majority-of-voters-say-the-us-is-already-experiencing-the-effects-of-climate-change.

49 Julia Fine and others, "A majority of registered voters want federal agencies to increase their efforts to protect people from the health harms of global warming," Yale Program on Climate Communications, May 15, 2025, available at https://climatecommunication.yale.edu/publications/a-majority-of-registered-voters-want-federal-agencies-to-increase-their-efforts-to-protect-people-from-the-health-harms-of-global-warming-2/.

50 Executive Office of the President, "Unleashing American Energy"; U.S. Environmental Protection Agency, "Climate Change Regulatory Actions and Initiatives," available at https://www.epa.gov/climate-change/climate-change-regulatory-actions-and-initiatives#:~:text=On%20December%207%2C%202009%2C%20EPA,or%20contribute%20to%20climate%20change(last accessed May 2025); U.S. Environmental Protection Agency, "Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act," available at https://www.epa.gov/climate-change/endangerment-and-cause-or-contribute-findings-greenhouse-gases-under-section-202a (last accessed May 2025).

51 Annie Snider, "Zeldin says EPA will launch formal rulemaking effort to overturn key climate finding," Politico, April 21, 2025, available at https://subscriber.politicopro.com/article/eenews/2025/04/21/epa-to-formalize-its-effort-to-overturn-key-climate-finding-ee-00301108; Margo T. Oge, "Repealing EPA's 'Endangerment Finding' Could Threaten Public Health," *Forbes*, March 10, 2025, available at https://www.forbes.com/sites/margooge/2025/03/10/repealing-epas-endangerment-finding-could-threaten-public-health/; U.S. Environmental Protection Agency, "Fact Sheet: Carbon Pollution Standards for Fossil Fuel-Fired Power Plants: Final Rule Standards and Regulatory Impact Analysis," available at https://www.epa.gov/system/files/documents/2024-04/cps-111-fact-sheet-standards-and-ria-2024.pdf (last accessed May 2025); U.S. Environmental Protection Agency, "Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles: Final Rule" (Washington, D.C.: 2024), available at https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1019VP5.pdf; U.S. Environmental Protection Agency, "Final Rule: Greenhouse Gas Emissions Standards for Heavy-Duty Vehicles – Phase 3," available at https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-greenhouse-gas-emissions-standards-heavy-duty (last accessed May 2025); U.S. Environmental Protection Agency, "EPA's Final Rule to Reduce Methane and Other Harmful Pollution from Oil and Natural Gas Operations and Related Actions," December 2, 2023, available at https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-operations/epas-final-rule-reduce-methane-and-other.

52 Lisa Friedman, "Documents Show E.P.A. Wants to Erase Greenhouse Gas Limits on Power Plants," *The New York Times*, May 24, 2025, available at

https://www.nytimes.com/2025/05/24/climate/epa-power-plant-rules.html?smid=nytcore-ios-share&referringSource=articleShare.

53 American Lung Association, "Populations at Risk."

54 NASA, "Extreme Weather and Climate Change," available at https://science.nasa.gov/climate-change/extreme-weather/ (last accessed May 2025); Cathleen Kelly, Lucero Marquez, and Jasia Smith, "How Congress Can Protect Families From Dangerous Heat and Ensure Cool and Healthy Homes for All" (Washington, D.C.: Center for American Progress, 2024), available at https://www.americanprogress.org/article/how-congress-can-protect-families-from-dangerous-heat-and-ensure-cool-and-healthy-homes-for-all/#:~:text=To%20help%20households%20keep%20their,to%20those%20who%20need%20them.; U.S. National Oceanic and Atmospheric Administration, "Billion-Dollar Weather and Climate Disasters: Overview," available at https://www.ncei.noaa.gov/access/billions/ (last accessed May 2025); Andrea Chang, Roger Vincent, and Marisa Gerber, "Behind the staggering economic toll of the L.A. wildfires," *Los Angeles Times*, February 12, 2025, available at https://www.latimes.com/business/story/2025-02-12/la-wildfires-economic-impact-insurance-construction-real-estate-rebuild-los-angeles; Jennilee Luedders, Jill A Poole, and Andrew C Rorie, "Extreme Weather Events and Asthma," *Immunology and Allergy Clinics of North America* 44 (1) (2023): 35–44, available at https://pmc.ncbi.nlm.nih.gov/articles/PMC11472832/#:~:text=Wildfires%20generate%20large%20amounts%20of,dampness%20and%20worsen%20asthma%20symptoms.

55 Simmone Shah, "How Trump is Trying to Undo the Inflation Reduction Act," *Time*, February 27, 2025, available at https://time.com/7262600/how-trump-is-trying-to-undo-the-inflation-reduction-act/; The White House, "Inflation Reduction Act Guidebook," available at https://bidenwhitehouse.archives.gov/cleanenergy/inflation-reduction-act-guidebook/ (last accessed May 2025); The White House, "A Guidebook to the Bipartisan Infrastructure Law," available at https://bidenwhitehouse.archives.gov/build/guidebook/ (last accessed May 2025); Cathleen Kelly, Michele Roberts, and Rachel Chang, "Securing Environmental Justice for All" (Washington, D.C.: Center for American Progress, 2024), available at https://www.americanprogress.org/article/how-the-biden-administration-is-fighting-for-clean-air-and-water-climate-protection-and-healthy-communities-for-all/; Elena Moore, "A second federal judge has ruled to block the Trump administration's spending freeze," NPR, March 6, 2025, available at https://www.npr.org/2025/03/06/nx-s1-5312069/trump-federal-funding-freeze-court-order.

56 Maxine Joselow and Amudalat Ajasa, "The EPA is canceling almost 800 environmental justice grants, court filing reveals," *The Washington Post*, April 29, 2025, available at https://www.washingtonpost.com/climate-environment/2025/04/29/epa-environmental-justice-grants-canceled/.

57 Eva Tesfaye, "Is planting trees 'DEI'? Trump administration cuts nationwide tree-planting effort," NPR, March 21, 2025, available at https://www.npr.org/2025/03/21/g-s1-55090/trump-dei-trees-removal-climate-change.

58 Angela Garcia, interview via Zoom with Margaret Cooney and Olivia Mowry, on file with authors; Sam Brasch, "Colorado environmental justice groups are struggling to keep their projects alive after federal funding cuts," Colorado Public Radio, May 28, 2025, available at https://www.cpr.org/2025/05/28/colorado-environmental-justice-groups-struggling-federal-funding-cuts/.

59 Alexandra Adams, "4 Reasons the Reconciliation Bill Is a Disaster for Our Communities and Economy," Natural Resources Defense Council, May 14, 2025, available at https://www.nrdc.org/media/4-reasons-reconciliation-bill-disaster-our-communities-and-economy; Bobby Kogan, "The House Republicans' Budget Bill Guts Basic Needs Programs for the Most Vulnerable Americans to Give Tax Breaks to the Rich," Center for American Progress, May 12, 2025, available at

https://www.americanprogress.org/article/the-house-republicans-budget-bill-guts-basic-needs-programs-for-the-most-vulnerable-americans-to-give-tax-breaks-to-the-rich/ .

60 Eric Katz, "EPA begins eliminating offices as DOGE tightens grip on nearly all agency spending," Government Executive, March 12, 2025, available at https://www.govexec.com/management/2025/03/epa-begins-eliminating-offices-doge-tightens-grip-nearly-all-agency-spending/403684/; Matthew Daly, "EPA plans to cut scientific research program, could fire more than 1,000 employees," The Associated Press, March 18, 2025, available at https://apnews.com/article/epa-science-layoffs-trump-doge-8a5743b9281e3f82afdf2cdd5f972d5f; Rachel Frazin, "Trump packs EPA with chemical, oil industry alumni," The Hill, January 27, 2025, available at https://thehill.com/policy/energy-environment/5109157-trump-epa-appointments-chemical-oil-industry-ties.

61 Matthew Daly and Michael Phillis, "Justice Dept. says ending Louisiana petrochemical case helps 'dismantle radical DEI programs'," The Associated Press, March 7, 2025, available at https://apnews.com/article/trump-louisiana-cancer-denka-chloroprene-epa-lawsuit-89b1f870816f65370eeb75ff269e9c0e; Sean Reilly, "Trump admin to drop landmark 'Cancer Alley' lawsuit," Politico, March 7, 2025, available at https://www.eenews.net/articles/trump-admin-to-drop-landmark-cancer-alley-lawsuit/; Jeffrey A. Hall, "Implementing National Enforcement and Compliance Initiatives Consistently with Executive Orders and Agency Priorities," U.S. Environmental Protection Agency, March 12, 2025, available at https://www.epa.gov/system/files/documents/2025-03/necimemo-20250312.pdf.

62 Valerie Volcovici, "White House clarifies Trump statement on 65% EPA staff cuts," Reuters, February 27, 2025, available at https://www.reuters.com/world/us/white-house-walks-back-trump-statement-65-epa-staff-cuts-2025-02-27; Lee Zeldin, @epaleezeldin, March 11, 2025, 10:35 a.m. ET, X, available at https://x.com/epaleezeldin/status/1899469255122223451; Environmental Protection Network, "Facts: State-by-State Impacts of Potential Cuts to EPA," available at https://www.environmentalprotectionnetwork.org/epafacts/facts-state-impacts-of-potential-cuts-to-epa/ (last accessed May 2025); Sean Reilly and others, "What a 65% cut from EPA's budget could look like," Politico, March 4, 2025, available at https://www.eenews.net/articles/what-a-65-cut-from-epas-budget-could-look-like/.

63 Environmental Protection Network, "Facts: Rollbacks of Pollution Rules Will Cost 200k Lives"; Smith, "Trump is cutting the nation's environmental programs. Here are the health risks to Americans."

64 Lamar Johnson, "IRA funding freeze has put 'many' clean energy projects on pause," ESG Dive, March 7, 2025, available at https://www.esgdive.com/news/ira-funding-freeze-caused-clean-energy-projects-to-pause/741940/; Wilson H. McNeil and others, "Impact of truck electrification on air pollution disparities in the United States," *Nature Sustainability* 8 (2025): 276–286, available at https://www.nature.com/articles/s41893-025-01515-x#:~:text=Figure%202b%20shows%20that%20low,35%25%20drop%20without%20the%20IRA; American Lung Association, "State of the Air 2025 Report."

65 Executive Office of the President, "Unleashing American Energy"; Cathleen Kelly and Jasia Smith, "The Trump Administration's Cancellation of Funding for Environmental Protections Endangers Americans' Health While Draining Their Wallets," Center for American Progress, April 2, 2025, available at https://www.americanprogress.org/article/the-trump-administrations-cancellation-of-funding-for-environmental-protections-endangers-americans-health-while-draining-their-wallets/; Alliance to Save Energy, "Public Health," available at https://www.ase.org/categories/public-health#:~:text=Energy%20efficiency%20retrofits%20in%20buildings%20can%20improve,2050%20through%20improvements%20in%20indoor%20air%20quality(last

accessed May 2025); Laura M. Paulin, Jonathan M. Samet, and Mary B Rice, "Gas Stoves and Respiratory Health: Decades of Data, but Not Enough Progress," *Annals of the American Thoracic Society* 20 (12) (2023): 1697–1699, available at https://pmc.ncbi.nlm.nih.gov/articles/PMC10704234/.

66 Jennifer McDermott, "Trump administration cancels clean energy grants as it prioritizes fossil fuels," The Associated Press, March 28, 2025, available at https://apnews.com/article/trump-energy-department-clean-energy-wind-solar-batteries-hydrogen-fossil-fuels-cf1dff9ee771c566765e9ca3e3599d91.

67 U.S. Environmental Protection Agency, "Human Health & Environmental Impacts of the Electric Power Sector," available at https://www.epa.gov/power-sector/human-health-environmental-impacts-electric-power-sector#:~:text=Elevated%20concentrations%20of%20ground%2Dlevel,and%20other%20serious%20health%20effects(last accessed May 2025); U.S. Environmental Protection Agency, "Health Effects of Ozone Pollution," available at https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution#:~:text=Some%20studies%20in%20locations%20with,many%20causes%20of%20asthma%20development(last accessed May 2025); Ruijing Ni and others, "Long-term exposure to PM2.5 has significant adverse effects on childhood and adult asthma: A global meta-analysis and health impact assessment," *One Earth* 7 (11) (2024): 1953–1969, available at https://www.sciencedirect.com/science/article/pii/S2590332224004871#:~:text=health%20impact%20assessment.-,We%20show%20that%2C%20for%20every%2010%20%CE%BCg%2Fm3%20increment,%25%E2%80%9312.9%25)%2C%20respectively.

68 Kelly and Smith, "The Trump Administration's Cancellation of Funding for Environmental Protections Endangers Americans' Health While Draining Their Wallets"; U.S. Department of Energy, "Biden-Harris Administration Announces State And Tribe Allocations For Home Energy Rebate Program," Press release, November 2, 2022, available at https://www.energy.gov/articles/biden-harris-administration-announces-state-and-tribe-allocations-home-energy-rebate.

69 Morgan Fischer, "Trump's funding freeze tanks business for Flagstaff HVAC company," *Phoenix New Times*, March 5, 2025, available at https://www.phoenixnewtimes.com/news/flagstaff-hvac-company-loses-business-trump-funding-freeze-21330925.

70 Trevor Higgins, "The House Republican Plan To Increase Gas and Electricity Prices," Center for American Progress, May 16, 2025, available at https://www.americanprogress.org/article/the-house-republican-plan-to-increase-gas-and-electricity-prices/.

71 Lucero Marquez, Akshay Thyagarajan, Shannon Baker-Branstetter, "10 Trump Administration Actions That Could Lead to Higher Electricity Prices" (Washington, D.C.: Center for American Progress, 2025), available at https://www.americanprogress.org/article/10-trump-administration-actions-that-could-lead-to-higher-electricity-prices/.

72 Kelly and Smith, "The Trump Administration's Cancellation of Funding for Environmental Protections Endangers Americans' Health While Draining Their Wallets."

73 U.S. Fifth National Climate Assessment, "How the United States is Experiencing Climate Change," available at https://nca2023.globalchange.gov/#overview-section-2(last accessed May 2025); American Lung Association, "Too Hot? How to NOT Trigger Your Asthma," May 2, 2024, available at https://www.lung.org/blog/asthma-heat-triggers; American Lung Association, "Why Is My Asthma Worse in the Winter," January 10, 2025, available at https://www.lung.org/blog/cold-weather-asthma#:~:text=Cold%20weather%20in%20particular%20is,wheezing%20and%20shortness%20of%20breath.

74 Kelly and Smith, "The Trump Administration's Cancellation of Funding for Environmental Protections Endangers Americans' Health While Draining Their Wallets."

75 Climate Power, "Inflation Reduction Act Repeal Votes Tracker," available at https://climatepower.us/research-polling/inflation-reduction-act-repeal-votes-tracker/ (last accessed May 2025).

76 Higgins, "The House Republican Plan To Increase Gas and Electricity Prices"; David Morgan, Bo Erickson, and Andy Sullivan, "US House narrowly passes Trump's sweeping tax-cut bill, sends on to Senate," Reuters, May 22, 2025, available at https://www.reuters.com/world/us/us-house-republicans-set-pre-dawn-votes-get-trump-tax-bill-over-finish-line-2025-05-22/.

77 Michelle Lewis, "Trump's war on clean energy just killed $6B in red state projects," electrek, April 18, 2025, available at https://electrek.co/2025/04/18/trumps-war-on-clean-energy-just-killed-6-billion-red-state-projects/.

78 The White House, "Temporary Withdrawal of All Areas on the Outer Continental Shelf from Offshore Wind Leasing and Review of the Federal Government's Leasing and Permitting Practices for Wind Projects," January 20, 2025, available at https://www.whitehouse.gov/presidential-actions/2025/01/temporary-withdrawal-of-all-areas-on-the-outer-continental-shelf-from-offshore-wind-leasing-and-review-of-the-federal-governments-leasing-and-permitting-practices-for-wind-projects/; U.S. Energy Information Administration, "Electricity Data Browser," available at https://www.eia.gov/electricity/data/browser/ (last accessed May 2025).

79 Melissa Denchak, "Fossil Fuels: The Dirty Facts," Natural Resources Defense Council, June 1, 2022, available at https://www.nrdc.org/stories/fossil-fuels-dirty-facts.

80 Michelle Solomon and others, "Coal Cost Crossover 3.0: Local Renewables Plus Storage Create New Opportunities for Customer Savings and Community Reinvestment" (San Francisco, CA: Energy Innovation, 2023), available at https://energyinnovation.org/wp-content/uploads/Coal-Cost-Crossover-3.0-2.pdf.

81 Ariel Wittenberg and E&E News, "Coal Power Kills a 'Staggering' Number of Americans," *Scientific American*, November 28, 2023, available at https://www.scientificamerican.com/article/coal-power-kills-a-staggering-number-of-americans/; U.S. Department of Health and Human Services, "Deaths associated with pollution from coal power plants," December 12, 2023, available at https://www.nih.gov/news-events/nih-research-matters/deaths-associated-pollution-coal-power-plants.

82 International Energy Agency, "AI is set to drive surging electricity demand from data centers while offering the potential to transform how the energy sector works," April 10, 2025, available at https://www.iea.org/news/ai-is-set-to-drive-surging-electricity-demand-from-data-centres-while-offering-the-potential-to-transform-how-the-energy-sector-works.

83 Yuelin Han and others, "The Unpaid Toll: Quantifying the Public Health Impact of AI," arXiv, December 9, 2024, available at https://arxiv.org/abs/2412.06288.

84 Jimmy O'Dea, "Ready for Work: Now Is the Time for Heavy-Duty Electric Vehicles" (Cambridge, MA: Union of Concerned Scientists, 2019), available at https://www.ucs.org/sites/default/files/2019-12/ReadyforWorkFullReport.pdf.

85 Steven Higashide, "EPA's New Heavy-Duty Truck Rule a Step Forward but Risks Leaving Communities Behind," Union of Concerned Scientists, March 29, 2024, available at https://www.ucs.org/about/news/epas-new-heavy-duty-truck-rule-will-reduce-carbon-emissions-should-have-been-stronger; Union of Concerned Scientists, "Diesel Engines and Public Health," available at https://www.ucs.org/resources/diesel-engines-public-health (last accessed May 2025).

86 California Air Resources Board, "Overview: Diesel Exhaust & Health," available at https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health (last accessed May 2025).

87 Raed Alotaibi and others, "Traffic related air pollution and the burden of childhood asthma in the contiguous United States in 2000 and 2010," *Environment International* 127 (2019): 858–867, available at https://www.sciencedirect.com/science/article/pii/S0160412018325388?ref=pdf_download&fr=RR-2&rr=93fc30c0ce38fc33; American Lung Association, "Nitrogen Dioxide," available at https://www.lung.org/clean-air/outdoors/what-makes-air-unhealthy/nitrogen-dioxide (last accessed May 2025).

88 Executive Office of the President, "Executive Order 14154: Unleashing American Energy"; U.S. Environmental Protection Agency, "Clean Ports Program," available at https://www.epa.gov/ports-initiative/cleanports (last accessed May 2025); U.S. Environmental Protection Agency, "Clean School Bus Program," available at https://www.epa.gov/cleanschoolbus (last accessed May 2025); U.S. Environmental Protection Agency, "Clean Heavy-Duty Vehicles Program," available at https://www.epa.gov/clean-heavy-duty-vehicles-program (last accessed May 2025).

89 Harvard University T.H. Chan School of Public Health, "Electric school buses may yield significant health and climate benefits, cost savings," May 20, 2024, available at https://hsph.harvard.edu/news/electric-school-buses-may-yield-significant-health-and-climate-benefits-cost-savings/; Monica Ramirez-Ibarra and Jean-Daniel M. Saphores, "Health and equity impacts from electrifying drayage trucks," *Transportation Research Part D: Transport and Environment* 116 (2023), available at https://www.sciencedirect.com/science/article/pii/S1361920923000135.

90 American Lung Association, "Delivering Clean Air: Health Benefits of Zero-Emission Trucks and Electricity" (Chicago, IL: 2022), available at https://www.lung.org/getmedia/e1ff935b-a935-4f49-91e5-151f1e643124/zero-emission-truck-report.

91 U.S. Department of Energy, "National Electric Vehicle Infrastructure (NEVI) Formula Program," available at https://afdc.energy.gov/laws/12744 (last accessed May 2025).

92 American Lung Association, "Driving to Clean Air: Health Benefits of Zero-Emission Cars and Electricity."

93 Higgins, "The House Republican Plan To Increase Gas and Electricity Prices"; U.S. House of Representatives Committee on Transportation and Infrastructure, "Full Committee Markup (April 30, 2025)," available at https://transportation.house.gov/calendar/eventsingle.aspx?EventID=408385 (last accessed May 2025).

94 U.S. House of Representatives Committee on Transportation and Infrastructure, "Full Committee Markup (April 30, 2025)."

95 Higgins, "The House Republican Plan To Increase Gas and Electricity Prices."

96 Camila Domonoske, "Upending norms, the Senate votes to undo California's EV rules," NPR, May 22, 2025, available at https://www.npr.org/2025/05/22/nx-s1-5387729/senate-california-ev-air-pollution-waiver-revoked.

97 Sheryl Gay Stolberg, Christina Jewett, and Apoorva Mandavilli, "Mass Layoffs Hit Health Agencies That Track Disease and Regulate Food," *The New York Times*, April 1, 2025, available at https://www.nytimes.com/2025/04/01/us/politics/trump-federal-layoffs-health-food.html; Gina Kolata, "As Kennedy Champions Chronic Disease Prevention, Key Research Is Cut," *The New York Times*, April 7, 2025, available at https://www.nytimes.com/2025/04/07/health/rfk-hhs-diabetes-obesity-disease.html; Wittenberg and E&E News, "Childhood Asthma Will Worsen with Pollution Rollbacks and CDC Cuts."

98 Natalie Gehred, "5 Ways the Chaos at HHS Could Affect Your Communities Health," Union of Concerned Scientists, April 15, 2025, available at https://blog.ucs.org/guest-commentary/5-ways-the-chaos-at-hhs-could-affect-your-communitys-health/.

99 Asthma and Allergy Network, "Statement on CDC Workforce Cuts and National Asthma Control Program," April 4, 2025, available at https://allergyasthmanetwork.org/news/cdc-asthma-program-statement/.

00 S. Centers for Disease Control and Prevention, "About CDC's National Asthma Control Program," May 20, 2024, available at https://www.cdc.gov/national-asthma-control-program/php/about/index.html; Asthma and Allergy Foundation of American, "CDC Layoffs Deliver Devastating Blow to Respiratory Health," Press release, April 1, 2025, available at https://aafa.org/cdc-layoffs-devastating-blow-to-respiratory-health-asthma-allergies/#:~:text=Asthma%2Drelated%20death%20rates%20declined,an%20average%20of%20%2471%20dollars.

01 Eric Boodman, "CDC division responsible for asthma control and lead poisoning prevention effectively eliminated," STAT, April 4, 2025, available at https://www.statnews.com/2025/04/04/cdc-ashtma-control-lead-poisoning-environmental-health/.

02 U.S. Centers for Disease Control and Prevention, "About CDC's Climate and Health Program," February 29, 2024, available at https://www.cdc.gov/climate-health/php/about/index.html.

03 S. Centers for Disease Control and Prevention, "Office on Smoking and Health (OSH)," May 15, 2024, available at https://www.cdc.gov/tobacco/programs/index.html; U.S. Centers for Disease Control and Prevention, "Asthma and Secondhand Smoke," available at https://www.cdc.gov/tobacco/campaign/tips/diseases/secondhand-smoke-asthma.html#:~:text=If%20you%20have%20asthma%2C%20an,different%20from%20other%20people%27s%20triggers.&text=Tobacco%20smoke%20is%20a%20common,everyone%2C%20especially%20people%20with%20asthma(last accessed May 2025).

04 Sarah Todd, "Why CDC cuts are being called 'the greatest gift to tobacco industry in the last half-century'," STAT, April 14, 2025, available at https://www.statnews.com/2025/04/14/cdc-closing-office-smoking-health-called-gift-to-big-tobacco-by-former-osh-director/?utm_campaign=KHN%3A%20First%20Edition&utm_medium=email&_hsenc=p2ANqtz-_dM42CLtm2yg6IxHtm4g3e_6MFSdkGOlSFi8VlCB6Dmawsv9Hw6Ci09Pl06m-V9f_BdhRc3IlwBLSJdmTs3joDanmCzvlmfdSmFYDO5e0tGdWYPIE&_hsmi=356557916&utm_content=356557916&utm_source=hs_email.

05 Anya Litvak, "HHS cuts eliminate NIOSH respirator certification staff," EMS1, April 2, 2025, available at https://www.ems1.com/public-health/hhs-cuts-eliminate-niosh-respirator-certification-staff.

06 S. Centers for Disease Control and Prevention, "National Institute for Occupational Safety and Health (NIOSH)," available at https://www.cdc.gov/niosh/index.html (last accessed May 2025); Aria Bendix and Jacob Soboroff, "HHS backtracks on firing hundreds of federal health workers," NBC News, May 14, 2025, available at https://www.nbcnews.com/health/health-news/hhs-reinstates-hundreds-health-workers-rcna206856; Litvak, "HHS cuts eliminate NIOSH respirator certification staff."

07 U.S. Centers for Disease Control and Prevention, "Asthma and Secondhand Smoke."

08 Rachel Siegel, "HUD cuts expected to worsen America's housing crisis, staffers say," *The Washington Post*, February 23, 2025, available at https://www.washingtonpost.com/business/2025/02/23/hud-cuts-doge-housing/; Tyra C Bryant-Stephens and others, "Housing and Asthma Disparities," *Journal of Allergy and Clinical Immunology* 148 (5) (2021): 1121–1129, available at https://pmc.ncbi.nlm.nih.gov/articles/PMC9809049/#:~:text=Exposure%20to%20indoo

r%20allergens%20is,housing%20quality%20may%20affect%20asthma.&text=Early%20childhood%20exposure%20and%20sensitization,those%20who%20are%20genetically%20predisposed.

09 American Academy of Allergy, Asthma & Immunology, "Protect NIH. Protect Patients," May 1, 2025, available at https://www.aaaai.org/about/advocacy/nih; National Institute of Environmental Health Sciences, "Home," available at https://www.niehs.nih.gov/ (last accessed May 2025); Office of Rep. Jason Crow (D-CO), "Rep. Crow, Colorado Democrat Delegation Fight to Stop Cuts to Life-Saving Medical Research," Press release, February 14, 2025, available at https://crow.house.gov/media/press-releases/rep-crow-colorado-democrat-delegation-fight-to-stop-cuts-to-life-saving-medical-research; National Heart, Lung, and Blood Institute, "What Is Asthma?", available at https://www.nhlbi.nih.gov/health/asthma (last accessed May 2025).

10 Thomas, "Asthma Cases in the US Surge By 10 Million Over 3 Decades"; American Lung Association, "Asthma Trends Burden."

11 Jennifer Porter Gore, "HHS Staff Cuts Mean Uneasy Breathing in Black Communities," Word In Black, April 7, 2025, available at https://wordinblack.com/2025/04/hhs-staff-cuts-mean-uneasy-breathing-black-communities/.

12 Giovanni Rolla, "Why Current Therapy Does Not Cure Asthma. Is It Time to Move Towards a One Health Approach?", *Journal of Asthma and Allergy* 16 (2023): 933–936, available at https://pmc.ncbi.nlm.nih.gov/articles/PMC10488599/.

13 Selen Ozturk, "With Largest-Ever Medicaid Cuts, 79 Million Americans Face Health Care Loss," The Los Angeles Post, March 26, 2025, available at https://lapost.us/?p=71618; Kogan, "The House Republicans' Budget Bill Guts Basic Needs Programs for the Most Vulnerable Americans to Give Tax Breaks to the Rich."

14 Asthma and Allergy Foundation of America. "The Importance of Medicaid for People with Asthma and Allergies," March 21, 2025, available at https://community.aafa.org/blog/the-importance-of-medicaid-for-people-with-asthma-and-allergies?reply=615661947746002797.

15 American Lung Association, "New Study Finds Gaps in Medicaid Coverage, Barriers to Effective Asthma Management," September 6, 2018, available at https://www.lung.org/media/press-releases/new-study-finds-gaps-in.

16 U.S. Centers of Medicare and Medicaid Services, "Improving Asthma Control," available at https://www.medicaid.gov/medicaid/quality-of-care/quality-improvement-initiatives/improving-asthma-control (last accessed May 2025).

17 Kekatos, "Trump's proposed pharmaceutical tariffs could drive up costs, lead to drug shortages: Experts."

18 Ibid. The Budget Lab at Yale, "The Fiscal and Economic Effects of the Revised April 9 Tariffs."

19 Maggie Fick, "Exclusive: US pharma tariffs would raise US drug costs by $51 billion annually, report finds," Reuters, April 25, 2025, available at https://www.reuters.com/business/healthcare-pharmaceuticals/us-pharma-tariffs-would-raise-us-drug-costs-by-51-bln-annually-report-finds-2025-04-25/.

20 Authors' analysis based on Asthma and Allergy Foundation of America, "Cost of Asthma on Society," available at https://aafa.org/advocacy/key-issues/access-to-health-care/cost-of-asthma-on-society/ (last accessed May 2025); Sarah Lewis, "10 Drugs Commonly Prescribed for Asthma," Healthgrades, available at https://resources.healthgrades.com/right-care/asthma/10-drugs-commonly-prescribed-for-asthma#:~:text=Albuterol%20(Accuneb%2C%20Proair%20HFA%2C,QVAR)%20is%20an%20inhaled%20corticosteroid (last accessed May 2025).

21 American Lung Association, "Health Impact of Air Pollution"; Sophia Samantaroy, "US EPA Rollback of Dozens of Air, Water and Chemical Pollution Regulations Threatens America's Health, Experts Warn," Health Policy Watch, March 15, 2025, available at https://healthpolicy-watch.news/epa-plans-to-roll-back-dozens-of-regulations-threatening-americas-health-environmental-health-experts-warn/.

22 Hiroko Tabuchi, "Trump Promises Clean Water. Will He Clean Up 'Forever Chemicals," *The New York Times*, November 20, 2024, available at https://www.nytimes.com/2024/11/20/climate/trump-pfas-lead-clean-water.html.

23 Asthma and Allergy Foundation of America, "Asthma Facts"; American Lung Association, "Disparities in the Impact of Air Pollution."

24 Angela Garcia, interview via Zoom with Margaret Cooney and Olivia Mowry, on file with authors.

25 American Lung Association, "Stronger Pollution Standards Mean Better Health," available at https://www.lung.org/policy-advocacy/healthy-air-campaign/stronger-standards (last accessed May 2025); John Larsen and others, "A Turning Point for US Climate Progress: Assessing the Climate and Clean Energy Provisions in the Inflation Reduction Act" (New York, NY: Rhodium Group, 2022), available at https://rhg.com/research/climate-clean-energy-inflation-reduction-act/; Olivia Tym, "New CESA Report: The Case for Replacing Fossil-Fueled Peaker Power Plants with Battery Energy Storage" (Montpelier, VT: Clean Energy States Alliance, 2024), available at https://www.cesa.org/replacing-fossil-fueled-peaker-power-plants-with-battery-energy-storage/; University of California, Berkeley, "Top scientists issue urgent warning on fossil fuels," March 31, 2025, available at https://publichealth.berkeley.edu/articles/spotlight/research/top-scientists-issue-urgent-warning-on-fossil-fuels.

26 Kelly, Marquez, and Smith, "How Congress Can Protect Families From Dangerous Heat and Ensure Cool and Healthy Homes for All."

27 Ella Nilsen, "Trump takes an ax to more than a dozen pollution rules in rapid-fire deregulation," CNN, March 12, 2025, available at https://www.cnn.com/2025/03/12/climate/trump-ev-power-plant-rollbacks.

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Air Pollution Is Still Killing Thousands of People in the US

Soot steals lives through dementia, kidney disease, and hypertension—even when the air quality is within the permitted levels.

Air pollution from fine particulate matter, known as PM2.5, has been newly linked to deaths from nine diseases, including chronic kidney disease, hypertension, and cancer. PHOTOGRAPH: KEVIN SCHAFER/GETTY IMAGES

SAVE

SOOT KILLS. STILL! Even in America, even in 2019. Those suspended fragments and droplets smaller than 2.5 micrometers across, small enough to be inhaled into the deepest recesses of the lungs and slip into the bloodstream—that's soot. Or PM2.5 in technical terms. Breathing it in can inflame airways, triggering respiratory troubles, heart problems, even dementia. And, as study after study have shown, these adverse health effects can trim years off a person's life.

The situation is most dire in China, India, and other parts of Southeast Asia. Yet even in the US, which has stricter laws and cleaner air, the levels of particulate pollution permitted by the Environmental Protection Agency still claim the lives of thousands of people every year. That's the message behind a massive new study published today in *JAMA Network Open*. The investigation combined EPA air quality data with a decade of medical records for 4.5 million US veterans to find links between chronic PM2.5 exposure and nearly 200,000 deaths.

The data suggests the standards might not be strict enough, says Ziyad Al-Aly, a clinical epidemiologist at Washington University and one of the study's coauthors. "If you do the math, it tells us we could save at least 200,000 lives if we cleaned the air further," he says.

These results track well with previous research, including a 2017 study among Medicare recipients that found the more soot raining down in your zip code, the higher the death rates. A study published in August connected surges in deaths across 652 cities around the world to spikes in PM2.5. This latest study adds the first ever links between particle pollution and deaths from chronic kidney disease, hypertension, and dementia. It's the kind of epidemiological study that under normal circumstances would contribute to the mounting evidence that regulators need to do more to reduce fine particle pollution. But this is 2019 and nothing is normal.

The Clean Air Act requires that every few years a group of independent scientists sit down and review all the evidence that regulated air pollutants might be causing adverse health effects. That group, called the Clean Air Scientific Advisory Committee (or CASAC) then files a report to the EPA, and the agency decides if the existing standards are good enough, or if stricter measures need to be pursued. Under the Trump administration, this process has been turned upside down.

Before Scott Pruitt resigned from his post as EPA chief in 2018 amid ethics scandals, he revamped the agency's policies on who could serve on scientific advisory panels. Pruitt's successor, Andrew Wheeler, then used those policies to fire all the scientists who had been appointed to the CASAC in 2015 and replace them with a pool of consultants, many with ties to the oil, gas, and chemical industries. He also disbanded a particulate matter sub-committee that in the past had contributed expertise to the CASAC's review and recommendation process.

In October 2018, the EPA released a draft review of the public health impact of fine particulate pollution. After assessing nearly 2,800 studies in its 1,900-page report, the agency concluded that the science supported lowering the annual exposure limit for PM2.5 by as much as one-third. CASAC is now trying to block that assessment. In a December meeting, and later in a draft letter to Wheeler, the group's chair, Louis Anthony Cox, argued against its findings, suggesting that the kinds of studies CASAC has long relied on, including epidemiological studies that don't show direct causality, should be tossed out. Scientists have since publicly decried that claim as being "fringe" and ignoring long-established scientific consensus.

The situation puts the EPA in an unusual predicament. It could accept Cox's opinion and keep existing air pollution standards that risk public health. Or it could ignore his committee's advice and potentially erode public confidence in the science advisory process. At least one outside group is advocating for the latter. The disbanded ex-CASAC experts, who in an unprecedented move regrouped to form a parallel independent panel with support from the Union of Concerned Scientists, conducted their own review in line with the EPA's draft. Last month, at a CASAC public meeting they presented a letter to Administrator Wheeler offering their assessment of the evidence, and urging him to "follow the science."

John Balmes, a public health researcher at the University of California, Berkeley, and one of the 20 dismissed scientists to sign on to the letter, says if Cox gets his way, few studies will be left to support a stricter PM2.5 standard. "They just don't want to hear any of the new scientific evidence," he says. Yet the data keeps accumulating.

Today's *JAMA* study, which he was not involved in, provides another strong argument for cutting down on particulate pollution. "It's a big study, it's a good study, and it's just more support of what we already know."

The CASAC will meet again in December and offer its recommendations to the EPA Administrator. In the end, it's Wheeler who will have ultimate authority over whether the agency sets a new standard for PM2.5. Balmes says he and the rest of his merry band of disbanded scientists didn't go through the pains of a review because they think it'll convince Wheeler to update the soot standards. Rather, he's betting it will come in handy for any lawsuits that might arise if the agency sticks with the status quo.

Megan Molteni is a science writer at STAT News. Previously, she was a staff writer at WIRED, covering biotechnology, public health, and genetic privacy. She studied biology and ultimate frisbee at Carleton College and has a graduate degree in journalism from the University of California, Berkeley. ... Read more