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Air Quality Management and Policy Development in the United States

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Presentation Overview

- Key Messages: Air Quality Management in the U.S.
- Air Quality Management Cycle and Measures
- Science to Policy
 - Regulatory Risk Assessment: Integrated Risk Assessment System (IRIS)
 - National Ambient Air Quality Standards (NAAQS)
- Policy Updates
 - PM_{2.5} and O₃ NAAQS
 - Clean Air Act Section 111
 - Office of Air and Radiation Inflation Reduction Act Provisions and Grant Program
- Additional Resources

Key Messages from the U.S. Experience

- **Clean air and a strong economy can happen together**
- **Air quality management is a continuous cycle of development and improvement** with a goal of improving public health and the environment
- **National, regional and local regulations**, along with voluntary and market-based programs, are effective in achieving reductions
- **Regional cooperation is critical** for controlling air pollution that affects multiple cities and states
- **Providing accurate, scientifically valid information to the public** enables them to play a key role in achieving standards and improving public health

U.S. Trends In Emissions and Air Quality

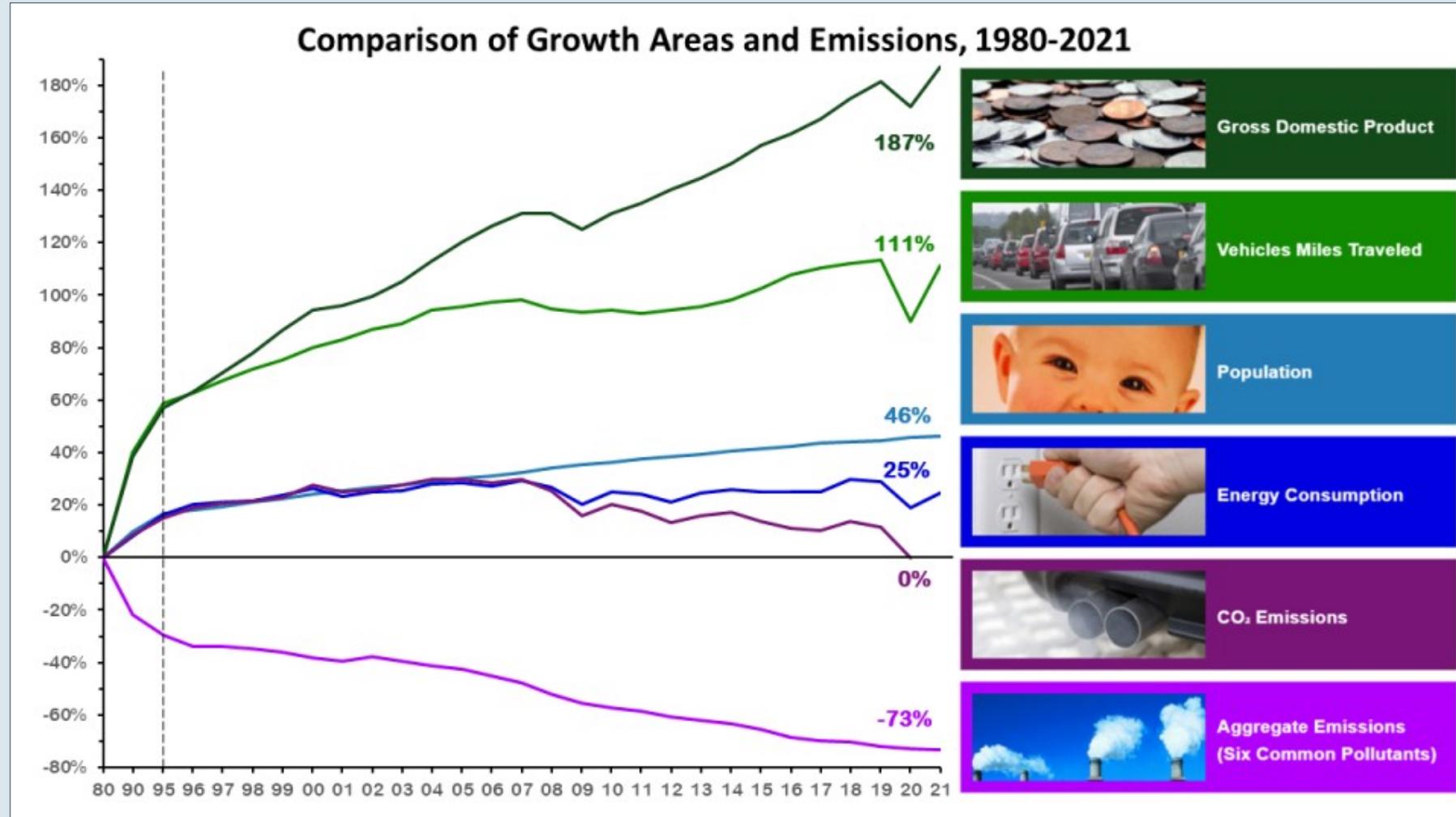
Since 1970...

Gross Domestic Product
↑ 304%

Since 1970...

Aggregate Emissions
↓ 78%

Combined emissions of the 6 common pollutants dropped by 78%, while U.S. economic indicators remain strong.

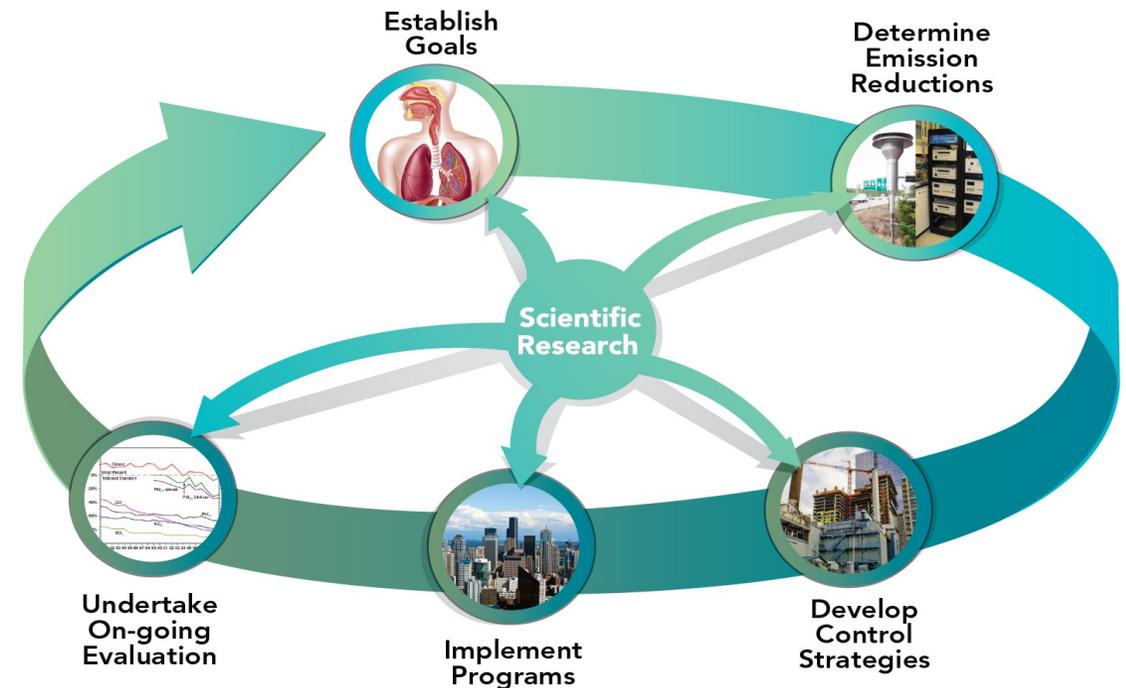


Economic growth and emission reductions go hand in hand

Air Quality Management Cycle and Measures

- **National Programs** – apply everywhere
 - EPA regulatory programs
 - Mobile sources
 - New source performance standards
 - Sources of hazardous air pollutants
 - Consumer product standards
 - Major sectors (electric utilities, industrial boilers, etc.)
- **State Programs**
 - Often responsible for implementation
 - Primary responsibility for urban air quality management
 - Can be more stringent than federal requirements

AIR QUALITY MANAGEMENT CYCLE



Science to Policy

Regulatory Risk Assessment: IRIS

- IRIS identifies and characterizes the health hazards of chemicals
 - Provides opportunity for agency, interagency, and public review and comment
- Located in the EPA's Office of Research and Development
- IRIS develops impartial toxicity information to set national standards and clean up hazardous sites
 - Values developed independently of its use within EPA offices
- Finalized IRIS assessments are implemented in rules during the regulatory cycle

IRIS Process



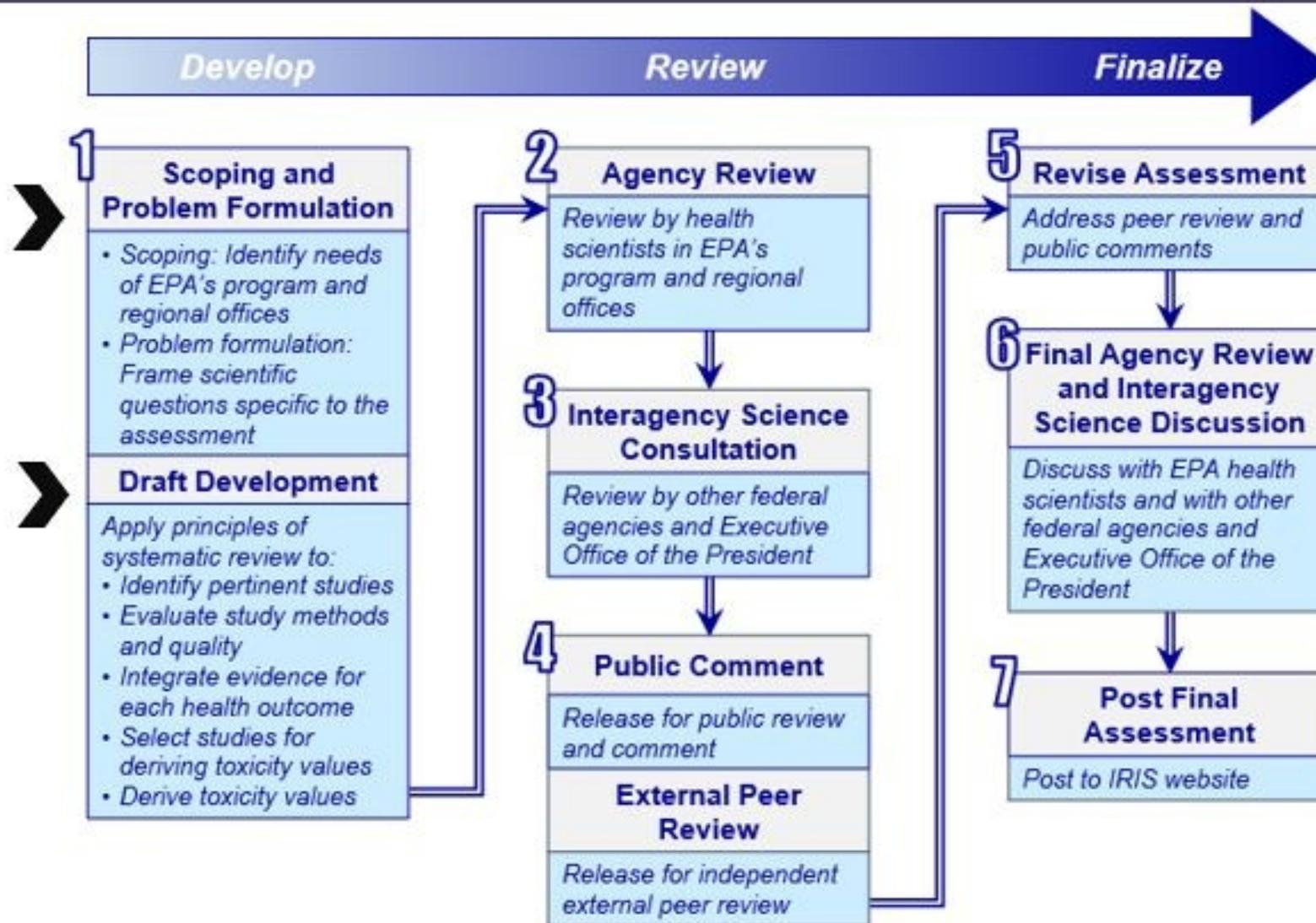
IRIS Assessment Development Process

Early Step 1 - Release IRIS Assessment Plans:

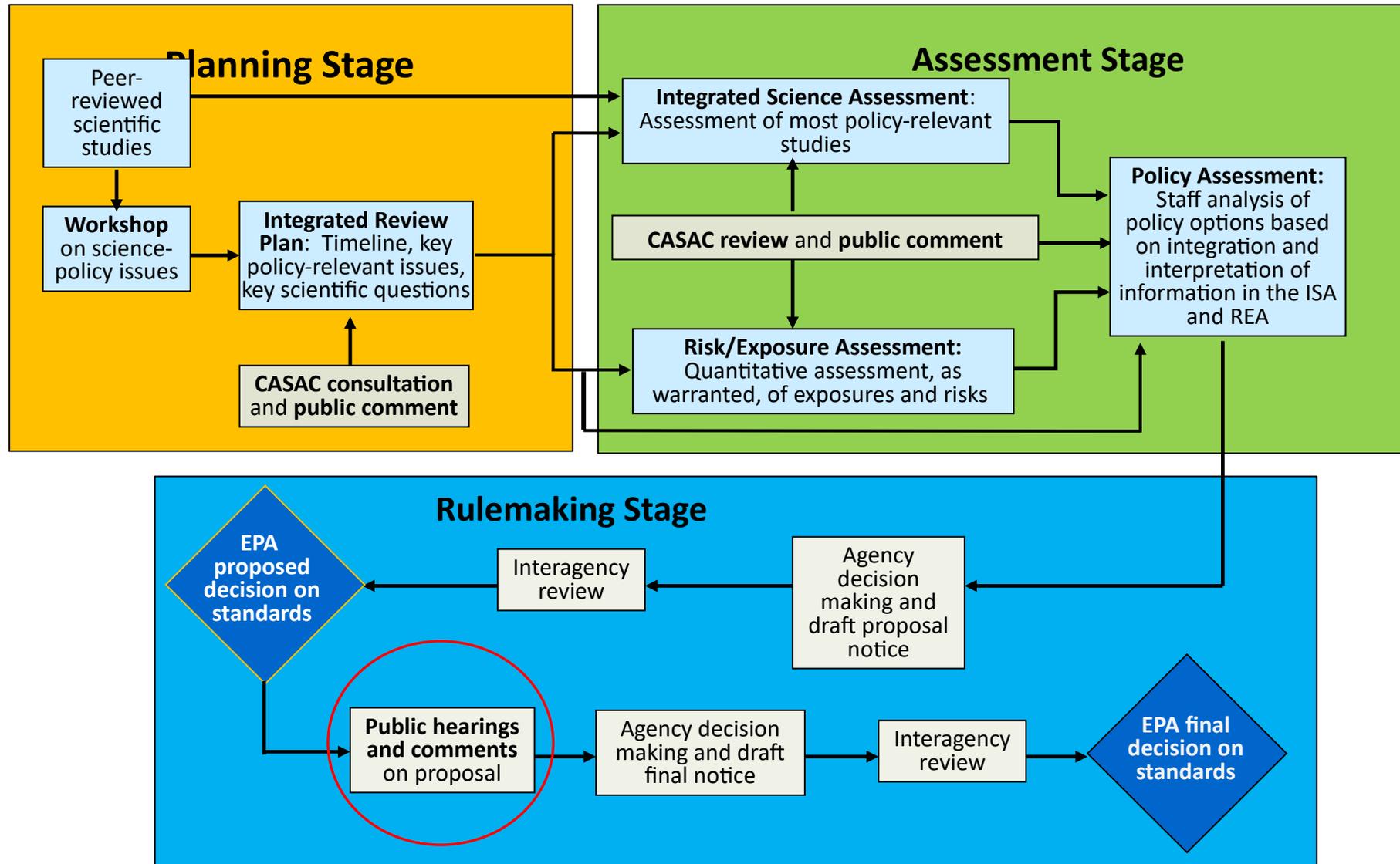
- What the assessment covers released for public comment and discussion at a public meeting

Mid-Step 1 - Release Systematic Review Protocols:

- How the assessment will be conducted released for public comment



NAAQS Development and Review



NAAQS Implementation

- Designation
 - Monitoring requirements set by EPA
 - States responsible for conducting the monitoring, but receive federal funding
 - Based on monitoring information, areas are designated as “non-attainment”
- States develop State Implementation Plans
- Large industrial sources in non-attainment areas
 - New Source Review: new or significantly modified sources do not worsen where the air is currently unhealthy to breathe
 - Existing sources may be required to adopt stricter controls depending on the severity of the air pollution issue

Policy Updates

NAAQS Reviews: Status Update

(October 2023)



	Lead	Ozone	PM ¹	Secondary (Ecological) NO ₂ , SO ₂ , PM ²	Primary NO ₂	Primary SO ₂	CO
Last Review Completed (final rule signed)	Sept 2016	Dec 2020	Dec 2020	Mar 2012	April 2018	Feb 2019	Aug 2011
Recent or Upcoming Major Milestone(s)	<u>March 2023</u> Draft ISA released <u>Summer 2024</u> Draft PA/REA ³	<u>Spring 2024</u> Science Policy Workshop <u>Fall 2024</u> Draft IRP ³ Volume 1 and 2	<u>January 2023</u> Proposed Rulemaking <u>Late 2023</u> Final Rulemaking (anticipated)	<u>May 2023</u> Draft PA/REA Appendices ³ released <u>April. 9, 2024</u> Proposed Rulemaking (consent decree) <u>Dec. 10, 2024</u> Final Rulemaking (consent decree)	<u>Dec 9, 2022</u> Call for Information on the Integrated Science Assessment Spring 2024 Draft IRP Volume 1 and 2	TBD ⁴	TBD ⁴

Additional information regarding current and previous NAAQS reviews is available at: <http://www.epa.gov/ttn/naaqs/>

¹ Combined primary and secondary (non-ecological effects) review of PM

² Combined secondary (ecological effects only) review of NO₂, SO₂, and PM

³ PA – Policy Assessment; REA – Risk and Exposure Assessment; IRP – Integrated Review Plan

⁴ TBD = To be determined

PM NAAQS

- ▶ EPA is reconsidering the 2020 final decision to retain the PM NAAQS.
- ▶ In January, EPA proposed revisions to the PM NAAQS, including:
 - ▶ Revising the primary (health-based) annual PM_{2.5} standard from its current level of 12.0 µg/m³ to within the range of 9.0 to 10.0 µg/m³.
 - ▶ Retaining all other PM NAAQS.
 - ▶ Revising other provisions related to the PM NAAQS, including the Air Quality Index (AQI) and PM_{2.5} monitoring network requirements.
- ▶ EPA anticipates issuing the final rule later this year.

Ozone NAAQS

- ▶ In December 2020, the EPA finalized its decision to retain the primary (health-based) and secondary (welfare-based) ozone standards at 70 ppb.
- ▶ In October 2021, the EPA announced it would reconsider the 2020 decision.
- ▶ On August 21, 2023, EPA announced a new review of air quality standards for ground-level ozone.
 - ▶ A new review recognizes the need to address the Clean Air Scientific Advisory Committee (CASAC) advice from June 2023. EPA remains committed to following a sound process and preserving scientific integrity in the NAAQS review process.
- ▶ EPA published a call for information in the Federal Register on August 25, 2023 and expects to hold a science-policy workshop in Spring 2024.

Clean Air Act Section 111: Regulation of Greenhouse Gas Emissions from Fossil Fuel-Fired Electric Generating Units



- On May 11, 2023, EPA issued proposed Clean Air Act emission limits and guidelines for carbon dioxide (CO₂) from fossil fuel-fired power plants.
- **Technology-based standards that leverage cost-effective control technologies**
 - Proposing standards and emission guidelines for new and existing fossil fuel-fired power plants.
 - Set limits for new gas-fired combustion turbines, existing coal, oil and gas-fired steam generating units, and certain existing gas-fired combustion turbines.
- **Reduces climate and other health-harming pollution**
 - Proposed standards are expected to avoid more than 600 million metric tons of carbon dioxide through 2042, which is equivalent to cutting roughly half of US car emissions for a year.
 - Proposed standards also expected to reduce tens of thousands of other harmful air pollutants that are co-emitted with carbon dioxide – pollutants such as PM_{2.5}, sulfur dioxide, and nitrogen oxide. Through 2042, we project net health benefits of up to \$85 billion dollars.
- **Build on decades of technology advancements and momentum from recent changes in the sector driven by the Inflation Reduction Act and the Bipartisan Infrastructure law**
 - Proposals provide utilities options for meeting these standards as well as ample time to plan and invest for compliance, leverage the clean energy incentives, and continue to support a reliable supply of affordable electricity.

OAR IRA PROVISIONS AND GRANT PROGRAMS

- \$250M in Planning Grants released in March 2023.
- \$4.6B Implementation Grant competition opened September 2023.

Climate Pollution Reduction Grants



- \$37.5M in competitive grants.
- Expected to be open. December 2023-March 2024.

Funding to Address Air Pollution at Schools



- Partnership with Dept. of Energy.
- \$350M released in August 2023 to States.
- Competitive grants to come.

Methane Emission Reduction Program



- \$25M in Clean Air Act grants closed April 2023.
- \$30M in IRA funds for community air monitoring programs closed November 2022.
- Additional opportunities to come.

Air Pollution & Monitoring Provisions



- Report on IRA impacts on electricity emissions published in September 2023.

Low Emissions Electricity Program



- \$1B in competitive grants.
- Expected to be released early Spring 2024.

Clean Heavy-Duty Vehicles



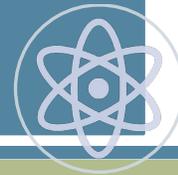
- \$3B in competitive grants.
- Expected to be released late Winter 2024.

Grants to Reduce Air Pollution at Ports



- Funding opportunities to be announced soon.

HFC Reclaim and Innovative Destruction Grants



Additional Resources

- **Overview**

- Air quality management information tailored to an international audience: <https://www.epa.gov/air-quality-management-process>

- **Training**

- Online courses from EPA's AirKnowledge: <https://airknowledge.gov/>
- Ambient Monitoring trainings and conferences: <https://www.epa.gov/amtic/conferences-and-training>

- **Tools**

- Megacities Partnership: www.epa.gov/megacities-partnership
- BenMAP-Community Edition: www.epa.gov/benmap
- Air Sensor Toolbox: <https://www.epa.gov/air-sensor-toolbox>



Thank You!

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www.epa.gov/air-quality-management-process