



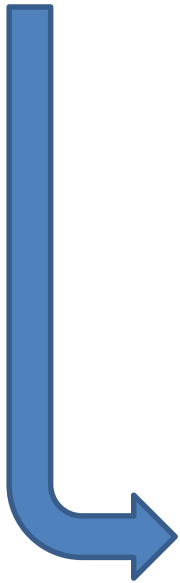
Implementing the National Ambient Air Quality Standards Webinar for Communities

August 30, 2017



Today's webinar

Part 3 of this series for Communities on the National Ambient Air Quality Standards (NAAQS)



NAAQS 101 – June 27, 2017

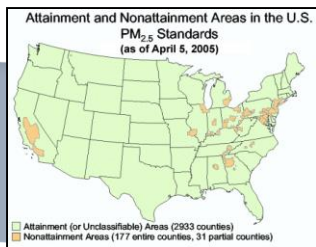
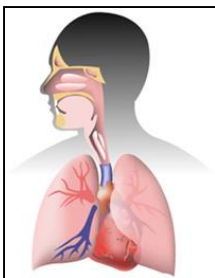
NAAQS Area Designations – July 25, 2017

NAAQS Implementation – August 30, 2017

Key Topics

- Air quality management cycle
- Process for developing State and Tribal implementation plans
- Opportunities for participation
- Elements of a NAAQS implementation plan
- Example control measures
- Air quality management responsibilities

Air Quality Management Cycle

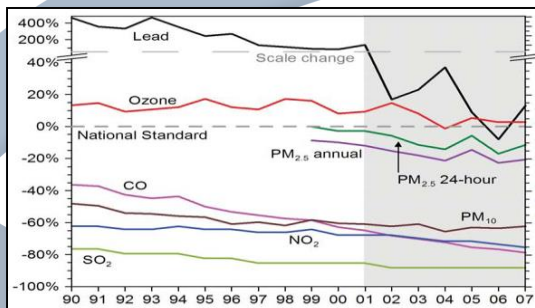


EPA revises National Ambient Air Quality Standards, Monitoring Reqts.

EPA Designates Nonattainment Areas

Air Agency Assesses Expected Improvement From Existing Measures, and Develops Additional Control Strategies to Attain Standards

Scientific Research



**Ongoing Evaluation by EPA and Air Agency:
Air Quality Monitoring, Tracking Emissions and Implementation of Control Programs**



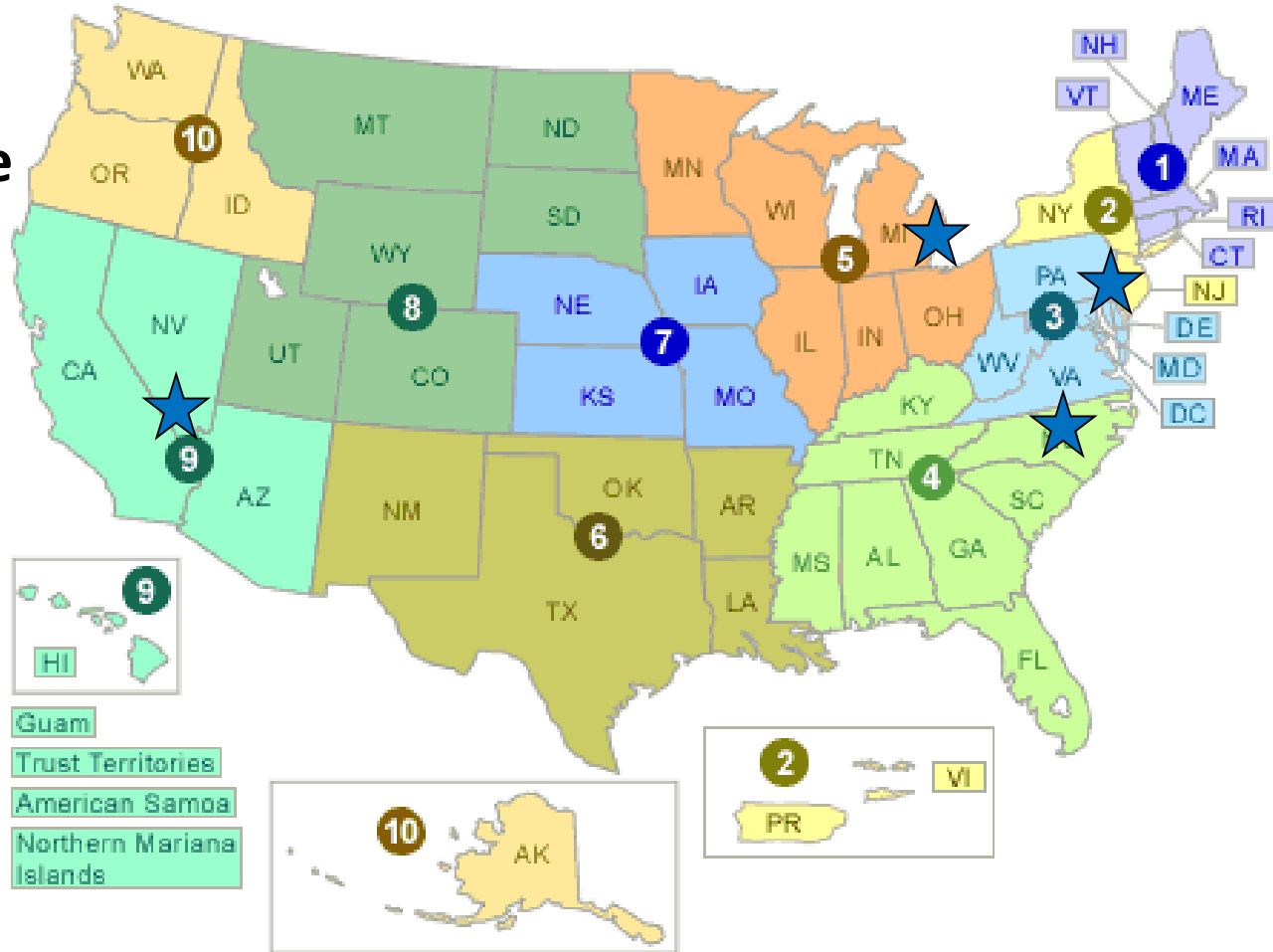
Air Agency Submits Plan to EPA and Implements Control Strategies Through Regulatory and Non-regulatory Approaches

EPA Air Program Structure

★ Four Headquarters Offices

- Washington, DC
- Research Triangle Park, NC
- Ann Arbor, MI
- Las Vegas, NV

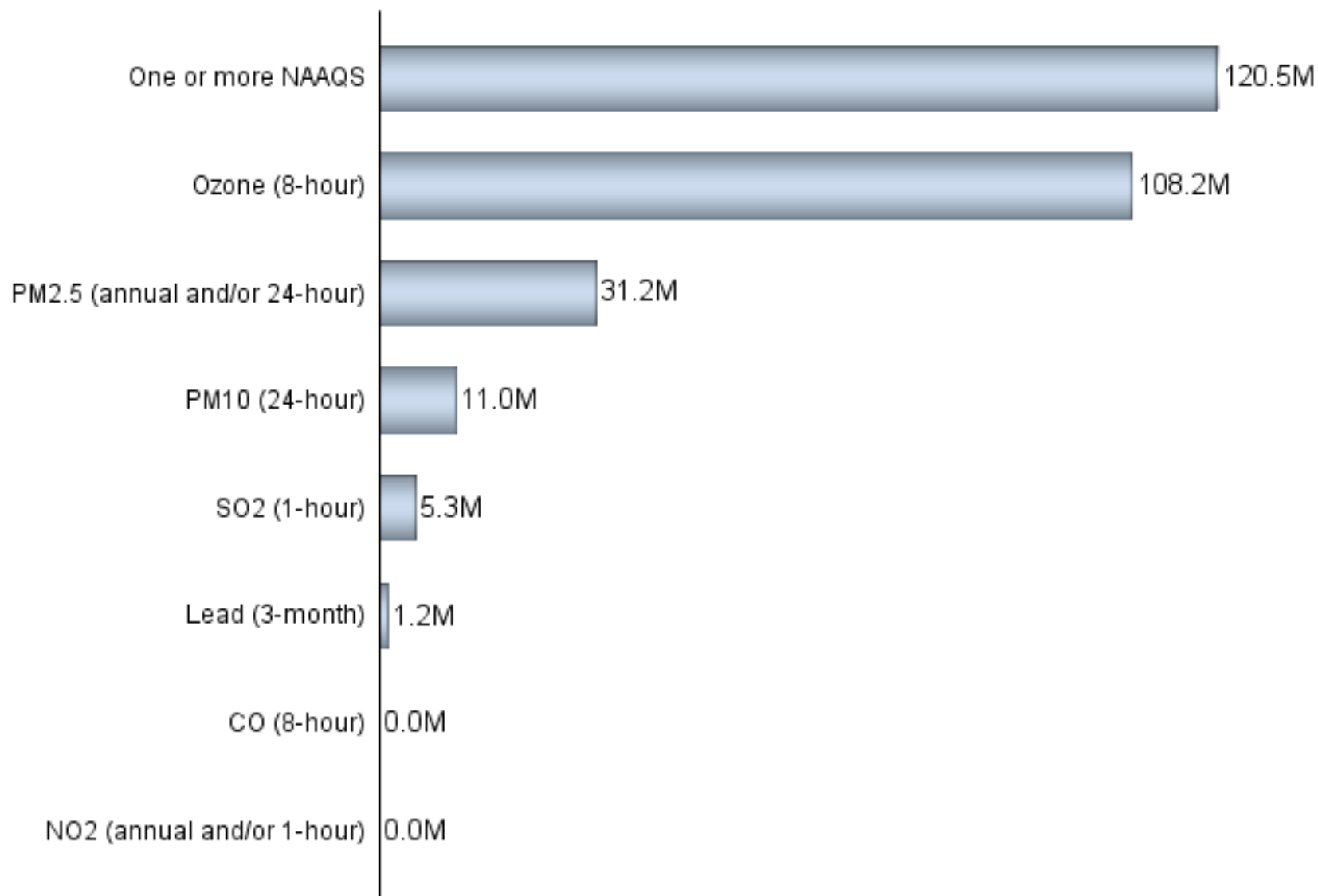
- Ten Regional Offices
 - Work directly with State, local and tribal governments



SIPs and TIPs: Plans for Clean Air

- Areas violating the NAAQS or contributing to NAAQS violations are designated as “nonattainment” for the pollutant in question. EPA lists these areas by state or tribe in the Code of Federal Regulations (40 CFR Part 81).
- For some NAAQS, nonattainment areas receive an initial classification
 - Ozone: varies from Marginal to Extreme, depending on severity of air quality level
 - PM2.5, PM10, and carbon monoxide: initially Moderate, then Serious if do not attain
- CAA requires general state “infrastructure” plan for managing air quality, and a specific plan for each nonattainment area

Number of People Living in Counties with Air Quality Concentrations Above the Level of the NAAQS in 2015



SIPs and TIPs: Plans for Clean Air (cont.)

- SIPs are developed by states and/or local agencies and are submitted to US EPA for approval through federal rulemaking
- After US EPA approval, SIPs and associated control measures are also enforceable by the EPA
- A Tribe may seek “treatment in the same manner as a state” (TAS) status for most programs (Tribal Air Rule, 40 CFR part 49)
 - Tribal Implementation Plans (TIPs): air quality management plans developed and submitted by Tribes to EPA
 - A Tribe with TAS status may prepare a TIP but does not have to meet CAA deadlines.
- Federal Implementation Plans (FIPs): plans developed by EPA to address SIP failures or program gaps in States or in Indian country

Why are SIPs Important to Communities?

- Communities can experience poor air quality due to local emissions sources or emissions generated further downwind
- National rules may not be enough; state controls may be needed to achieve the NAAQS
- State and local agency decisions on SIPs impact communities
- Community representatives can participate in SIP development committees, and provide comments on proposed and final plans at state and federal levels

Overall SIP Development Process

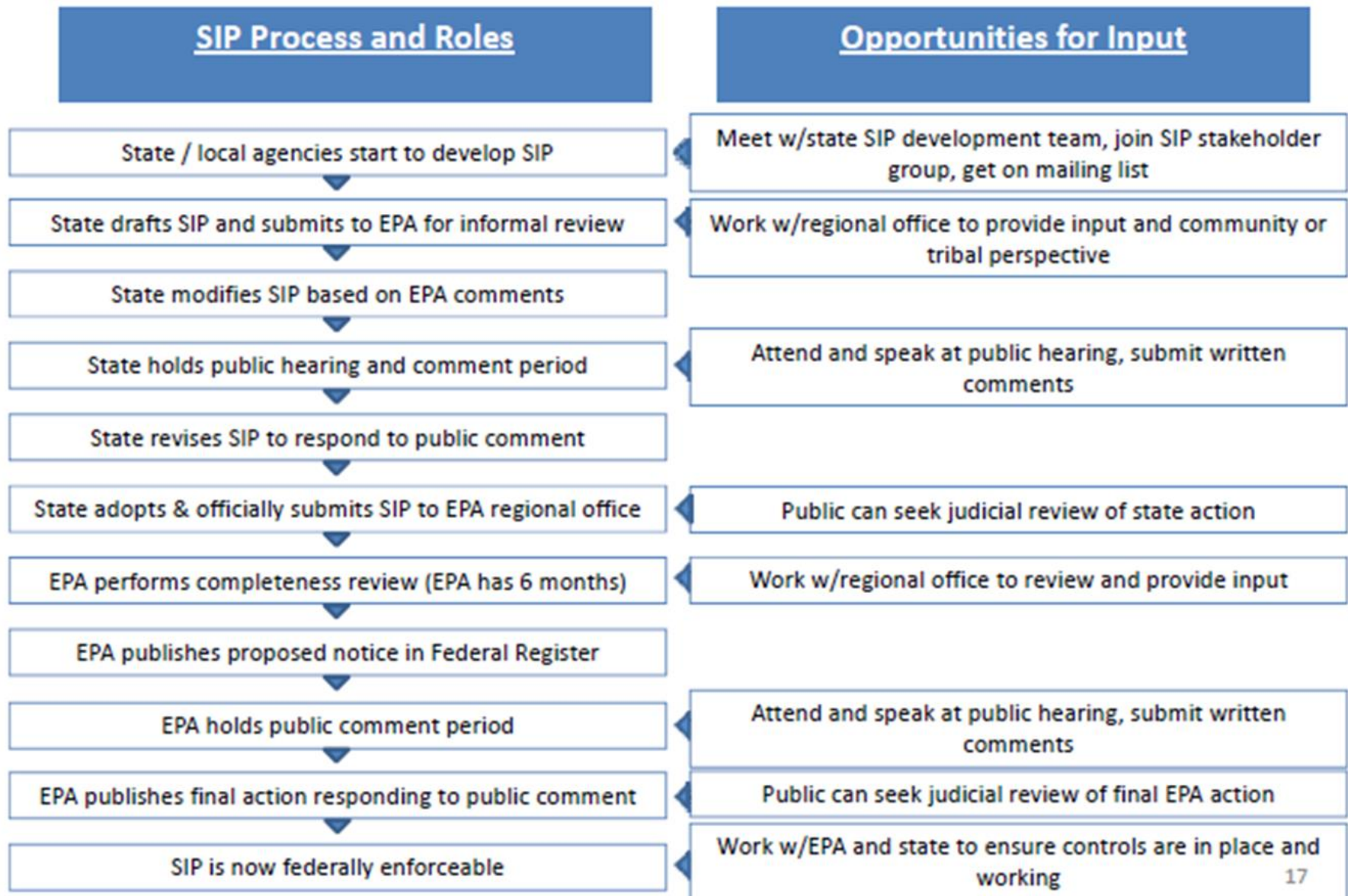
After nonattainment areas are designated:

- CAA requires State to submit an attainment plan within 18-36 months (varies by pollutant) after nonattainment area designation
- State must demonstrate attainment “as expeditiously as practicable”
 - Ex. Ozone (3-20 years); PM_{2.5} (6-15 years)
- Take into account national and state emission reductions already in place
- Adopt regulations to require reasonable controls on sources in the state; and prevent significant contribution to other “downwind” states
- Provide public notice and opportunity for comment
- Submit to EPA for review and approval

EPA Action on Implementation Plans

- EPA determines whether plan meets applicable CAA requirements
- EPA issues a proposed action in the Federal Register and provides opportunity for public comment
- EPA then considers comments and issues a final action
 - EPA approval of state regulations makes them **federally enforceable**
- If a state fails to submit a timely SIP, or EPA disapproves a plan, certain **sanctions** are to be applied. In some cases, EPA may develop and implement a Federal plan for the state or Tribe.

Opportunities for Community Participation in the State Implementation Plan (SIP) Process



Public Comment and Clean Air Act Citizen Suits

- Every SIP and SIP revision must be submitted to EPA for approval **after** the state has provided public notice and held a public hearing on the SIP
- EPA must take public comment on its actions to approve or disapprove elements of the SIP
 - Note: if the SIP has tribal implications, then EPA should offer consultation with the tribe on the SIP
- Under the CAA, a citizen may bring a legal challenge regarding:
 - an action by the EPA to approve/disapprove a SIP
 - the failure for EPA to perform an act or duty that is not discretionary
 - a company that has:
 - constructed a source without a permit
 - violated provisions in its permit
 - violated national or state air quality standards

Elements of a Nonattainment Area Plan

- Develop detailed emission inventory
- Identify existing federal and state control measures
- Evaluate technically and economically feasible new control measures
- Conduct air quality modeling to evaluate air quality improvements from projected existing and new emission reductions
- Adopt enforceable regulations and control measures: emission limits, test methods, monitoring and reporting for specific sources
- Include plan ensuring reasonable further progress toward attainment
- Adopt contingency measures to apply in the event the area fails to make progress or attain by attainment date

National and State Emission Reduction Measures

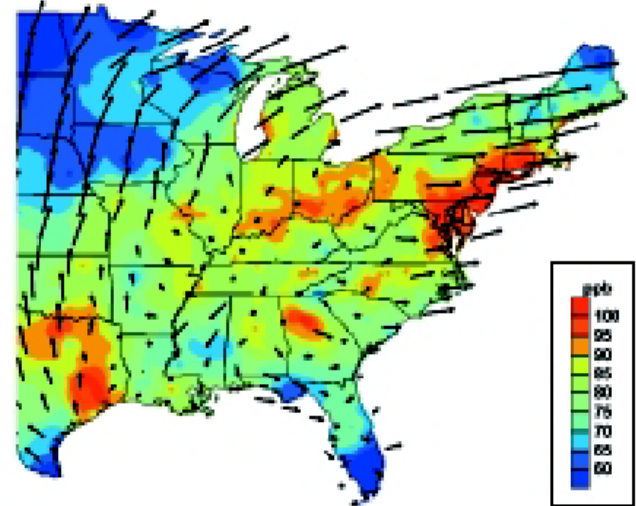
- Federal programs provide for nationwide reductions in emissions through:
 - **Federal Mobile Source Control Program** including engine and fuel standards for automobile, truck, bus, motorcycle, and nonroad engines and equipment; diesel reduction grants
 - **New source performance standards** for industrial and other stationary sources
 - **Emission standards for hazardous air pollutants** (industrial and other stationary sources) also provide co-benefits for NAAQS pollutants such as VOC and SO₂
 - Example: Mercury and Air Toxics Rule also led to significant SO₂ reductions
 - **Regional emissions trading programs**
- Numerous state rules on specific types of facilities



Regional Programs to Reduce SO₂ and NO_x

- State plans must address contributions of their sources to air quality problems in other states.
- State plans must provide controls necessary to prevent any **significant contribution** to nonattainment in downwind states
- EPA has previously developed rules applying to multiple states to meet this CAA requirement
 - Regional NO_x Budget Trading Program (1998)
 - Clean Air Interstate Rule (2005)
 - Cross-State Air Pollution Rules (2011 and 2016)

Transport Winds and Ozone Patterns on High Ozone Days



EPA's Mobile Source Roadmap

Tier 2 Light-Duty

Final rule 1999

Fully phased in 2009

Diesels held to same stringent standards as gasoline vehicles

Sulfur: GAS 30 PPM; DIESEL 15 PPM



2009



2010

Heavy-Duty Highway

Final rule 2000

Fully phased in 2010

Sales 800,000 / yr

40B gallons / yr

Sulfur: DIESEL 15 PPM



2015-2016



2017

Nonroad Diesel

Final rule 2004

Sales over 650,000 / yr

12B gallons / yr

Fully phased in 2015

Sulfur: DIESEL 15 PPM



2015

Ocean Going Vessels

Final rule December 2009

International Maritime Organization (IMO) MARPOL Annex VI

Emission Control Area Controls:

- Fuel Based 2015 - 1000 PPM sulfur
- SCR Catalyst Based 2016

Locomotive/Marine

Final rule 2008

Sales 40,000 marine engines, 1,000 locomotives / yr

Fully phased in 2017

Sulfur: DIESEL 15 PPM

Note: sales and diesel fuel usage vary year-to-year; these figures are for comparison purposes only

Example Local Emission Reduction Measures

- New or improved direct PM and precursor controls on stationary sources (e.g. scrubbers, selective catalytic reduction, improved combustion efficiency of industrial processes, baghouse, ESP, diesel particle filter)
- Year-round operation of seasonal stationary source NO_x controls
- Diesel retrofits (trucks, school buses, stationary engines)
- Electrification for idling trucks, trains, port equipment, etc.
- Programs to reduce emissions from poorly maintained vehicles
- Annual vehicle emissions check using on-board diagnostics
- Year-round measures to reduce vehicle miles traveled (carpooling incentives, etc.)
- Programs to reduce emissions from residential wood combustion, outdoor wood boilers, and back yard barrel burning
- Open burning laws and better enforcement
- Smoke management plans
- Reducing emissions of volatile aromatic compounds (surface coatings, gasoline, solvents, etc.)

Menu of control measures is available at:

<https://www.epa.gov/criteria-air-pollutants/menu-control-measures-naaqs-implementation>

Also Required in Nonattainment Areas: New Source Review (NSR)

- All nonattainment area SIPs must include a set of rules that require permits for the construction and operation of new or modified major stationary sources
- Install Lowest Achievable Emission Rate (LAER) technology for nonattainment pollutants (example: VOC and NO_x for ozone)
- Obtain emissions offsets for increased emissions
 - Higher offset ratio required in ozone areas depending on severity of air quality problem (up to 1.5 to 1)
- Allow opportunities for public involvement
- Require best available control technology for other NAAQS pollutant emissions

Also Required in Nonattainment Areas: Transportation Conformity Program

- Purpose of the transportation conformity program is to ensure that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the national ambient air quality standards
 - Federal funding and approval are given to highway and transit projects that are consistent with ("conform to") the NAAQS and air quality goals established by a state air quality implementation plan (SIP)

Air Quality Management Responsibilities

Federal Government

- Establishes air quality standards
- Designates areas as attainment, nonattainment, or unclassifiable
- Establishes national control requirements for certain source categories that states cannot regulate (e.g., mobile sources)
- Promulgates regulations to address interstate transport of pollution as needed
- Develops guidance to interpret rules and Clean Air Act requirements
- Manages national emission inventory and monitoring data
- Reviews pre-construction and operating permits
- Approves and enforces SIPs

Air Agency

- Recommends areas for designations
- Issues pre-construction and operating permits to individual facilities
- Provides resources and legal infrastructure for AQ program
- Develops emission inventories
- Operates air quality monitoring networks
- Performs air quality modeling and identifies emissions control strategies needed to attain standards
- Consults with interested parties and adopts regulations to reduce emissions
- Submits plans to EPA. Regulations become federally enforceable on approval
- Enforces regulations

Anticipated NAAQS Implementation Milestones (August 2017)

Pollutant	Final NAAQS Date	Designations Effective	Infrastructure SIP Due	Attainment Plans Due	Attainment Date
PM _{2.5} (2006)	Oct 2006	Dec 2009	Oct 2009	Dec 2014	Dec 2015 (Mod) Dec 2019 (Ser)
Pb (2008)	Oct 2008	Dec 2010-2011	Oct 2011	June 2012-2013	Dec 2015-2019
PM _{2.5} (2012)	Dec 2012	Apr 2015	Dec 2015	Oct 2016 (Mod)	Dec 2021 (Mod) Dec 2025 (Ser)
NO ₂ (2010) (primary)	Jan 2010	Feb 2012	Jan 2013	N/A	N/A
SO ₂ (2010) (primary)	June 2010	Oct 2013, Sept 2016 (+2 rounds)	June 2013	April 2015, March 2018 (2019, 2022)	Oct 2018, Sept 2021 (2023, 2026)
Ozone (2008)	Mar 2008	July 2012	Mar 2011	Mid 2015-2016	Mid 2015-2032
Ozone (2015)	Oct 2015	TBD	Oct 2018	TBD	TBD

Resources

1. NAAQS Implementation Process

(includes links to info on current standards, area designation process, and implementation process)

<https://www.epa.gov/criteria-air-pollutants/naaqs-implementation-process>

2. Air Quality Implementation Plans

(links to checklists by standard, rules and guidance, SIP status reports, approved plans)

<https://www.epa.gov/air-quality-implementation-plans>

3. Menu of Control Measures (for reducing emissions from specific types of sources)

<https://www.epa.gov/criteria-air-pollutants/menu-control-measures-naaqs-implementation>

4. State Implementation Plan Status Reports

<https://www.epa.gov/air-quality-implementation-plans/sip-status-reports>

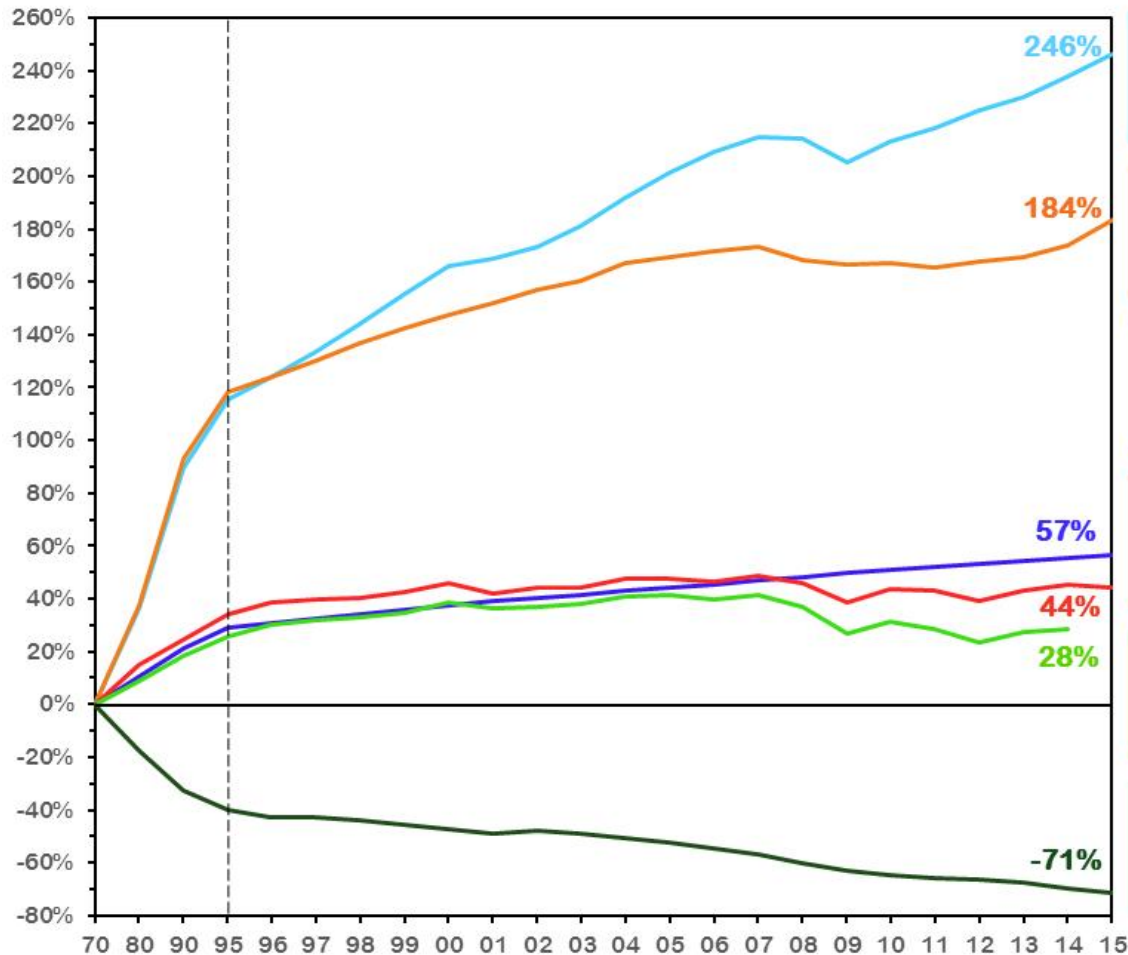
5. Green Book – data for all nonattainment areas

(links to detailed info, history, interactive maps, air quality monitoring data, FR notices)

<https://www.epa.gov/green-book>

6. COMING SOON: State Planning Electronic Collaboration System (SPECS) with Public Dashboard

Comparison of Growth Areas and Emissions, 1970-2015



Gross Domestic Product



Vehicle Miles Traveled



Population



Energy Consumption



CO₂ Emissions



Aggregate Emissions
(Six Common Pollutants)

Note: CO₂ emissions estimate through 2014 (Source: [2014 US Greenhouse Gas Inventory Report](#))
 Gross Domestic Product: [Bureau of Economic Analysis](#)
 Vehicle Miles Traveled: [Federal Highway Administration](#)
 Population: [Census Bureau](#)
 Energy Consumption: [Dept. of Energy, Energy Information Administration](#)
 Aggregate Emissions: [EPA's Air Pollutant Emissions Trends Data](#)



Questions?