

# Air Pollution I



## **EVSS-PUBA 534: Environmental Law and Regulatory Policy**

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# Air Pollution

**Air pollution is a mix of particles and gases that can reach harmful concentrations both outside and indoors. Its effects can range from higher disease risks to rising temperatures. Soot, smoke, mold, pollen, methane, and carbon dioxide are a just few examples of common pollutants.**

-- *National Geographic*

# Air Pollution

**Decades of research across multiple disciplines have revealed significant associations between exposure to ambient air pollution and negative human health effects, including respiratory ailments, cardiovascular disease and premature death.**

-- Boyd 2019, pgs. 18-19

# Air Pollution

## Donora, Pennsylvania 1948

Poison Fog (1948)



# **The Clean Air Act**

# The Clean Air Act

## **What to regulate**

- Which air pollutants, and which to prioritize

## **How much to regulate**

- How much of the pollutant should be allowed?
- "Public" health

# The Clean Air Act

## **Where to regulate**

- Source of pollution or point of impact
- Set at source (e.g., smokestack)

## **How to regulate**

- Which regulatory instruments to use

# The Clean Air Act

- Defines **air pollutant** as *any physical, chemical, biological, radioactive substance or material which is emitted into or otherwise enters the ambient air*
- Implemented through EPA Office of Air and Radiation



# The Clean Air Act: History

**Table 1. Clean Air Act and Amendments**  
(codified generally as 42 U.S.C. 7401-7671)

Year	Act	Public Law Number
1955	Air Pollution Control Act	P.L. 84-159
1959	Reauthorization	P.L. 86-353
1960	Motor vehicle exhaust study	P.L. 86-493
1963	Clean Air Act Amendments	P.L. 88-206
1965	Motor Vehicle Air Pollution Control Act	P.L. 89-272, Title I
1966	Clean Air Act Amendments of 1966	P.L. 89-675
1967	Air Quality Act of 1967 National Air Emission Standards Act	P.L. 90-148
1970	Clean Air Act Amendments of 1970	P.L. 91-604
1973	Reauthorization	P.L. 93-15
1974	Energy Supply and Environmental Coordination Act of 1974	P.L. 93-319
1977	Clean Air Act Amendments of 1977	P.L. 95-95
1980	Acid Precipitation Act of 1980	P.L. 96-294, Title VII
1981	Steel Industry Compliance Extension Act of 1981	P.L. 97-23
1987	Clean Air Act 8-month Extension	P.L. 100-202
1990	Clean Air Act Amendments of 1990	P.L. 101-549
1991	Technical correction to list of hazardous air pollutants	P.L. 102-187
1995-96	Relatively minor laws amending the act	P.L. 104-6, P.L. 104-59, P.L. 104-70, P.L. 104-260
1998	Amended Section 604 re methyl bromide	P.L. 105-277, Section 764
1998	Border Smog Reduction Act of 1998	P.L. 105-286
1999	Chemical Safety Information, Site Security and Fuels Regulatory Relief Act	P.L. 106-40
2004	Amendments to §209 re small engines	P.L. 108-199, Division G, Title IV, Section 428
2005	Energy Policy Act of 2005 (amended §211 re fuels)	P.L. 109-58
2007	Energy Independence and Security Act of 2007 (amended §211 re fuels)	P.L. 110-140

# The Clean Air Act: History

## **1963:** The Clean Air Act of 1963

- Established program in the US Public Health Service
- Funds for research into monitoring and control

## **1967:** Air Quality Control Act

- Established *air quality control regions* (AQCR)
- Left it to states to adopt and enforce pollution control in those regions

# The Clean Air Act: History

## **1970** : Amendments

- Directed EPA to set national ambient air quality standards (NAAQS)
- Permit for every new source
  - New source performance standards

# The Clean Air Act: History

## **1970** : Amendments

- Required automobile manufacturers to reduce pollution by 90%
  - *Technology forcing*
- Risk based standards for hazardous air pollutants
- Federal grants for staffing state agencies

# The Clean Air Act: History

## **1977:** Amendments

- Prevention of Significant Deterioration (PSD) in areas with high air quality

## **1990:** Amendments

- Created cap-and-trade program for SO<sub>2</sub>

# The Clean Air Act

## **Main features of the Clean Air Act**

- Cooperative federalism
- Notice and comment rulemaking
- Cost-benefit analysis
- Citizen suits

# The Clean Air Act: Overview

## Title I - Air Pollution Prevention and Control

- **Part A - Air Quality and Emission Limitations** (CAA § 101-131; USC § 7401-7431 )
- **Part B - Ozone Protection** (replaced by Title VI)
- **Part C - Prevention of Significant Deterioration of Air Quality** (CAA § 160-169b; USC § 7470-7492)
- **Part D - Plan Requirements for Nonattainment Areas** (CAA § 171-193; USC § 7501-7515)

# The Clean Air Act: Overview

## Title II - Emission Standards for Moving Sources

- **Part A - Motor Vehicle Emission and Fuel Standards** (CAA § 201-219; USC § 7521-7554)
- **Part B - Aircraft Emission Standards** (CAA § 231-234; USC § 7571-7574)
- **Part C - Clean Fuel Vehicles** (CAA § 241-250; USC § 7581-7590)



# The Clean Air Act: Overview

Title III - General (CAA § 301-328; USC § 7601-7627)

Title IV - Noise Pollution (USC § 7641-7642).

Title IV-A - Acid Deposition Control (CAA § 401-416; USC § 7651-7651o)

Title V - Permits (CAA § 501-507; USC § 7661-7661f )

Title VI - Stratospheric Ozone Protection (CAA § 601-618; USC § 7671-7671q )

# The Clean Air Act: Sections

## Section 108: Air quality criteria and control techniques

- Requires EPA to identify air pollutants that may "*reasonably be anticipated to **endanger** public health or welfare*"
- From either *stationary* or *mobile* sources
- Issue air quality criteria that: *shall accurately reflect the latest scientific knowledge useful in indicating the kind and extent of all identifiable effects on public health or welfare which may be expected from the presence of such pollutant in the ambient air, in varying quantities*

# The Clean Air Act: Sections

## **Section 109: National Ambient Air Quality Standards (NAAQS)**

The EPA must establish NAAQS for air pollutants that endanger public health or welfare ... and whose presence in ambient air results from numerous or diverse sources

- *Primary* standards: protect human health
- *Secondary* standards: includes animals, wildlife, water, and visibility
- **Standards are uniform and based on health considerations**

# The Clean Air Act: NAAQS

## Six criteria air pollutants

- Sulfur dioxide (SO<sub>2</sub>) **2010**
- Particulate matter (PM<sub>2.5</sub>, PM<sub>10</sub>) **2013**
- Nitrogen dioxide (NO<sub>2</sub>) **2010**
- Carbon monoxide (CO) **2011**
- Ozone **2015**
- Lead **2014**

NAAQS Standards

# The Clean Air Act: Sections

## **Section 110: State Implementation Plans**

EPA sets NAAQS standards, but the states are responsible for establishing procedures to attain and maintain the standards

Requires states to develop and submit to EPA for approval *state implementation plans* (SIPs) specifying measures to assure that air quality within each state meets the NAAQS

- An example of *cooperative federalism*

# The Clean Air Act: Sections

## Section 110: State Implementation Plans

### Attainment and non-attainment areas

- States with *nonattainment* areas must initiate new SIPs
- EPA may initiate a FIP
- *Offsets*

# The Clean Air Act: Sections

## Section 110: State Implementation Plans

### Interstate air pollution (1977 Amendments)

- *SIPs must include adequate provisions to prevent sources within that state from contributing significantly to nonattainment in one or more downwind states.*
- Prohibited reliance on dispersion techniques
- **Section 126:** allows downwind states to force changes in upwind states' SIPs

# The Clean Air Act: Sections

## **Title I Part C: Prevention of Significant Deterioration (PSD)**

- Protects areas with high air quality (i.e., above NAAQS standards)
- Includes: SO<sub>2</sub>, Particulate matter, NO<sub>2</sub>
- Three classes
  - Class I: national parks, wilderness, pristine areas
  - Class II: attainment and not classifiable areas
  - Class III: areas designated for development



# The Clean Air Act: Sections

## **Title I Part C: Prevention of Significant Deterioration (PSD)**

- Must install **best available control technology (BACT)** that may be stricter than that required by NSPS.

# The Clean Air Act: NAAQS

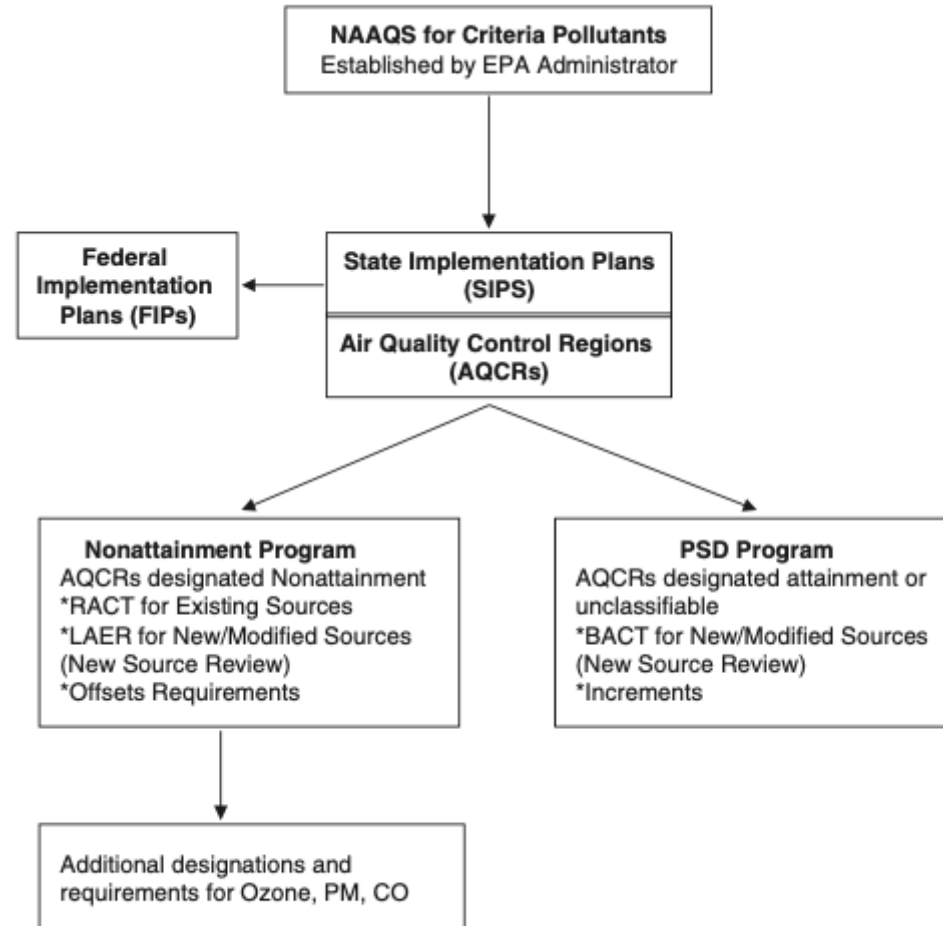


FIGURE 2.1 NAAQS framework

# The Clean Air Act: NAAQS

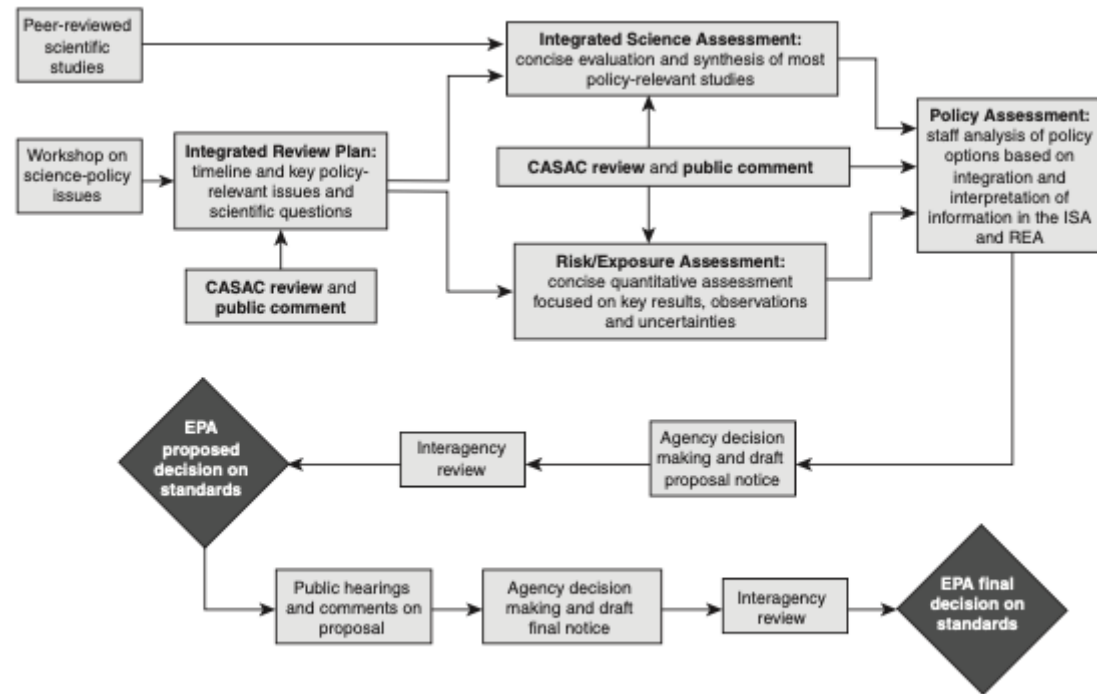


FIGURE 2.3 NAAQS review process

# The Clean Air Act: Sections

## **Section 111: Standards of performance for new stationary sources**

Requires EPA to establish nationally uniform standards for major new stationary sources of air pollution

- *New Source Performance Standards (NSPSs)*
  - Establish maximum emission levels for new major stationary sources
- *New Source Review*
  - Major new sources or major new modifications

# The Clean Air Act: Sections

## **Section 112: Hazardous Air Pollutants**

- Rewritten by 1990 Amendments
- 1897 pollutants specifically listed in the legislation
- Maximum Achievable Control Technology (MACT) requirements
- Health-based standards for residual risk

# The Clean Air Act

## Enforcement

**Section 113:** Federal authority to issue agency and court orders to require compliance and impose penalties

**Section 114:** Federal authority to require sources to submit reports, monitor emissions, and certify compliance

**Title III, Section 304:** Citizen suits

# The Clean Air Act

## **Title II: Emission Standards for Moving Sources**

## **Title IV-A: Acid Deposition Control**

*To introduce some flexibility in the distribution and timing of reductions, the act creates a comprehensive permit and emissions allowance system.*

# The Clean Air Act

## **Title V: Permits**

- Requires states to administer a comprehensive permit program for the operation of sources emitting air pollutants
- Generally sources that emit 100 tons per year of any regulated pollutant
- The permit states how much of which air pollutants a source is allowed to emit
- Source must prepare a compliance plan and certify compliance
- Permit period is five years



# The Clean Air Act

## **Title VI: Stratospheric Ozone Protection**

*Represents the United States' primary response on the domestic front to the ozone depletion issue. It also implements the U.S. international responsibilities under the Montreal Protocol on Substances that Deplete the Ozone Layer (and its amendments)*

- Ozone reduction requirements are a result of amendments to the Montreal Protocol

# The Clean Air Act

**Environmental rights**

**Sustainable development**

**Utilitarianism and cost-benefit analysis**

**Environmental justice**

# For Next Time

## Air Pollution: II

- *Readings:*

- Rabe, Barry G. 2019. “Leveraged Federalism and the Clean Air Act: The Case of Vehicle Emissions Control.” In *Lessons from the Clean Air Act: Building Durability and Adaptability into US Climate and Energy Policy*, eds. Ann Carlson and Dallas Burtraw. Cambridge: Cambridge University Press, 113–58.
- Patashnik, Eric M. 2019. “The Clean Air Act’s Use of Market Mechanisms.” In *Lessons from the Clean Air Act: Building Durability and Adaptability into US Climate and Energy Policy*, eds. Ann Carlson and Dallas Burtraw. Cambridge: Cambridge University Press, 201–24.

# In-Class Assignment

## **Case briefs. See instructions on OAKS**

**Group 1:** *Union Electric Company v. Environmental Protection Agency* (1976)

**Group 2:** *Lead Industries Association, Inc. v. Environmental Protection Agency* (1980)

**Group 3:** *Whitman v. American Trucking Association* (2001)

**Group 4:** *Environmental Defense v. Duke Energy Corp* (2007)