

Clean Air Act Primer

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Alliance to Save Energy

Intro to The Clean Air Act

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Overview

- History
- Clean Air Act Amendments of 1990
- Framework of the current CAA

This presentation does not outline the entire CAA but, instead, emphasizes portions most pertinent to clean energy and energy efficiency.



History



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- 1306: Edward I edict; 1661: London rules.
- 1880s-1940s: U.S. local rules—smoke & smog.
- 1952: Oregon first state air pollution agency.
- 1950s-1960s: Early federal law (including 1963 “Clean Air Act”)—research, local/state support, rudiments of national standards.
- Early-1960s: California enacts auto emissions standards.
- 1970 EPA established.
- 1970 Clean Air Act—start of modern air quality mgmt structure.
- 1977 CAA Amendments—further development.
- 1990 CAA Amendments—current CAA.





Current Clean Air Act

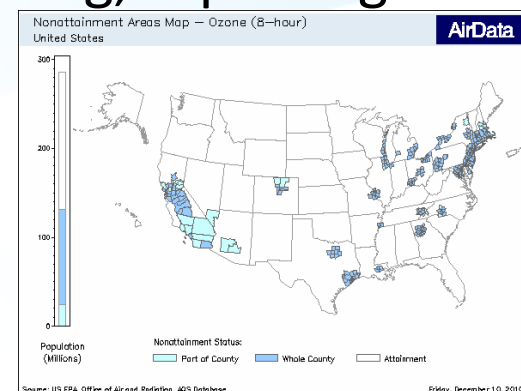
- 1990 Clean Air Act Amendments http://epa.gov/oar/caa/caaa_overview.html
 - Title I: Attainment and Maintenance of National Ambient Air Quality Standards
 - Title II: Mobile sources
 - Title III: Toxics
 - Title IV: Acid deposition control
 - Title V: Permits
 - Title VI: Stratospheric ozone
 - Title VII: Enforcement
 - Other titles



Selected provisions will be described by program rather than sequentially by title and section.

Current Clean Air Act

- The CAA is very complex—substance and process
 - Federal, state, and local roles and interactions.
 - Ambient air quality standards.
 - Facility standards and permits—equipment, O&M, work practices, throughput, materials, monitoring, reporting ...
 - Product and fuel regulations.
 - Stationary and mobile sources.
 - Point sources and fugitive emissions.
 - New and existing sources.
 - Multiple, overlapping standards and requirements promulgated under different CAA programs may apply to an individual facility.



National Ambient Air Quality Standards (§§ 108-110)



- National standards for six **criteria pollutants**:
 - Ozone (O₃), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), carbon monoxide (CO), lead (Pb), and particulate matter (PM).
- **Primary standard** based on health effects (economics not taken into account); **secondary standard** based on human welfare.
 - Except for SO₂, primary and secondary **NAAQS** are the same.
 - Volatile organic compounds (VOCs) regulated as precursor to O₃.
- Areas violating NAAQS are in **nonattainment**.
 - Area can be attainment for some pollutants & nonattainment for others.
- **State Implementation Plans (SIPs)** [also Tribal Implementation Plans].
 - States required to achieve/maintain NAAQS—permits, standards, gasoline, transportation plans, auto emissions inspection, tech assist,...
 - **Federal Implementation Plans (FIPs)**--EPA can impose if state action₆ inadequate or certain other conditions.

National Ambient Air Quality Standards (§§ 108-110)

- In **nonattainment areas** states must impose more stringent requirements than in areas meeting the NAAQS.
 - Stringency depends on how much out of attainment.
 - **Reasonably Available Control Tech (RACT)** at existing industrial plants.
 - Reformulated and oxygenated gasoline, VOC limits in paints, etc.
 - Vapor recovery at gas stations.
 - Auto emissions inspection/maintenance. ...
- In areas that do meet the NAAQS states must protect air from becoming dirty—**Prevention of Significant Deterioration (PSD)**.
- Interstate air pollution transport complicates things.
- NAAQS interacts with the **New Source Review (NSR)** permit program.





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New Source Review (§§ 160-16 9) and Title V

- **NSR** is a pre-construction review program for permitting **major new and modified sources**.
- Many states (or local permitting bodies) also have a **minor NSR** program for minor sources.
- Major source NSR *construction* permitting interacts with **Title V operating** permitting.
- Major source threshold is potential to emit:
 - In nonattainment areas 25, 50, or 100 tpy or more of regulated pollutants depending on severity of nonattainment.
 - In attainment areas (PSD) 250 tpy (or 100 tpy in 28 industries) or more of regulated pollutants.
 - [Note: “tailoring rule” major source threshold for greenhouse gases (GHGs) under PSD: 75,000 or 100,000 tpy CO₂-equivalent, possible future 50,000 tpy.]

New Source Review (§§ 160-169)



- In nonattainment areas, major source permit applicants must
 - Implement stringent **lowest achievable emissions rate (LAER)** controls.
 - Obtain 1:1 or greater **emission offsets** (depending on nonattainment severity) from existing sources.
- In attainment areas, major sources permit applicants must
 - Implement **best available control technology (BACT)**.
 - Must perform certain impact analyses.
- LAER is most stringent limitation achieved in practice or in SIP for source category.
- BACT is best available control determined case-by-case, considering energy, environmental, and economic impacts.
- Can be technology, technique, work practice, fuel quality, etc.



New Source Performance Standards (§111)

- **NSPS** are emissions standards applied to specific categories of stationary sources based on available technologies.
- EPA determines and implements NSPS. Usually delegated to the states but even so EPA retains authority to implement and enforce.
- Usually NSPS is less stringent than BACT and often serves as a baseline pollution control level.
- [Note for GHGs, EPA pursuing NSR PSD approach first. There are no GHG NSPSs thus far.]





Air Toxics (§112)

- 187 listed **hazardous air pollutants (HAPs)**.
- **National Emissions Standards for Hazardous Air Pollutants (NESHAPs)** applied to source categories
 - **Maximum achievable control technology (MACT)** standards based on best 12% existing sources in category.
 - Major sources 10 tpy or more of any single HAP or 25 tpy or more of any combination.
 - “**Area sources**” smaller, dispersed—e.g., dry cleaners, gas stations.
 - Some discretion for less stringent **generally available control technology (GACT)**
- After NESHAP, EPA to evaluate if “residual risk” (i.e., risk after applying MACT) warrants more regulation.
- Accident prevention and other provisions.
- Indust./commerc. boiler MACT draft had efficiency provisions.



Mobile Sources (Title II)

- Standards for autos, trucks, buses, other vehicles
 - Tailpipe emissions, evaporative emissions.
- Regulates fuels
 - Oxygenated and reformulated gasoline; ultra-low sulfur diesel fuel.
- Allows California to adopt its own auto standards as least as stringent as federal.
 - Subject to EPA issuing a “waiver.”
 - Other states can opt for California standards.
- Promotes alternative fuels, clean engine development.
- [Greenhouse gases--
 - Massachusetts v. EPA was mobile source GHG case.
 - April 2010 GHG mobile source rule 1st substantive US GHG regulation.
 - Triggered regulation under other CAA provisions.]

Other Provisions



- International Air Pollution (§115)
 - Vague, EPA discretion, requires reciprocity, likely highly scrutinized if used.
- Acid Deposition Control (Title IV)
 - SO₂ and NO_x reduction program for utility boilers.
 - Established SO₂ cap-and-trade market mechanism.
- Title V Operating Permit Program
 - Operating permit (contrast with NSR construction permit)
 - Required of major sources.
 - Consolidates conditions and standards from different air programs (NSR, NSPS, NESHAP/MACT, Title IV, etc.).
- Stratospheric Ozone Protection (Title VI)
 - Phase-out of certain ozone depleting substances.



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