Air quality considered a local concern until late 1960’s

Federal government sponsored only environmental research in early years

**1967 Air Quality Act**

fed. gov. assisted states in setting standards for six air pollutants:

Ozone (O3)

Sulfur dioxide (SO2)

Nitrogen oxides (NO2)

Particulate matter (PM10 and PM2.5)

Carbon monoxide (CO)

Lead (Pb)

“Criteria pollutants” - pervasive in the US

Act initially gave federal government limited enforcement of ambient standards

**Clean Air Act amendment 1970**

Set national standards for criteria pollutants

Charged newly created EPA to uphold standards

Standards: <https://www.epa.gov/criteria-air-pollutants/naaqs-table>

Primary and secondary standards

Standards set at point in which no health effects for sensitive population

Standards can be interpreted as threshold in marginal damage model

EPA officially does not consider the economic cost

[Non-attainment areas for Criteria Pollutants](https://www.epa.gov/green-book/green-book-8-hour-ozone-2008-area-information)

Counties evaluated yearly, divided into attainment, non-attainment

States with non-attainment counties has to submit plan to reach attainment (SIP)

EPA may penalize states with non-attainment counties

 Highway funds are cut

 Polluting firms subject to technology, emission regulations

Counties in compliance also regulated so as not to grow out of compliance

Ozone is important indicator air quality

Ground level ozone generated from emissions of Nitrogen oxides and Volatile Organic Compounds

 During summer pollutants are heated and form ground level ozone

 Ozone triggers health problems: chest pain, coughing, throat irritation…

 Worsens bronchitis, emphysema, and asthma

EPA in 2010 proposed revised ozone standard to .06ppm

Argued current standard didn’t follow science board recommendation

Would push many counties out of compliance

Obama delayed implementation of .06 standard

From 2008 to 2015 the ozone standard had been .075;

Obama approved lowering standard to 0.07 which went into effect in December 2015

Should costs be considered in setting standard?

Under Clean Air Act

New plants must follow more regulations than existing plants

A. In non-attainment areas many existing plants must employ “reasonably available control technology”

2. New plants had to employ “lowest achievable emissions rate”

3. Existing plants in attainment areas normally suffer little regulation

Regulations gave economic advantage to existing plants

1970 Clean Air Act

 Set emission standards for autos

 Car companies in violation would pay fines and have plants shut down

 Emissions controlled for: Volatile Compounds, Carbon Monoxide and Nitrogen Oxides;

[Auto Emissions Standards](https://www.dropbox.com/s/ahfdiutdtnp9fy5/The%20main%20emissions%20from%20mobile%20sources%20are%20hydrocarbons%20%28sometimes%20called%20vol-.pdf?dl=0)

 Uncontrolled emissions in 1970 much larger than controlled

Cars forced to give up power, size

Standards were single largest cause of decrease in urban smog

Non-attainment areas subject to rules such as different gasoline mixes during smog season

Mandated decreases in emissions have outstripped increase in miles travelled in urban areas

Law does not attempt to address miles travelled

**Did the Clean Air Act cause employment in polluting industries to fall?**

Emissions regulations primarily are in non-attainment counties

 Regulation plans submitted/administered by states, approved by EPA

Regulation in non-attainment areas is by the industry generating particular pollutant

Example: if county is out of compliance for particulate matter (PM10)

 only firms in industries found to be large PM10 emitters are regulated

Clean Air Act does not call for plant-specific monitoring

In attainment counties

 large sources of criteria pollutants also regulated - but less strict

Production facility must fall somewhere within table:

|  |  |  |
| --- | --- | --- |
|  | **Within Non-Attainment County** | **Within Attainment County** |
| **Plant in Industry regulated for certain pollutant** |  Strict technology standardMore severe for entering firms | Weaker regulation and standardsUsed to maintain attainment status |

Change in attainment status

Migration of polluting firms

Changes in employment/output in non-attainment counties

[Attainment Counties](http://milesfinney.net/434/handouts/attain.pdf)