Control of Air Pollution From Motor Vehicles: Tier 3 Vehicle Emission and Fuel Standards -- Proposal Overview

Prepared for
Air Pollution Control Board Meeting
June 6, 2013

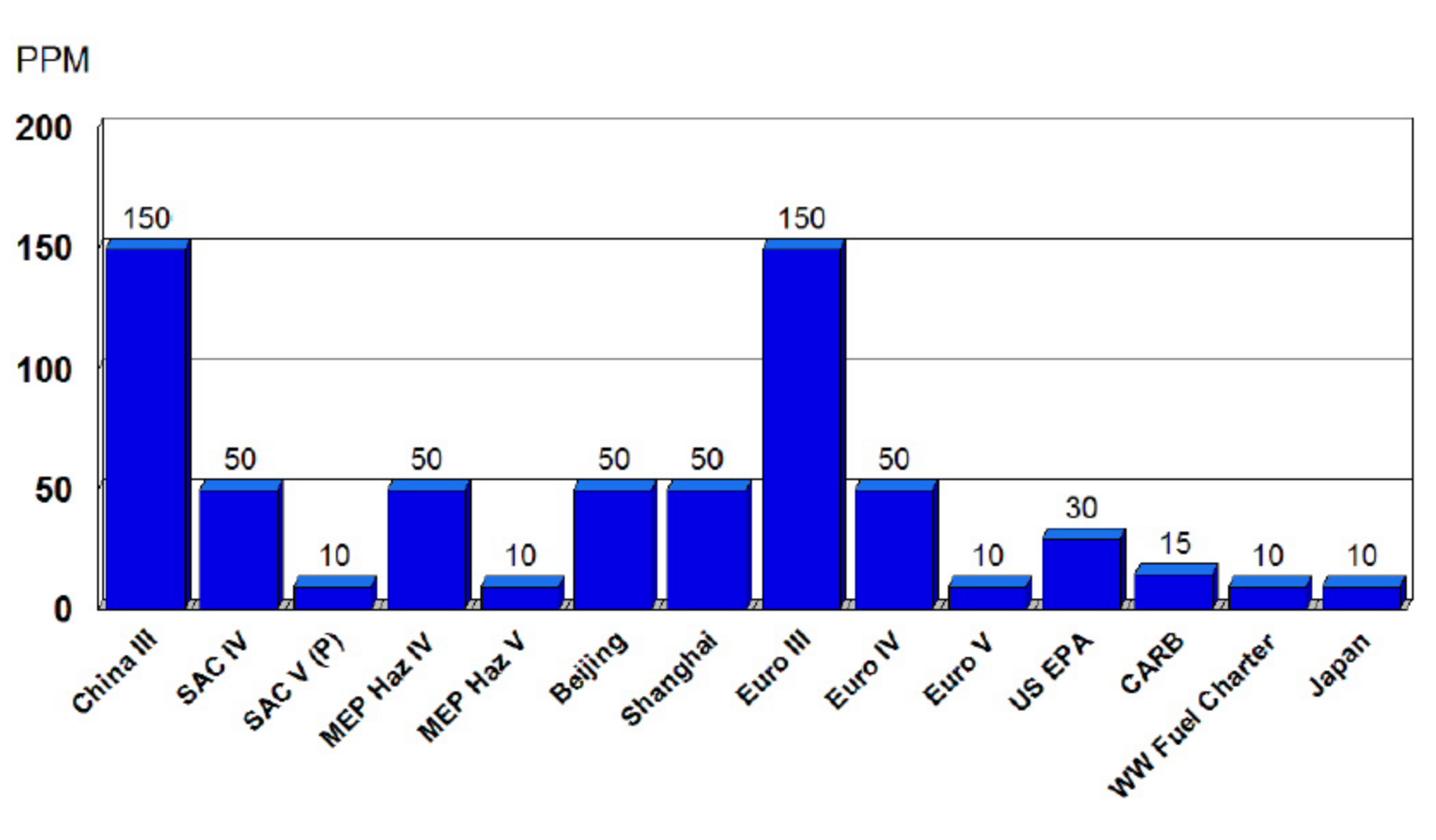
Tier 3 Standards

- Proposed in the Federal Register on 5/21/13
- Establishes more stringent vehicle and fuel standards:
  - Vehicle standards: reduce both tailpipe and evaporative emissions from passenger cars, light-duty trucks, medium-duty passenger vehicles, and some heavy-duty vehicles by Jan 2017.
  - Fuel standards : lower gasoline sulfur content to 10 ppm by Jan 2017.
- Harmonize with California LEV III Standards.
- Significantly reduce air pollutants such as ozone, particulate matter, and air toxics across the country.

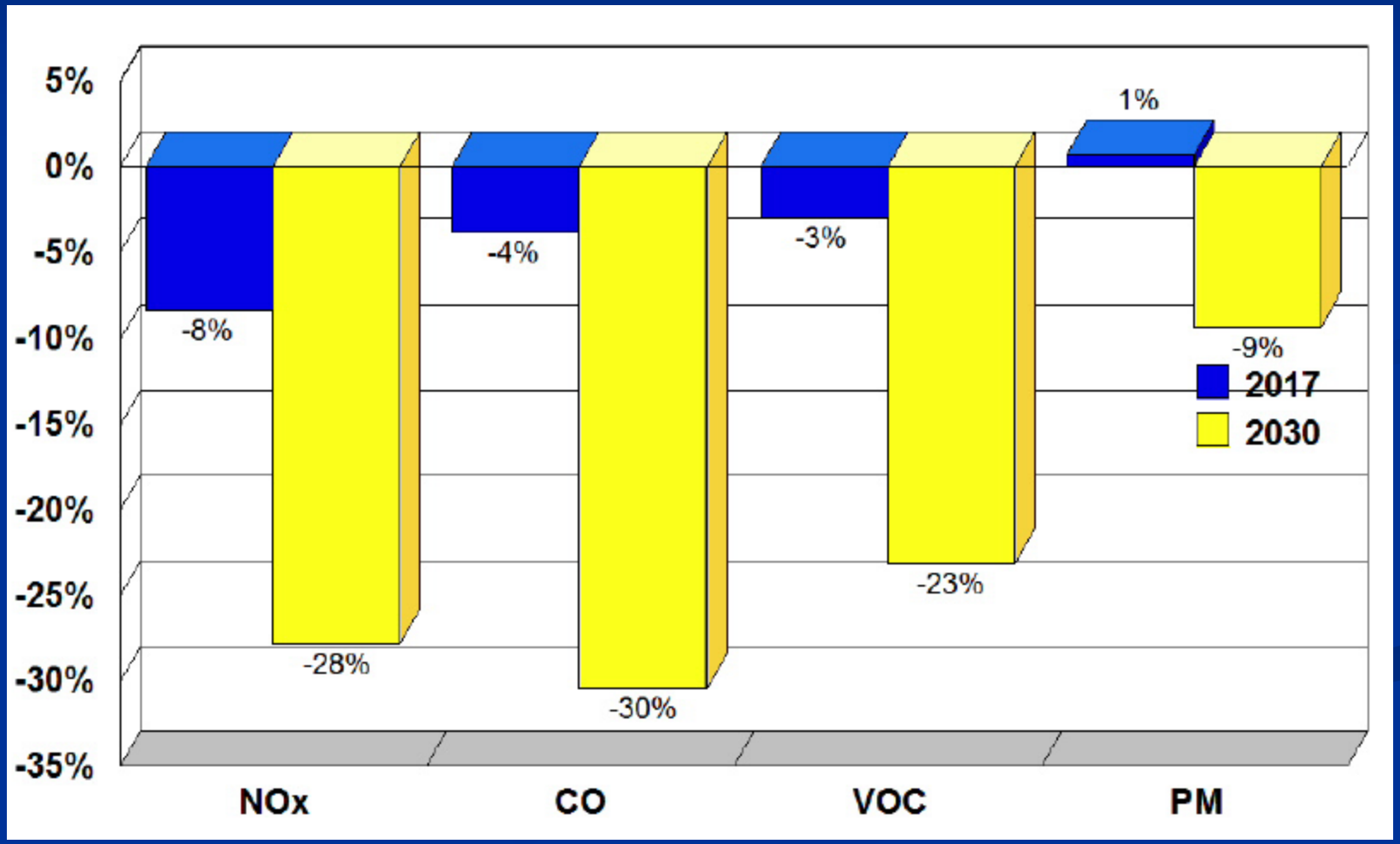
Lower Sulfur Gasoline

- Lowering the sulfur content of gasoline allows pollution control equipment (3-way catalyst) on cars and trucks to operate more effectively.
- Will significantly reduce NOx and other emissions from all gasoline-powered vehicles by limiting "NOx Creep" associated with sulfur build-up in catalyst.
- Emission reductions from the in-use fleet would be achieved concurrent with introduction of the cleaner fuel, without fleet turnover.

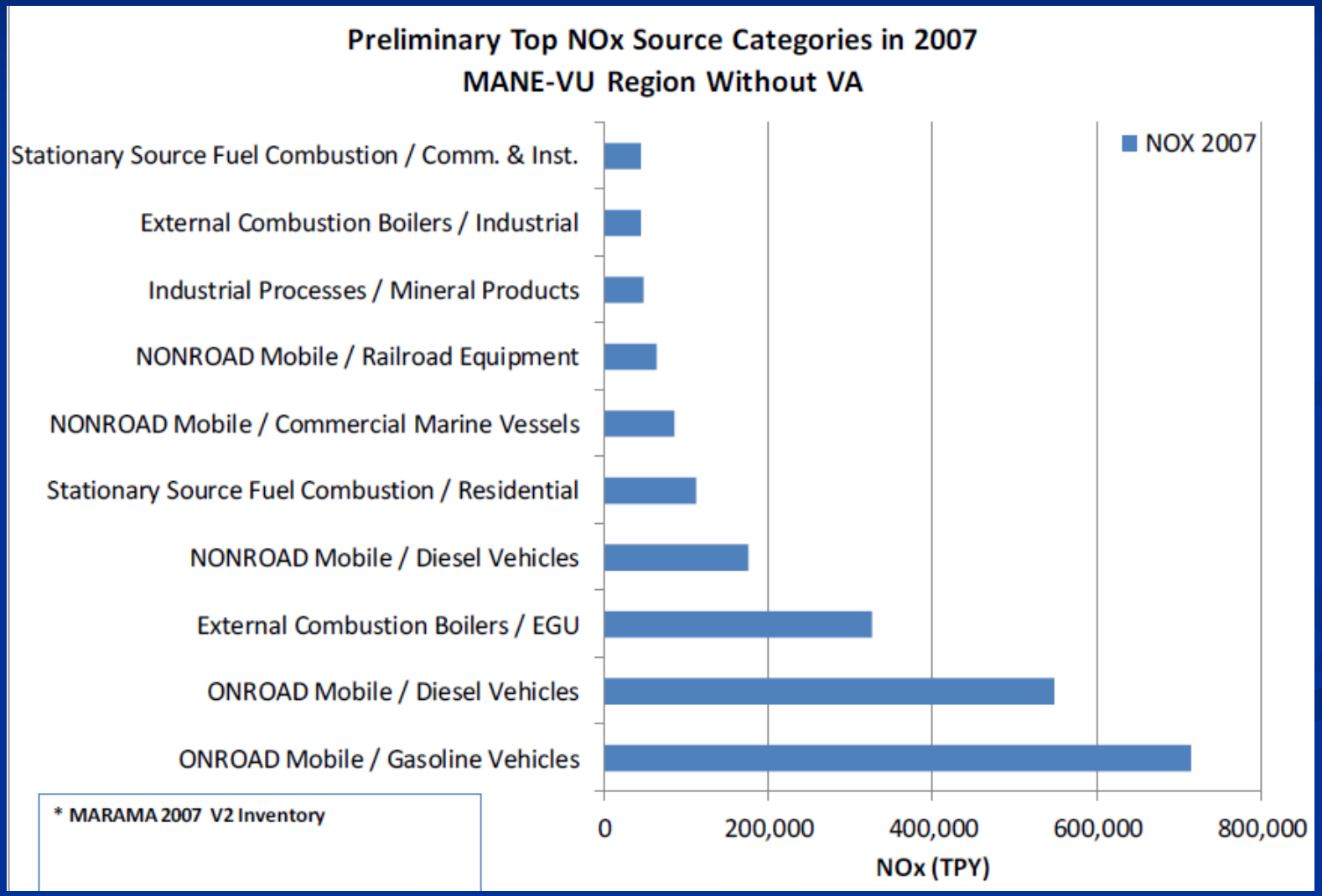
Sulfur Content in Gasoline Worldwide Comparison



Overall Emission Reductions - Onroad Mobile Sources Nationwide



Source Categories of NOx Emissions in the Northeast/Mid-Atlantic Region



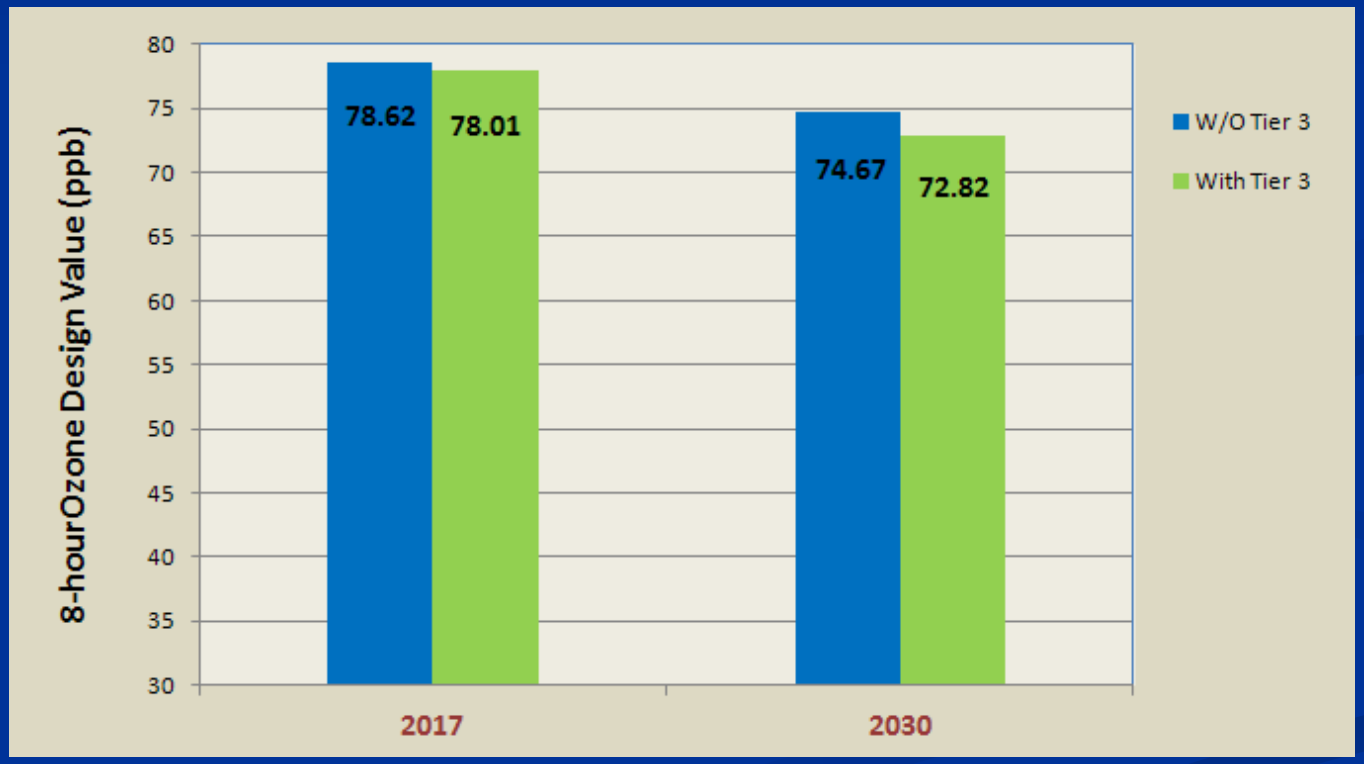
Regional Emission Impacts

- A NESCAUM (Northeast States for Coordinated Air Use Management) study analyzed regional emission impacts of 10 ppm sulfur gasoline

Region/State	2017 Gasoline Onroad Base NOx Emissions (tons)	Estimated NOx Reductions from 10 ppm Sulfur Gasoline (tons)	2017 Emission Reduction Percentage (%)
Northeast/Mid-Atlantic States	339,500	-51,600	15.2
Pennsylvania	70,500	-10,700	15.2
New Jersey	44,300	-6,700	15.1
Maryland	32,600	-5,000	15.3

Air Quality Impacts for Philadelphia Area - Ozone

EPA modeling results for ambient ozone reductions**:

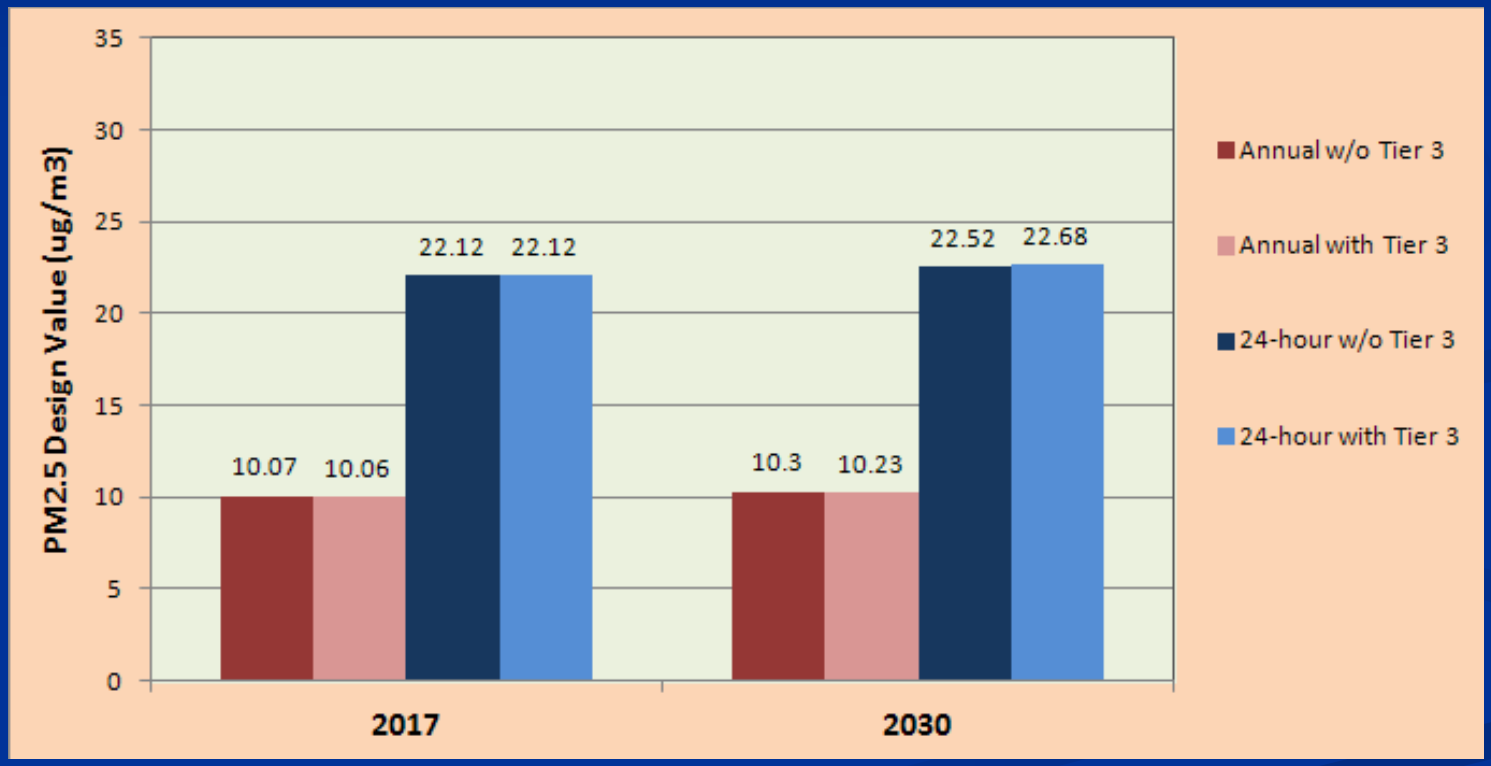


8-hour ozone NAAQS: 0.075 ppm (75 ppb)

** EPA Technical Modeling Document, March 2013, EPA -454 R-13-002

Air Quality Impacts for Philadelphia Area – $PM_{2.5}$

EPA modeling results for ambient PM2.5:



Annual PM2.5 NAAQS: 12 ug/m3
24-hour PM2.5 NAAQS: 35 ug/m3

Economic Impacts and Health Benefits

- Cost of Vehicle Standards: $130/vehicle in 2025
- Cost of Fuel Standard: about 0.89 cents/gallon
- In 2030, annual monetized health benefits would be $8 - $23 billion
- By 2030, the new standards would annually prevent:
  - Between 820 and 2,400 premature deaths
  - 3,200 hospital admissions and asthma-related emergency room visits
  - 1.8 million lost school days, work days