



# Commanding Clean Air

The Clean Air Act of 1970 as a  
Model for U.S. Environmental  
Policy

# Issues to Consider:

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- When and how did air pollution get on the government agenda and how was this “problem” ultimately framed?
- How did the Clean Air Act of 1970 try to accomplish government environmental policy goals?
- Did the CAA 1970 reduce the problem(s)?

# When and how did air pollution get on the government agenda?

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## ■ Policy History

- Which government(s) & when?
- What was federal government air pollution policy prior to 1970?
- How did the Clean Air Act 1970 come to be?

## ■ Relative Roles of Science & Politics

# Clean Air Act 1970

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- Statutory Goal:

- ...to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population...

# Clean Air Act 1970

## ■ Provisions

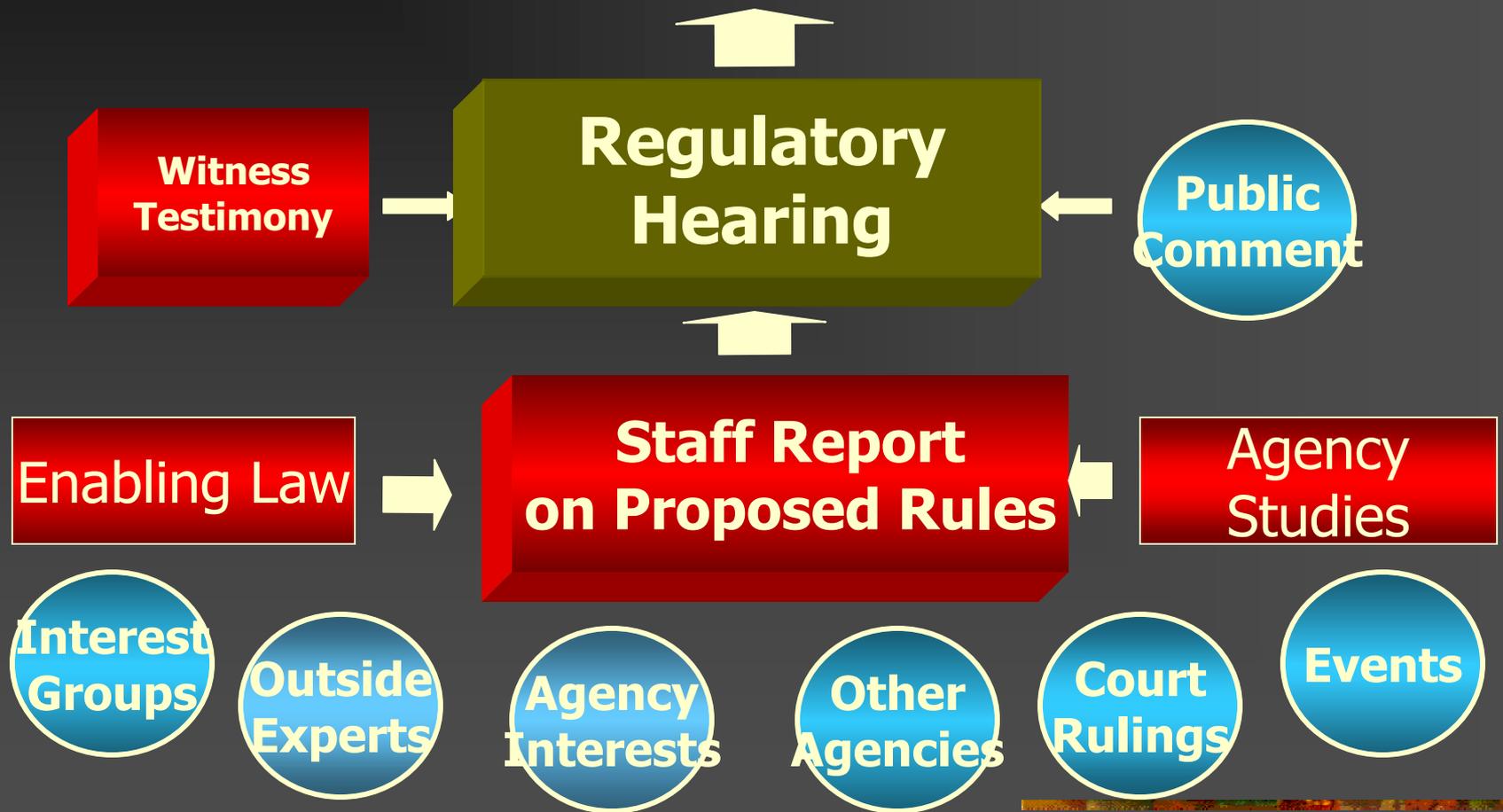
- EPA to set National Ambient Air Quality Standards (NAAQS)
  - SO<sub>2</sub> NO<sub>x</sub> CO VOC Pb PM-10 O<sub>3</sub>
- EPA to set New Source Performance Standards (NSPS) – stationary sources
- States to Devise Implementation Plans to Limit Emissions
- EPA to set Mobile Source Emission Standards

# National Air-Quality Standards

- Maximum permissible ambient air concentrations for 7 pollutants to be set by EPA
  - SO<sub>2</sub> NO<sub>x</sub> CO VOC Pb PM-10 O<sub>3</sub>
  - Primary Standards (human health)
  - Secondary Standards (aesthetics, damage to buildings, crops, water, etc.)
  - Health standards only – no consideration of Compliance Cost
- Must be met by 1975

# Rule-Making in the Bureaucracy

## Publication of Rules



# National Air-Quality Standards

Set by EPA		<u>Max. Conentration</u>
Particulates (tsp)	Annual Geometric Mean	75 $\mu\text{g}/\text{m}^3$
	24-hour	260 $\mu\text{g}/\text{m}^3$
SO <sub>2</sub>	Annual Arithmetic Mean	80 $\mu\text{g}/\text{m}^3$
	24-hour	365 $\mu\text{g}/\text{m}^3$
CO	8-hour	10 $\mu\text{g}/\text{m}^3$
	1-hour	40 $\mu\text{g}/\text{m}^3$

# National Air-Quality Standards

Set by EPA		<u>Max. Conentration</u>
NO <sub>2</sub>	Annual Arithmetic Mean	100 µg/m <sup>3</sup>
O <sub>3</sub>	Maximum Daily 1-hour Average	235 µg/m <sup>3</sup>
Pb	Maximum Quarterly Average	1.5 µg/m <sup>3</sup>

# New Source Performance Standards (emissions)

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- EPA standards set on industry-basis
- Costs of implementation considered
- Control-technique (technology) guidelines for existing sources
- State enforcement

# State Implementation Plans

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- 247 Air Quality Control Regions
  - States have 1 year to designate attainment vs. non-attainment areas
  - Non-attainment areas
    - must meet CO & O<sub>3</sub> standards by 1975
    - Existing factories must retrofit with “reasonably available control technology”
    - Plant expansion requires best available control technology on existing similar plants
    - New plants must purchase offsets from existing plants for no net pollution emission increase

# Mobile Emission Standards

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- Cars & Trucks
- Only explicit air pollution limits written into the CAA
- 90% reduction in CO & VOC by 1975
- 90% reduction in NO<sub>x</sub> by 1976
- Why national standards rather than state standard setting?

# Clean Air Act Mechanisms

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- Command & Control
  - Regulation by Standard Setting & Enforcement
- Specificity
- Strict Deadlines
- Hammer Clauses
- Technology Forcing Provisions
- Citizen Engagement
  - Legal standing
  - Public hearings

# CAA Amendments

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- Amendments – 1971, 1973, 1974, 1976
  - To extend auto emissions standards
- 1977 Amendments
  - Extends auto emission deadline to 1980
  - Extends deadline for non-attainment areas to meet NAAQS to 1982
    - For cities with high CO/O<sub>3</sub> = 1987
  - All new coal power plants must use scrubbers
    - Eastern coal producers win concession
  - Makes Prevention of Significant Deterioration of Air Quality a Goal of CAA

# 1977 CAA Amendment: PSD

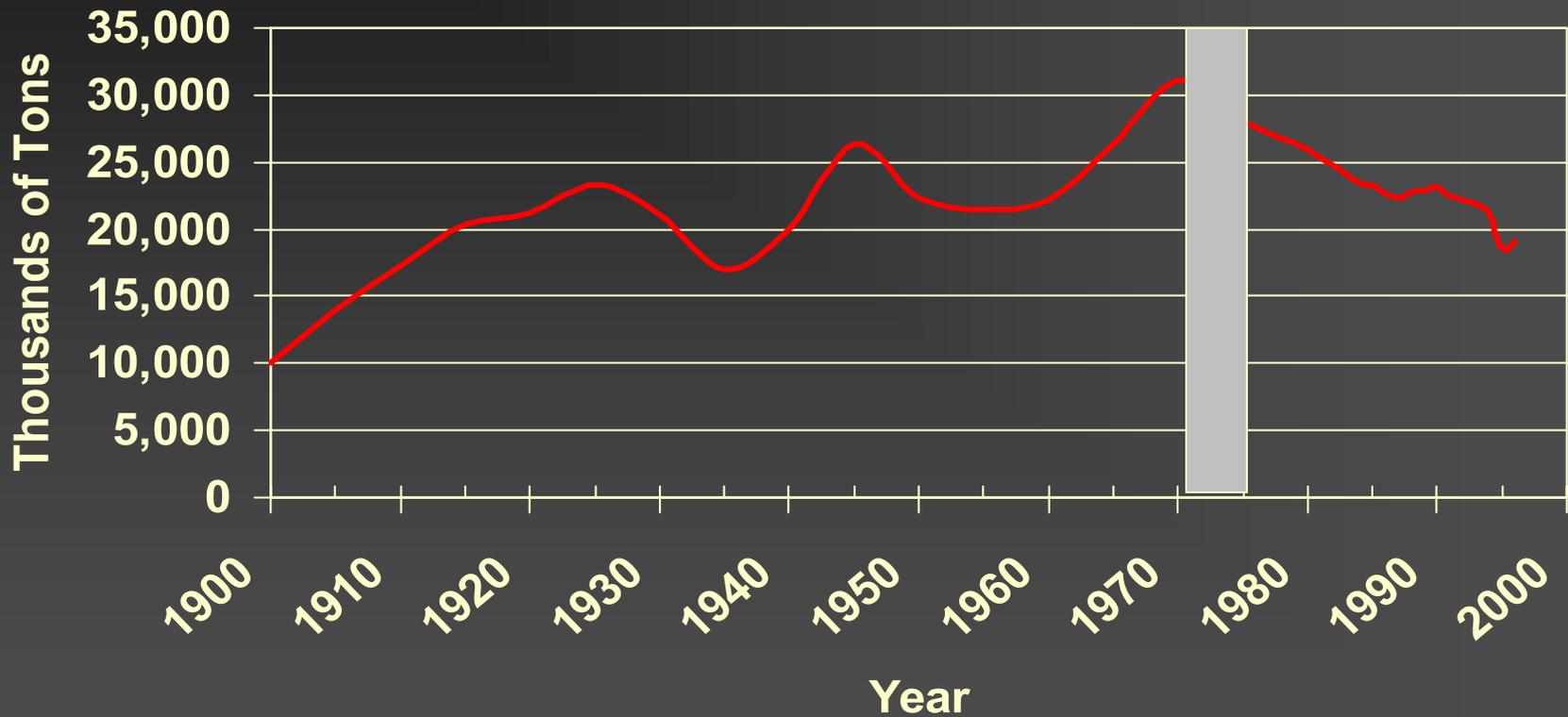
- Prevention of Significant Deterioration (PSD) regions
  - Class I:
    - National Parks, Wilderness areas, wildlife refuges, etc.
    - No decline in air quality allowed no matter how far below the NAAQS
  - Class II:
    - Modest decline in air quality allowed
  - Class III:
    - Up to NAAQS
- New Plants in PSD regions
  - Must use best available technology (BAT)



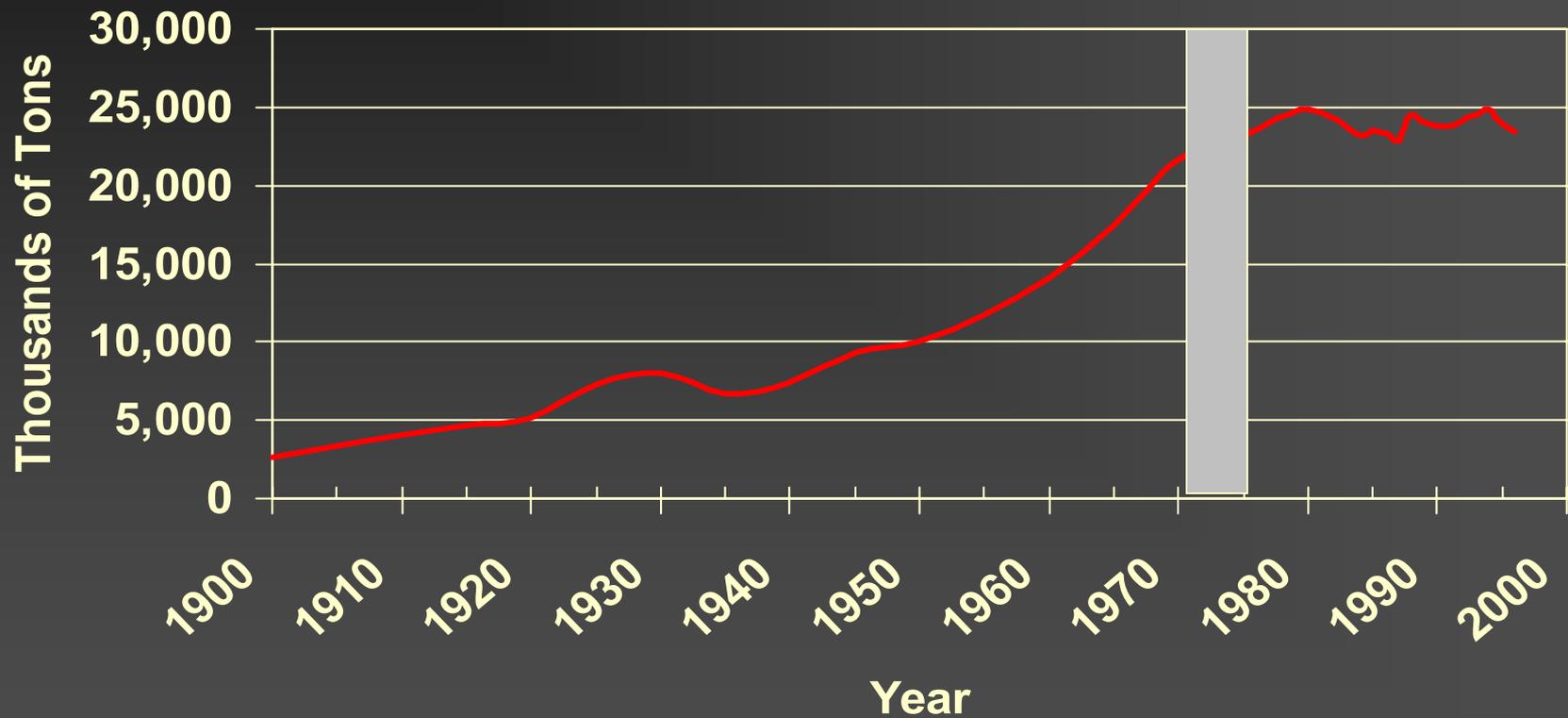
# Did the CAA 1970 Work?

Impact on “...the quality of the  
Nation’s air resources...”

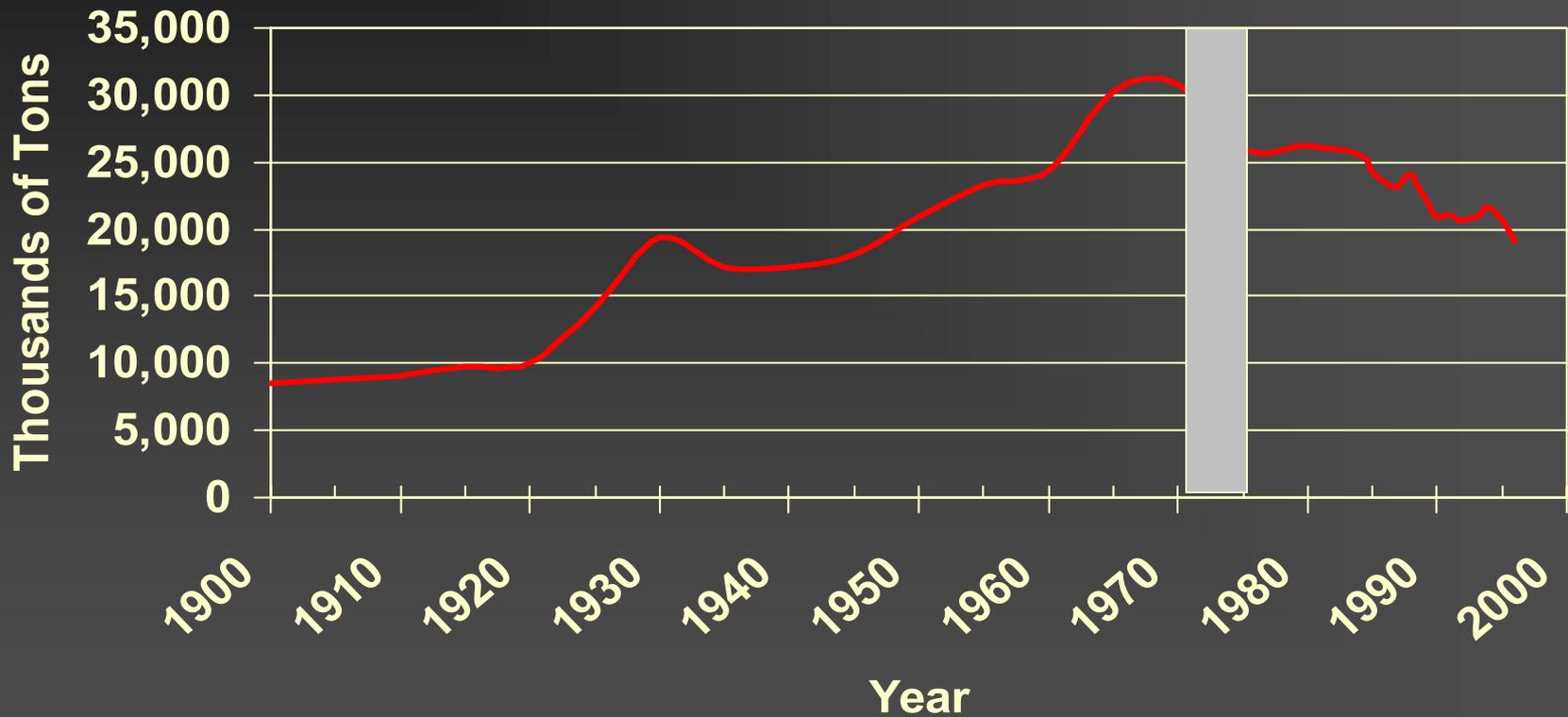
# U.S. SO<sub>2</sub> Emissions



# U.S. NO<sub>2</sub> Emissions



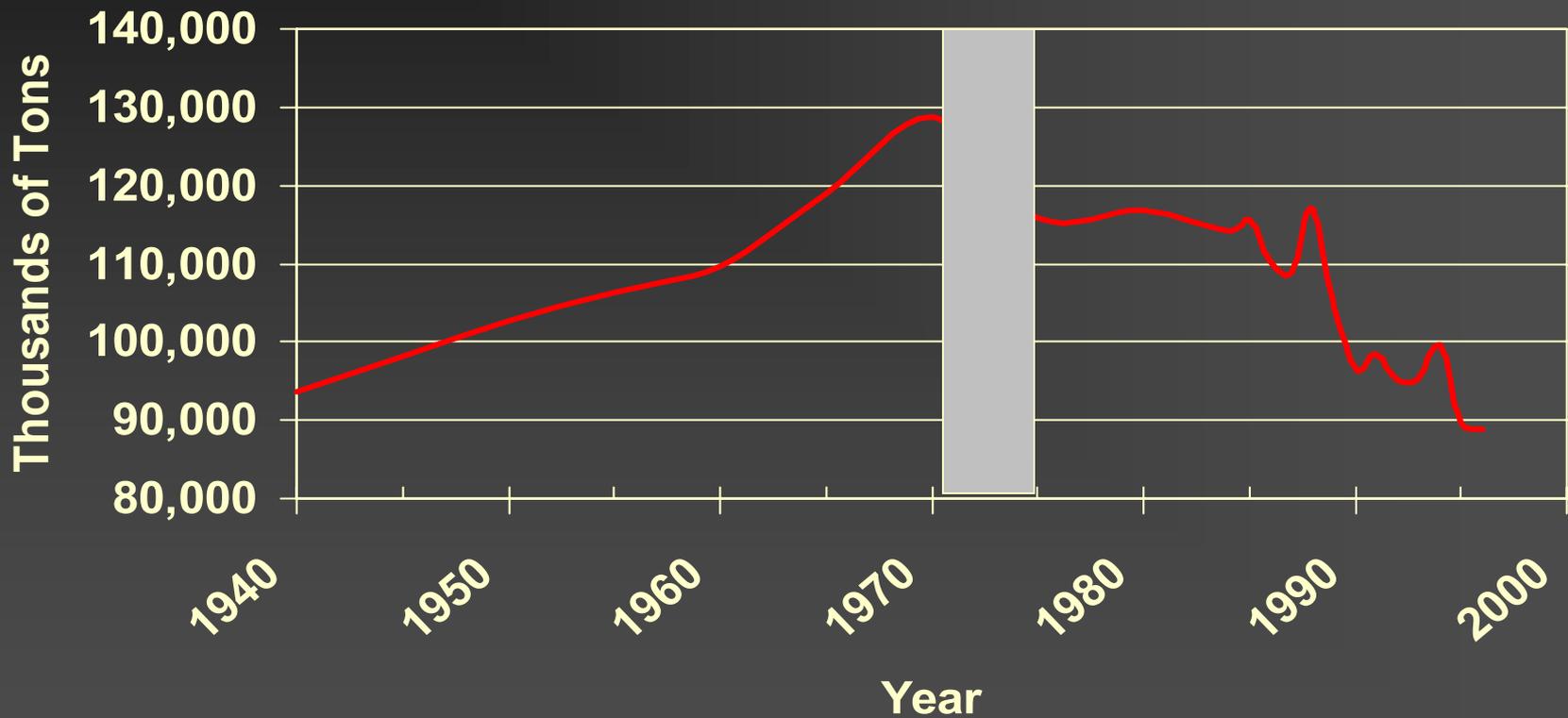
# U.S. VOC Emissions



# U.S. PM-10 Emissions

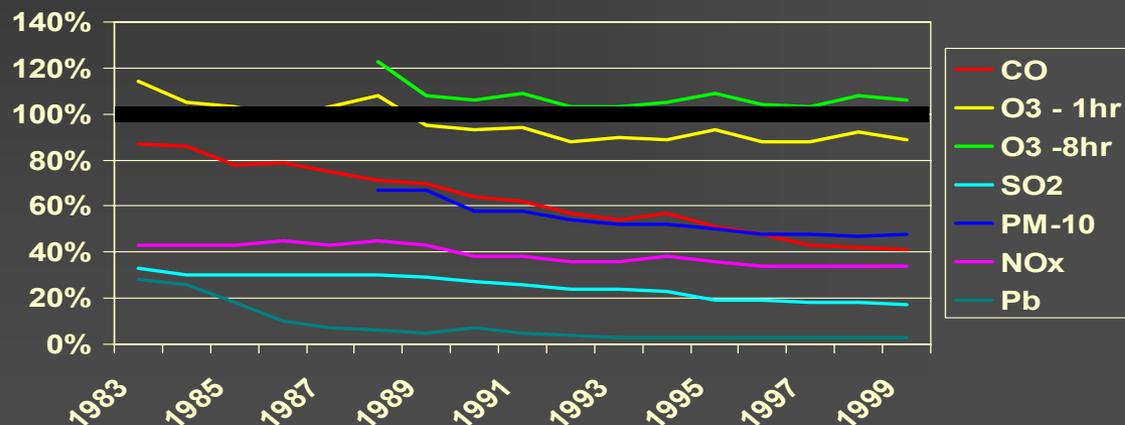


# U.S. CO Emissions



# Trends in U.S. Ambient Air Quality

■ <http://www.epa.gov/oar/aqtrnd01/>



# What About Health Effects?

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- Asthma
- Respiratory Illness
- Missed Work Days (unhealthy air)
- Air pollution → 60,000 heart-related deaths per year
  - Blood vessel constriction

# Summary CAA 1970 & 1977

- Defined the Environmental Problem
  - Specific pollutants
- Mandated EPA to determine Specific Levels of Air Pollution Threat
  - Establish NAAQS
  - Establish safe levels for Toxics
- Mandated Action
  - Establish National Air Quality Control Regions / PSD
  - EPA to Establish Standards for Control Technology to limit Emissions
    - Stationary sources
    - Mobile sources
  - States + EPA to monitor and enforce standards under EPA guidance
- Enhance Government Response
  - Fixed deadlines
  - Hammer Clauses
  - Public Engagement in enforcement
    - hearings and legal standing