The Success of Air Pollution Controls in California

A 40th Anniversary Retrospective

February 28, 2008

Air Resources Board

California Environmental Protection Agency

Overview

History

The Problems and the Solutions

Progress

Costs and Benefits

Challenges Ahead

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The Air Resources Board, then…

- Created in 1967 by the Legislature
- Authorized to set ambient air quality standards and emissions standards for motor vehicles
- 60 staff members

Professor Arie Haagen-Smit
First ARB Chairman

The Air Resources Board, now…

- Authority broadened to other mobile sources, stationary and area-wide sources, and greenhouse gases
- 1,250 staff members

Partners in Air Quality Regulation

- Local Air Districts
- State Agencies
- City and County Governments
- U.S. Environmental Protection Agency
- Universities

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Major Air Quality Issues in 1968

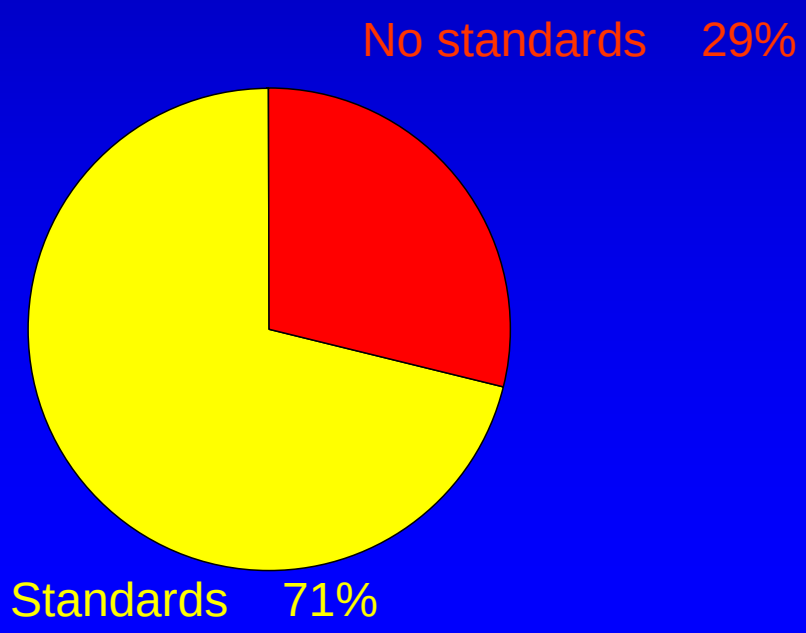
- Unhealthy levels of lead, NO_2, SO_2, CO, ozone, particulate matter, and air toxics
- Poor visibility
- Difficulty breathing
- Extreme eye irritation

Technology-based Regulations
(Required Emission Reductions)

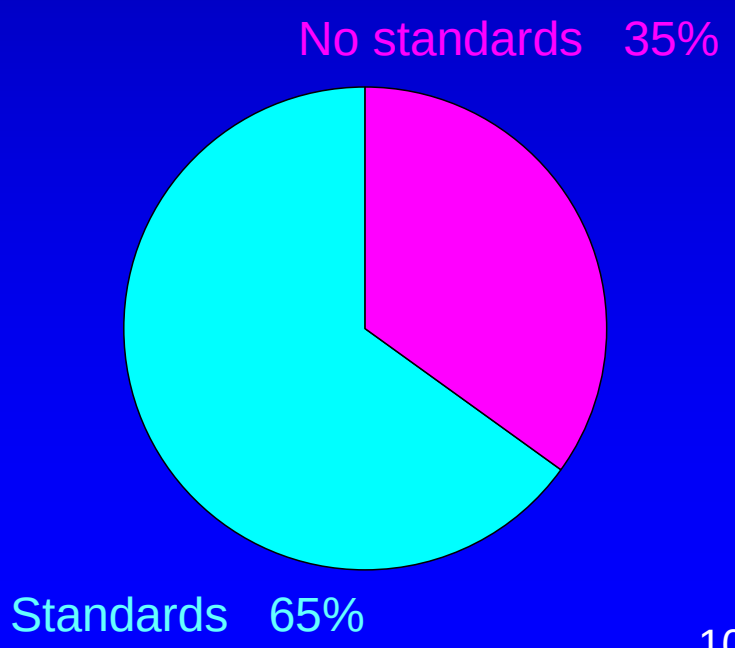
- **Mobile Sources (>99% gasoline, 98% diesel reduction)**
  - Cleaner engines
  - Aftertreatment
  - Cleaner gasoline and diesel fuel
  - Alternative fuels
- **Stationary Sources (80-90% reduction)**
  - Low-NO_X burners
  - Selective catalytic reduction
  - Cleaner fuels
- **Area Sources (~75% reduction)**
  - Vapor recovery
  - Consumer products

Many Developing Countries Have Adopted New Engine Standards First Demonstrated in California

Percentage of ***World Population*** Living in Nations With/Without Vehicle Emission Standards



Percentage of ***World Vehicles*** Driven in Nations With/Without Vehicle Emission Standards



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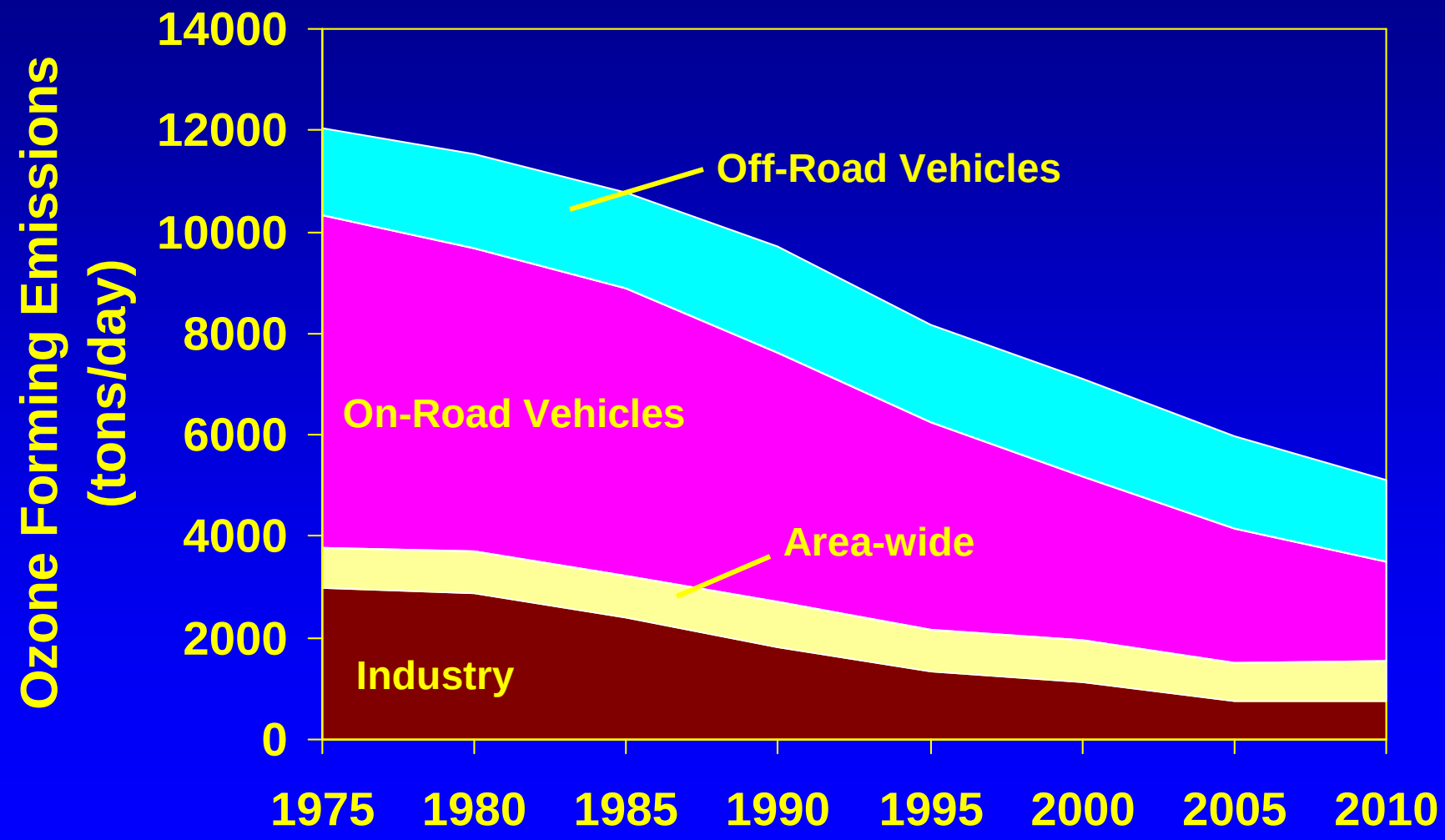
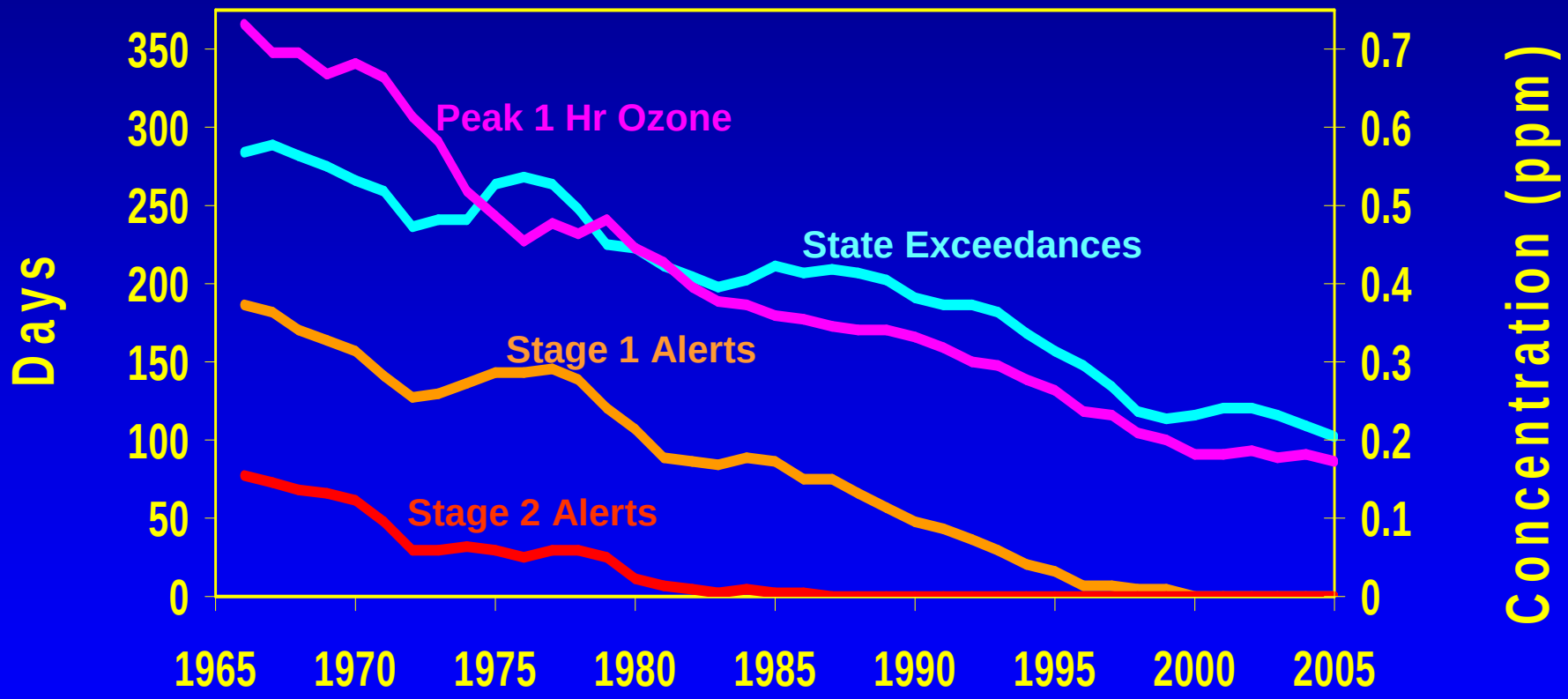
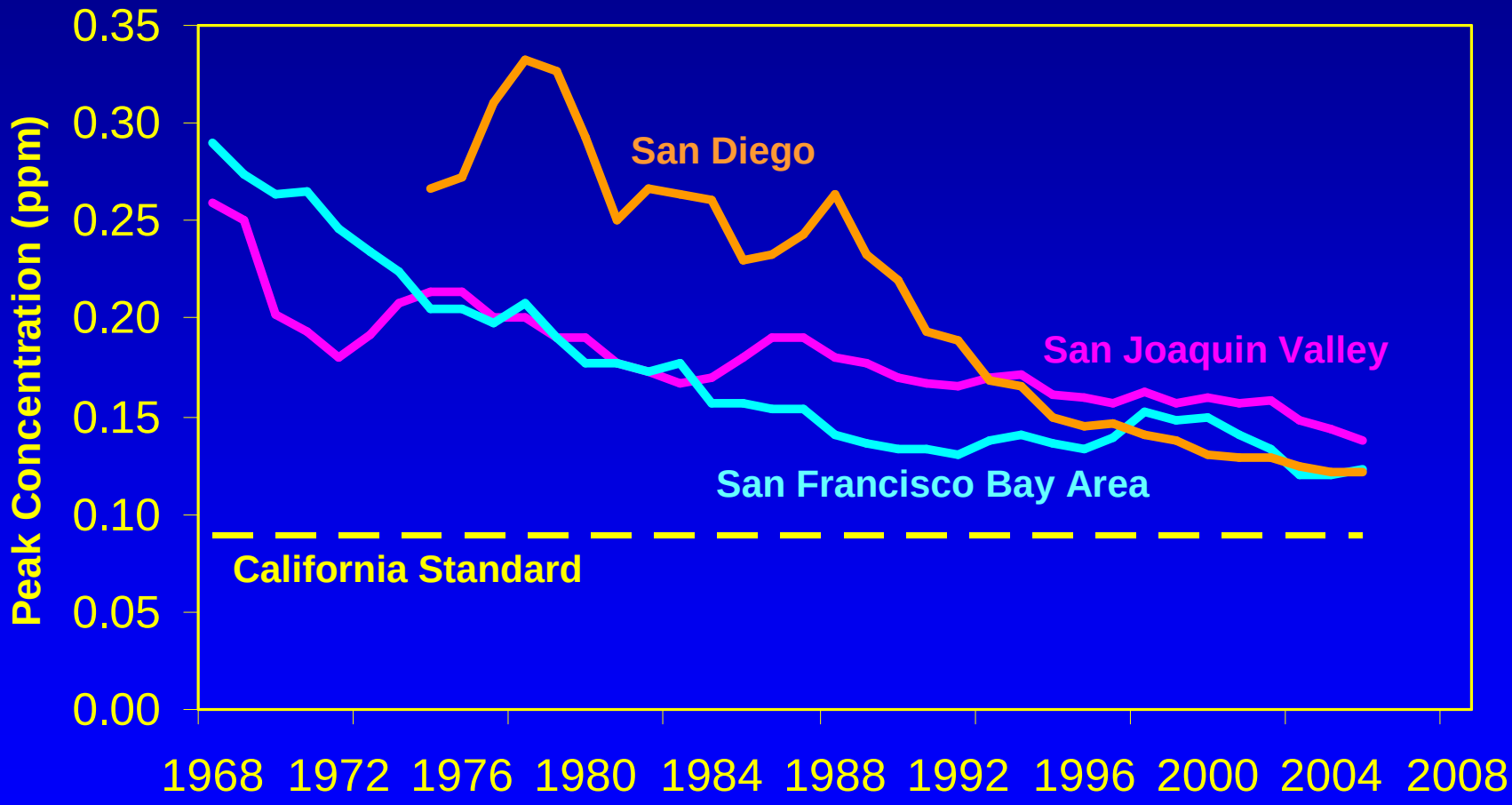
Statewide Emissions Trends



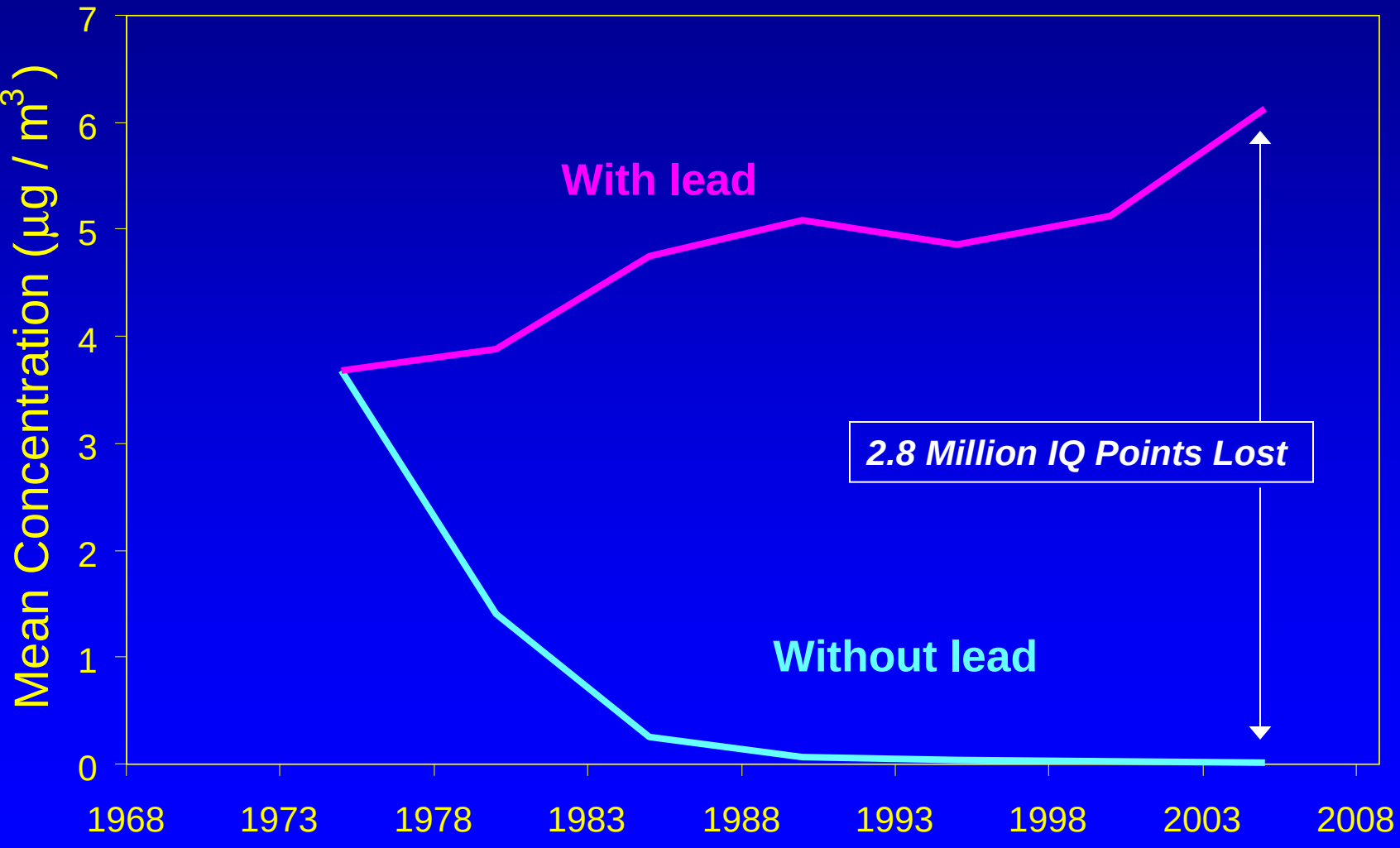
Ozone Trends in the South Coast



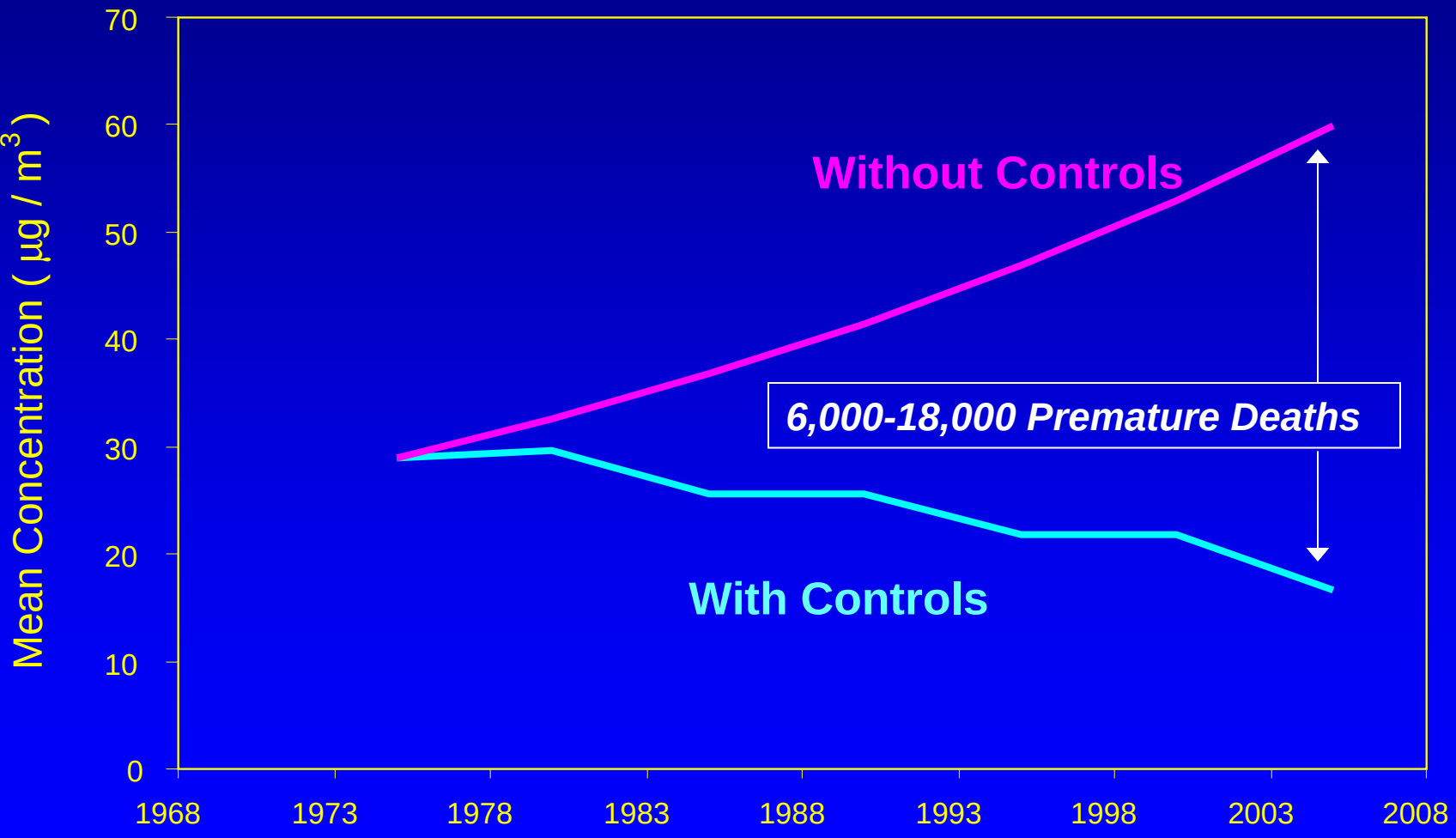
Ozone Trends In California



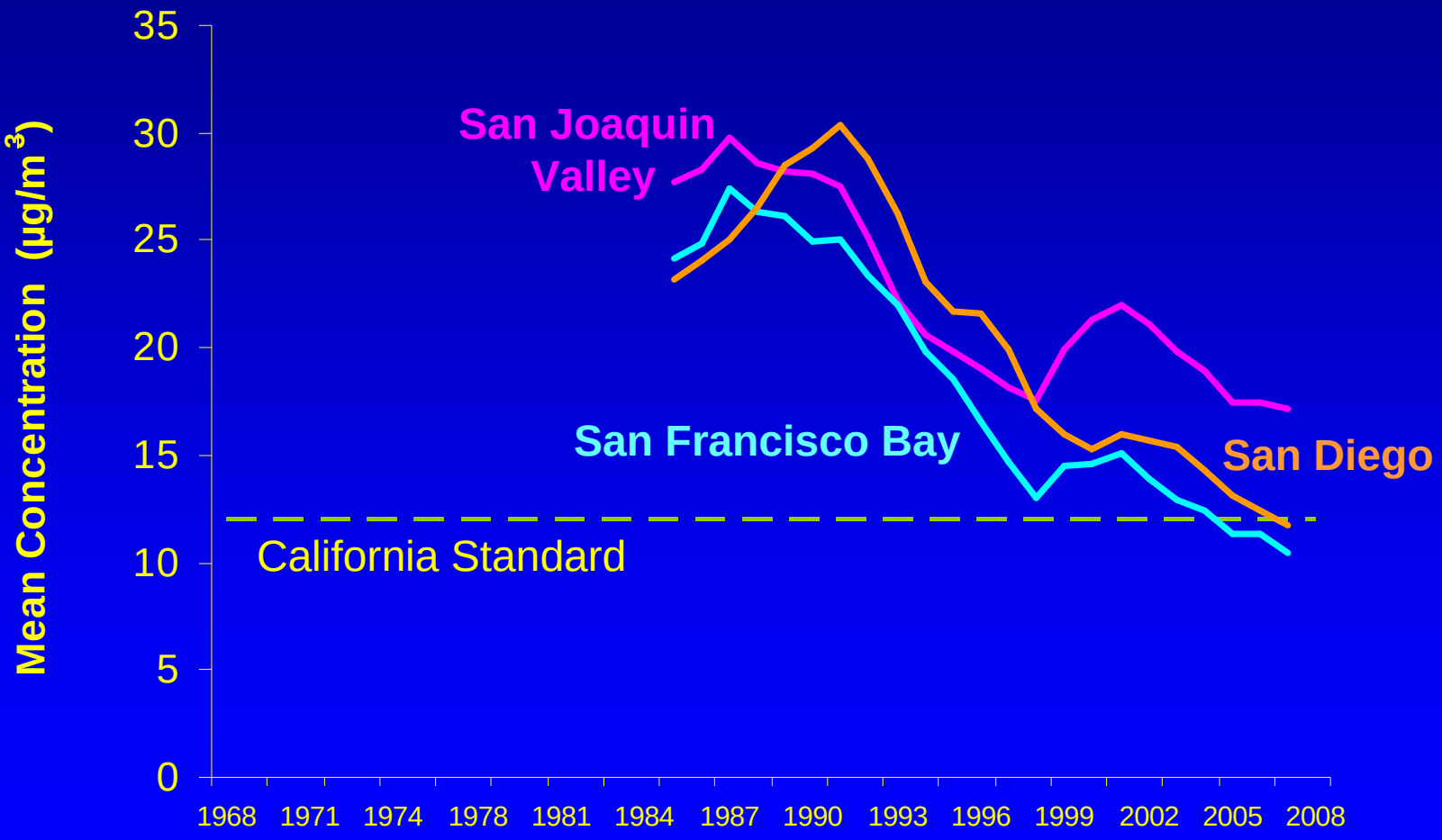
Lead Trends in the South Coast



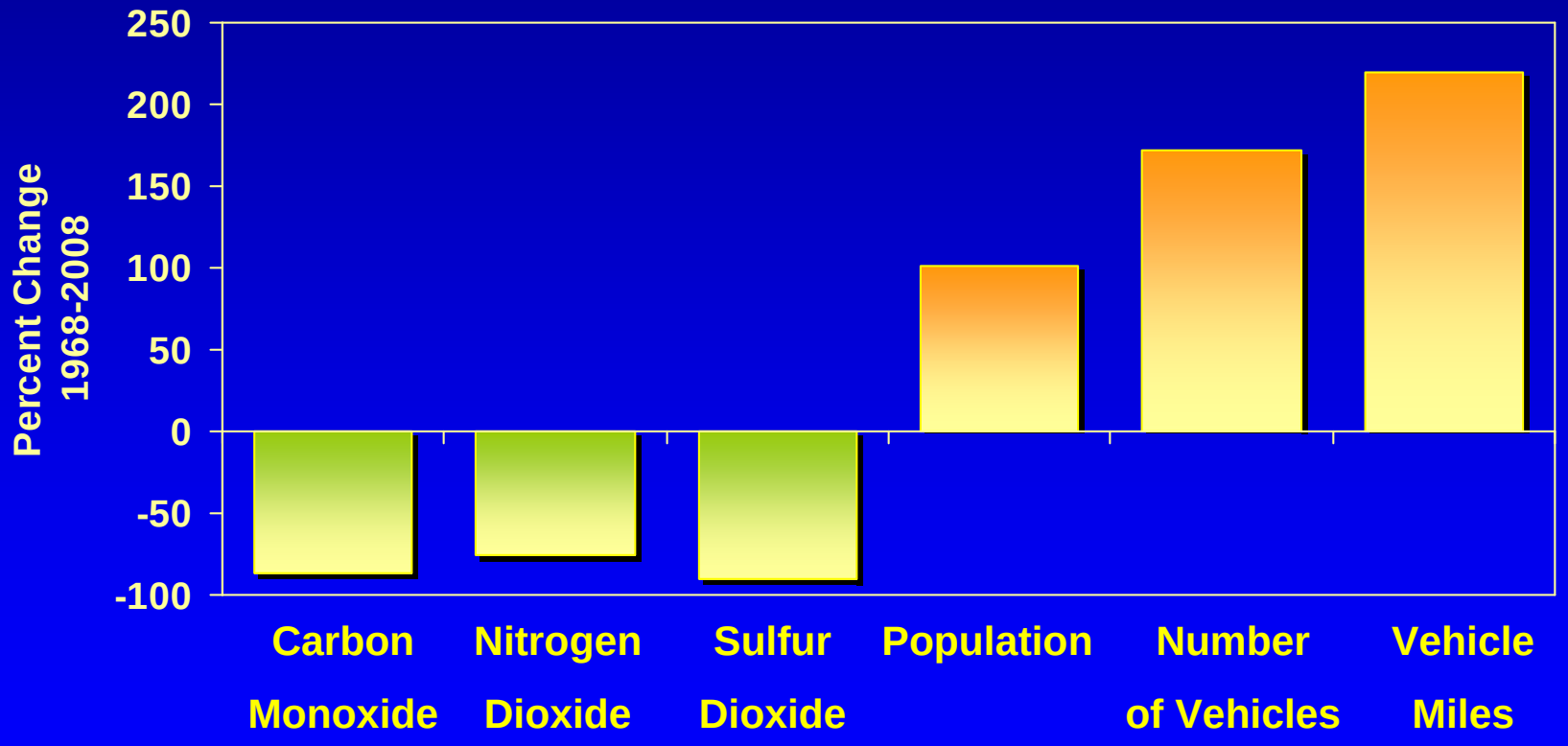
PM2.5 Trends in the South Coast



PM2.5 Trends in California



Pollution Reduced in Spite of Growth



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Cost Versus Benefit of Pollution Control Programs

- Cost of control around $10 billion
- Air pollution control industry generated $6.2 billion & 32,000 jobs
- Annually, benefits are thousands fewer:
  - Premature deaths
  - Hospitalizations for heart and lung disease
  - School absences and lost work days
- $4 in health benefits for each $1 of control

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The Next 40 Years

- **Yesterday's Successes**
  - Entire state attainment for lead, CO, SO_2, NO_2
  - Peak ozone reduced 75%
  - PM2.5 and toxics reduced 50%
- **Today's Challenges**
  - Public health remains a top priority
  - Ozone and PM2.5 in the South Coast and SJV
  - Diesel and goods movement
  - Climate change program