

*State and Federal Regulatory
Drivers*

*Jack Kitowski, P.E., Chief
On-Road Controls*

California Air Resources Board

Air Resources Board's Role

- California's Lead Agency to Improve Air Quality and Protect Public Health
 - set and coordinate efforts to attain health-based air quality standards
 - reduce risk from air toxics statewide & in environmental justice communities
 - regulate vehicles, fuels, household products, and sources of air toxics
 - oversee local air district programs

What pollutants are of concern?

Greenhouse Gases

- CO₂, methane

Haze

Ozone
(ROG + NO_x)

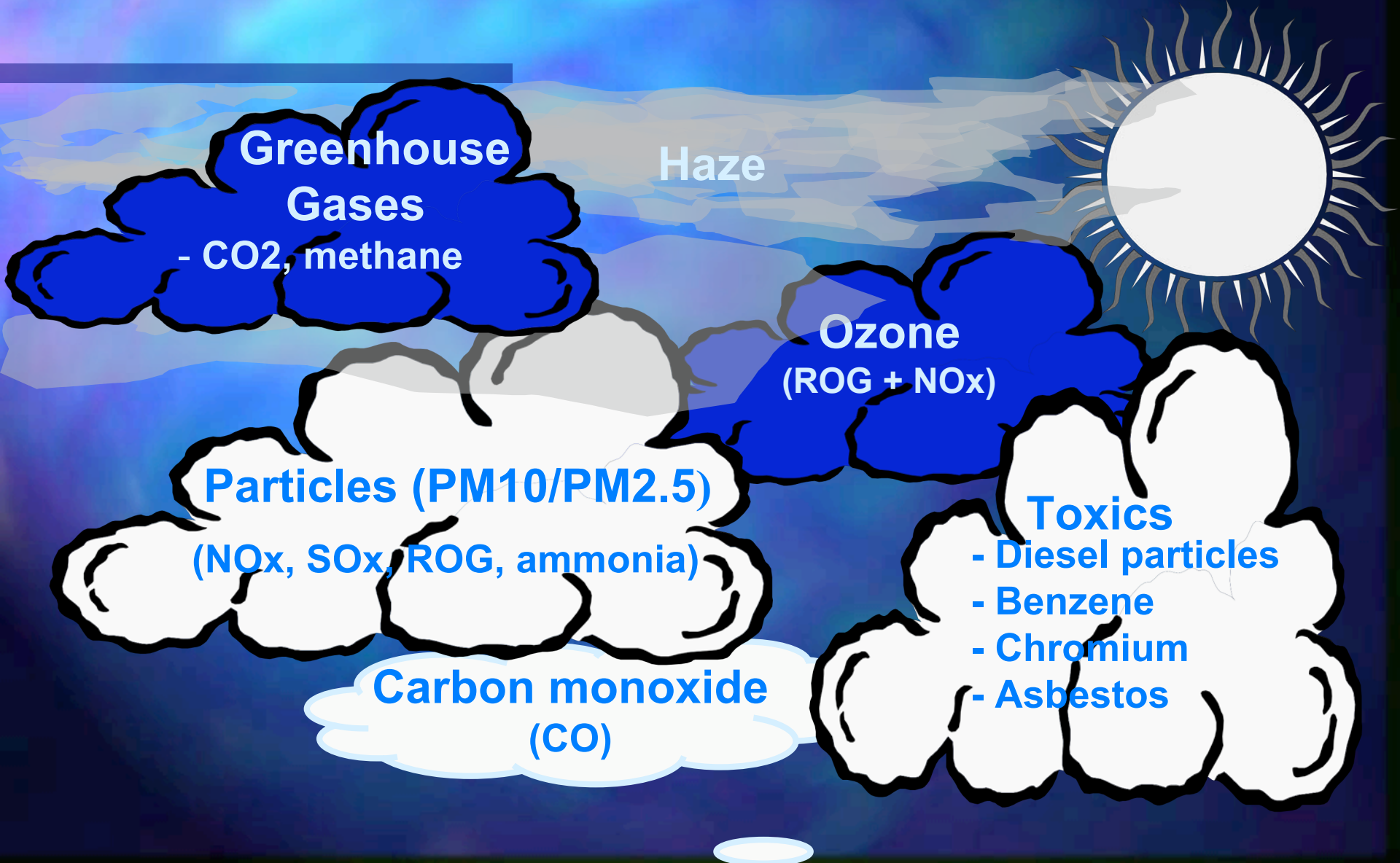
Particles (PM₁₀/PM_{2.5})

(NO_x, SO_x, ROG, ammonia)

Carbon monoxide
(CO)

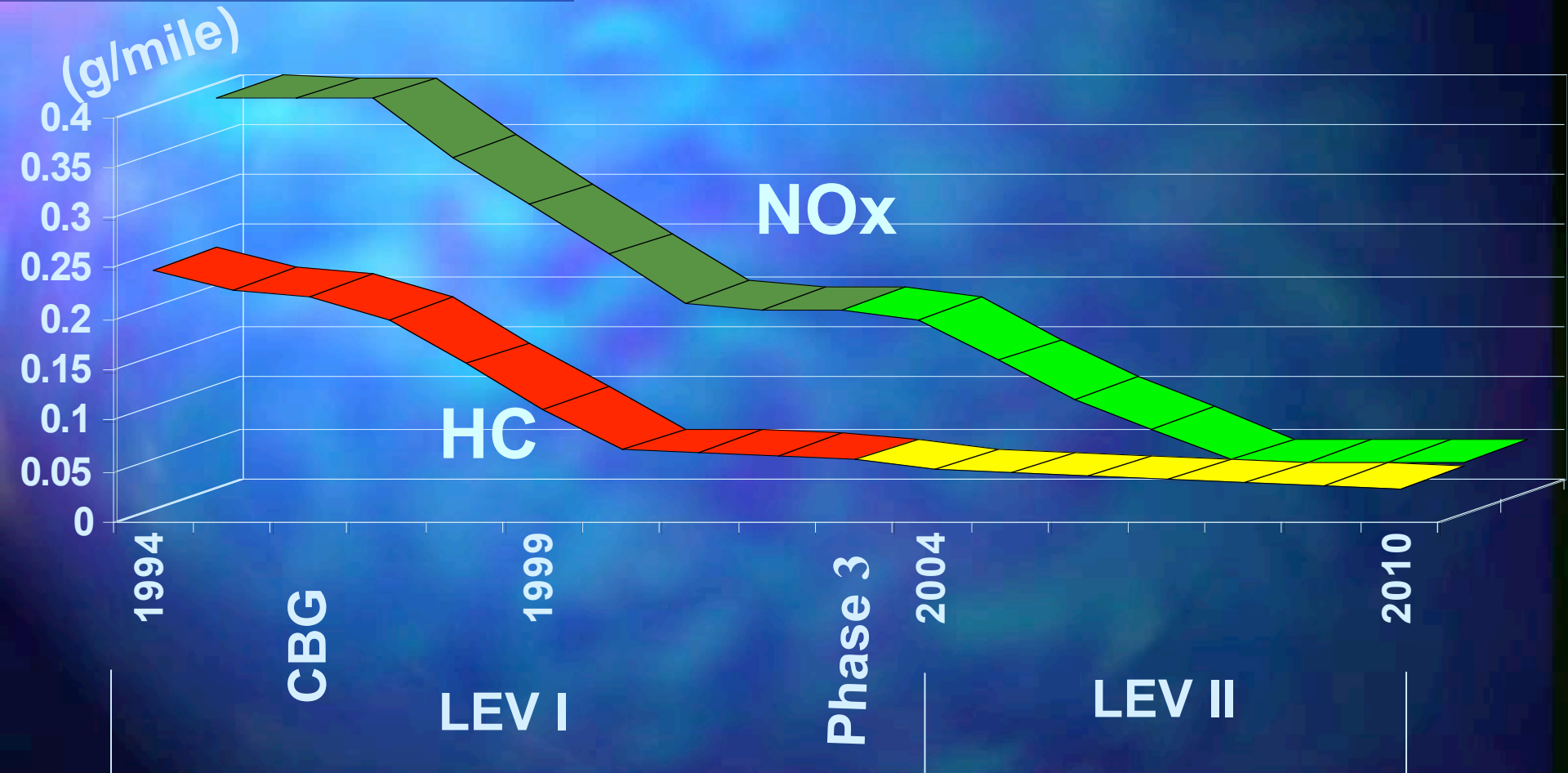
Toxics

- Diesel particles
- Benzene
- Chromium
- Asbestos



Light-Duty Vehicles

Goal is "Zero" Emissions



ZEVs: Revised Mandate

10 % Mandate

2 %

6 %

PZEV



2 %

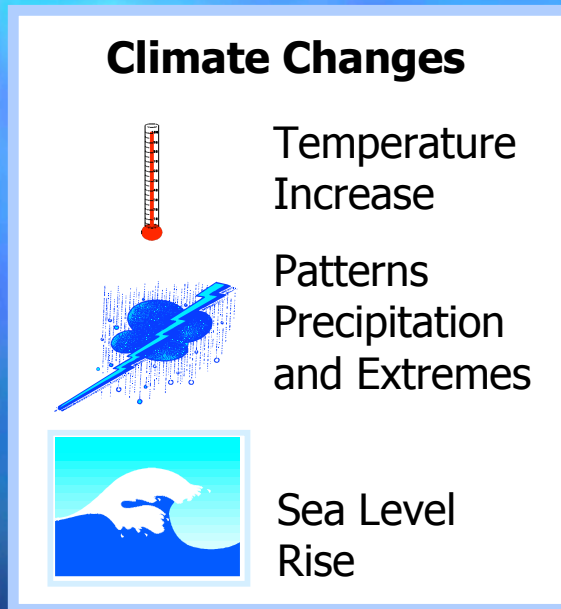
AT-PZEV

ZEV



*Global Climate Change Emissions
from Motor Vehicles (AB1493)*

Potential Climate Change Impacts

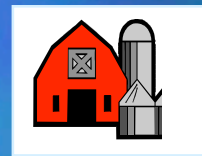


Source: Anne Grambsch, 1998



Health

Air Quality - Respiratory Illness
Weather-related Mortality
Infectious and Tropical Diseases



Agriculture

Crop Yields
Irrigation Demands



Forests

Forest Composition
Geographic Range of Forests
Forest Health and Productivity



Water Resources

Water Supply
Water Quality
Competition for Water



Coastal Areas

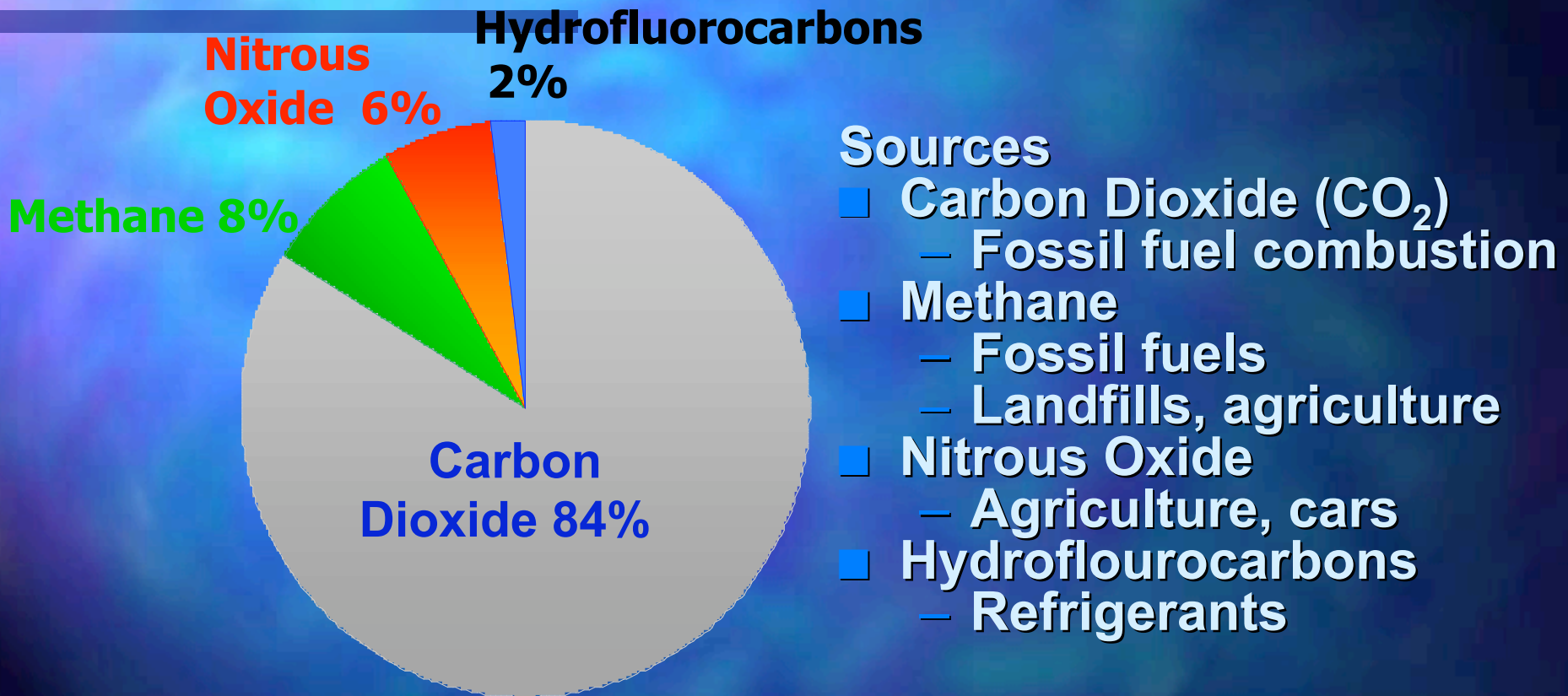
Erosion of Beaches
Inundation of Coastal Wetlands
Additional Costs to Protect Coastal Communities



Species and Natural Areas

Loss of Habitat and Species

1999 California Greenhouse Gas Emissions



Source: 1997 Global Climate Change, CEC

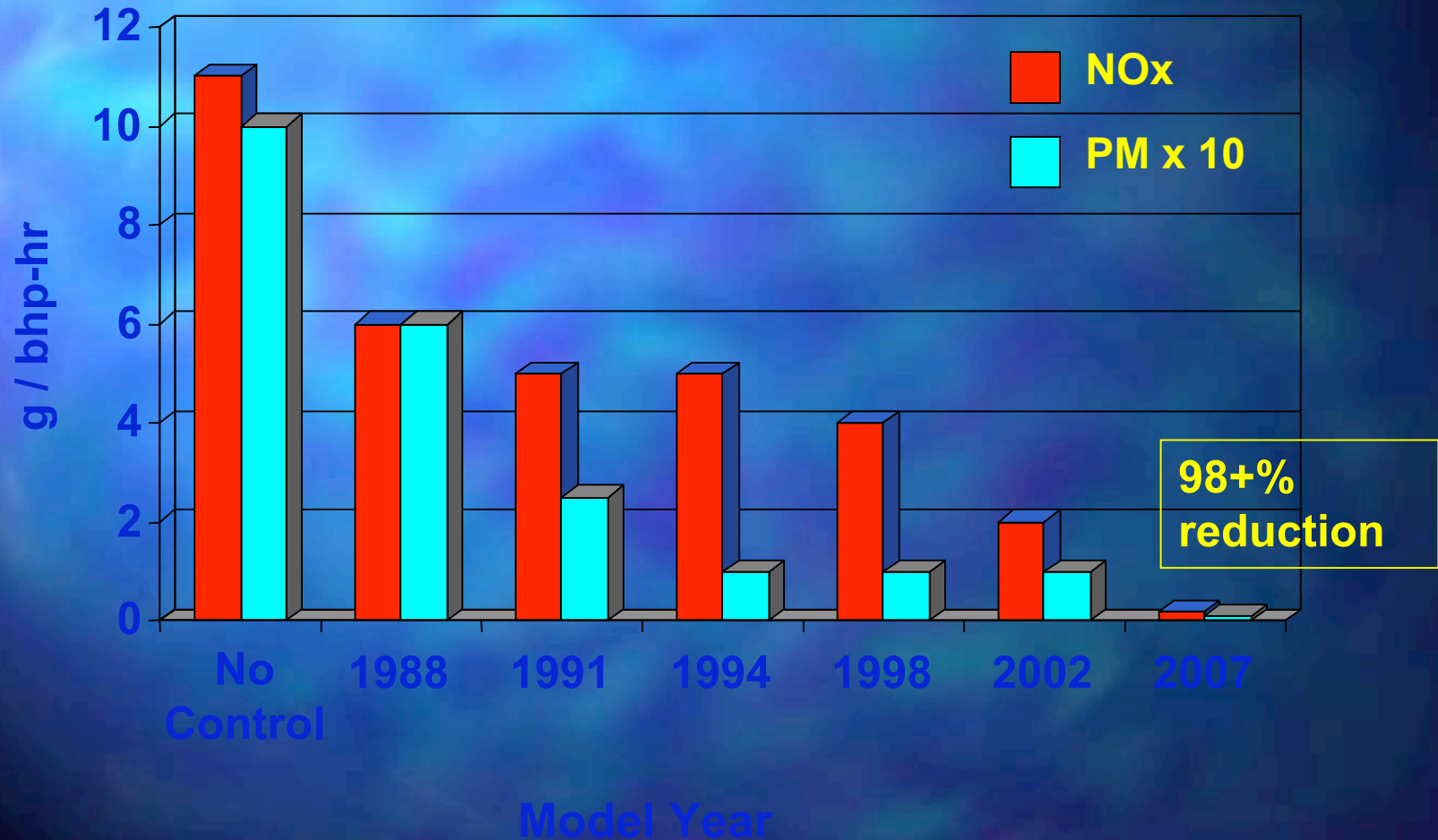
Source: Draft Greenhouse Gas Inventory Update, California Energy Commission, 2001
In CO₂ equivalents

What does AB1493 require?

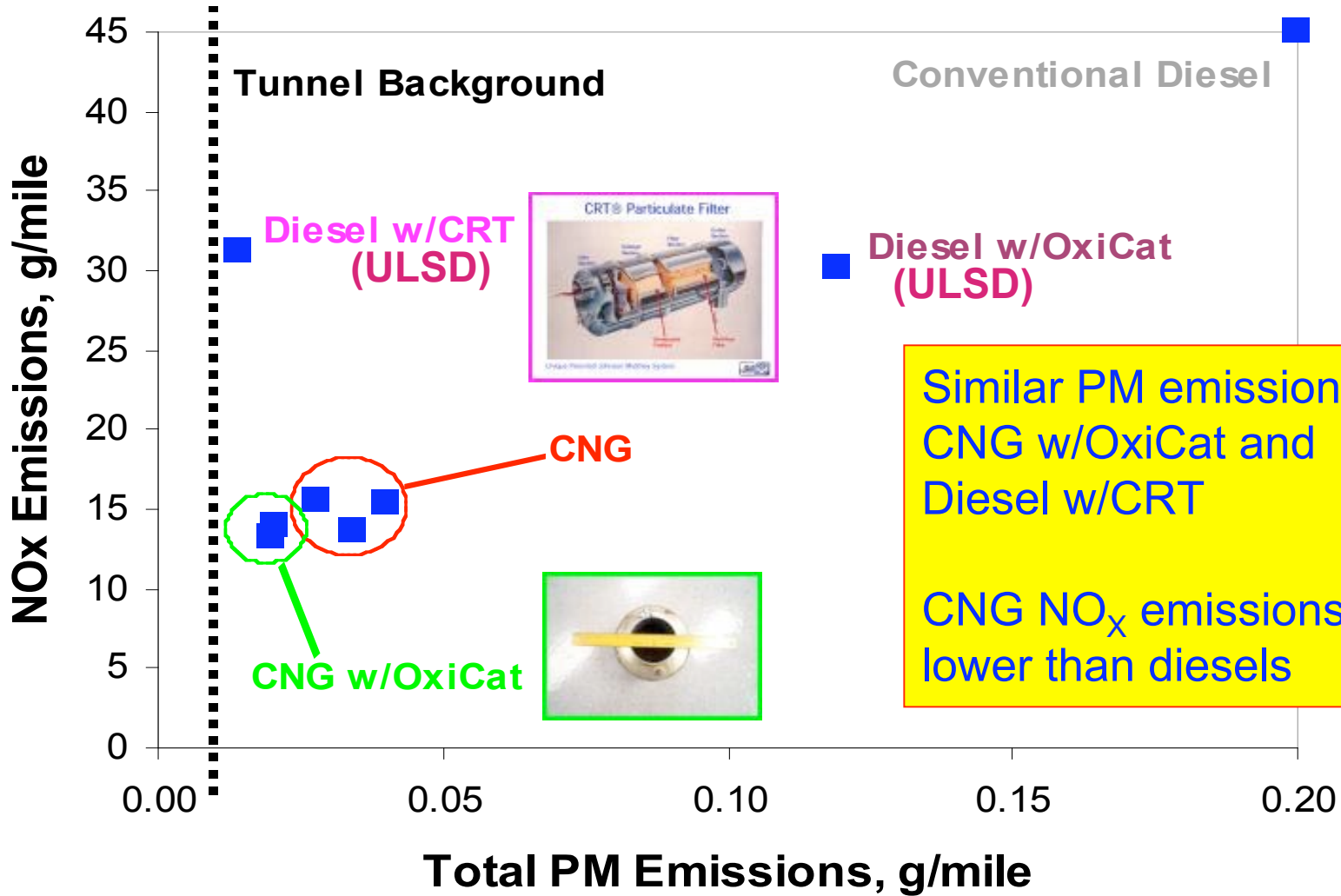
- Adopt by January 1, 2005, regulations that achieve the maximum feasible and cost-effective reductions of greenhouse gases.
 - passenger cars, light-duty trucks
 - carbon dioxide, methane, nitrous dioxide, HCFCs.
 - baseline 2000 model year
- Maximum feasible compliance flexibility
 - alternative methods of compliance
- Credits for early reductions
- Effective beginning in 2009 after review by the Legislature

Heavy-Duty Vehicles

Heavy-Duty Engine Emission Standards



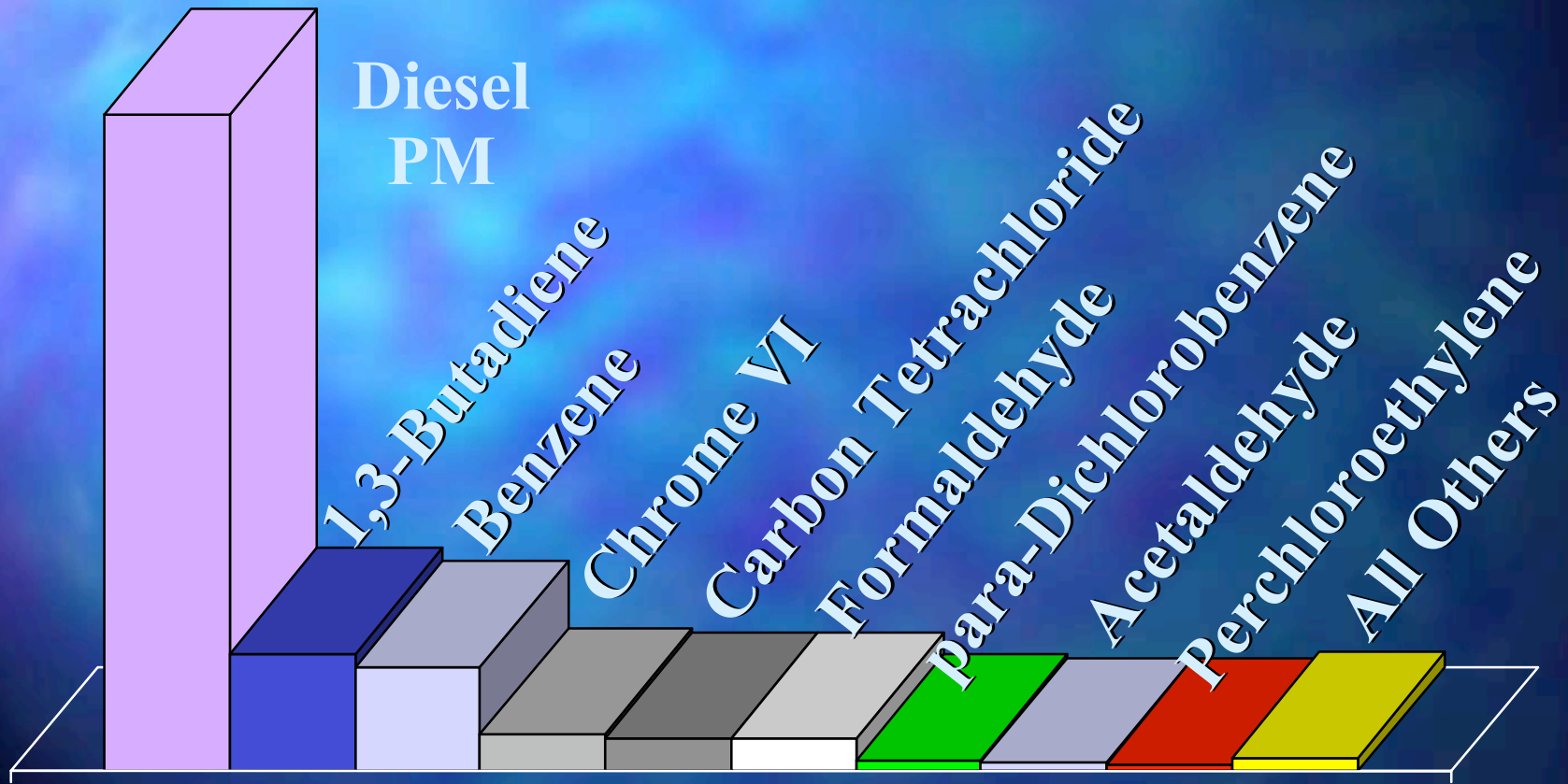
Average NO_x and PM Emissions - CBD



Similar PM emissions for CNG w/OxiCat and Diesel w/CRT

CNG NO_x emissions are lower than diesels

Relative Cancer Risks



Based on ARB monitoring data 1995 - 1997

Summary and Conclusions