

Proposed Modifications to the Fleet Rule for Transit Agencies and New Transit Fleet Vehicle Requirements



Sacramento, California

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California Environmental Protection Agency



Air Resources Board

Presentation Outline

- ◆ **Background**
- ◆ **Summary of Proposed Regulation**
- ◆ **Technical Feasibility**
- ◆ **Benefits and Cost Effectiveness**
- ◆ **Conclusions and Recommendation**
- ◆ **Next Steps**

Health Impacts of Diesels in California

◆ Annual health impacts - 2001

- ◆ 2,900 premature deaths
- ◆ 3,600 hospital admissions
- ◆ 240,000 asthma attacks/respiratory symptoms
- ◆ 600,000 lost days of work

◆ By comparison - 2001

- ◆ 3,700 deaths from car accidents
- ◆ 2,000 homicides

Diesel Risk Reduction Plan - In-Use Engine Measures

- ◆ Transit Fleets - Urban Buses (2000)
- ◆ Solid Waste Collection Vehicles (2003)
- ◆ Stationary Engines (2004)
- ◆ Portable Engines (2004)
- ◆ Transit Fleet Vehicles - Proposed Today
- ◆ Public HDV Fleets (2005)
- ◆ Off-Road Engines (2006)
 - ◆ Transportation Refrigeration Units (2004)
- ◆ Private HDV Fleets (2007)

Adopted Fleet Rule For Transit Agencies

- ◆ **Adopted February 2000**
- ◆ **Applies to Public Transit Agencies**
 - ◆ **New Engine Emission Standards**
 - ◆ **In-Use Fleet Requirements**

Adopted Fleet Rule For Transit Agencies

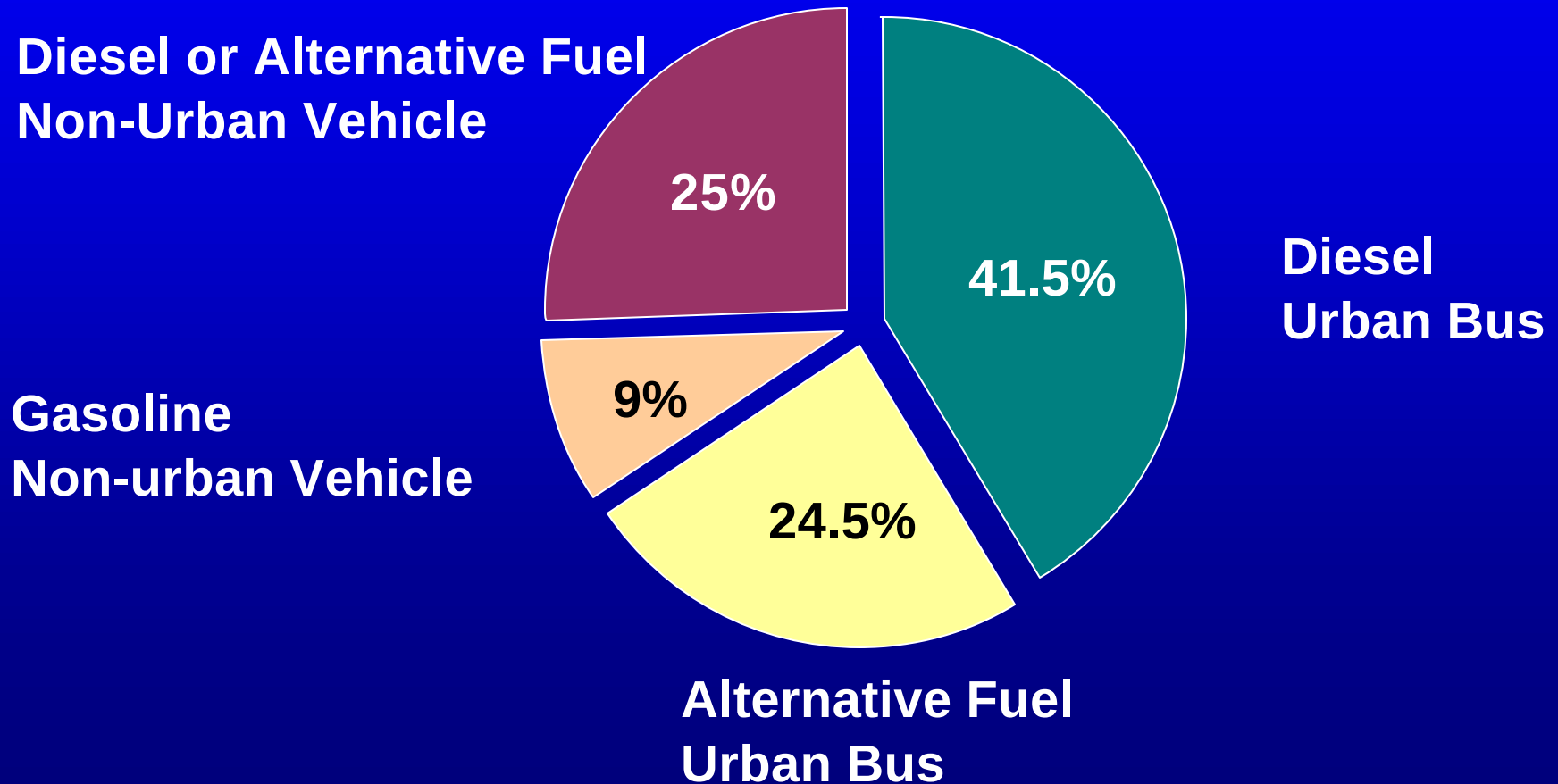
- ◆ **New Engine Emission Standards**
 - ◆ More Stringent than Truck Standards
 - ◆ Urban Buses Required to use Urban Bus Engines
 - ◆ Diesel Hybrid Electric Bus Standard
- ◆ **Zero-Emission Bus Purchases Starting in 2008**

Adopted Fleet Rule For Transit Agencies

◆ In-Use Fleet Requirements

- ◆ Fuel Path Selection & Purchasing Requirement
- ◆ Ultra Low Sulfur Diesel Fuel Use
- ◆ Maximum Allowable Fleet NOx Average
- ◆ Percentage Reductions of Diesel PM Emissions

Not All Transit Vehicles Are Covered by the Fleet Rule



Transit Fleet Vehicle Requirements

◆ In-Use Fleet Requirement

- ◆ Emission Reductions Through Retrofit or Fleet Modernization

◆ Not Required

- ◆ Stricter Urban Engine Emission Standard
- ◆ Ultra Low Sulfur Diesel
- ◆ Path Selection or Purchasing Requirements

Transit Fleet Vehicle Requirements Scope



Commuter
Paratransit



Medium Bus
28' to 32'



Small Bus



Transit Fleet Vehicle Requirements

In-Use Fleet Emission Reduction

- ◆ Maximum Allowable NOx Fleet Average
- ◆ Percentage Reduction in PM Emissions
- ◆ Two-Phase Implementation
 - ◆ 2007
 - ◆ 2010

Current Maximum NOx Fleet Average Requirement

Fleet Type	Compliance Date		
	10/01/02	12/31/07	12/31/10
Urban Bus	4.8*		

* in g/bhp-hr

Proposed Maximum NOx Fleet Average Requirement

Fleet Type	Compliance Date		
	10/01/02	12/31/07	12/31/10
Urban Bus	4.8*		
Transit Fleet Vehicles		3.2*	2.5*

* in g/bhp-hr

Current Percentage Diesel PM Reduction

Fleet Type	Baseline	% Reduction From Baseline				
	Year	2004	2005	2007	2009	2010
Urban Bus						
Alternative	2002	20	40	60	85	
Diesel	2002	40	60	85		

Proposed Percentage Diesel PM Reduction

Fleet Type	Baseline	% Reduction From Baseline				
	Year	2004	2005	2007	2009	2010
Urban Bus						
Alternative	2002	20	40	60	85 [*]	
Diesel	2002	40	60	85 [*]		
TFV	2005			40		80 [*]

*In the final year of compliance and beyond the transit agency can meet a fleet average of 0.01 g/bhp-hr times the number of vehicles in the fleet.

Clarifying Changes

- ◆ Commuter Service Bus Definition
- ◆ “Newly Formed” Transit Agency
- ◆ Diesel HEB Standards
- ◆ Relocation of In-Use Requirements

Clarifying Changes Commuter Service Bus

“Commuter
Service
Bus”



Other Clarifying Changes

- ◆ “Newly Formed” Transit Agency
- ◆ Add NMHC and CO Diesel HEB Standards
- ◆ Relocation of In-Use Requirements

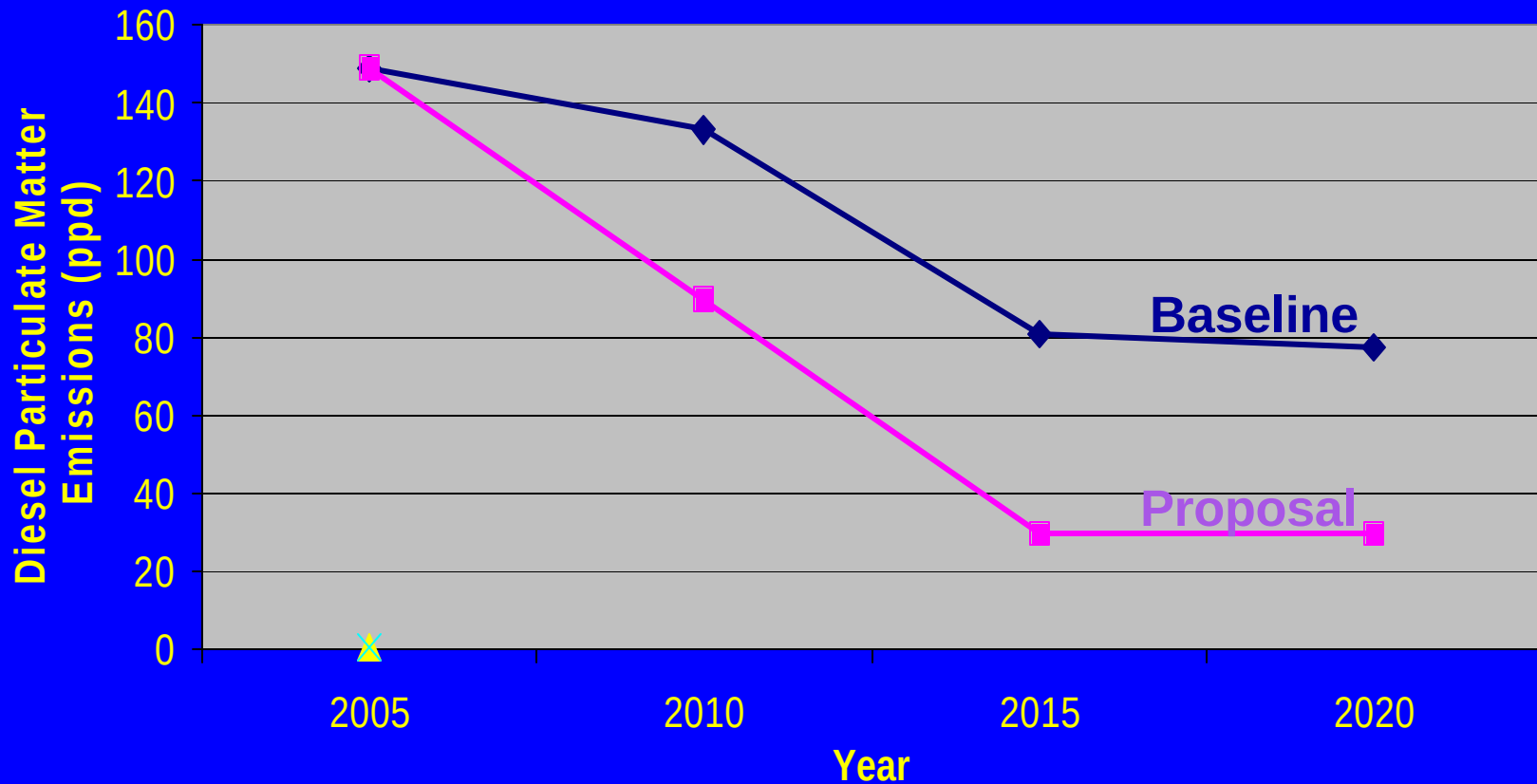
Technical Feasibility

- ◆ Experience with Current Rule
 - ◆ Diesel Particulate Filters: approximately 1100 installed on California Urban Buses
- ◆ For Transit Fleet Vehicles
 - ◆ Retrofit with Verified Diesel Control Systems
 - ◆ Repower Engines
 - ◆ Replace Vehicles

Benefits

PM Emission Reductions

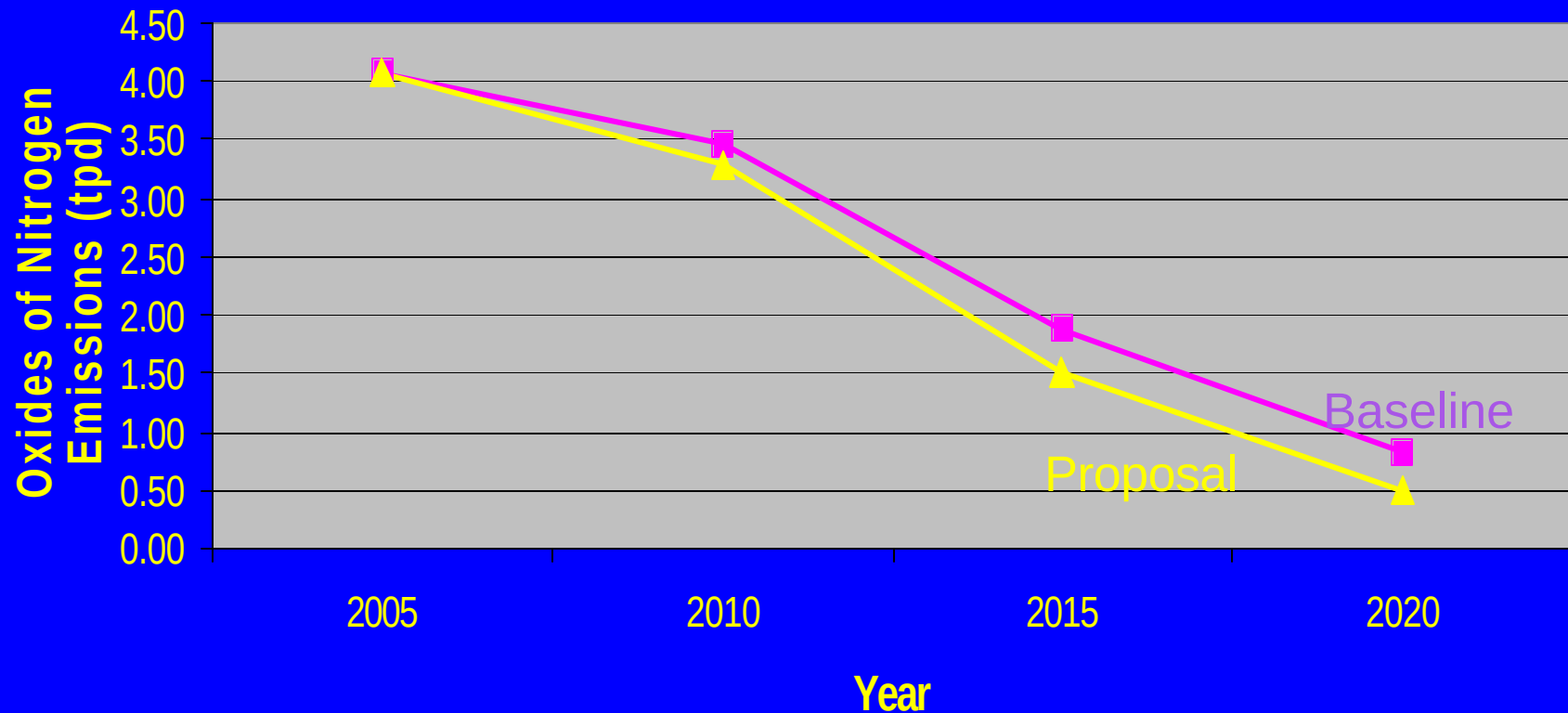
Transit Fleet Vehicle PM Emission Reductions



Benefits

NOx Emission Reductions

Transit Fleet Vehicle NOx Emission Reductions



Cost

- ◆ **Total Cost To Transit Agencies**
 - ◆ \$18.7 million Over 14 Years
 - ◆ Most Expenditures in Next Five Years

Cost-Effectiveness

◆ Cost-Effectiveness

- ◆ \$65 per Pound Diesel PM Reduced
- ◆ \$1.40 per Pound NOx Reduced
- ◆ \$1.5 to 2 million per Death Avoided

◆ This is a Cost-Effective Method of Reducing PM and NOx

Staff Recommendations

- ◆ Adopt In-Use Fleet Requirements for Transit Fleet Vehicles
- ◆ Adopt Clarifying Changes to the Existing Requirements
- ◆ Proposal is Consistent with the Diesel Risk Reduction Plan

Next Steps

◆ July 2005

- ◆ Revisit the 2007 Urban Bus Standards
- ◆ Bring Proposals for Four SCAQMD Fleet Rules
 - ◆ Transit Agencies
 - ◆ Refuse Haulers
 - ◆ Street Sweepers
 - ◆ School Buses