



Proposed In-Use Heavy-Duty Diesel Vehicle Regulation

Public Workshop

August 22, 2007 in El Monte
August 23, 2007 in Sacramento
August 28, 2007 in Fresno

In-Use Control Measures Section

California Environmental Protection Agency

Air Resources Board



Overview

- ◆ Need for emission reductions
- ◆ Proposed regulation
- ◆ Regulatory issues
- ◆ Outreach and next steps

Need for Emission Reductions



Need for Emissions Reductions

- ◆ Reduce Diesel Particulate Matter (PM)
 - ◆ Diesel PM responsible for 70% of known cancer risk from all air toxics
- ◆ Reduce oxides of nitrogen (NO_x)
 - ◆ NO_x leads to ozone and secondary PM
- ◆ Attain 8-hour ozone and PM_{2.5} standards
 - ◆ Federal Clean Air Act
 - ◆ State Implementation Plan (SIP)
- ◆ Reduce greenhouse gas emissions



California Diesel Risk Reduction Plan

- ◆ Adopted in 2000
 - ◆ 75 percent risk reduction by 2010
 - ◆ 85 percent risk reduction by 2020
- ◆ Multiple strategies:
 - ◆ New engine standards
 - ◆ Ensure in-use compliance
 - ◆ Cleaner diesel fuel (<15 ppm sulfur)
 - ◆ Clean up existing engines



Air Pollution Reductions Needed for Clean Air Act

- ◆ 15 local areas violate the federal 8-hour ozone standard
- ◆ 2 areas violate the federal annual PM2.5 standard
- ◆ ARB and districts are currently developing new State Implementation Plans (SIP)
 - ◆ A SIP is a master plan that identifies how we will meet federal clean air deadlines

Area Designations for National Ambient Air Quality Standards for Ozone and PM2.5

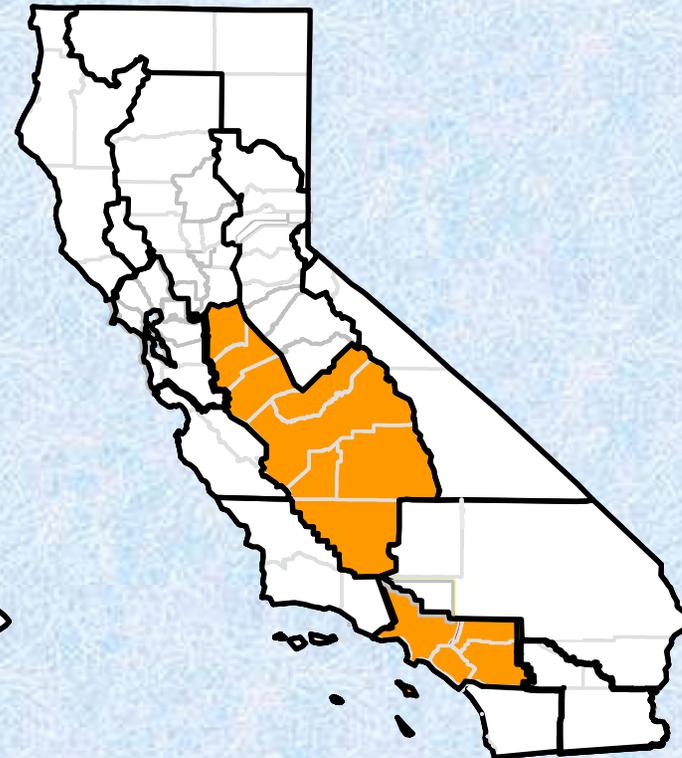
8-Hour Ozone



-  **Nonattainment**
-  **Unclassified/Attainment**

On-Road HDD August 2007 Workshops

PM2.5 Annual



-  **Nonattainment**
-  **Unclassifiable/Attainment**

California Air Resources Board

Emissions Inventory Update

- ◆ Goal: Estimate HDDT emissions contribution to statewide and regional inventories
- ◆ Currently updating inventory methods
- ◆ Initial draft results were presented at July 2007 workshop
 - ◆ Updated emission factors
 - ◆ Updated populations and model year distribution by fleet
- ◆ Continuing to work with stakeholders to obtain more data/information

Fleet Information Surveys

- ◆ Designed to obtain more information about fleet operation, truck age, purchasing patterns, and vehicle use
- ◆ Surveys in progress
 - ◆ Agricultural vehicle survey
 - ◆ Dump truck survey
 - ◆ To date: 99 responses; 303 trucks
- ◆ Online survey will be available
 - ◆ Seeking final comments

Proposed Regulation

On Road Vehicle Types



Concrete Mixer



Dump Truck



Bucket/Boom Truck



Crane Truck



Hay Squeeze



Tow Truck



Reefer Van



Fuel Tank Truck



Passenger Bus

Outline of Proposed Regulation

- ◆ Scope and Applicability
- ◆ Requirements
 - ◆ BACT compliance
 - ◆ Optional fleet averaging
- ◆ Special provisions
- ◆ Reporting
- ◆ Recordkeeping

Scope and Applicability

- ◆ All on-road heavy-duty diesel and alternative-diesel fueled vehicles operating in California, with specific exemptions
 - ◆ Trucks, buses, motor homes, cranes, other
- ◆ GVWR greater than 14,000 lbs
- ◆ Excludes vehicles with 2007 or newer engine and diesel particulate filter
- ◆ Includes vehicles designed to be driven on-road, even though they might not be registered to be driven on-road

Scope and Applicability cont.

- ◆ Any person, business, or government agency who owns or operates vehicles in California subject to the regulation
- ◆ Any person, business, or government agency who sells a vehicle in California that is subject to the regulation

Exemptions.

- ◆ Vehicles subject to the following ARB regulations:
 - ◆ Solid waste collection vehicle regulation
 - ◆ Public agency and utility fleet regulation
 - ◆ Transit agencies fleet regulation
 - ◆ Heavy-duty drayage truck regulation (currently in development)
 - ◆ Off-road vehicle regulation
- ◆ Emergency vehicles
- ◆ Tactical military vehicles

Overview of Requirements for Fleet Owners

- ◆ Compliance options:
 - ◆ Best Available Control Technology (BACT) requirements for all vehicles
 - ◆ Optional fleet average requirements for non-interstate vehicles
 - ◆ Comply with combination of both
- ◆ Keep records for each vehicle

Meeting the Compliance Requirements

- ◆ Apply a verified diesel emission control strategy (VDECS)
- ◆ Replace with a cleaner new or used vehicle
- ◆ Install cleaner engines (repower)
- ◆ Retire dirty vehicles
 - ◆ The vehicle with the engine is scrapped or moved or sold outside of California

Best Available Control Technology (BACT) Standard for Phase 1

- ◆ **NO_x** exhaust emissions less than or equal to NO_x emissions from a 2004 model-year heavy-duty diesel engine, **AND**
- ◆ **PM** exhaust emissions less than or equal to PM emissions from a 2004 model-year heavy-duty diesel engine certified to 0.10 g/bhp-hr PM plus retrofit with highest level VDECS.

Proposed Phase 1 BACT Schedule

Engine Model Years	Compliance Date
Pre – 1994	December 31, 2009
1994 – 1997	December 31, 2010
1998 – 1999	December 31, 2011
2000 – 2002	December 31, 2012
2003 – 2006	December 31, 2013

Best Available Control Technology (BACT) Standard for Phase 2

- ◆ **NO_x** exhaust emissions less than or equal to NO_x emissions from a 2007 model-year heavy-duty diesel engine, **AND**
- ◆ **PM** exhaust emissions less than or equal to 0.01g/bhp-hr unless engine is certified to the 0.1 g/bhp-hr standard and retrofit with a diesel particulate filter

Proposed Phase 2 BACT Schedule

Model Years	Compliance Date
Pre – 2003	December 31, 2017
2003 – 2004	December 31, 2018
2005 – 2006	December 31, 2019

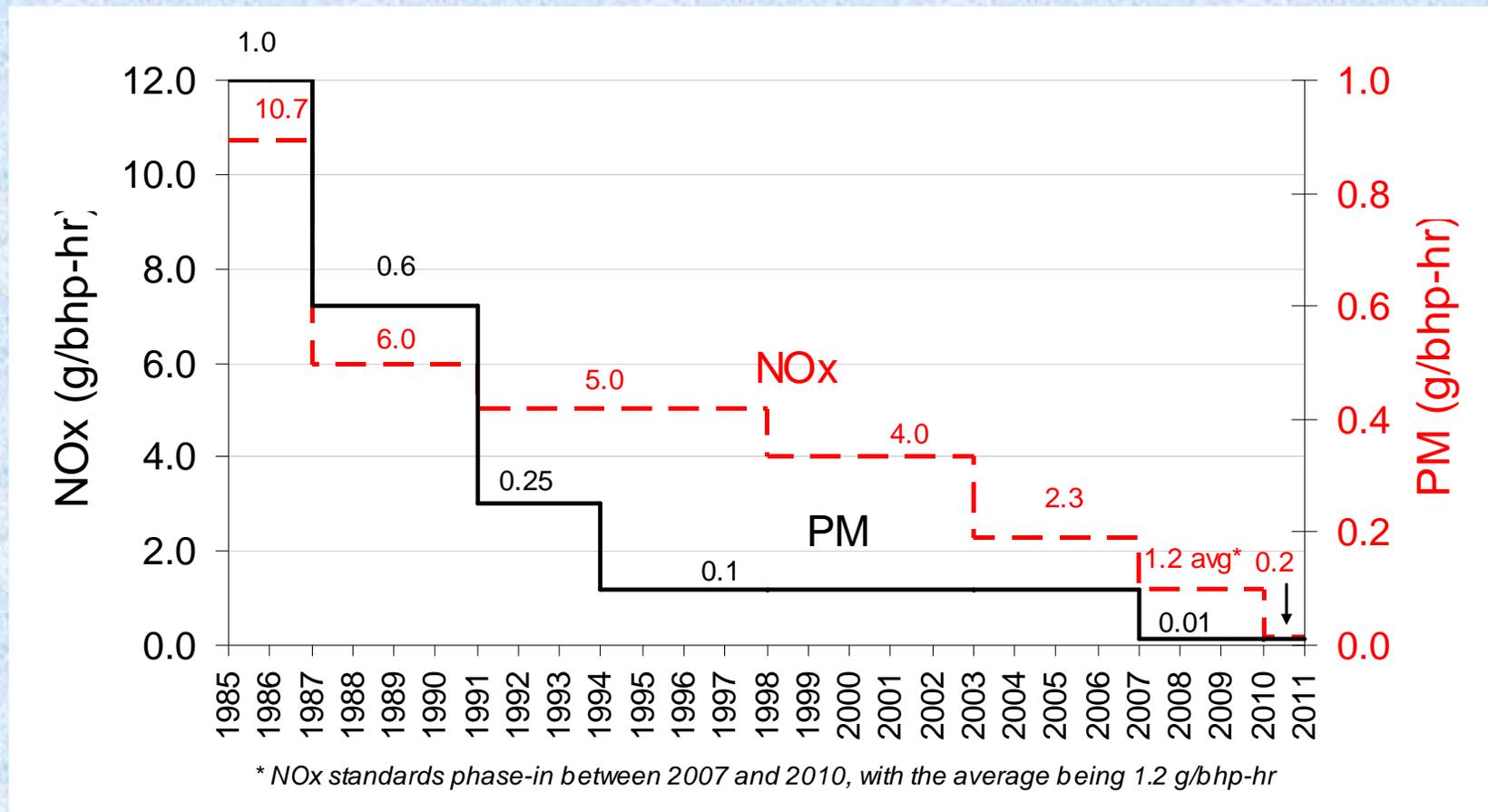
Proposed Optional Fleet Averaging

- ◆ Notify the Executive Officer by June 30, 2009
- ◆ Vehicles registered only in California
 - ◆ Do not operate outside of California
- ◆ Different portions of a fleet may comply with fleet averaging performance requirements separately
- ◆ Subject to reporting requirements
- ◆ New fleets must meet the fleet average requirements immediately

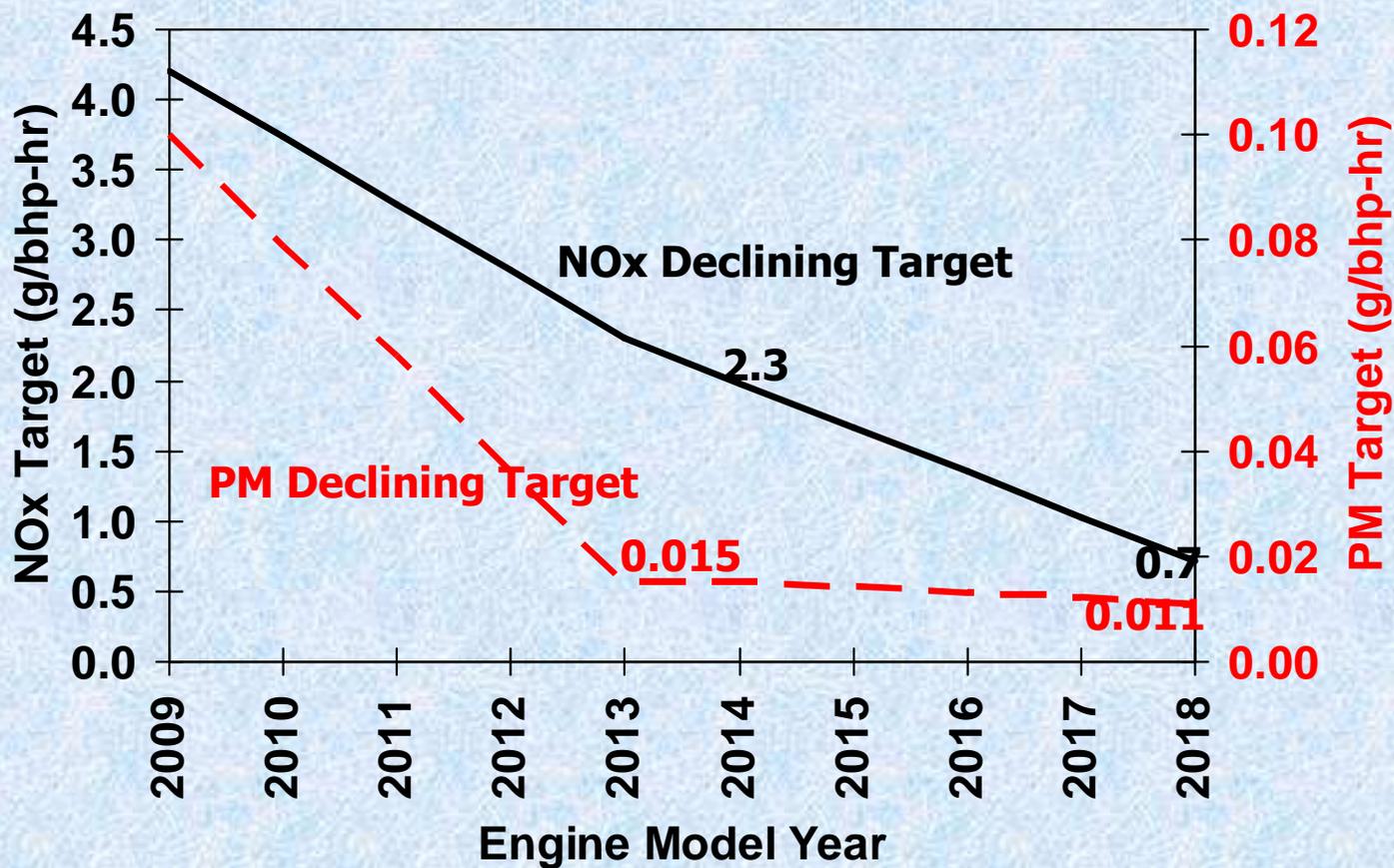
Proposed Fleet Averaging Requirements

- ◆ Each year, demonstrate that fleet average emission rate is less than or equal to the fleet average target rate
 - ◆ Average of emissions factors (EF) by model year (MY)
 - ◆ For HHD (>33,000 lbs): 1 x EF
 - ◆ For MHD (\leq 33,000 lbs): 0.5 x EF
- ◆ By December 31, 2019 all vehicles must meet engine model-year 2007 PM and NOx standards

PM and NOx Certification Standards



Fleet Average PM and NOx Emission Targets



Special Provisions

- ◆ Exemptions or compliance extensions
 - ◆ Low-use Vehicles
 - ◆ Fewer than 1,000 miles and less than 100 hours of operation during previous 12-month period
 - ◆ Vehicles used for emergency operations
 - ◆ Manufacturer delays
 - ◆ Use of experimental control strategy
- ◆ Credit for diesel hybrid electric vehicles and alternative fuel vehicles

Regulatory Issues

- ◆ GHG reduction measures
- ◆ SIP commitments
 - ◆ Adequacy of current proposal
- ◆ Consider regional strategy for South Coast and San Joaquin valley
 - ◆ NOx provisions driven by needs of South Coast and San Joaquin valley

Outreach and Next Steps

- ◆ Outreach for participation in survey
- ◆ Meetings with stakeholders
- ◆ Public workshops and workgroups
- ◆ Board consideration in mid-2008



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On-Road Regulation - www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm
Verified Devices - www.arb.ca.gov/diesel/verdev/verdev.htm