


Proposed Statewide Diesel Truck and Bus Regulation

December 11, 2007
West Coast Collaborative

Tony Brasil, Manager
In-Use Control Measures Section

California Environmental Protection Agency

 **Air Resources Board**



Overview

- ◆ Need for emission reductions
- ◆ Proposed statewide truck and bus regulation
- ◆ Next steps



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 (NOx)
 - ▼ NOx leads to ozone and secondary PM
- ◆ Attain 8-hour ozone and PM2.5 standards
 - ▼ Federal Clean Air Act
 - ▼ State Implementation Plan (SIP)
- ◆ Reduce greenhouse gas emissions



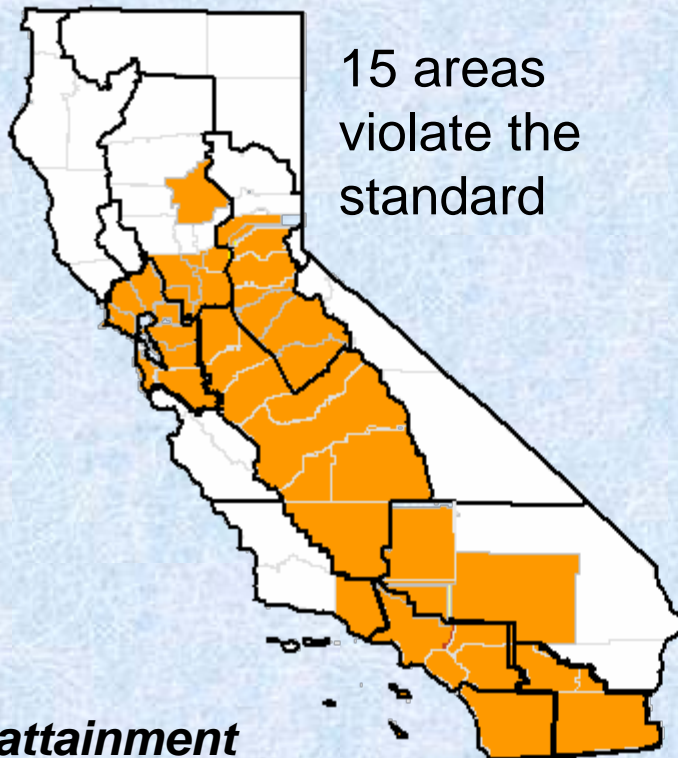
California Diesel Risk Reduction Plan

- ◆ 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



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

8-Hour Ozone



PM2.5 Annual



 ***Nonattainment***

 ***Unclassified/Attainment***

State Implementation Plan (SIP)

- ◆ SIP is master plan developed by ARB and districts that identifies how to meet federal clean air deadlines
- ◆ September 27, 2007 ARB adopted the SIP for South Coast and San Joaquin Valley
- ◆ Equivalent emissions reductions to replacing all engines with 2007 model year by 2014

ARB In-Use Diesel Engine Regulations

- ◆ Urban buses 2000
- ◆ School bus idling 2000
- ◆ Solid waste collection vehicles 2003
- ◆ Transport refrigeration units 2004
- ◆ Stationary compression ignition engines 2004
- ◆ Truck idling 2004
- ◆ Portable engines 2004
- ◆ Locomotive and harbor craft fuel 2004



ARB In-Use Regulations

- ◆ Transit fleet vehicles 2005
- ◆ Public agencies and utility on-road fleets 2005
- ◆ Port/rail cargo handling equipment 2005
- ◆ Ship auxiliary engine fuel 2005
- ◆ Off-road vehicles 2007
- ◆ Commercial harborcraft Continued 11/2007
- ◆ Drayage trucks Planned 12/2007
- ◆ Statewide trucks and buses Planned 10/2008
- ◆ Agricultural off-road engines Possible 2009



Proposed Statewide Truck and Bus Regulation

Scheduled for Board consideration
October 2008

Summary of Proposed Regulation

- ◆ Phase-in 2010-2021
 - ▼ 2007 model year engine by end of 2013
 - ▼ 2010 model year engine equivalent by 2021
- ◆ Exhaust retrofits if equivalent emissions
- ◆ Early credit
 - ▼ Install highest level PM control by December 31, 2009 and delay further action until 2013
- ◆ Compliance options
 - ▼ Best available control technology (BACT) schedule, or
 - ▼ Fleet average, or
 - ▼ Limits on fleet turnover and retrofits

Scope and Applicability

- ◆ Diesel vehicles operating in California
 - ▼ Trucks, buses, cranes, yard trucks, other
 - ▼ Interstate, intrastate, international and other
- ◆ Any person, business, or government agency who owns or sells a vehicle in California that is subject to the regulation

Exemptions

- ◆ Emergency vehicles
- ◆ Tactical military vehicles
- ◆ Personal use vehicles
 - ▼ Motorhomes
 - ▼ Pickups and other vehicles under 14,000 lbs GVWR



Examples of Vehicle Types



Concrete Mixer



Dump Truck



Drill Rig



Water Truck



Hay Squeeze



Tow Truck



Reefer Van



Fuel Tank Truck



Passenger Bus

BACT Phase 1 (2010-2013)

- ◆ NOx exhaust emissions less than or equal to a 2007 model-year engine
 - ▼ Pre-2004 model year engine with 70% NOx reduction
 - ▼ 2004-2006 model year engine with 40% NOx reduction
- ◆ Highest level PM control technology

Engine Model Year	Compliance Date
Pre – 1998	December 31, 2010
1998 – 2002	December 31, 2011
2003 – 2004	December 31, 2012
2005 & newer	December 31, 2013

BACT Phase 2 (2017-2021)

- ◆ NOx exhaust emissions less than or equal to 2010 model-year engine
 - ▼ Pre-2004 model year engine with 85% NOx reduction
 - ▼ 2004-2009 model year engine with 75% NOx reduction
- ◆ Highest level VDECS for PM

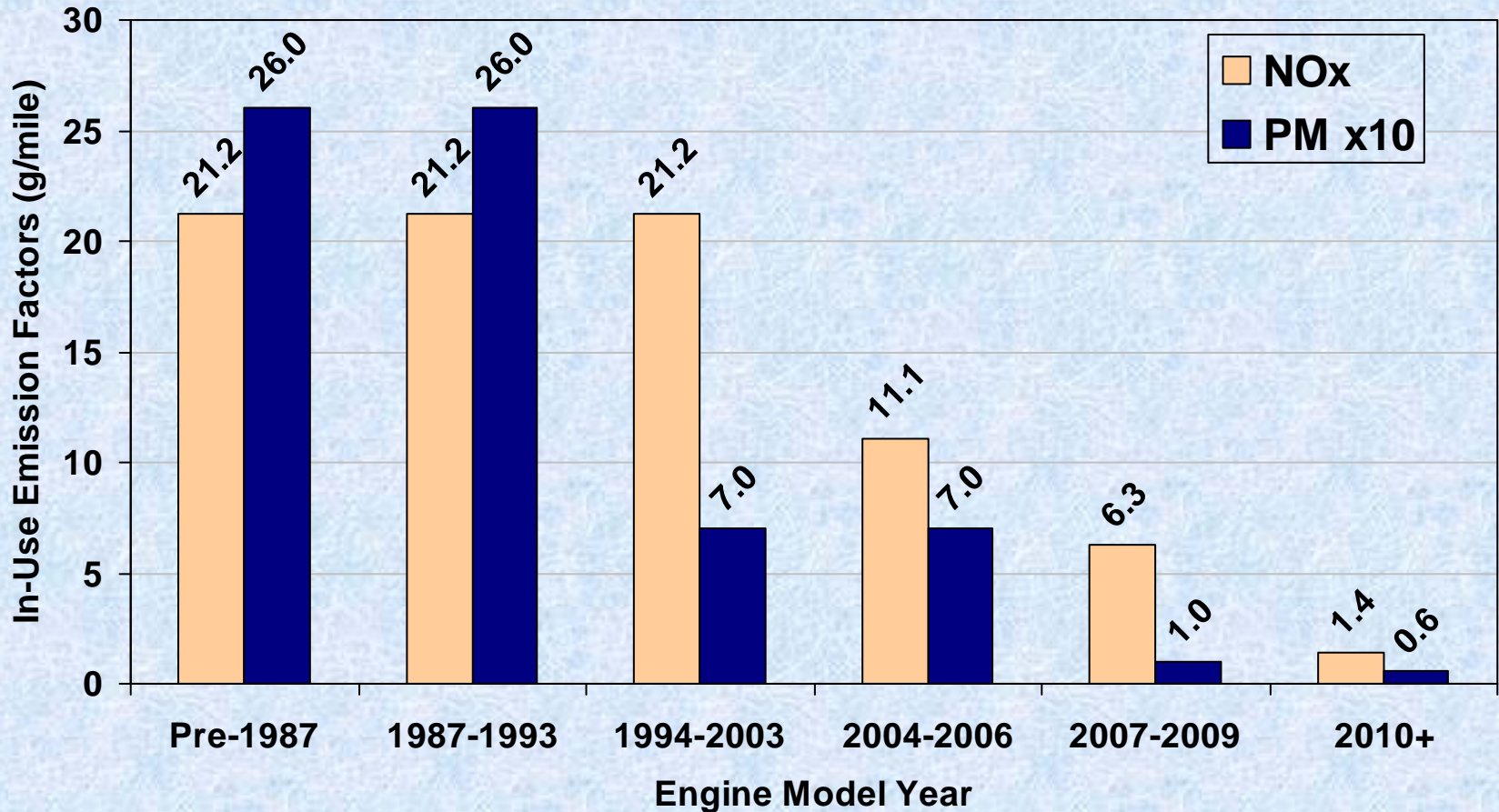
Engine Model Year	Compliance Date
Pre – 2004	December 31, 2017
2004 – 2006	December 31, 2018
2007	December 31, 2019
2008	December 31, 2020
2009	December 31, 2021

Fleet Averaging

- ◆ Fleet averages for NOx and PM
- ◆ All vehicles in fleet regardless of registration
- ◆ Subject to reporting requirements
- ◆ Percent of fleet required to be equivalent to 2007 MY engine
 - ▼ 2010=25%, 2011=50%, 2012=75%, 2013=100%

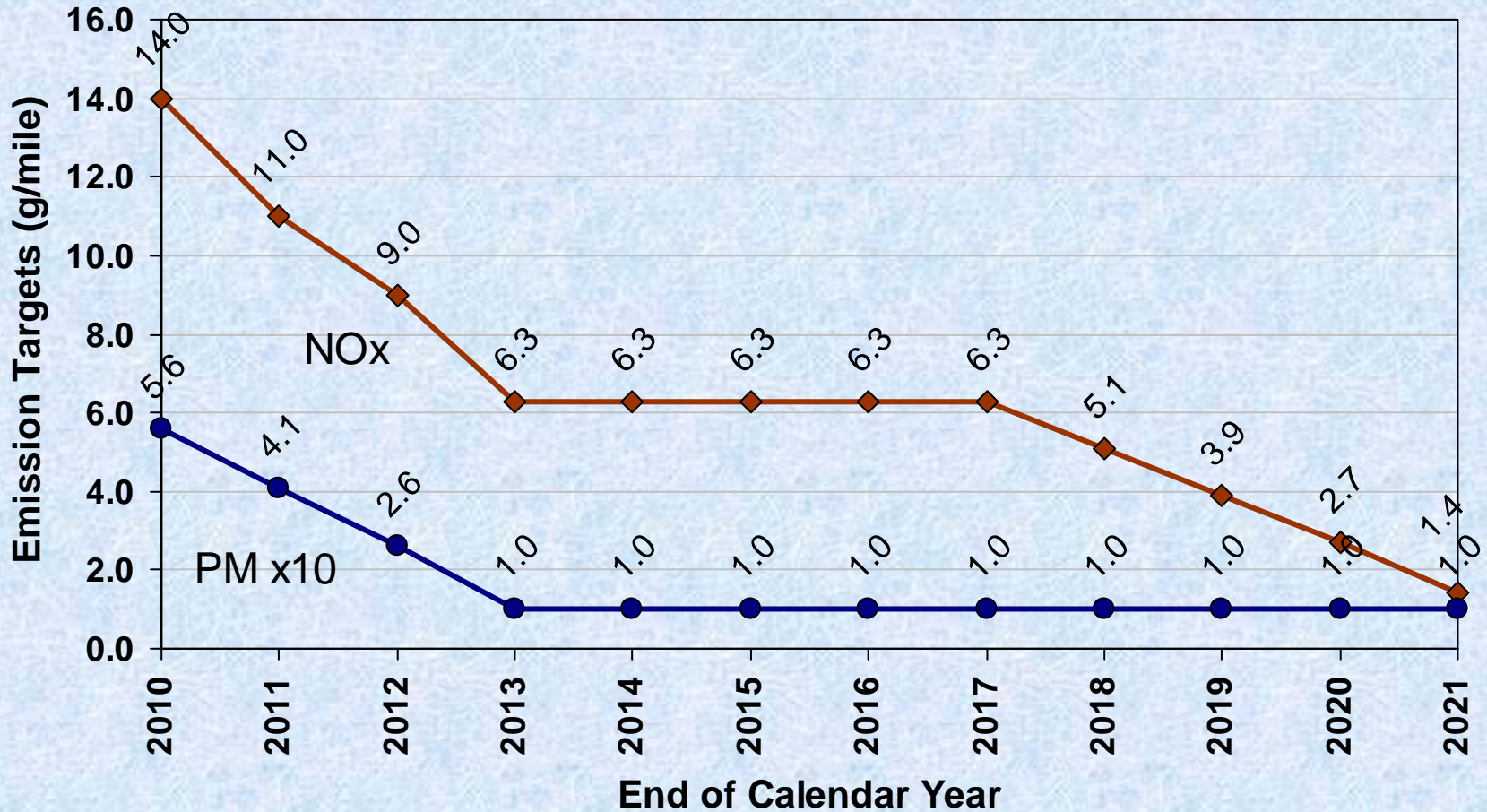
In-Use Emission Factors

Vehicle Loaded Weight (>33,000 lbs)



Fleet Average Emission Targets

Vehicle Loaded Weight (>33,000 lbs)



Fleet Average Example for NOx in 2010

Engine Model Year	Over 33,000 lbs (Y or N)	NOx Emission Factor	2010 NOx Emission Target
2007	Y	6.3	14.0
2000	Y	21.2	14.0
2004	Y	11.1	14.0
1994	N	14.0	11.5
2005	N	6.8	11.5
Average		11.88	13.00

◆ Spreadsheet calculator available online

Fleet Average Percent Limits

- ◆ Limits number of engines affected each year regardless of fleet average emissions

Calendar Year	2010	2011	2012	2013
Must meet 2007 emissions	25%	50%	75%	100%

Example:

1 Engine		1		
2 Engines	1		1	
3 Engines	1	1		1
4 Engines	1	1	1	1
5 Engines	1	2	1	1

Special Provisions

- ◆ Exemptions or compliance extensions
 - ▼ Vehicles used fewer than 1,000 miles and less than 100 hours of operation per year
 - ▼ Manufacturer delays
 - ▼ Use of experimental control strategy
- ◆ Credit for diesel hybrid electric vehicles
 - ▼ X% fuel economy improvement gets Y% NO_x emissions reduction credit towards fleet average
- ◆ Credit for alternative fuel vehicles

Reducing Greenhouse Gas Emissions

AB32 - Global Warming Solutions Act	Date
List of early action measures	6/30/2007
Scoping plan of reduction strategies	1/1/2009
Adopt regulations to implement early action measures	1/1/2010
Adopt regulations to implement scoping plan	1/1/2011

Potential GHG Reduction Measures

- ◆ In near term may require technologies that reduce aerodynamic drag and rolling resistance
 - ▼ Trailer side skirts, single wide tires or low rolling resistance dual tires, automatic tire inflation system, and weight-saving technologies
- ◆ Beyond 2010 timeframe:
 - ▼ Reduce air conditioning hydrofluorocarbons
 - ▼ Diesel vehicle hybridization



Fleet Information Surveys

- ◆ Designed to obtain information about fleet operation, truck age, and vehicle use
- ◆ Information can be kept confidential
- ◆ Online survey available at www.arb.ca.gov/dieseltruck



ARB Goods Movement Emission Reduction Program (\$1 Billion Proposition 1B Bond)

- ◆ ARB to award competitive grants to local agencies to fund cleaner equipment along CA trade corridors
 - ▼ Local agencies run competitive incentive programs
 - ▼ Proposed \$400 million for drayage trucks
 - ▼ Proposed \$340 million for other class 8 trucks
- ◆ \$250 million Budget appropriation for FY 07-08:
 - ▼ Priority for projects with quick implementation, DPFs
- ◆ More information: <http://arb.ca.gov/gmbond> or call the
- ◆ Goods Movement Information Line at (916) 44-GOODS or (916) 444-6637

Next Steps

- ◆ Additional outreach
- ◆ Review data in survey
- ◆ Additional meetings with stakeholders
- ◆ Public workshops in January/February 2008
- ◆ Board consideration October 2008



Contacts

Erik White, Chief
Heavy-Duty Diesel In-Use Strategies Branch
ewhite@arb.ca.gov
(916) 322-1017

Tony Brasil, Manager
In-Use Control Measures Section
abrasil@arb.ca.gov
(916) 323-2927

Gloria Lindner, Lead
glindner@arb.ca.gov
(916) 323-2803

Jackie Johnson
jjohnson@arb.ca.gov
(916) 323-2750

Ron Nunes
rnunes@arb.ca.gov
(916) 327-0376

Statewide Truck and Bus Regulation - www.arb.ca.gov/dieseltruck
Verified Devices - www.arb.ca.gov/diesel/verdev/verdev.htm