

Mobile Source Fleet Rules, Present, & Future

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**Tony Brasil
California Air Resources Board**

Need for Emission Reductions

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- Must reduce Diesel Particulate Matter (PM)
 - 70% of known cancer risk from all air toxics
 - Thousands of deaths per year in California
- Must reduce oxides of nitrogen (NOx)
 - Ozone and secondary PM formation
- Attain ozone and PM standards

Diesel Risk Reduction Plan

- Adopted 2000:
 - Reduce diesel PM risk by 75% by 2010
 - Reduce diesel PM risk by 85% by 2020
- Strategies:
 - Stringent new engine standards
 - Cleaner diesel fuel (<15 ppm sulfur)
 - Ensure in-use emissions compliance
 - Aggressive emissions reductions from in-use engines

Today's Health Risks Attributed to Diesel PM

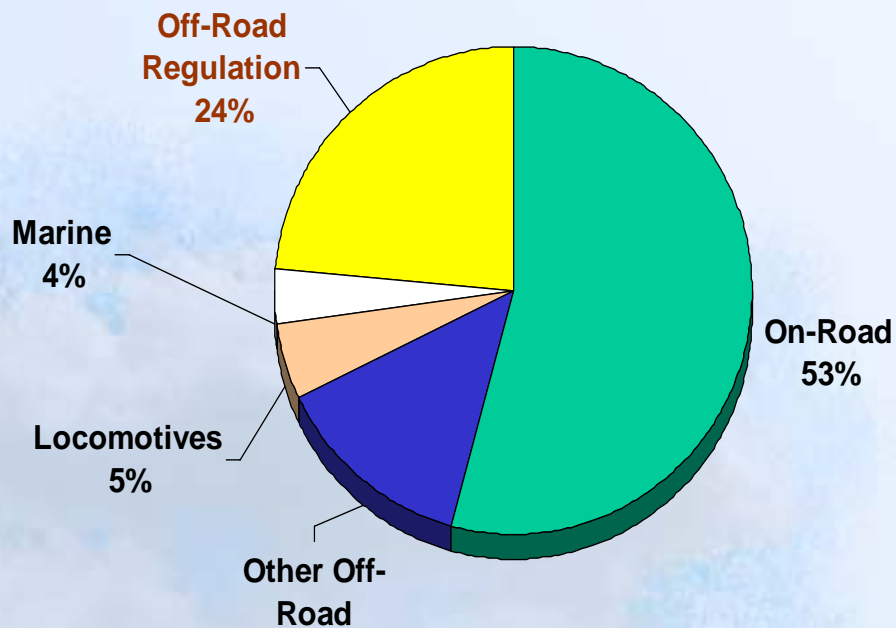


- 3,700 premature deaths
- 8,500 chronic bronchitis cases
- 100,000 asthma attacks and respiratory symptoms
- 2,200 hospital admissions
- 620,000 lost work days
- 3.6 million minor restricted activity days

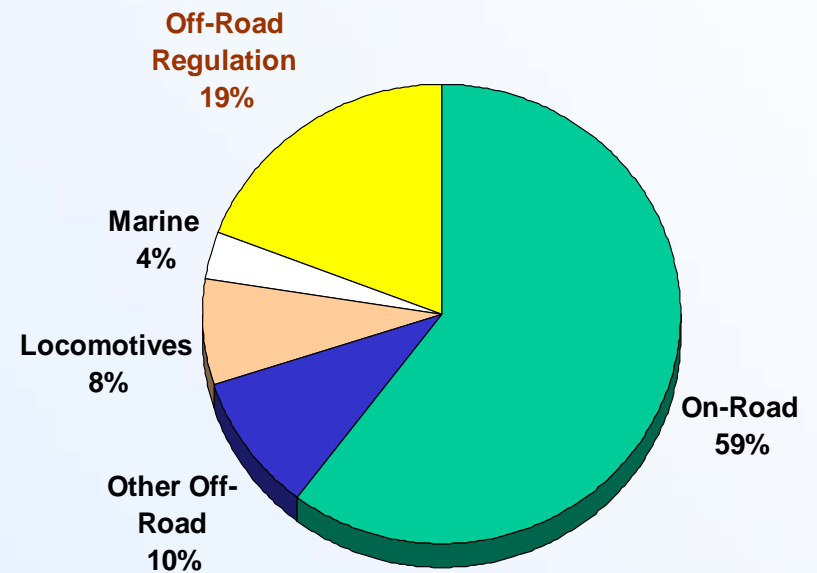
2005

Mobile Source Diesel Emissions

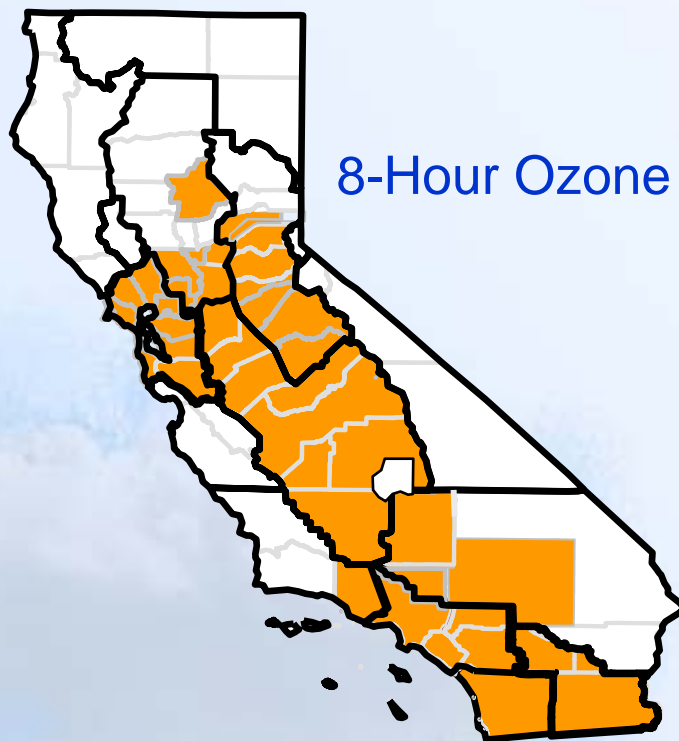
PM



NOx



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



- Nonattainment
- Unclassified/Attainment



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- Unclassified/Attainment

SIP Strategy

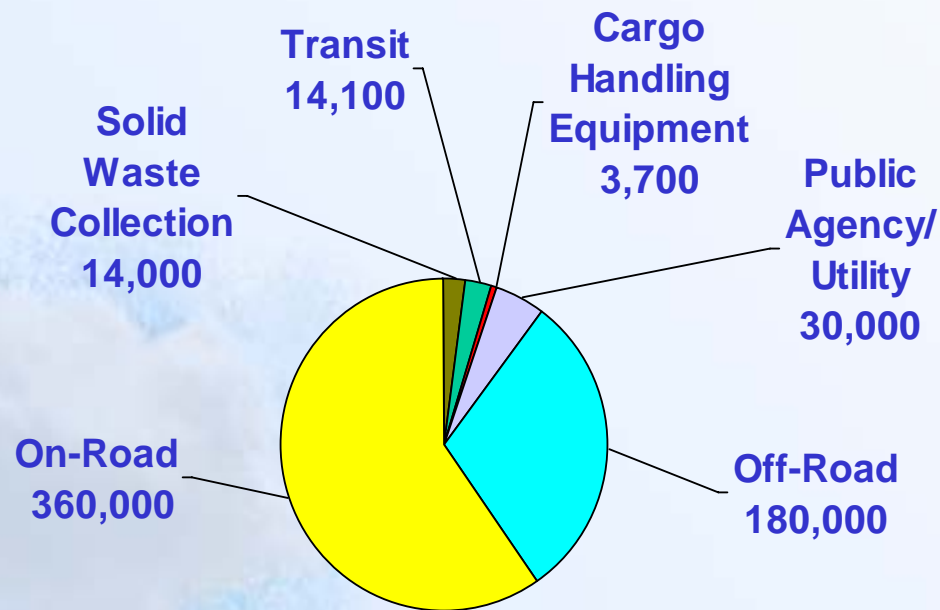
- Major component of proposed SIP
- South Coast and San Joaquin Valley
 - 2015 PM_{2.5} attainment date
 - 2024 Ozone attainment date
- South Coast NO_x reduction needs
 - PM_{2.5}; 30% reduction in 2014
 - Ozone; more than 50% reduction in 2020
- Direct PM_{2.5} reductions from proposed regulation

What We've Done So Far

Existing In-Use Motor Vehicle Fleet Rules

- Urban Buses 2000
- Solid Waste Collection Vehicles 2003
- Transit Fleet Vehicles 2005
- Public On Road Fleets and Private Utilities 2005
- Cargo Handling Equipment (Port/Rail) 2005

In-Use Diesel Vehicle Population (2005)



Fleet Rule for Public Agencies and Utilities

Municipal or Utility Owned On-Road Diesel Trucks

- Effective January 5, 2007
- Vehicles owned, leased, or operated by a municipality or utility
- On-road diesel vehicles over 14,000 pounds GVWR
- Medium heavy-duty and heavy heavy-duty engines
- 1960 to 2006 model-year engines

Major Elements

- Apply Best Available Control Technology (BACT) to each engine
- Follow specific implementation schedule based on engine model-year
- Keep records for and label each vehicle
- Remain in compliance

What is BACT?

- Repower with engine certified to 0.01 g/bhp-hr PM standard (2007 MY engine)
- Repower with engine certified to 0.10 g/bhp-hr PM with highest level verified diesel emission control strategy (DECS)
- Repower with alternative-fuel, gasoline, or heavy-duty pilot ignition engine certified to lowest optional PM standard
- Retrofit existing engine with highest level verified DECS

Implementation Schedule for All Fleets

Group	Engine MY	% of Group to use BACT	Compliance Deadline as of December 31
1	1960 - 1987	20%	2007
		60%	2009
		100%	2011
2	1988 - 2002	20%	2007
		60%	2009
		100%	2011
3	2003 – 2006 (Includes all dual-fuel/bi-fuel engines)	50%	2009
		100%	2010

Required Records (by December 31, 2007)

- Fleet vehicle records
 - Individual records by vehicle
 - Kept centrally
 - Available for inspection by appointment
- Vehicle labels
 - Durable and legible
 - Door jamb, or
 - Location known by driver
- Compliance statement
 - Statement certifying engines are in compliance as required

Implementation and Enforcement

- Extensive outreach & education
 - Committed to work with agencies
- Audits of vehicle records
- Inspection
 - Vehicle Labeling
 - Facility inspections
 - Roadside inspections

Public and Private Off-Road Fleets

Regulation Overview

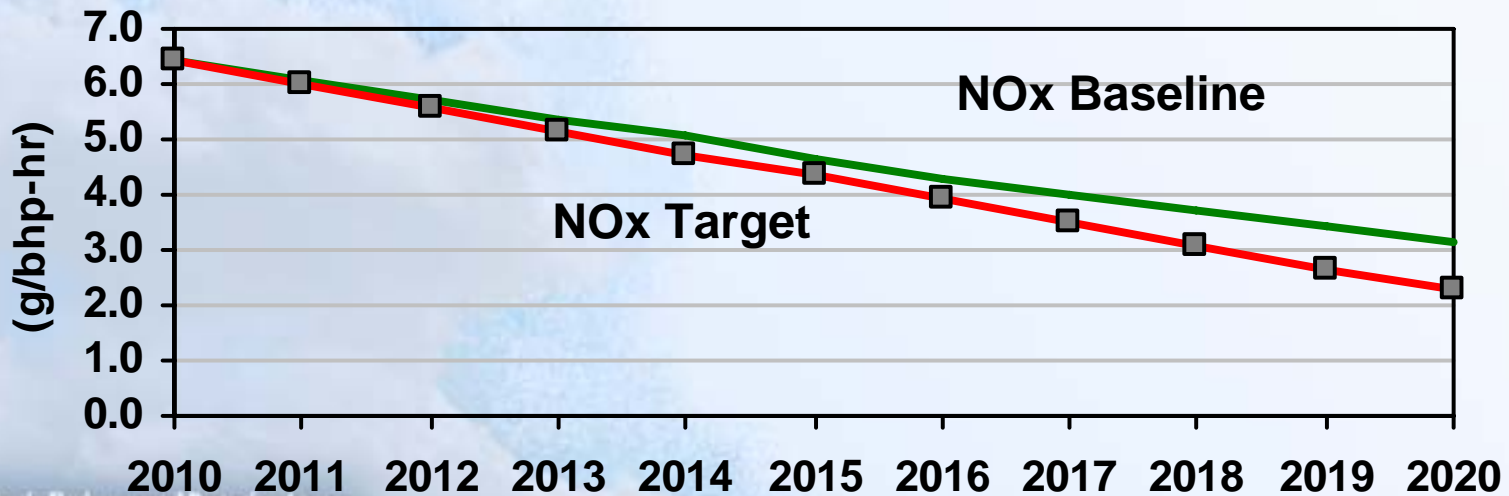
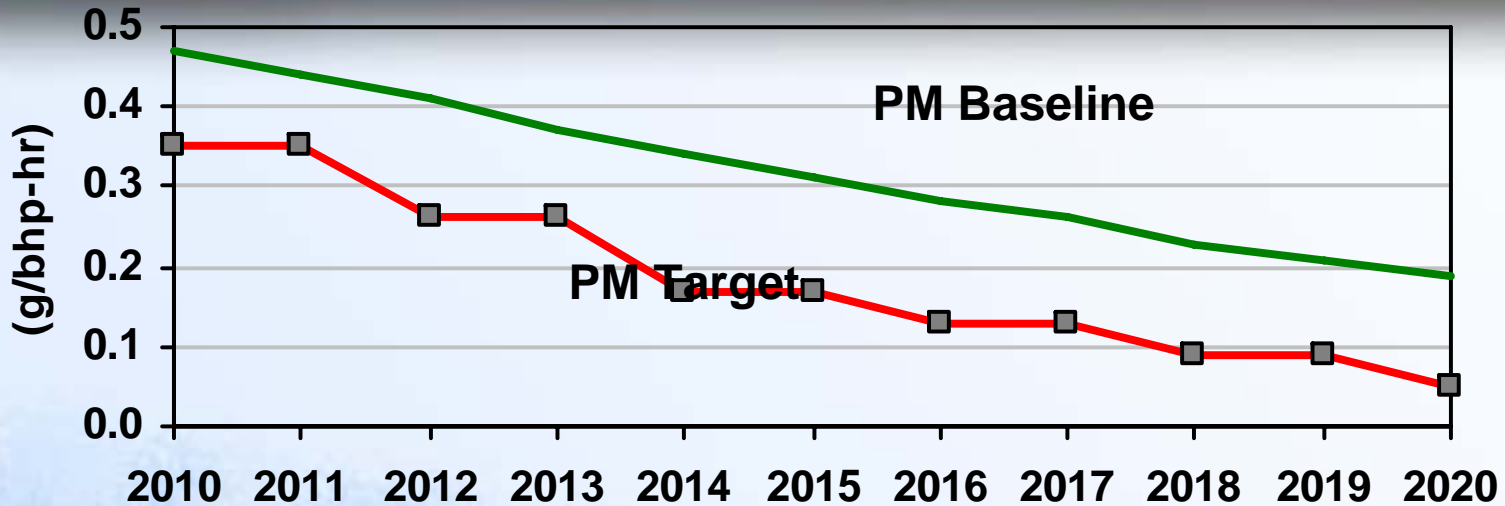
- Applies to off-road vehicle engines over 25 hp
- Targets both PM & NOx
- Beginning in 2009
 - Labeling and annual reporting
 - Idling limits
 - Limits on adding dirty vehicles to fleets
- Control requirements begin
 - 2010 for large fleets
 - 2013 for medium fleets
 - 2015 for small fleets

Two Options to Comply

- Meet fleet emission targets by any method
- or
- Demonstrate progress in reducing emissions
 - Called Best Available Control Technology (BACT) requirements
 - “Safety valve” for fleets that cannot meet targets



Fleet Average Emission Targets



Compliance Options

- Install NOx or PM exhaust retrofits
- Buy cleaner new or used vehicles
- Install cleaner engines (repower)
- Retire dirty vehicles



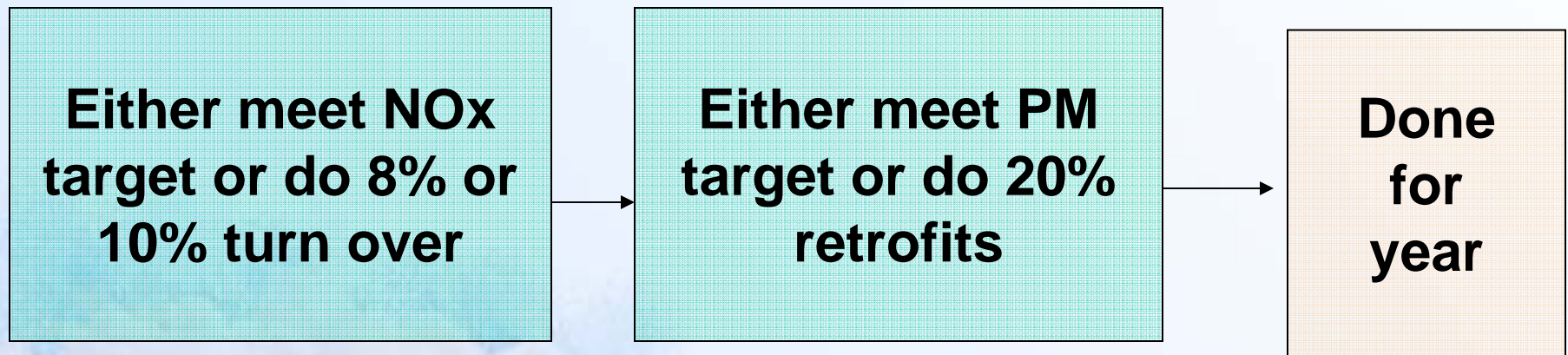
BACT Requirements

“A Safety Valve”

- Fleets never required to do more than BACT requirements
- Apply PM retrofits to meet PM requirements
 - 20% of hp per year
 - No action required if not available
- Turn over engines to meet NOx requirements
 - 8-10% of hp per year
 - Engine turnover reduced with NOx retrofits
- Once fleet averages are met, fleets will do less

Annual Compliance Process

Large and Medium Fleets



Special Provisions

- Exemptions or compliance extensions
 - Low-use vehicles
 - Vehicles in attainment areas
 - Manufacturer delays
- No retrofit requirements
 - Engines in vehicles less than 5 years old
 - No retrofit available
 - Retrofit not safe
- No turnover requirements
 - Small fleet
 - Used vehicle not available
 - Less than 10 years old
 - Retrofit in past 6 years
 - Certain rural fleets



Regulation Provides Early Credit

- NOx retrofits in lieu of BACT turnover
- Early repowers and turnover
- Electric and alternative fuel vehicles
 - Double credit for turnover to electric vehicles
- Double credit for early PM retrofits

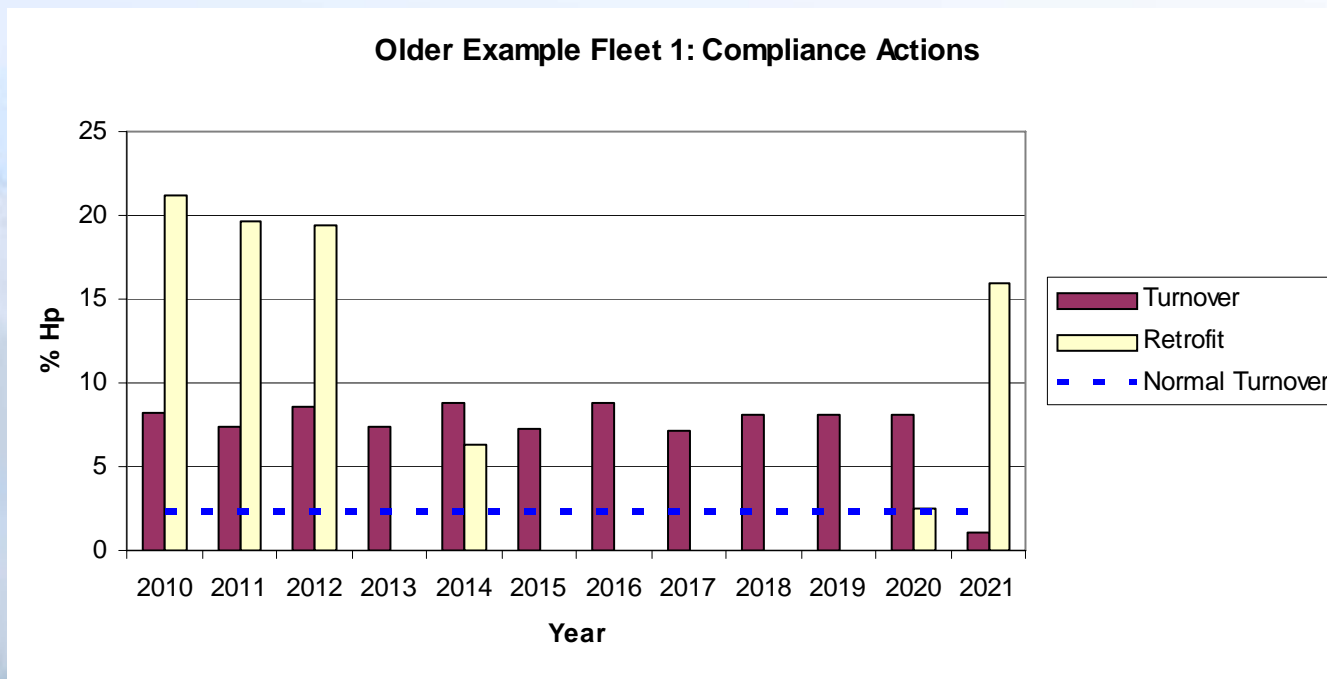


What Regulation Will Mean for Fleets

- Half of fleets will meet 2010 NO_x targets with normal turnover
 - Oldest and dirtiest fleets do more (safety valve)
 - Newer fleets do less
- Most fleets would do maximum 20% PM retrofits in first 2-3 years
 - Few retrofits after 3 years
- Only a small impact on most rental fleets
 - May bring new business

Fleet 1 - Compliance Actions

- Continues to buy used vehicles
- 8% turnover per year (safety valve)
- 20% retrofits in first 3 years; few thereafter

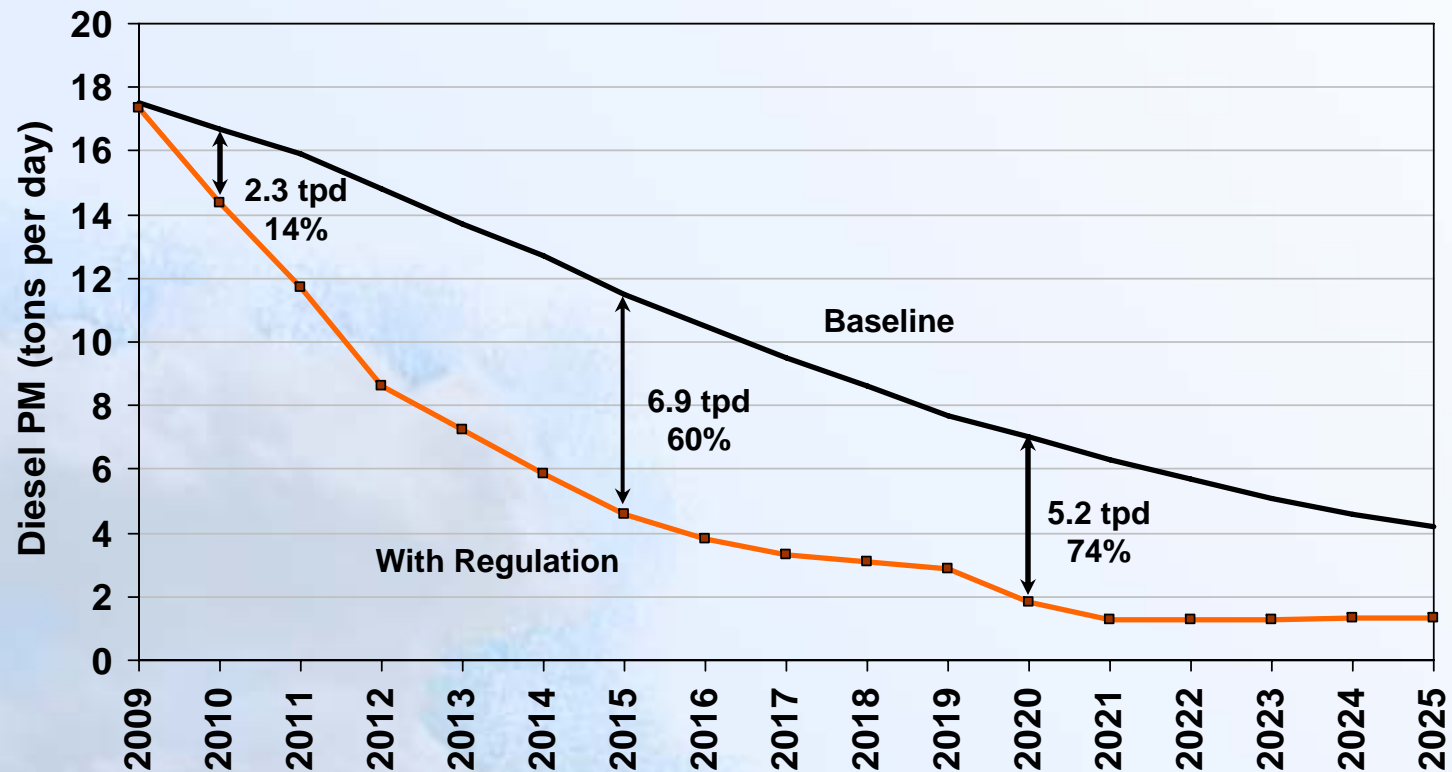


Myths About the Proposed Regulation

- Will devastate small businesses
- Requires immediate turnover of entire fleet
- Requires turnover to new vehicles only
- Cannot comply if PM retrofits not available
- Need all Tier 4 engines to comply

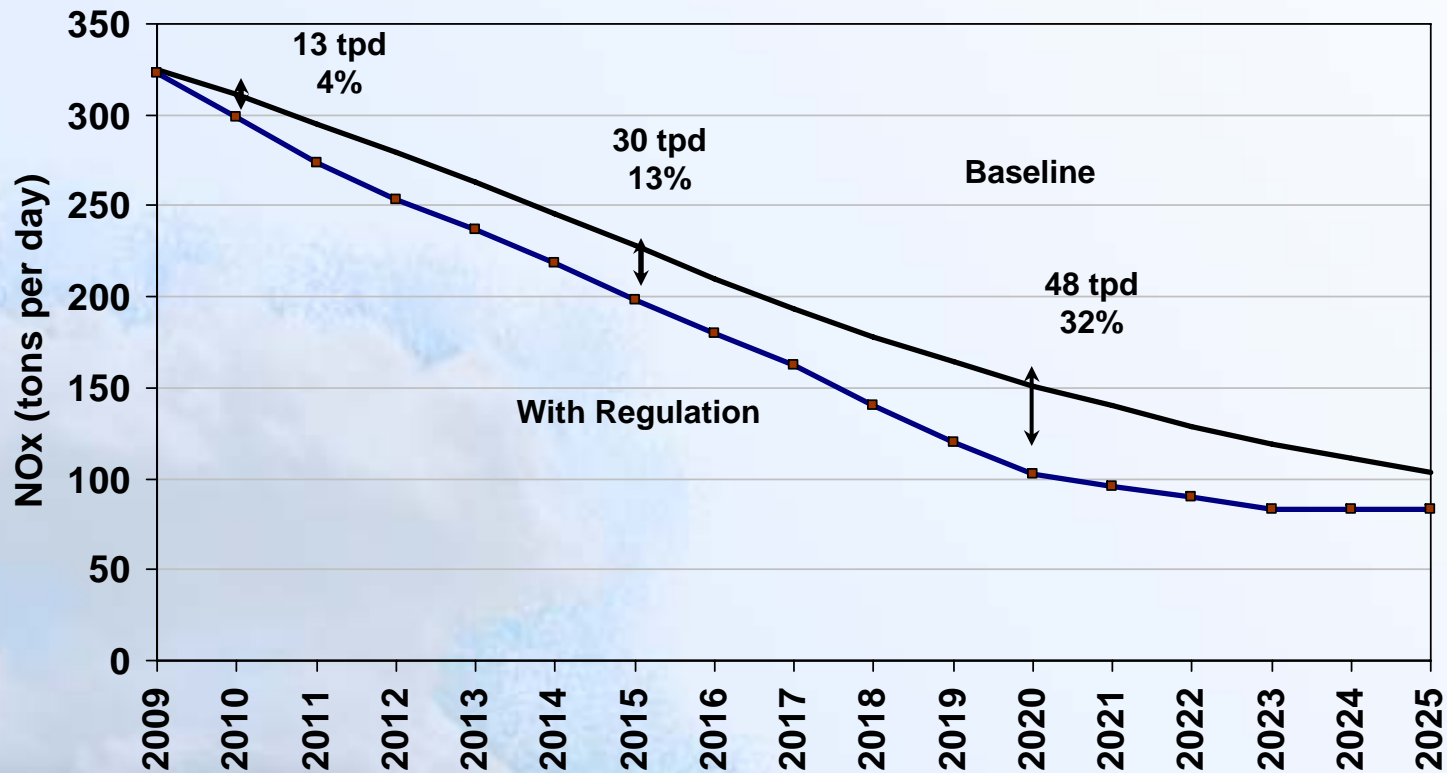
Diesel PM Emission Benefits

- Meets 2020 Diesel Risk Reduction Plan goals



NOx Emission Benefits

- Reductions needed to meet PM and ambient air quality standards



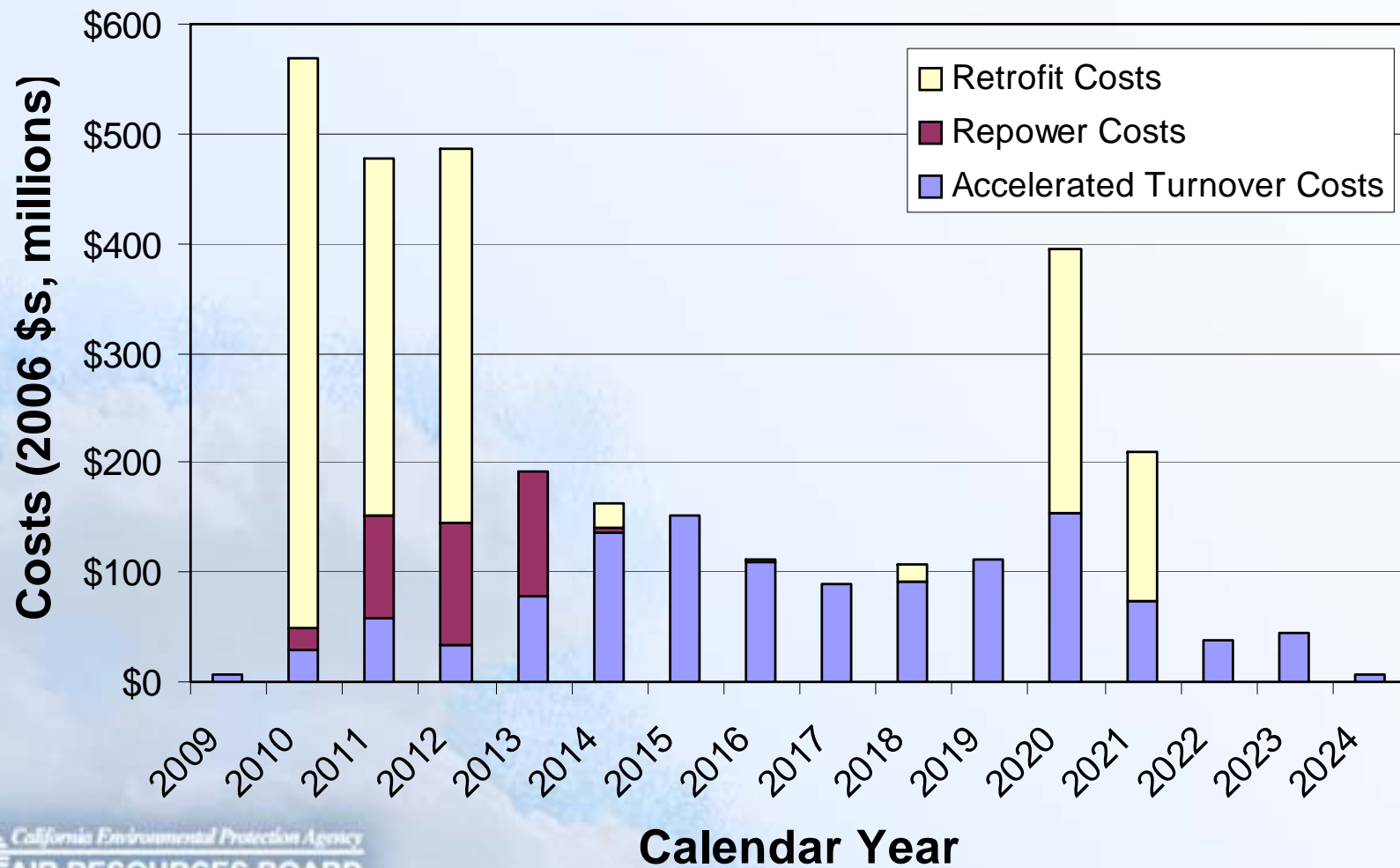
Cumulative Health Benefits

- 4,000 fewer premature deaths
- 110,000 fewer cases of asthma and lower respiratory symptoms
- 680,000 work loss days
- 3,900,000 restricted activity days
- \$18 - \$26 billion in avoided health costs

Costs

- Total cost of \$3.0 - \$3.4 billion
 - Increase of 0.3% per year in statewide construction costs
- Cost-effectiveness
 - \$37 - \$43/lb PM
 - \$2.1 - \$2.5/lb NO_x

Annual Costs



Outreach and Education

- Outreach will not stop when the rule is approved
- Work with Industry, Dealers, and Trade Associations
- Training Seminars

Enforcement

- Annual fleet reporting
- Vehicle labeling
 - Unique equipment identification number
- Extensive outreach & education
 - Committed to work with industry
- Inspection
 - Fleet audits
 - Facility and construction project inspections
 - Roadside inspections
- ARB to request additional enforcement staff

On-Road Private Fleets

On-Road Private Fleets Regulation Goals

- By 2014, emissions no higher than a 2004 model year engine with a diesel particulate filter
- By 2020, emissions no higher than a 2007 model year engine

On-Road Private Fleets Regulation Proposal

- On-road medium & heavy-duty diesel vehicles (>14,000 lbs GVWR)
 - Trucks
 - Motor homes
 - Federal fleets
 - Buses
 - Specialty vehicles
- Vehicles not covered under a current ARB regulation for heavy-duty diesel-fueled vehicles
 - Trash trucks
 - Public fleets
 - Transit buses

Scope of Proposed Regulation

- Any heavy-duty vehicle traveling within California
- Originally equipped with safety equipment to drive on the road
- Not necessarily registered through DMV

Regulatory Concept

- 2 Options
 - Fleet Averaging Method
 - BACT Phase-in
- Reduce PM and NOx
 - Retrofit with highest level PM/NOx device
 - Switch to alternative fuel
 - Use 2007 engine
 - Retire vehicle

Proposed Regulation: Fleet Average

- Allows fleets to determine the best path to compliance
- Likely limited to California base plated vehicles
- Declining PM and NOx averages
- Minimum number of vehicles
- Report annually

Proposed Regulation: BACT

- Emissions equivalent to 2004 model year or newer by 2014
 - Apply highest level PM/NO_x BACT available
 - 5 model year groups (engine model year)
 - Phase-in starting in 2009 with oldest model group
- Emissions equivalent to 2007 model year engine or better by 2020
 - Beginning in 2014, phase-out pre-2007 model year engines (or equivalent) by 2020 (20% per year)

BACT Schedule

Model Years	Compliance Date
1965-1994	Dec 2009
1995-1997	Dec 2010
1998-1999	Dec 2011
2000-2002	Dec 2012
2003-2006	Dec 2013

Rule Development Issues

- Emission Inventory
- BACT
 - NOx levels
 - Phase-in schedule
- Low use definition
- Business characterization
- Specialty vehicles
- Greenhouse gases

Next Steps

- Inventory refinements
- Additional surveys
- Characterize financial impact on businesses
- Develop regulatory language
- Next workshops – July/August 2007

Contact Information

Diesel Activities

<http://www.arb.ca.gov/diesel/mobile.htm>