

Air Quality Mandates Affecting the Caltrans Fleet

Caltrans Division of Equipment

Sacramento, CA

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Presentation Overview

- ARB On Road Mandate
- ARB Off Road Mandate
- South Coast AQMD Fleet Rules
- ARB Large Spark Ignition (LSI) Mandate
- ARB Portable Engine Mandate

ARB On-Road Mandate

- Mandate Summary: Starting December 31, 2007 requires Public Fleets to apply Best Available Control Technology (BACT) on all heavy duty on-road diesel vehicles between 1960 and 2006 engine model years by the end of 2011.
- Purpose: Reduce Diesel Particulate Matter (PM)
- Plan for Compliance:
 - *Exhaust Retrofits* and,
 - *Retire and Replace Old Trucks*
- Fleet Impact: Over 2700 trucks at a projected cost of almost \$70 million to retrofit and replace vehicles.
- Current Status: Approximately 50 percent done to date.

Heavy Duty On-road Diesel Fueled Trucks



60% of fleet - Cargos and Dumps;
the rest - Sweepers, Tankers, Truck
Tractors, Trash Compactors, Fence
Trucks, Personnel Hoists, and more . . .

On-Road Compliance Schedule

Group	Engine Model-Years	% of Group to Use BACT	Compliance Dates – December 31
1	1960 - 1987	60	2009
		100	2011
2	1988 – 2002	60	2009
		100	2011
3	2003 - 2006	50	2009
		100	2010

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On-Road: Items of Interest

- **All affected vehicles should now have a label affixed to the passenger's side door jamb.**
- **Diesel Particulate Filters (DPF):**
 - **Work Order Campaign now opened for completion this calendar year.**
 - **Cleaning per the manufacturer's recommendations.**
 - **DPF Informational manual for Equipment Operators (see handout).**
- **If ARB inspector happens by notify HQ Liaison.**

ARB Off-Road Mandate

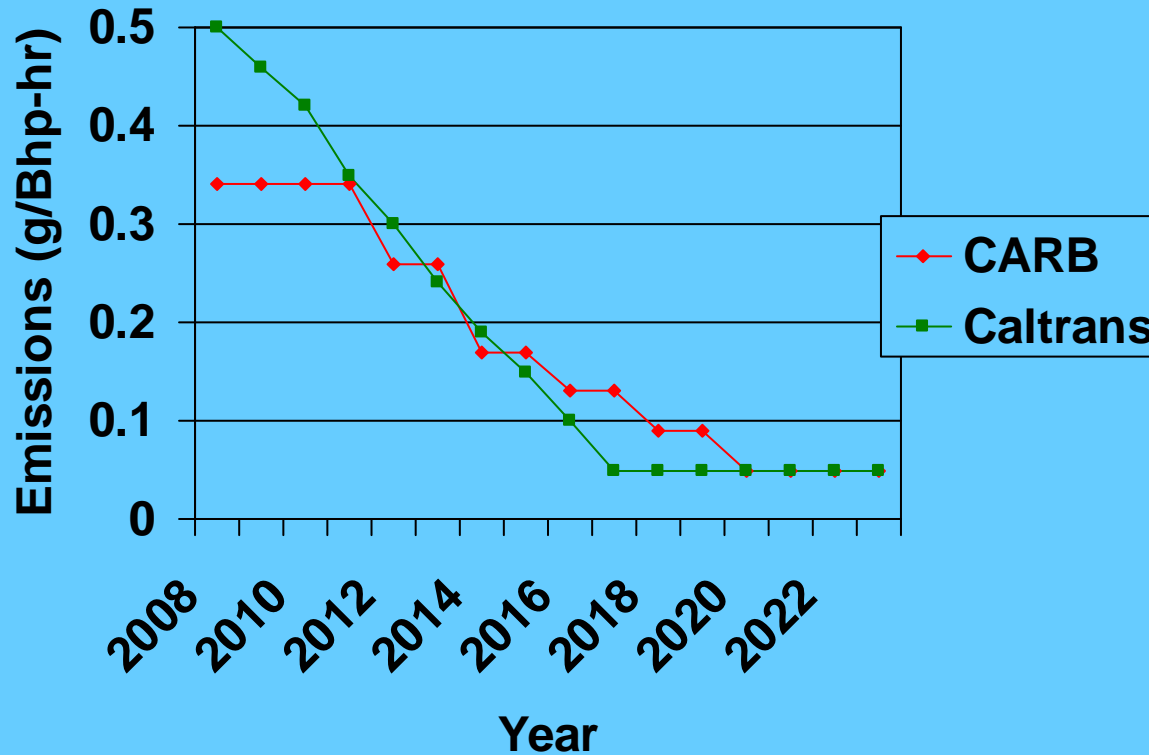
- Mandate Summary: Starting March 2010 Fleet owners of off-road vehicles over 25 horsepower must meet annually declining fleet emission averages for particulate matter (PM) and nitrogen oxides (NOx) through 2020.
- Purpose: Reduce nitrogen oxides (NOx) and diesel particulate matter (PM) from in-use off-road diesel fueled vehicles.
- Compliance Requirements:
 - **PM: Comply with fleet emission average requirement or perform Annual Retrofit up to 20% of fleet with exhaust trap**
 - **NOx: Comply with fleet emission average or turnover up to 8% of off-road fleet.**
- Fleet impact: 990 units at a projected cost over \$100 million to replace and retrofit.
- Current Status: In the first year of a 10 plus year program.

Diesel Off-Road Vehicles

A yellow Deere 726B wheel loader is the central focus of the image. It is parked on a dirt surface, likely a construction or quarry site. The loader has a large front bucket and a rear-mounted engine compartment with 'DEERE' branding. A person wearing a hard hat is visible in the operator's cab. In the background, there are other pieces of heavy machinery, including another yellow loader and a white truck, under a clear blue sky.

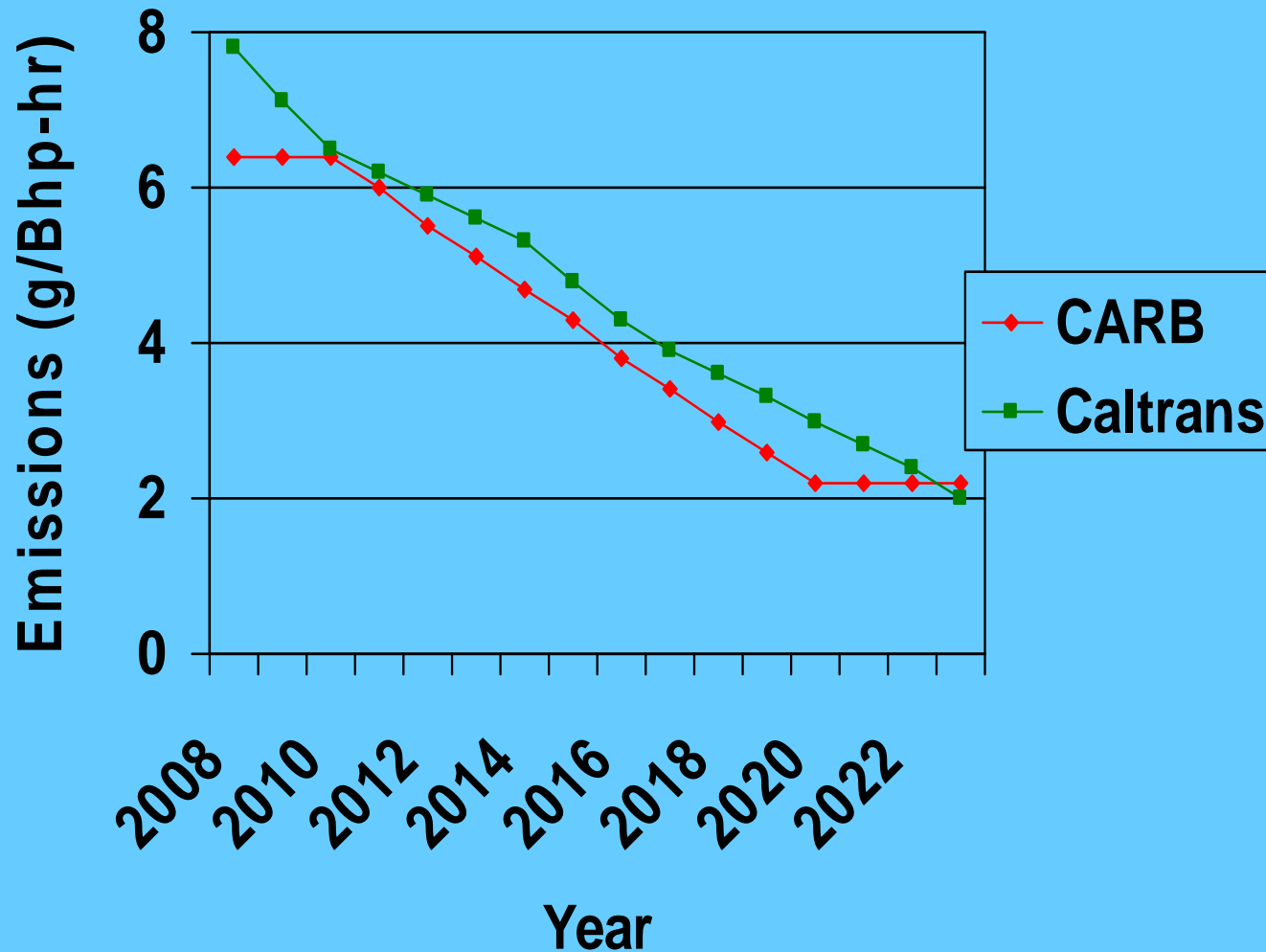
**~60% of fleet – Graders and Loaders;
the rest – Tractors, forklifts, rollers,
grinders, and more . . .**

Off-Road PM Emissions Averages



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Off-Road NOx Emissions Averages



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Off-Road: Items of Interest

- **All In-Service vehicles need an Equipment Identification Number Issued by ARB: 5-inch white letters on a red background.**
- **Rule has a 5-minute idling component.**
- **Diesel Particulate Filters (DPF):**
 - **Primarily active regeneration.**
 - **DPF informational manual for Equipment Operators (see handout).**
- **If ARB inspector happens by notify HQ Liaison.**

South Coast Fleet Rules

- Mandate Summary: Requires public fleets domiciled within the South Coast to purchase alternative fueled vehicles when acquiring or leasing heavy duty on-road diesel vehicles, i.e., gasoline or compressed natural gas (CNG).
- Purpose: To reduce both air toxic and smog-forming air pollutants.
- Compliance Requirements: Only when purchasing new vehicles. Exemption is possible based on fuel or vehicle availability.
- Fleet Impact:
 - Eventually retrofit and replace a fleet of over 600 vehicles.
 - Internally, requires Caltrans to consider the South Coast fleet rules when moving vehicles around the state.
- Current Status: Have about 25 new vehicles with approved exemptions. Planning to purchase CNG at least 12 per year at an additional \$100,000 cost per truck over diesel.

Oregon

CALTRANS DISTRICTS

Air Districts within Caltrans Districts

- Maintenance Facilities
- Adopted Route
- Proposed Route
- ===== Transversible State Highways

MAINTENANCE FACILITY ABBREVIATIONS

- RMH - Regional Manager Headquarters
- AS - Area Superintendent
- HMS - Highway Maintenance Station
- LSMS - Landscape Maintenance Station
- SC - Special Crew Station
- S/SS - Sand/Salt Storage
- SL - Satellite

AIR DISTRICTS

- Anador
- Antelope Valley
- Bay Area
- Butte
- Calaveras
- Colusa
- El Dorado
- Feather River
- Glen
- Great Basin Unified
- Imperial
- Kern
- Lake
- Lassen
- Mariposa
- Mendocino
- Modoc
- Mojave Desert
- Monterey Bay Unified
- North Coast Unified
- Northern Sierra
- Northern Sonoma
- Placer
- Sacramento Metro
- San Diego
- San Joaquin Valley Unified
- San Luis Obispo
- Santa Barbara
- Shasta
- Siskiyou
- South Coast
- Tehama
- Tuolumne
- Ventura
- Yolo-Solano

South Coast

Nevada

Pacific Ocean

Arizona

Mexico



South Coast: Items of Interest

- **Compressed Natural Gas in Heavy Duty purchased only for the South Coast jurisdiction.**
- **If South Coast inspector happens by notify HQ Clean Air and Alternative Fuels Liaison.**

ARB Large Spark Ignited Mandate Affecting Fork Lifts

- Mandate Summary: Reduce Hydrocarbon (HC) and Nitrogen Oxides (NOx) emissions from gasoline and LPG forklifts to fleet emission average requirements.
- Purpose: Reduce emissions from in-use vehicles.
- Compliance Requirements: Comply with fleet emission average requirement through 2013.
- Fleet impact: over 165 gas or propane fueled fork lifts to be replaced or retrofitted at about \$5.5 million.
- Current Status: Replacing and retrofitting older units to reduce fleet emissions. 100% Compliant for 2009, next compliance target is 2011.

Large Spark Ignited Fork Lifts



~165 forklifts statewide . . .

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ARB Mandate for Portable Diesel Engines

- Mandate Summary: Portable engines over 50 hp used after 2010 in California must be manufactured to an emission standard, i.e., a Tier 1, 2, 3, or 4 emission standard, and meet a fleet emission average component
- Purpose: Reduce diesel PM.
- Fleet Impact: Replacing or repowering over 125 engines at about \$10 million.
- Compliance Requirements: Retire Tier 0 engines before January 1, 2010, and meet decreasing fleet average requirements in 2013 and 2017.
- Current Status: All Equipment Id'd Tier 0 engines have been identified for retirement, replacement, or repower.

50 Hp and Greater Portable Engines



Portable Engine: Items of Interest

- Portable engine emissions after January 2010 must be certified to an emission level, i.e., Tier level.
- Caltrans registers portable engines with the statewide Portable Equipment Registration Program (PERP).
- Look for PERP decal on engines over 50 hp.

Recap

- Compliance plans in place
- Labels
 - On-road
 - Off-road
 - PERP
- DPF's
 - Work orders opened through multi-unit campaigns.
 - Send invoicing to Clean Air Liaison.
- No idling

Thank you

Questions and Comments
Welcomed

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