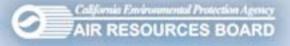
# ARB Verification and the Off-Road Showcase Program

**Heavy-Duty Diesel In-Use Strategies Branch** 



#### The Situation in California

- Moving forward to meet the goals of the Diesel Risk Reduction Plan
  - 75% reduction in diesel PM by 2010
  - 85% reduction in diesel PM by 2020
- Large reductions in NOx emissions still needed to attain ozone and PM standards
- Must reduce emissions from in-use diesel fleet to achieve both goals



### **In-Use Diesel Regulatory Activity**

- •Urban Buses (2000)
- Garbage Trucks (2003)
- School Bus Idling (2003)
- Stationary Engines (2004)
- •TRUs (2004)
- Truck and Bus Idling (2004)
- Portable Engines (2004)
- Transit Fleet Vehicles (2005)

- Public HD On-Road Vehicles (2005)
- Cargo Handling Equipment at Ports and Rail Yards (2005)
- Off-Road Engines (2007)
- Shore Power for Docked Ships (2007)
- Port Trucks (2007)
- Private HD On-Road Vehicles (under development)



### **ARB Verification Program**

- Purpose: To support California's efforts to reduce emissions of diesel PM and NOx from the in-use diesel fleet
- For hardware and fuel-based emission control strategies used in on-road, off-road, and stationary applications

### **Objectives of Verification**

- Determine if emissions reductions are real and durable
- Quantify emissions reductions
- Ensure continued emissions reductions through in-use compliance testing and warranty reporting



### **Key Requirements**

- Complete description of product and how it works
- Emissions test data
- Durability demonstration
- Prescribed warranty statement
- In-use compliance testing and warranty reporting



# Verification Process Where to Begin

- Read the Procedure
  - Find it here: http://www.arb.ca.gov/diesel/verdev/verdev.htm
- Submit a pre-application
  - Describe system and how it works
  - Define scope of requested verification
  - Propose test plan



# Collaboration Between ARB and EPA

- Applicant can pursue joint verification
  - Applicant involves both EPA and ARB at start of the verification process
  - Allows for simultaneous review by both programs
  - Goal: generation of test data that is appropriate for both programs
- For existing EPA verifications, applicant encouraged to submit data for ARB review



## Additional Requirements for ARB Verification

- Minimum PM reduction: 25%
- Minimum NOx reduction: 15%
  - Proposed change: 25% min
- NO<sub>2</sub> emissions limit
- Multimedia assessment for fuel-based strategies
- Stringent warranty requirements
- Annual warranty report



# **Key Proposed Changes to ARB Verification Procedure**

- Conditional extensions to on-road applications for verified systems
- Level approach to NOx verifications

Level	Reduction
Mark 1	≥ 25%
Mark 2	≥ 40%
Mark 3	≥ 55%
Mark 4	≥ 70%
Mark 5	≥ 85%

# **Key Proposed Changes to ARB Verification Procedure**

- NOx-only systems may be verified for engines that will not require PM controls
- Nonroad Transient Cycle (NRTC) will be phased in as the standard off-road test cycle
  - Verifications based on modal data will sunset on January 1, 2013 unless NRTC data provided
- Additional requirements for SCR systems
  - Reductant level monitor and notification system
  - Inducement to ensure continuous reductant supply
  - Means to ensure proper reductant is used



### Regulatory Schedule

- Board meeting to be held in Sacramento on January 24, 2008
- 45-day comment period now underway
  - Deadline for comments: Jan 23, 2008 (noon)
- Regulatory documents here: http://www.arb.ca.gov/regact/2008/verdev2008/verdev2008.htm



## **Showcase Program**



Mobile Source Air Pollution Reduction
Review Committee (MSRC)
South Coast Air Quality Management District (AQMD)
Air Resources Board (ARB)

#### **Showcase Goals**

- Demonstrate new emission control systems in off-road applications
  - Breadth of application
  - Durability
  - Effectiveness
- Facilitate verification of participating systems



### Where We Are Today

- Funding approved: \$4.9 million
- Contracts with fleet owners
  - Are being written up now
  - Will reimburse equipment owners for purchase
  - May pay mfr directly if all parties agree
- Fleets/mfrs need to arrange for data logging



### **Showcase Participants**

#### Fleets

13 private fleets

5 public fleets

230 vehicles

- Broad range of engine and vehicle types
- Representative of statewide fleet

#### Manufacturers

16 companies

29 systems total

- 10 active DPFs(4 include SCR)
- 19 passive DPFs(2 include SCR)



### Requirements for Manufacturers

- Datalogging
- Installation and Support
- Warranty
  - Mfr must adhere to warranty requirements in Verification Procedure for the duration of the demonstration

#### **Showcase and ARB Verification**

- Two separate programs, but:
  - Submission of Showcase application = request for verification
- Applications have been submitted to verification staff
- ARB staff working with applicant through the verification process
- Existing data may support conditional verification



### **Showcase Questions?**

#### MSRC

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#### SCAQMD

- Adewale Oshinuga, Air Quality Specialist
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#### ARB

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#### **Verification Info/Contacts**

http://www.arb.ca.gov/diesel/verdev/verdev.htm

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