

# Heavy-Duty Diesel Engine Requirements

# EPA Heavy Duty Engine Standards

- Purpose: Reduce emissions from new on-road heavy duty engines
- Cleaner standards for new engines
  - 2004 EPA Heavy Duty Engine standards
    - 2.5 g/bhp-hr combined HC+NO<sub>x</sub>
    - 0.10 g/bhp-hr PM / 0.05 for urban buses
  - 2007 EPA Heavy Duty Engine standards
    - 0.20 g/bhp-hr NO<sub>x</sub>, 0.14 g/bhp-hr HC phased in from 2007 to 2010
    - 0.01 g/bhp-hr PM fully implemented in 2007
    - 15 ppm sulfur diesel fuel beginning in June 2006

# Consent Decrees

- Enforcement action by EPA against seven heavy-duty engine manufacturers: Caterpillar, Cummins, Detroit Diesel, Mack, Navistar International, Renault Vehicles, and Volvo Truck
- Installation of “defeat devices” that circumvented emission controls at highway speeds
- Consent decree requirements
  - Pay penalties
  - Develop emission reduction programs
  - Low NO<sub>x</sub> recalibration
  - Meet 2004 HDE standards by October 2002
  - Conduct 3 additional certification tests

# Adoption of California Heavy Duty Standards For ON-Road Engine

- EPA dropped additional testing requirements after 2004 standards, however they resume in 2007
- California adopted the additional tests known as the NTE, Euro III ESC, and MAEL as a part of their HD engine standards
- Georgia and 11 other states adopting California standards

# Georgia Adopts the California Rule

- To ensure that NO<sub>x</sub> emissions do not increase by 13 tons per day statewide (8 tons per day in the 45 county Atlanta area) in 2005 and double that in 2006, Georgia has adopted California's on road heavy duty diesel emission standards for 2005 and 2006.

# Georgia Rule

- Rules for Air Quality Control, Chapter 391-3-1-.02(2)(ooo)
  - Effective beginning with the 2005 model year.
    - Model Year is defined as a manufacturer's annual production period or a calendar year
    - Model Year is defined by the completion of the chassis
  - Adopts the California Air Resources Board heavy-duty emission standards
  - Require that only new heavy duty engines receiving an executive order from CARB be sold in Georgia.
  - Heavy-duty vehicle is defined as vehicles with a GVWR of 14,001 lbs or greater

# Georgia Rule

- Rule affects those who:
  - Sell, lease, rent, import, or deliver to the state
  - Lease, purchase, acquire, or receive in the state
  - Offer for sale, lease, or rental in the state
- Dealers are required to submit annual reports documenting the total sales and/or leases of engines and motor vehicles for each engine family over the calendar year
- Enforcement policy will be drafted over the next year

# Georgia Rule

- Exemptions to the Rule are:
  - Emergency vehicles, Military tactical vehicles and equipment
  - Urban buses
  - Any engine that CARB determines it is inappropriate to require compliance for heavy-duty diesel engines of that particular model year and engine family.

# Georgia Rule

- Exemptions Continued
  - Resident of this state who acquires a vehicle to replace a registered vehicle which has become damaged or inoperative beyond reasonable repair, or stolen while out of state; provided that such replacement vehicle is acquired out of the state at the time the previously owned vehicle was damaged or became inoperative or was stolen.
  - Any other vehicle exempted by section 43656 of California Health and Safety Code.

Questions?

# Heavy Duty Engine Retrofit Program

# Heavy Duty Diesel Engine Retrofit Program

- Purpose: Reduce emissions from existing heavy duty engines
- Voluntary vs. Regulatory

# HDDE Retrofit Program

- After-market emission control devices
  - Recalibration (1994 to 1997 models)
  - Oxidation Catalysts
  - Diesel Particulate Filters
  - Exhaust Gas Recirculation
  - Selective Catalyst Reduction (Use of urea)
  - NO<sub>x</sub> absorbers
- Anti-Idling
  - Truck Stop Electrification
  - Auxiliary Power Units (APU)

# HDDE Retrofit Program

- Cleaner Fuels
  - Water emulsified diesel fuel (15% water)
  - Ultra-low sulfur fuel
  - Fuel borne catalysts
  - Alternative Fuels
    - Natural Gas
    - Propane
    - Biodiesel

# HDDE Retrofit Program

- EPD projects
  - EPA grant to retrofit 58 Clayton County School System buses with diesel oxidation catalysts
  - EPD pursuing an adopt a school bus program
  - Heavy Duty Engine Survey being conducted by the Georgia Regional Transportation Authority
    - Provide database of fleets with on and non-road vehicles
    - Analysis of most cost effective retrofit strategies

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