

# Emission Facts

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## Clean Diesel Programs: Facts and Figures

### Clean Air Nonroad Diesel Rule

#### Air Pollution from Nonroad Diesel Engines (Inventory)

- 47 percent of mobile source diesel particulate matter (PM) comes from nonroad diesels
- 25 percent of mobile source nitrogen oxides (NO<sub>x</sub>) comes from nonroad diesels

#### Population Affected

- 65 million people live in counties violating air quality standards for PM<sub>2.5</sub>
- 159 million people live in nonattainment areas for 8-hr ozone

#### Industry Characterization

- Over 650,000 pieces of nonroad diesel equipment covered by this rule are sold in the United States per year
- About 6 million pieces of nonroad diesel equipment in categories covered by this rule are currently in use
- About 50 nonroad diesel engine manufacturers are affected by this rule (worldwide)
- 63 refiners are expected to produce low sulfur nonroad/locomotive/marine diesel fuel beginning in 2007

## Environmental Benefits

When the fleet of older nonroad engines has fully turned over by 2030, this rule will result in:

- 129,000 tons of Fine PM (PM2.5) reduced annually, which is equivalent to removing 2.4 million highway diesel trucks from the road
- 738,000 tons of NOx reduced annually, which is equivalent to removing 700,000 highway diesel trucks from the road
- The NOx reduction from a single typical bulldozer is equivalent to removing 25 MY 2003 cars from the road

## Public Health Benefits

When the fleet of older nonroad engines has fully turned over by 2030, this rule will annually prevent:

- 12,000 premature deaths
- 8,900 hospitalizations
- 15,000 heart attacks
- 6,000 children's asthma-related emergency room visits
- 280,000 cases of respiratory problems in children
- 1 million work days lost
- 200,000 cases of asthma symptoms in children
- 5.8 million days that adults have to restrict activity because of their respiratory systems

## Annual Costs and Benefits

When the Fleet of Older Nonroad Engines Has Fully Turned Over by 2030:

Overall fuel cost <b>increase</b>	7 cents/gallon
- Equivalent fuel cost <b>savings</b> from reduced equipment maintenance costs (due to low sulfur diesel fuel)	- 3 cents/gallon
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<b>Net</b> fuel cost increase	4 cents/gallon

- Equipment cost increase is 1-3 percent of total equipment price (for most mobile equipment categories)
- Annual cost of program is \$2 billion
- Annual monetary value of benefits is \$80 billion

## **Heavy-Duty Diesel Truck and Bus Rule**

- The new heavy-duty diesel truck and bus emissions standards will be phased in between 2007-2010
- Clean highway diesel (15 ppm) will be available at retail stations on September 1, 2006
- When the fleet of older engines has fully turned over by 2030, this program will annually prevent:
  - o 8,300 premature deaths
  - o 9,500 hospitalizations
  - o 1.5 million work days lost
- When the fleet of older engines has fully turned over by 2030, this program will annually reduce:
  - o 2.6 million tons of nitrogen oxides (NO<sub>x</sub>)
  - o 115,000 tons non-methane hydrocarbon
  - o 109,000 tons particulate matter
- Cost of the heavy-duty diesel truck and bus program:
  - o Cost of new truck today = ~\$150,000
  - o Cost of new bus today = ~\$250,00
  - o Cost of standards per vehicle = \$1,200 - \$1,900
  - o Cost of producing and distributing diesel fuel = ~4 ½ - 5 cents/gallon

## **Voluntary Diesel Retrofit Program**

- 160,000 existing diesel engines have been retrofitted
- Existing engines remain in a fleet for up to 25 years
- Using approved retrofit technologies can reduce emissions over 90 percent
- 15 states have areas currently benefiting from the early introduction of low sulfur diesel fuel
- 29 states and the District of Columbia are currently active in the Diesel Retrofit Program

## **Clean School Bus USA Program**

- 24 million children ride school buses each day
- Almost 400,000 diesel school buses are in use
- Average age of U.S. school bus is 10 years

- School buses idle an average of 1.5 hours per day
- 17 million gallons of fuel is saved when idling time is reduced by 30 minutes per bus/per day
- EPA issued 17 school bus grants in 2003
- ~5,000 school buses are affected by 2003 Clean School Bus USA grants
- 21 states are currently implementing school bus retrofit programs

## **SmartWay Transport Program**

- SmartWay Transport programmatic goal is to reduce 33-66 million metric tons of carbon dioxide by 2012
- SmartWay Transport programmatic goal is to reduce 200,000 tons of nitrogen oxides (NOx) annually by 2012
- Additional benefits and savings of program include 150 million barrels of oil saved
- Examples of SmartWay Strategies:
  - o Wide based tires
  - o Weight reduction
  - o Reducing highway speed
  - o Driver training
  - o Idle reduction
  - o Automatic tire inflation systems
  - o Improved aerodynamics
  - o Hybrid powertrain technology
- 62 freight shippers and carriers are current SmartWay Transport partners
- 22 idle reduction projects currently