

**D**IESEL  
EXHAUST IN  
THE UNITED STATES



- WHAT ARE THE HEALTH EFFECTS?
- WHO IS AT RISK?
- WHAT CAN YOU DO?



United States  
Environmental Protection  
Agency



## WHAT CAN OWNERS/ OPERATORS DO?

- 1 Turn off engines when vehicles are stopped for more than a few minutes.
- 2 Retrofit engines with pollution control devices and use cleaner burning fuel.
- 3 When purchasing new vehicles, buy the lowest emitting vehicles available.
- 4 Keep engines well tuned and maintained.
- 5 For more details visit: [www.epa.gov/otaq/retrofit](http://www.epa.gov/otaq/retrofit) or, [www.epa.gov/cleanschoolbus](http://www.epa.gov/cleanschoolbus), or call 1-734-214-4636.

## DIESEL EXHAUST & YOUR HEALTH

- Diesel exhaust contains tiny particles known as fine particulate matter. These tiny or “fine” particles are so small that several thousand of them could fit in the period at the end of this sentence. Diesel engines are one of the largest sources of fine particulate matter, other than natural causes such as forest fires. Diesel exhaust also contains ozone-forming nitrogen oxides and toxic air pollutants.
- Fine particles and ozone pose serious public health problems. Exposure to these pollutants causes lung damage and aggravates existing respiratory disease such as asthma.
- Nationwide, particulate matter—especially the fine particles such as those in diesel exhaust—cause 15,000 premature deaths every year.
- Diesel exhaust is thought to be a likely human carcinogen.

## WHO IS MOST AT RISK?

- People with existing heart or lung disease, asthma or other respiratory problems are most sensitive to the health effects of fine particles, as are children and the elderly.
- Children are more sensitive to air pollution because they breathe 50 percent more air per pound of body weight than do adults.

## **OTHER HEALTH AND ENVIRONMENTAL EFFECTS**

- Fine particles from diesel engines contribute to haze which restricts visibility.
- Diesel exhaust also contributes to ozone formation (a component of smog), acid rain, and global climate change.

## **R**EDUCING EMISSIONS

### **IDLING**

- Turn the engine off if you will be idling more than a few minutes. A typical heavy-duty truck can burn approximately one gallon of diesel fuel for each hour it idles, generating significant amounts of pollution, wasting fuel, and causing excessive engine wear.
- Vehicle owners can buy small generators or auxiliary power units that provide heat, air conditioning, and/or power while a vehicle is parked. These devices substantially reduce fuel consumption and emissions generated during long-duration idling.
- Owners of older vehicles can buy electric starting aids such as block heaters which help warm the engine to avoid starting difficulties and reduce idling time during engine warm-up. Newer vehicles are designed to start easily at all temperatures without idling.

### **RETROFITS AND CLEANER FUELS**

- Use ultra-low sulfur diesel fuel in combination with pollution control equipment such as particulate matter filters. Although ultra-low sulfur diesel fuel is not required until 2006, it is currently available in parts of the United States.
- In some cases, this approach can reduce particulate matter emissions by more than 90 percent.

### **NEW VEHICLE PURCHASES -**

#### **WHAT TO CONSIDER**

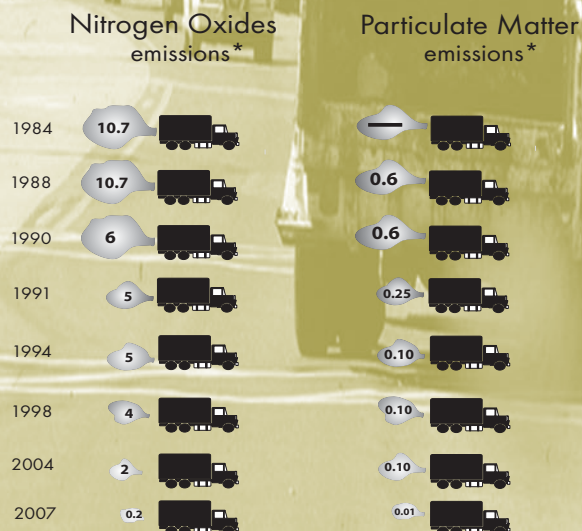
- Vehicles equipped with the most advanced emission control systems available.
- Vehicles equipped with devices that minimize idling and warm-up time automatically.
- Vehicles that run on cleaner fuels like compressed natural gas.



## WHAT IS GOVERNMENT DOING?

- Diesel engines are a durable and economical source of power. EPA and states are taking important steps to advance cleaner diesel engines.
- EPA is requiring reductions of diesel pollution from new heavy-duty diesel trucks and buses. In 2006, diesel fuel will contain 97 percent less sulfur. This ultra-low sulfur diesel fuel in combination with advanced pollution control technology will mean that in 2007, new trucks and buses rolling off the production lines will be up to 95 percent cleaner than today's models.
- EPA has issued emission standards for new, nonroad diesel engines, such as construction and farm equipment, and is working to strengthen these standards in the future.
- Engines within the existing fleet will not be subject to the new regulations, yet may remain in operation for another 25-30 years. Therefore, EPA and states are working to:
  - 1 Retrofit existing diesel vehicles with pollution controls.
  - 2 Implement emission testing programs for diesel vehicles.
  - 3 Create and implement anti-idling programs.
  - 4 Promote cleaner fuels like ultra-low sulfur diesel and compressed natural gas.

### EPA Standards for New Trucks and Buses<sup>+</sup>



<sup>+</sup> Urban transit buses have had more stringent standards since 1993

\* EPA's emission standards for trucks and buses are based on the amount of pollution emitted per unit of energy (expressed in grams per brake horsepower hour).