



## Fueling the Economy

By Kate Marks

*States are using diesel emissions controls to meet Clean Air Act standards.*

Diesel power fuels the U.S. economy by helping to build roads and bridges, bringing crops from the fields to the table, and providing efficient transportation of people and goods. Diesel's effect on public health and air quality is improving, due to technologies that have made today's heavy-duty trucks 60 times cleaner than those manufactured in 1988 and reduced emissions by up to 90 percent. States are increasingly using diesel emissions controls and cleaner fuels to achieve National Ambient Air Quality Standards under the Clean Air Act for particulate matter and ozone, which can contribute to poor air quality and health problems.

*New diesel fuel and emissions controls can help older diesel vehicles become cleaner.*

**Retrofitting Older Diesel Vehicles.** Because diesel engines can last for 20 to 30 years, it could take some time to replace all diesel vehicles with the newest clean diesel technology. In the meantime, existing diesel vehicle owners can use ultra-low sulfur diesel fuel and install advanced emissions control technologies that can reduce particulate matter emissions by more than 90 percent and nitrogen oxide emissions by up to 50 percent. In March 2000, the U.S. Environmental Protection Agency (EPA) created a voluntary diesel retrofit program that encourages the use of emissions control devices

### The National Clean Diesel Campaign

In response to U.S. Environmental Protection Agency (EPA) regulations, a suite of regulatory and voluntary options for cleaner fuel, engine upgrades and emissions control technologies is emerging that will lead to cleaner heavy-duty vehicles and enable emission reductions of up to 95 percent.

**Cleaner diesel fuel:** In October 2006, ultra-low sulfur diesel fuel became available nationwide for use in on-road diesel vehicles. It has 97 percent less sulfur, which reduces particulate emissions by 10 percent.

**Advanced diesel engines:** Beginning in model year 2007, new on-road heavy-duty diesel vehicles must have engines with advanced electronic controls, fuel injection, combustion and turbocharger technology that require the use of ultra-low sulfur diesel fuel.

**Emissions control technology:** The national availability of ultra-low sulfur diesel fuel facilitates more efficient emissions controls and significantly reduces ozone-forming compounds and particulate matter.

Once all engine advances are implemented in 2010, the EPA estimates this will annually reduce:

- 2.6 million tons of smog-causing nitrogen oxide emissions.
- 110,000 tons of soot or particulate matter.
- 8,300 premature deaths, 5,500 cases of chronic bronchitis and 17,600 cases of acute bronchitis in children.
- 360,000 asthma attacks and 386,000 cases of respiratory symptoms in asthmatic children.
- 1.5 million lost work days, 7,100 hospital visits and 2,400 emergency room visits for asthma.

Source: U.S. EPA, 2007.

for heavy-duty vehicles. The availability of diesel retrofits, one of the most cost-effective ways to reduce emissions, has led county, state and federal officials to encourage their adoption.

Diesel vehicles also can use renewable fuels, such as biodiesel, to reduce most emissions; nitrogen oxide emissions can either increase or decrease, depending on the type of engine and operating conditions. In some cases, diesel hybrid vehicles—which combine a smaller, fuel-efficient clean diesel engine with an advanced electric or hydraulic system—are a replacement option for older vehicles.

Retrofit equipment does not add to a diesel vehicle's fuel economy and, as a result, many fleet managers lack the financial resources to make this investment. However, states and the federal government recognize the public health and air quality benefits of the retrofits and offer assistance with equipment costs to encourage adoption of these technologies.

**State Action** Since the late 1990s, states also have supported emissions reduction programs. California's Carl Moyer Memorial Air Quality Standards Attainment Program is funded at approximately \$140 million per year through state general revenues, vehicle registration fees, tire fees and other sources. Most of the funding has been used to install emissions control retrofit devices on government-owned vehicles. During its first six years, the program retrofitted approximately 7,000 diesel engines for total nitrogen oxide reductions of 18 tons per day.

The Texas emissions reduction plan, launched in 2001, has awarded more than \$336 million in grants and funded approximately 888 projects, for a projected reduction of more than 75,500 total tons of nitrogen oxide. New Jersey, North Carolina and Ohio also have dedicated state revenues to diesel emission reduction programs. Connecticut, Tennessee and Massachusetts use a portion of their federal Congestion Mitigation and Air Quality program funds for diesel retrofit projects. Other states, such as Oregon and Washington, provide tax incentives and use state infrastructure banks to encourage retrofit projects. Oregon recently committed \$3 million from its infrastructure bank and \$2 million from the state energy agency to purchase EPA Smartway Upgrade Kits for trucks that travel the state's major interstate.

**Federal Action** During the past four years, through the National Diesel Campaign, the EPA has awarded 175 grants totaling nearly \$40 million to communities for clean diesel projects. Many of these grants funded school bus projects through the Clean School Bus USA Program. In 2008, EPA anticipates substantial expansion of the nation's clean diesel efforts through implementation of the Diesel Emission Reduction Program contained in the Energy Policy Act of 2005.

The U.S. Department of Transportation's Congestion Mitigation and Air Quality Program, administered by state transportation agencies and metropolitan planning organizations, funds air quality projects that offset pollution from certain transportation projects. Its funding is limited to nonattainment or maintenance areas—parts of the country that do not meet, or are just meeting, federal air quality standards mainly for particulate matter, nitrogen oxide and carbon.

### Contacts for More Information

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U.S. Environmental Protection Agency  
National Clean Diesel Campaign  
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U.S. Environmental Protection Agency  
SmartWay Transport Partnership  
www.epa.gov/smartway

Diesel Technology Forum  
www.dieselforum.org

*Diesel retrofits are a cost-effective way to reduce emissions.*

*States have supported emissions reduction programs since the late 1990s.*

*EPA grants support clean diesel projects.*