



## **Diesel Retrofits**

When diesel engines burn fuel, they leave behind a dangerous stew of emissions. Because diesel vehicles and equipment often operate on the street level, this pollution is emitted exactly where people breathe. Diesel exhaust is one of the most dangerous pollutants, and causes asthma attacks, heart attacks, strokes and early deaths. To help save the lives and health of many people, there are steps to take to make diesel engines do less polluting.

### **The Technology**

There are two main types of pollution controls for diesel engines. Emission control technologies achieve the best reductions when used with Ultra Low Sulfur Diesel fuel (ULSD). Only ULSD can be used with particulate filters.

- **Diesel Particulate Filters (DPFs)** are installed in the engine exhaust system and physically trap particles in the engine exhaust before they leave the tailpipe. Particles trapped in the filter are oxidized to carbon dioxide and water.
- **Diesel Oxidation Catalysts (DOCs)** are stainless steel canisters installed in the exhaust system. They use a chemical process to break down pollutants in the exhaust stream into less harmful components. As exhaust gases pass through a DOC's honeycomb structure, pollutants and particulate matter are chemically oxidized to harmless gases.

When used with ULSD, DPFs achieve at least an 85 percent reduction in soot emissions. Testing indicates that these filters are so effective that they nearly eliminate harmful soot emissions. DOCs are less effective than DPFs, achieving only a 25 to 50 percent soot emission reduction.

### **Impacts and Benefits**

New diesel engines in trucks and buses are now federally mandated to be 90 percent cleaner, starting with model year 2007. New off-road equipment such as construction equipment will start meeting similar requirements with a 2011-12 phase-in period. Fortunately, the same technology that achieves this pollution reduction can be retrofitted onto existing older engines in use today.

The US Environmental Protection Agency estimates that retrofitting 10,000 engines would eliminate roughly 15,000 tons of harmful pollution each year.