

## OVERVIEW OF THE

## **Regulation to Reduce Emissions from In-Use Off-Road Diesel Vehicles**

*New rules to achieve significant emission reductions and protect public health*

On July 26, 2007, the California Air Resources Board (ARB) approved a regulation to reduce emissions from existing off-road diesel vehicles used in California in construction, mining, and other industries.

### **Why did ARB staff propose this regulation?**

Most off-road vehicles today have no emission controls and can last 30 years or longer. As a result, the vehicles covered by the regulation emit large amounts of soot or particulate matter (PM) and oxides of nitrogen (NO<sub>x</sub>), accounting for nearly a quarter of statewide diesel mobile source PM and NO<sub>x</sub>. These emissions are toxic, currently causing about 1,100 premature deaths per year. Reducing emissions from in-use off-road diesel vehicles is also necessary to meet federally imposed clean air standards. Failure to meet federal clean air standards could result in the imposition of sanctions that could impact the State's infrastructure improvement efforts.

### **Who must comply with the regulation?**

Any person, business, or government agency that owns or operates diesel-powered off-road vehicles in California (except for agricultural or personal use, or for use at ports or intermodal railyards) with engines with maximum power of 25 horsepower (hp) or greater are subject to the regulation. The regulation applies to vehicles commonly used in construction, mining, rental, airport ground support and other industries. Out-of-state companies doing business in California are also subject to the regulation.

### **What types of vehicles are subject to the regulation?**

The regulation applies to self-propelled diesel-fueled vehicles that cannot be registered and licensed to drive on-road. Examples include loaders, crawler tractors, skid steers, backhoes, forklifts, and airport ground support equipment. The regulation does not apply to stationary equipment or portable equipment such as generators.

### **What does the regulation require?**

The regulation requires fleets to apply exhaust retrofits that capture pollutants before they are emitted to the air, and to accelerate turnover of fleets to newer, cleaner engines.

The regulation establishes fleet average emission rates for PM and NO<sub>x</sub> that decline over time. Each year, the regulation requires each fleet to meet the fleet average emission rate targets for PM or apply the highest level verified diesel emission control system to 20 percent of its horsepower. In addition, large and medium fleets are required each year to meet the fleet average emission rate targets for NO<sub>x</sub> or to turn over a certain percent of their horsepower (8 percent in early years, and 10 percent in later years). "Turn over" means repowering with a cleaner engine, rebuilding the engine to a more stringent emissions configuration, retiring a vehicle, replacing a vehicle with a new or used piece, or designating a dirty vehicle as a low-use vehicle. If retrofits that reduce NO<sub>x</sub> emissions become available, they may be used in lieu of turnover as long as they achieve the same emission benefits.

The regulation also includes the Surplus Off-Road Opt-in for NO<sub>x</sub> (SOON) program. Local air

districts may opt into the SOON program to reduce NOx emissions beyond what is required by the regulation. Larger fleets that operate vehicles in districts participating in the SOON program may be required to apply for incentive money, and – if they receive the money – to take additional actions to reduce NOx emissions.

### **When does the regulation take effect?**

The regulation takes effect earliest for the largest fleets, those with over 5,000 horsepower of affected vehicles. (The fleet size excludes vehicles operated less than 100 hours per year.) For these large fleets, the first fleet average compliance dates are in 2010.

For medium fleets, those with 2,501 to 5,000 hp, the first fleet average compliance dates are in 2013.

The requirements are delayed until 2015 for fleets of 2,500 hp or less. These fleets are subject only to the PM fleet average, and thus would not have to accelerate turnover of their vehicles.

### **What are the estimated benefits of the regulation?**

The regulation is expected to significantly reduce emissions of NOx and PM. In total, the regulation is expected to reduce 187,000 tons of NOx emissions and 33,000 tons of PM emissions between 2009 and 2030.

The regulation is expected to achieve the 2020 goal of reducing PM 85 percent from 2000 baseline levels set forth in ARB's 2000 Diesel Risk Reduction Plan. It is also projected to reduce PM emissions 37 percent from the 2000 baseline by 2010, and 92 percent by 2020. NOx is expected to be about 13 percent lower in 2015 as a result of the regulation, and by 2020, NOx emissions would be 32 percent lower than would occur in the absence of the regulation.

The regulation is also expected to prevent about 4,000 premature deaths over its course, while the associated health benefits would translate to significant health cost savings, an expected \$18 to \$26 billion in total. Finally, the regulation's expected emissions reductions will help us meet federal clean air standards.

### **What are the estimated costs?**

The total cumulative cost of the regulation between 2009 and 2030 is expected to be between \$3.0 and 3.4 billion (2006 dollars), with the majority of these costs occurring between 2010 and 2021. For perspective, the total cost of the regulation will be less than 0.3 percent of the total annual construction revenue generated in California in 2005.

### **Where can I find more information about the regulation?**

The staff report and technical support document for the regulation are posted at <http://www.arb.ca.gov/regact/2007/ordiesl07/ordiesl07.htm>

Further information, including a spreadsheet fleet average calculator for compliance planning, is available on the off-road regulation website at <http://www.arb.ca.gov/msprog/ordiesel/ordiesel.htm>

### **For additional general information**

Please contact ARB's diesel hotline at (866) 6DIESEL (634-3735). You may also obtain this document in an alternative format by contacting ARB at: (916) 322-4505 (voice); (916) 324-9531 (TDD, Sacramento area only); or (800) 700-8326 (TDD, outside Sacramento). TTY/TDD/Speech-to-Speech users may dial 711 for the California Relay Service.