

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

## *Actions Taken Early Can Reduce or Spread Out Compliance Costs*

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. The regulation will require fleets to modernize and add retrofits. Additional fact sheets regarding various aspects of the regulation, including an overview, are available on the website listed at the end of this document.

This 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. Vehicles with engines less than 25 horsepower are exempt.

### **FLEETS CAN TAKE ACTIONS PRIOR TO THEIR INITIAL COMPLIANCE DATE TO ACCRUE EARLY CARRYOVER CREDIT**

The regulation requires fleets to meet certain emission targets and take specific actions by specific dates. Modeling by ARB staff shows it is likely that fleets will have higher annual costs in the first few years after a fleet's initial compliance date<sup>1</sup>, and the costs will decrease in later years. Certain actions taken by fleets prior to their initial compliance date will allow them to accrue (bank) carryover retrofit credit, which they can use later to avoid being required to retrofit. As described in more detail below, taking early actions can help by reducing or spreading out the costs to comply with the regulation in the first few years.

Adequate records must be maintained by fleets in order to verify that these early actions were taken. For details of early credit provisions, including recordkeeping, please refer to the regulation language which is available at the following link: <http://www.arb.ca.gov/msprog/ordiesel/ordiesel.htm>.

The early actions that fleets can use to obtain credits are:

1. Retrofitting an engine with ARB-Verified Diesel Emission Control Strategy (VDECS);<sup>2</sup>
2. Repowering with a cleaner engine; and
3. Retiring a vehicle.

### **EARLY RETROFITTING**

#### **Get Double Credit by Retrofitting With A Diesel Particulate Filter Before March 1, 2009**

The regulation requires fleets to meet diesel particulate matter (PM) fleet averages, or apply the highest level VDECS to 20% of their horsepower per year. When a highest level VDECS is installed onto an engine in any fleet size before March 1, 2009, the fleet will get double credit. That is, the fleet will receive carryover retrofit credit equal to double the horsepower of the engine on which the highest level VDECS is installed.<sup>3</sup> After March 1, 2009, single credit will be given. That is, the fleet will receive carryover retrofit credit equal to the horsepower of the engine on which the highest level VDECS is installed.

At this time for most engines affected by this regulation, the highest level VDECS are diesel particulate filters (DPFs). DPFs are exhaust aftertreatment devices that reduce diesel PM emissions.<sup>4</sup>

A list of VDECS may be found at: <http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm>. A partial list of diesel-emission retrofit device suppliers and installers is available at: <http://www.arb.ca.gov/msprog/publicfleets/retrofitdistributorslist.pdf>.

## EARLY REPOWERING

### Get Early Credit by Repowering with a Newer Tier 1, 2, or 3 Engine Before March 1, 2009

Upgrading to a newer engine can significantly reduce emissions. A summary of the various emission standard tiers is available at: [http://www.arb.ca.gov/msprog/ordiesel/documents/PM\\_NOx\\_Emis\\_Factors.pdf](http://www.arb.ca.gov/msprog/ordiesel/documents/PM_NOx_Emis_Factors.pdf). Employing a newer engine reduces both PM and NOx, as opposed to retrofitting with a PM-only DPF. Repowering to a Tier 2 or Tier 3 engine and then adding a retrofit further reduces emissions.

Credit for early repowers will be given for repowering to a Tier 1 or higher engine before March 1, 2009.<sup>5</sup> After March 1, 2009, to count towards compliance with the regulation, a repower must be to a Tier 2 level or higher.

## EARLY RETIREMENT

### Get Early Credit by Annually Retiring More than 8 Percent of Tier 0 Vehicles Between March 1, 2006, and March 1, 2009

Fleets that retire their Tier 0 vehicles at an average rate greater than 8 percent of horsepower per year between March 1, 2006, and March 1, 2009, accumulate early carryover credit.<sup>6</sup>

### Is Funding Available?

There is limited grant funding from a variety of programs through local air districts, ARB, and federal agencies, however most are one-time or limited in scope. The most consistent source of funding is through the Carl Moyer Program.<sup>7</sup> Generally, emission projects funded through the Carl Moyer program must reduce emissions at least three years earlier than required by regulation. Carl Moyer program funds are more likely to be available to medium and small fleets due to the initial compliance dates for these fleets being later. Medium fleets may be eligible for Carl Moyer funds for repowers and retrofits that are installed by February 28, 2010. Small fleets may be eligible for Carl Moyer funds for retrofits that are installed by February 28, 2012, as well as for repowers installed at any time. Any size fleet may apply if they have met compliance targets more than three years into the future. See other fact sheets on the regulation for fleet compliance dates and compliance target levels of the regulation. Information on the Carl Moyer Program is available at <http://www.arb.ca.gov/msprog/moyer/moyer.htm>. The Carl Moyer Program funds are usually allocated through the local air districts. A listing of contacts is available at <http://www.arb.ca.gov/msprog/moyer/contacts.htm>.

For fleets in air districts that opt into the Surplus Off-road Opt-in for NOx (SOON) program, SOON program funding may be available as well.

### For More Information About the Regulation

Further information about the off-road regulation, including the regulation language, additional fact sheets, and a fleet average calculator for compliance planning, is available at <http://www.arb.ca.gov/msprog/ordiesel/ordiesel.htm> or ARB's diesel hotline at (866) 6DIESEL (634-3735).

1 March 1 of 2010 for large fleets, 2013 for medium fleets, and 2015 for small fleets.

2 VDECS are systems verified by the ARB to be effective at reducing diesel particulate matter (PM) and durable. Any retrofit device used to comply with this regulation must be a Level 2 or Level 3 PM device (i.e., reduce diesel PM by at least 50%).

3 All computations for this regulation utilize horsepower of the engine. In other words, a higher horsepower engine is worth more than a lower horsepower engine when calculating carryover credits.

4 The terms VDECS, retrofit device, filter, and DPF are often used interchangeably. Although their use as retrofits in the United States is not as widespread, over 200,000 DPFs have been installed on heavy-duty off-road vehicles worldwide and 35,000 have been installed as retrofits on construction machines in Europe.

5 A repowered vehicle must remain in the fleet for credit to be claimed. Repowers receive single, not double credit.

6 Early retirement receives only single, not double, credit.

7 Retrofits funded with Carl Moyer funding receive only single, not double, credit.