



California Cleans Up Dirty Diesel Construction Equipment

Clean Vehicles California

A Fact Sheet of the Union of Concerned Scientists

California Adopts Nation's First Clean Construction Regulation

On July 26, 2007, California became the first state in the nation to adopt a regulation to reduce diesel emissions from in-use construction equipment. Over the next 13 years, California's new rule will require the owners of off-road equipment like bulldozers, tractors, and forklifts to reduce emissions from the diesel equipment they operate. The equipment, some of which can last 30 years or more, can be upgraded with exhaust controls, new engines, or be replaced with newer, less polluting models. Over the next 20 years, the expected emission reductions will prevent air pollution-related health impacts including premature deaths, asthma attacks, hospitalizations for heart and lung disease, bronchitis, and cancer.

Construction Equipment Pollution Impact

- Construction equipment is the second largest source of diesel pollution in California, accounting for 20 percent of particulate matter (PM) and 16 percent of nitrogen oxides (NO_x).
- Construction equipment emissions are estimated to cause 1,100 premature deaths per year, 30,000 asthma attacks, and 180,000 lost work days with an annual economic cost of \$9 billion.
- Reducing emissions from construction equipment is critical for protecting public health, reducing toxic exposure, and meeting upcoming federal air quality deadlines.
- The California construction regulation will result in a 74 percent reduction in PM and a 32 percent reduction of NO_x by 2020 over business as usual and prevent 4,000 premature deaths by 2030.

California Construction Regulation: Flexible and Achievable

The California construction equipment regulation offers flexibility in meeting the diesel emission reduction requirements. The rule establishes a declining fleet average emission level over a decade-long implementation period. Emission reductions can be achieved through equipment replacement, engine repowers, and exhaust retrofits. However, companies could choose to meet the requirements through equipment turnover alone because the fleet average targets are never more stringent than the new engine standards in effect. Appropriate exemptions are given in the case of technology being unavailable.

Fleet Average

- The fleet average establishes increasingly stringent annual PM and NO_x standards for each construction equipment fleet starting in 2010 extending through 2020 (schedule is delayed for small fleets to allow for access to incentive funding).
- Proactive companies that have modernized their fleets and adopted retrofit technologies will start with a lower fleet average for PM and NO_x. In this way, past investments in clean construction equipment are rewarded and the cost of compliance will be less.

Best Available Control Technology (BACT) Backstop

- The BACT requirement establishes maximum annual replacement and retrofit requirements for an equipment fleet to limit the burden of compliance in any given year.
- NOx BACT Requirement: At most, 10 percent (8 percent prior to 2015) of the horsepower in the fleet would need to be upgraded through repower, retrofit, or replacement annually, until the fleet average requirement was met. Equipment is exempt if it is less than 10 years old, has been retrofitted in the past 6 years, or a used replacement or repower is unavailable.
- PM BACT Requirement: At most, 20 percent of the horsepower in the fleet would need to be retrofitted with PM controls. Equipment is exempt if it is less than 5 years old or if a retrofit device is unavailable or deemed unsafe for use.

Recognition That Small Fleets are Different

- Small fleets, including low-population county municipal fleets, are exempt from meeting NOx requirements. Implementation dates for small fleets are extended by 5 years, which allows additional time to apply for available incentive funds, and offset the cost of the regulation.

In addition to the standards, ARB will carryout technology and implementation reviews throughout the implementation of regulation to ensure products are available to meet the requirements and companies are complying with the law. The first technology review will occur in January 2009.

Optional NOx Standards for Participating Air Districts

In addition to the mandatory emission reduction requirements under the rule, the ARB has approved an optional program for air districts who wish to seek even greater NOx reductions from off-road equipment.

This “opt-in” program, called SOON, allows for accelerated emission reductions in areas of the state that have the greatest air quality challenges. The SOON program sets more stringent NOx fleet average targets for companies operating in the air district. Any air district which commits incentive funds can opt-in to the SOON program. Companies will be required to use available incentive funding to achieve NOx emission reductions above and beyond those required by the statewide regulation. Air districts will be able to choose the most cost-effective projects to fund to ensure that the greatest emission reductions are achieved for the least amount of public funds.

This provision is significant because air districts have limited authority to require emission reductions from mobile sources of pollution, including off-road equipment. The SOON provision allows air districts to require additional NOx reductions from a source they normally would not have the authority to regulate. Air districts will still face the challenge of identifying funding sources to successfully implement the program.

National Significance

Under the federal Clean Air Act, other states can follow California’s lead and clean up their construction and off-road equipment by adopting California’s regulation.

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