



Frequently Asked Questions

EPA's Proposed Program for Low-Emission Nonroad Diesel Engines and Fuel

The U.S. Environmental Protection Agency (EPA) is proposing a new program that would greatly reduce exhaust emissions of particulate matter and nitrogen oxides from nonroad diesel engines. This fact sheet addresses frequently asked questions about this proposed program.

Why is EPA concerned about emissions from nonroad diesel engines?

Nonroad diesel engines contribute greatly to continuing air quality problems in the United States. The engines affected by the proposal currently account for about 44 percent of total diesel particulate matter (PM) emissions and about 12 percent of total nitrogen oxides (NOx) emissions from mobile sources nationwide; these proportions are even higher in some urban areas. In addition, nonroad diesel engines will produce a growing share of overall emissions over the next several years as other emission-control programs take effect for cars and trucks and other sources of nonroad emissions. Emissions from these engines contribute to serious public health problems. To address this, Congress directed EPA in the 1990 Clean Air Act to set emission standards for nonroad engines that contribute to air pollution.

What does the proposal cover?

The proposal includes emission standards for diesel engines used in most nonroad equipment. The proposal also specifies improvements to the quality of the fuel these engines use. Nonroad diesel engines are used in many applications, including construction, agricultural, industrial, and airport equipment. To illustrate the wide range of applications, this proposal would apply to: a 3-horsepower pump, a 30-horsepower trenching machine, a 300-horsepower bulldozer, and a 3,000-horsepower mining truck. The new standards would take effect starting in 2008 and be fully phased in by 2014.

Manufacturers will likely meet the proposed emission standards by using advanced emission-control technologies, much like car manufacturers developed the catalytic converter to control automotive emissions in response to EPA standards. These technologies will significantly reduce emissions, but they require fuel that has a much lower sulfur content than today's diesel fuel. The proposal therefore includes a limit on the amount of sulfur in fuel. This low-sulfur fuel would then be available for use by the nonroad engines by the time the new technologies reach the marketplace. This cleaner fuel can be used without harm in existing engines and, in fact, will also reduce emissions of particulate matter from these older engines.

The proposal does not cover diesel engines used in highway trucks, locomotives, marine vessels, or stationary equipment, all of which are subject to separate requirements. However, we are proposing to substantially reduce the sulfur level of diesel fuel used in locomotive and marine applications to reduce emissions of particulate matter from these engines and are seriously considering further improvements in fuel quality for these engines to make possible the same kind of advanced technologies that manufacturers would be developing for this proposal.

What is EPA trying to accomplish with the proposal?

This proposal would reduce NO_x and PM emissions from nonroad diesel engines by more than 90 percent and, as a result, provide a wide range of public health benefits. We have estimated that, by 2030, controlling these emissions would annually prevent 9,600 premature deaths, over 8,300 hospitalizations, and almost a million work days lost. The monetized health benefits of this proposal would be \$81 billion annually once the program is fully phased in. Costs for both the engine and fuel requirements would be significantly less, at approximately \$1.4 billion annually.

Why does it take so long before the standards take effect?

Manufacturers of nonroad diesel engines are working to meet EPA emission standards adopted over the last eight years. Some of these older standards start as late as 2006, so it will take an additional period of stable emission standards for manufacturers to design and produce their engines so they meet the proposed standards. Manufacturers are also preparing to apply the advanced emission-control technologies to engines used in highway trucks and buses, starting in 2007; these technologies will then be adapted for nonroad applications. In addition, some nonroad engines are very different than highway engines, especially those below 50-horsepower, so manufacturers will need additional innovation to produce these engines with low emissions.

Oil refiners are already investing in efforts to meet requirements to produce low-sulfur fuels for diesel engines used in highway vehicles starting in 2006. These companies will use the available lead time to apply the same approaches to produce low-sulfur fuels for nonroad engines. The process to remove sulfur from the fuel is well understood, but it takes considerable capital investments and time to make the necessary refinery modifications.

How much will the proposed program cost?

The estimated costs vary widely for equipment of different sizes and for different applications. For the vast majority of equipment, the cost of meeting emission standards will be roughly one to two percent compared with the typical retail price. Costs could range higher for some types of equipment. As an example, for a 175-horsepower bulldozer, it will cost an estimated \$2,600 more to add the advanced emission-control systems to the engine and to design the bulldozer to accommodate the modified engine. A new 175-horsepower bulldozer costs approximately \$230,000, so the increased costs are about one percent of the total purchase price. In addition, engines running on low-sulfur fuel will have reduced maintenance expenses that we estimate will be equivalent to reducing the cost of the fuel by 3.3 cents per gallon.

What about controlling emissions from locomotive and marine diesel engines?

This proposal includes no new emission standards for locomotive or marine diesel engines. We are currently implementing emission standards for locomotives that will be fully phased in by 2005 and for marine diesel engines that will be fully phased in by 2009. In this proposal, we are including a requirement that locomotive and marine diesel engines also use low-sulfur fuel. This will reduce emissions of particulate matter from existing and future models. In addition, we are seriously considering whether to establish new emissions standards and requirements for even lower fuel sulfur levels in the future that would reduce the emissions from locomotive and marine engines by more than 90 percent with the same advanced emission-control technologies considered in developing this proposal.

Which industries will be affected by this proposal?

Engine manufacturers and fuel refiners will have the biggest responsibility to meet the proposed requirements. Many of these companies have been working for several years and investing substantially to improve their products and processes to make this proposal possible. We will continue to work closely with these companies during the time before the standards take effect to ensure a smooth transition to the new standards. Additional industries that will be affected include fuel distributors and equipment manufacturers.

Why doesn't EPA just ban diesel engines?

There is no reason to ban diesel engines. In fact, today's advanced technologies and clean fuels are making it possible for manufacturers to offer diesel engines that perform well with very low emissions. Also, diesel engines have many advantages as a power source for nonroad equipment, including wide availability, fuel efficiency, and low cost.

Diesel engines have been powering equipment for the last 100 years. There are currently about 10 million nonroad diesel engines operating in the United States, performing an unimaginable variety of essential jobs. New advances in emission-control technology will allow the continued use of nonroad diesel engines to meet these needs—without compromising the nation's air quality.

Are other countries doing this too?

The United States is the first nation to propose a coordinated systems approach—involving both engine and fuel changes—to achieve these significant reductions in NOx and PM emissions from nonroad diesel engines. The European Union has proposed emission standards that would require advanced technologies for reducing PM emissions. Both the European Union and Japan have contributed significantly to this proposal and are considering similar programs for their countries. Engine manufacturers usually try to sell the same engines in many different countries, so harmonizing international standards is an important goal.

Where Can I Get More Information?

For more information on the environmental and health impacts of these proposed emission standards, see the fact sheet: “Public Health and Environmental Benefits of EPA’s Proposed Program for Low-Emission Nonroad Diesel Engines and Fuel” (EPA420-F-03-010) and the Draft Regulatory Impact Analysis for this proposed rule. You can access these documents and others related to the rulemaking on our Web site at:

www.epa.gov/nonroad

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