

result in particulate matter (PM) and nitrogen oxide (NO_x) emissions levels that are in excess of 95 percent and 90 percent, respectively, below comparable levels in effect today. They will begin to take effect in the 2008 model year, with a phase-in of standards across five different engine power rating groupings. New engine emissions test procedures are proposed to take effect with these new standards to better ensure emissions control over real-world engine operation and to help provide for effective compliance determination. Diesel fuel used in nonroad, locomotive, and marine applications would meet a 500 ppm cap starting in June 2007, a reduction of approximately 90%. There are large benefits to taking this first sulfur reduction action, especially in the reduction of particulate matter from the in-use fleet. In 2010, sulfur levels in nonroad diesel fuel (though not locomotive or marine diesel fuel) would meet a 15 ppm cap, for a total reduction of over 99%. While there are important health and welfare benefits associated with the reduction from 500 ppm to 15 ppm, the main benefit will be to facilitate the introduction of advanced aftertreatment devices on nonroad engines, which would in turn lead to significant benefits. We are also seeking comment on and seriously considering applying the 15 ppm cap to locomotive and marine diesel fuel.

The requirements in this proposal would result in substantial benefits to public health and welfare and the environment through significant reductions in emissions of NO_x and PM, as well as nonmethane hydrocarbons (NMHC), carbon monoxide (CO), sulfur oxides (SO_x) and air toxics. We project that by 2030, this program would reduce annual emissions of NO_x and PM by 827,000, and 127,000 tons, respectively. These annual emission reductions would prevent 9,600 premature deaths, over 8,300 hospitalizations, and almost a million work days lost, among quantifiable benefits. The overall quantifiable benefits of this rule would be approximately \$81 billion annually by 2030. Costs for both the engine and fuel requirements would be significantly less, at approximately \$1.5 billion annually.

A. What Is EPA Proposing?

This proposal is a further step in EPA's long-term program to control emissions from nonroad diesel engines. The EPA has taken measures to reduce harmful emissions from nonroad diesel engines in two past regulatory actions. A 1994 final rule, developed under provisions of section 213 of the Clean Air Act, set initial emissions standards

for new nonroad diesel engines greater than 50 hp (59 FR 31306, June 17, 1994). These standards gained modest reductions in NO_x emissions and are referred to as EPA's "Tier 1" standards for large nonroad engines. A subsequent final rule published in 1998 set more stringent Tier 2 and Tier 3 standards for these engines, as well as Tier 1 and Tier 2 standards for the nonroad diesel engines under 50 hp (63 FR 56968, October 23, 1998). Nonroad diesel fuel quality is not presently regulated by the EPA.

We also expressed our intent in the 1998 final rule to continue evaluating the rapidly changing state of diesel emissions control technology, and to perform a review in the 2001 timeframe of the technological feasibility of the Tier 3 standards, and of the Tier 2 standards for engines rated under 50 hp. This review was completed in 2001 and documented in an EPA staff technical paper that confirmed the feasibility of those standards, finding that the number of potential control options had expanded since the 1998 final rule to include new technologies and more effective application of existing technologies.²

There are two basic parts to this proposed program: (1) New exhaust emission standards and test procedures for nonroad diesel engines, and (2) new sulfur limits for nonroad, locomotive, and marine diesel fuel. The systems approach of combining the engine and fuel standards into a single program is critical to the success of our overall efforts to reduce emissions, because the emission standards will not be feasible without the fuel change. This proposal is largely based on the 2007 highway diesel program.

We looked at a number of alternative program options, as discussed in more detail in section VI below and chapter 12 of the draft Regulatory Impact Analysis (RIA). For example, we analyzed a program that would require refiners to produce 15 ppm nonroad diesel fuel starting in 2008, with appropriate engine standards phased-in beginning in 2009. Many of these alternatives provided a very similar level of projected emissions control and health and welfare benefits as our proposed program. However, taking into account the need for appropriate lead time, achieving the greatest possible emissions reductions as early as possible, and the interaction of requirements in this proposal with existing highway diesel engine

environmental programs, we believe our proposed program provides the best opportunity for achieving all of our goals, as described above, including timely and significant emissions reductions from nonroad diesel engines and the associated introduction of ultra low sulfur nonroad diesel fuel. We are asking for comments on the alternatives discussed in this proposal.

The elements of the rule are outlined below. Detailed provisions and justifications for our proposed rule are discussed in subsequent sections and the draft RIA.

1. Nonroad Diesel Engine Emission Standards

Today's action proposes standards for nonroad diesel engines ranging from 3 to over 3,000 horsepower. Applicable emissions standards are determined by year for each of five engine power band categories. For engines less than 25 hp, we are proposing new engine standards for PM (0.30 g/bhp-hr) and CO (4.9 g/bhp-hr) to go along with existing NO_x standards beginning in 2008. For engines between 25–75 hp, we are proposing standards reflecting approximately 50% reduction in PM control from today's engines applicable in 2008. Then, starting in 2013, PM standards of 0.02 g/bhp-hr and NO_x standards of 3.5 g/bhp-hr would apply. For engines between 75–175 hp, the proposed standards would be 0.01 g/bhp-hr for PM, 0.30 g/bhp-hr for NO_x, and 0.14 g/bhp-hr for HC beginning in 2012. These same standards would apply for both engines between 175–750 hp and greater than 750 hp starting in 2011. These PM, NO_x, and NMHC standards are similar in stringency to the final standards included in the 2007 highway diesel program and are expected to require the use of high-efficiency aftertreatment systems to ensure compliance. Thus, virtually all nonroad diesel engines after 2013 would likely be using advanced aftertreatment systems. We are phasing in many of these proposed standards over a period of three years in order to address lead time, workload, and feasibility considerations.

We are also proposing to continue the averaging, banking, and trading nonroad emissions credits provisions to demonstrate compliance with the standards. In addition, we are proposing to include turbocharged diesels in the existing prohibition on crankcase emissions, effective in the same year that the proposed Tier 4 standards first apply in each power category. More specific information on the proposed standards can be found in section III below.

² "Nonroad Diesel Emissions Standards Staff Technical Paper", EPA420-R-01-052, October 2001.