

engine program will not be needed.<sup>227</sup> Indeed the results of that ongoing review have already had a very helpful impact in shaping this proposal. Nevertheless, there are some technology issues that will not be addressed in the highway program review. In particular we believe that a future review of particulate filter technology for engines under 75 hp may be warranted. Under our proposed schedule presented in section III.B, standards based on the performance of this technology will take effect in the 2013 model year for 25–75 hp engines (or in the 2012 model year for manufacturers opting to skip the transitional standards for 50–75 hp engines).

At this time we have not decided what the long-term PM standards should be for engines under 25 hp. No PM filter-based standards are being proposed for engines under 25 hp as part of this Tier 4 proposal. Likewise, we have not decided what the long-term NO<sub>x</sub> standards should be for engines under 75 hp, and no NO<sub>x</sub> adsorber-based standards are being proposed for engines under 75 hp. As part of the technology review, we plan to thoroughly evaluate progress made toward applying advanced PM and NO<sub>x</sub> control technologies to these smaller engines.

We propose to conduct the technology review in 2007, and to conclude it by the end of that year, to give manufacturers lead time should an adjustment in the program be considered appropriate. We do not intend to include in the technology review a reassessment of PM filter technology needed to meet the optional 0.02 g/hp-hr PM standard for 50–75 hp engines in 2012. We assume that manufacturers would only choose this option if they had confidence that they could meet the 0.02 g/hp-hr standard in 2012, a year earlier than otherwise required.

We recognize the importance of harmonization of international standards and have worked diligently with our colleagues in Europe and Japan to achieve that objective. Harmonization of these standards will allow manufacturers continued access to world markets and lower the required research and development and tooling costs needed to meet different standards. We will continue to work with both governments and the manufacturers abroad and within the United States. We have incorporated feedback from the on-going dialogue

and have continued to work through the international process as we have developed this proposal. The Commission has proposed amendments in December 2002 to EC Directive 97/68 which are currently being addressed in the European Council and Parliament. We believe that today's proposal and the European approach together provide the framework for additional harmonization. While not identical, manufacturers have expressed appreciation for the similarities which do exist and they represent a significant step toward mitigating the differences in design challenges that would otherwise exist. The limit values and test procedures provide a basis for common development which manufacturers can use on a global basis. The amendments would control fuel sulfur levels to enable aftertreatment, set nonroad mobile machine emissions limits that would be based on performance of diesel particulate traps. NO<sub>x</sub> limits are being set to match the Agency's Tier 3 NO<sub>x</sub> program. There are a few differences in approaches that we will continue to discuss with the EU. One difference is that the EC has chosen a leadtime for trap-based PM standards for engines in the 50–100 hp range which is one year earlier than we are proposing today. Another difference is the inclusion of a review of the availability of NO<sub>x</sub> emission control technology for larger engines. The EC has also chosen not to set performance requirements that would require the use of PM traps for engines under 50 hp, while we are proposing performance-based standards that would likely require the use of PM traps for engines between 25–75 hp. The EC has again chosen not to set standards for engines below 19 kW (25 hp) and greater than 560 kW (750 hp). With respect to long term NO<sub>x</sub> control, the Commission has chosen to have a technology review (which would also reassess issues related to PM) to address implementing potentially more stringent NO<sub>x</sub> standards in the same timeframe as potential EPA standards.<sup>228</sup> For additional information about the harmonization effort and the results to date, please see chapter 2.4.2 of the SBREFA panel report. We request comment on opportunities to further enhance harmonization.

We expect that any changes to the level or timing of emission standards found appropriate in the 2007 review would be made as part of a rulemaking

process, and that process would take additional time after the review is completed. If the 2007 review should determine that PM trap technology is feasible for engine under 25 hp, or that advanced NO<sub>x</sub> control technology is feasible for engines under 75 hp, or that Tier 4 standards should be made more stringent in some other way, we would expect the rulemaking implementing such changes to provide for adequate lead time. Therefore, it would be premature for us to target 2013 or any specific model year for implementing such standards changes at this time. We solicit comment on the scope, timing, and need for a future reassessment of emissions control technology for nonroad diesel engines.

#### **IV. Our Proposed Program for Controlling Nonroad, Locomotive and Marine Diesel Fuel Sulfur**

We are proposing to reduce the sulfur content of nonroad, locomotive and marine (NRLM) diesel fuel to no more than 500 ppm beginning in 2007. We are also proposing to reduce the sulfur content of nonroad diesel fuel to no more than 15 ppm beginning in 2010. These provisions mirror controls on highway diesel fuel to 500 ppm in 1993<sup>229</sup> and 15 ppm in 2006.<sup>230</sup>

There are two reasons that we are proposing these standards. First, fuel sulfur significantly inhibits or impairs the function of the diesel exhaust emission control devices, which would generally be necessary to meet the proposed nonroad diesel engine emission standards. In conjunction with the proposed 15 ppm sulfur standard for nonroad diesel fuel we have concluded that this emission control technology will be available to achieve the reductions required by the stringent NO<sub>x</sub> and PM emission standards proposed for model year 2011 and later nonroad diesel engines. Second, sulfur in diesel fuel is emitted from the engine as sulfate PM and sulfur dioxide, both of which cause adverse health and welfare impacts, as described in section II. above. Reducing the level of sulfur in diesel fuel to 500 ppm beginning in 2007 would achieve important emission reductions of these pollutants and provide significant public health and welfare benefits. The further reduction to 15 ppm in 2010 will expand upon these benefits.

In developing the proposed diesel fuel program, we identified several principles that we wanted the program to achieve:

<sup>227</sup> See "Highway Diesel Progress Review", U.S. EPA, June 2002. EPA420-R-02-016. ([www.epa.gov/air/caaac/dieselreview.pdf](http://www.epa.gov/air/caaac/dieselreview.pdf)).

<sup>228</sup> Commission of the European Communities, "Proposal for a Directive of the European Parliament and of the Council amending Directive 97/68/EC", section 3.9.

<sup>229</sup> 55 FR 34120 (August 21, 1990).

<sup>230</sup> 66 FR 5002 (January 18, 2001).