

their efforts on meeting a PM-filter based standard for these engines earlier, say in 2012. (It should be noted that the proposed rule would provide this as an option for a subgroup of these engines (50–75 hp). See Figure III.B–1 note b.) We would assume that under this approach the proposed new NO<sub>x</sub>+NMHC standard for 25–50 hp engines in this category would also start in 2012, to avoid requiring two design changes in two years. Any comments in support of this approach should, if possible, include information to support a conclusion that the earlier start date for a PM filter-based standard would be technologically feasible.

We believe that the proposed 2008 PM standards for engines under 75 hp can be met either through engine optimization, by the use of diesel oxidation catalysts, or by some combination thereof, as discussed in section III.E. For engines that comply through the use of oxidation catalysts, NMHC emissions are expected to be very low because properly designed oxidation catalysts are effective at oxidizing gaseous hydrocarbons as well as the soluble organic fraction of diesel exhaust PM. Engines complying with the proposed 2008 PM standard without the use of oxidation catalysts would, on the other hand, be expected to emit NMHC at about the same levels as Tier 2 engines. Recognizing that NMHC emissions from diesel engines can include a number of toxic compounds, and that there are many of these small diesel engines operating in populated areas, we are interested in comment on the appropriateness of setting a more stringent NMHC standard for these engines in 2008 to better control these emissions. We expect that doing so would likely result in more widespread use of oxidation catalysts (rather than engine optimization) for these engines. We would not, however, expect this to lead to a more stringent PM standard than the one we are proposing, based on the feasibility discussion in section III.E.

#### e. Engines Above 750 hp

For engines above 750 hp, additional lead time to fully implement Tier 4 is warranted due to the relatively long product design cycles typical of these high-cost, low-sales volume engines and machines. The long product design cycle issue is the primary reason we did not set Tier 3 standards for these engines in the 1998 rule and are not proposing to do so now. Instead, we are proposing that these engines move from the Tier 2 standards, which take effect in 2006, to Tier 4 standards beginning in 2011, five years later. Moreover, we are proposing that the Tier 4 PM

standard be phased in for these engines on the same 50–50–50–100% schedule as the NO<sub>x</sub> and NMHC phase-in schedule, rather than all at once in 2011 as for engines between 175 and 750 hp. (See Figure III.B–1.) This would provide engine manufacturers with up to 8 years of design stability to address concerns associated with product design cycles and low sales volumes typical of this category. The engine manufacturer ABT program adds additional flexibility. Even longer stability periods could exist for equipment manufacturers using these engines because they have their own transition flexibility provisions available on top of the engine standard phase-in. This is especially significant because many of these large machines are built by manufacturers who build their own engines, or who work closely with their engine suppliers, and can thus create a long-term product plan making coordinated use of engine and equipment flexibility provisions.

We think that, taken together, these provisions appropriately balance the need for expeditious emission reductions with issues relating to lead time, technology development, and cost for these engines and machines. Even so, some engine and equipment manufacturers have expressed concerns to us that, though not challenging the Tier 4 program endpoint (high-efficiency PM and NO<sub>x</sub> exhaust emission controls), in their estimation our proposed program implementation provisions do not adequately address their timing concerns. In particular, they have expressed a view that they need until 2012 (one additional year) before they could begin to phase in Tier 4 standards for this category. They have also expressed the view that mobile machinery such as mine haul trucks and dozers (as differentiated from equipment such as nonroad diesel generators that also use engines in this hp range) present unique challenges that could require more time to resolve than would be afforded by the proposed 2014 phase-in completion date.

Although we believe that the implementation schedule and flexibility provisions we are proposing will enable the manufacturers to meet these challenges, we acknowledge the manufacturers' concerns and ask for comment on this issue. Specifically, we request comment on whether this category, or some subset of it defined by hp or application, should have a later phase-in start date, a later phase-in end date, adjusted standards, additional equipment manufacturer flexibility provisions, or some combination of these. Technical information backing

the commenter's view would be most helpful in this regard.

As with the NO<sub>x</sub>/NMHC phase-in for all engines at or above 75 hp, we are proposing that the PM phase-in for engines above 750 hp would have to be met on the same engines as the Tier 4 NO<sub>x</sub> and NMHC standards during the phase-in years. That is, engines certified to the Tier 4 NO<sub>x</sub> and NMHC requirements would be expected to certify to the Tier 4 PM standard as well.

#### f. CO Standards

We are proposing minor changes in CO standards for some engines solely for the purpose of helping to consolidate power categories. These amount to a change for engines under 11 hp from 6.0 to 4.9 g/bhp-hr in 2008 to match the existing Tier 2 CO standard for 11–25 hp engines, and a change for engines at or above 25 hp but below 50 hp from 4.1 to 3.7 g/bhp-hr to match the existing Tier 3 CO standard for 50–75 hp engines, also in 2008. These minor proposed changes are not expected to add a notable compliance burden. Nevertheless, we expect that the use of high-efficiency exhaust emission controls will yield a substantial reduction in CO emissions, as discussed in Chapter 4 of the draft RIA.

These minor adjustments to the CO standard are based solely on our desire to simplify the administrative process for the engine manufacturers which arises from the reduction in the number of the engine power categories we have proposed for Tier 4. We are not exercising our authority to revise the CO standard for nonroad diesel engines for the purpose of improving air quality at this time, and therefore the minor adjustments we have proposed today, though feasible, are not based on a detailed evaluation of the capabilities of advanced exhaust aftertreatment technology to reduce CO levels.

#### g. Exclusion of Marine Engines

These proposed emission standards would apply to engines in the same applications covered by EPA's existing nonroad diesel engine standards, at 40 CFR part 89, except that they would not apply to marine diesel engines. Marine diesel engines below 50 hp were included in our 1998 rule that set nonroad diesel emission standards (63 FR 56968, October 23, 1998). In that rule, we expected that the engine modifications needed to achieve those standards (e.g., in-cylinder controls) for marine engines would not need to be different from those for land-based engines of this size.