

typically by repeating transient tests in both the “cold” and “hot” conditions, and weighting emission results in some fashion to create a combined result for evaluation against emission standards.

We believe that our proposed move to supplemental transient testing, combined with our proposed Tier 4 standards that will bring about the use of catalytic devices in nonroad diesel engines, makes it imperative that we also propose to include such a cold start test as part of the transient test procedure requirement. We propose to weight the cold start emission test results as one-tenth of the total with hot-start emissions accounting for the other nine-tenths. The one-tenth weighting factor is derived from a review of the present nonroad equipment population. For more detailed information on this proposal, refer to section VII.F of this preamble and chapter 4 of the Draft RIA. EPA requests comment on this approach to ensuring control of cold start emissions.

#### *D. What Is Being Done To Help Ensure Robust Control in Use?*

EPA’s goal is to ensure real-world emissions control over the broad range of in-use operation that can occur, rather than just controlling emissions over prescribed test cycles executed under restricted laboratory conditions. An important tool for achieving this in-use emissions control is the setting of Not-To-Exceed (NTE) emission standards, which, in this notice, the Agency is proposing to adopt for new nonroad engines. EPA is also considering two additional means of in-use emissions control that will be proposed in separate notices. These are (1) a manufacturer-run in-use emissions test program and (2) on-board diagnostics (OBD) requirements for new nonroad diesel engines. When implemented, all three of these will help assure that in-use emissions control is achieved.

#### **1. Not-to-Exceed Requirements**

EPA proposes to adopt not-to-exceed (NTE) emission standards for all new nonroad diesel engines subject to the Tier 4 emissions standards beginning in

2011 proposed in section III. B. of this proposal. EPA already has similar NTE standards set for highway heavy-duty diesel engines, compression ignition marine engines, and nonroad spark-ignition engines.

To help ensure that nonroad diesel emissions are controlled over the wide range of speed and load combinations commonly experienced in-use, EPA is proposing to apply NTE limits and related test procedures. The NTE approach establishes an area (the “NTE zone”) under the torque curve of an engine where emissions must not exceed a specified value for any of the regulated pollutants. The NTE standard would apply under any conditions that could reasonably be expected to be seen by that engine in normal vehicle operation and use, within certain broad ranges of real ambient conditions. The NTE requirements would help to ensure emission benefits over the full range of in-use operating conditions. EPA believes that basing the emissions standards on a set of distinct steady state and transient cycles and using the NTE zone to help ensure in-use control creates a comprehensive program. In addition, the NTE requirements would also be an effective element of an in-use testing program. The test procedure is very flexible so it can represent most in-use operation and ambient conditions. Therefore, the NTE approach takes all of the benefits of a numerical standard and test procedure and expands it to cover a broad range of conditions. Also, with the NTE approach, in-use testing and compliance become much easier since emissions may be sampled during normal vehicle use. A standard that relies on laboratory testing over a very specific driving schedule makes it harder to perform in-use testing, especially for engines, since the engines would have to be removed from the vehicle. Testing during normal vehicle use, using an objective numerical standard, makes enforcement easier and provides more certainty of what is occurring in use versus a fixed laboratory procedure.

In today’s notice, we are proposing an NTE standard which is based on the

approach taken for the 2007 highway heavy-duty diesel engines. In addition, we are requesting comment on an alternative NTE standard approach which, while different from the highway NTE standard approach, is designed to achieve the same environmental objectives. Both of these approaches are described below.

#### **a. NTE Standards We Are Proposing**

The Agency proposes to adopt for new Tier 4 non-road diesel engines similar NTE specifications as those finalized as part of the heavy-duty highway diesel engine rulemaking (*See* 66 FR 5001, January 18, 2001). These specifications for the highway diesel engines are contained in 40 CFR part 86.007–11 and 40 CFR part 86.1370–2007.

Our NTE proposal for nonroad contains the same basic provisions as the highway NTE. The proposed nonroad NTE standard establishes an area (the “NTE control area”) under the torque curve of an engine where emissions must not exceed a specified value for any of the regulated pollutants.<sup>127</sup> This NTE control area is defined in the same manner as the highway NTE control areas, and is therefore a subset of the engine’s possible speed and load operating range. The NTE standard would apply under any engine operating conditions that could reasonably be expected to be seen by that engine in normal vehicle/equipment operation and use which occurs within the NTE control zone and which also occurs during the wide range of real ambient conditions specified for the NTE. The NTE standard applies to emissions sampled during a time duration as small as 30 seconds. The NTE standard requirements for nonroad diesel engines are summarized below and specified in the proposed regulations at 40 CFR 1309.101 and 40 CFR 1039.515. These requirements would take effect as early as 2011, as shown in shown in Table III.D–1. The NTE standard would apply to engines at the time of certification as well as in use throughout the useful life of the engine.

**TABLE III.D–1.—NTE STANDARD IMPLEMENTATION SCHEDULE**

Power category	NTE Implementation model year <sup>a</sup>
<25 hp .....	2013
25–75 hp .....	<sup>b</sup> 2013

<sup>127</sup> Torque is a measure of rotational force. The torque curve for an engine is determined by an engine “mapping” procedure specified in the Code

of Federal Regulations. The intent of the mapping procedure is to determine the maximum available torque at all engine speeds. The torque curve is

merely a graphical representation of the maximum torque across all engine speeds.