

for the FEL caps (along with the associated standards proposed for Tier 4). We request comment on the need for and the levels of these proposed FEL caps. It should be noted that for Tier 4, where we are proposing a new transient

test, as well as retaining the current steady-state test, the FEL established by the engine manufacturer would be used as the enforceable limit for the purpose of compliance testing under both test cycles. In addition, under the NTE

requirements, the FEL times the appropriate multiplier would be used as the enforceable limit for the purpose of such compliance testing.

TABLE VII.A-1.—PROPOSED FEL CAPS FOR THE PROPOSED TIER 4 STANDARDS IN THE ABT PROGRAM
[g/bhp-hr]

Power category	Effective model year	NO _x standard	NO _x FEL cap	PM standard	PM FEL cap
hp < 25 (kW < 19)	2008+	(a)	(a)	^b 0.30	0.60
25 ≤ hp < 50 (19 ≤ kW < 37)	2008–2012	(a)	(a)	0.22	0.45
25 ≤ hp < 50 (19 ≤ kW < 37)	2013+ ^d	^e 3.5	5.6 ^e	0.02	^f 0.04
50 ≤ hp < 75 (37 ≤ kW < 56)	2008–2012	(a)	(a)	0.22	0.30
50 ≤ hp < 75 (37 ≤ kW < 56)	2013+	(a)	(a)	0.02	^f 0.04
75 ≤ hp < 175 (56 ≤ kW < 130)	2012–2013 ^g	0.30	3.3 for hp < 100 2.8 for hp ≥ 100.	0.01	^f 0.03
75 ≤ hp < 175 (56 ≤ kW < 130)	2014+	0.30	0.60 ^f	0.01	^f 0.03
175 ≤ hp ≤ 750 (130 ≤ kW ≤ 560)	2011–2013	0.30	2.8	0.01	^f 0.03
175 ≤ hp ≤ 750 (130 ≤ kW ≤ 560)	2014+	0.30	0.60 ^f	0.01	^f 0.03
hp > 750 (kW > 560)	2011–2013	0.30	4.6	0.01	0.15
hp > 750 (kW > 560)	2014+	0.30	0.60 ^f	0.01	^f 0.03

Notes:

^a The existing NMHC+NO_x standard and FEL cap apply (see CFR Title 40, section 89.112).

^b A PM standard of 0.45 g/bhp-hr would apply to air-cooled, hand-startable, direct injection engines under 11 horsepower, effective in 2010.

^c The proposed FEL caps do not apply if the manufacturer elects to comply with the optional standards. The existing FEL caps continue to apply.

^d FEL caps apply in model year 2012 if the manufacturer elects to comply with the optional standards.

^e These are a combined NMHC+NO_x standard and FEL cap.

^f As described in this section, a small number of engines are allowed to exceed these FEL caps.

^g This period would extend through the first nine months of 2014 under the alternative, reduced phase-in requirement (see Section III.B.1. for a description of the proposed alternative).

As noted above, we are proposing to allow a limited number of engines to have a higher FEL than the caps noted in Table VII.A-1 in certain instances. Under this proposal, the allowance to certify up to these higher FEL caps would apply to Tier 4 engines at or above 25 horsepower. The provisions are intended to provide some limited flexibility for engine manufacturers as they transition to the stringent standards while ensuring that the vast majority of engines are converted to the advanced low-emission technologies expected under the Tier 4 program. This additional lead time appears appropriate, given the potential that a limited set of nonroad engines may face especially challenging difficulties in complying, and considering further that the same amount of overall emission reductions would be achieved through the need for credit-generating nonroad engines.

Beginning the first year Tier 4 standards apply in each power category above 25 horsepower, an engine manufacturer would be allowed to

certify up to ten percent of its engines in each power category with PM FELs above the caps shown in Table VII.A-1. The PM FEL cap for such engines would instead be the applicable previous tier PM standard. The ten percent allowance would be available for the first four years the Tier 4 standards apply. For the power categories in which we are proposing a phase-in requirement for the Tier 4 NO_x standards, the allowance to use a higher FEL cap would apply only to PM during the phase-in years. Once the phase-in period is complete, the allowance would apply to NO_x as well. (For engines above 750 horsepower, where we are proposing a phase-in for both NO_x and PM, the allowance to use a higher FEL cap would not take effect until model year 2014 when the phase-in was complete.)

After the fourth year the Tier 4 standards apply, the allowance to certify engines using the higher FEL caps would still be available but for no more than five percent of a manufacturer's engines in each power category. (For the

power category between 25 and 75 horsepower, this allowance would apply beginning with the 2013 model year and would apply to PM. The allowance to use the higher FEL caps is not necessary for the 2008 proposed standards or the 2013 proposed NMHC+NO_x standards because the FEL caps for those standards are set at the previously applicable tier standards.)

Table VII.A-2 presents the model years, percent of engines, and higher FEL caps that would apply under this allowance. Because the engines certified with the higher FEL caps are certified to the Tier 4 standards (albeit through the use of credits), they would be considered Tier 4 engines and all other requirements for Tier 4 engines would also apply, including the Tier 4 NMHC standard. We invite comment on whether additional provisions may be necessary for the limited number of engines certified to the higher FELs, including whether an averaging program for NMHC would be needed.