

mechanical warranty that you offer for the engine or its components, and any relevant customer design specifications. Your demonstration may include any other relevant information. The useful life value may not be shorter than any of the following:

- (i) 1,000 hours of operation.
- (ii) Your recommended overhaul interval.
- (iii) Your mechanical warranty for the engine.

(h) *Applicability for testing.* The emission standards in this subpart apply to all testing, including certification, selective enforcement audits, and in-use testing. For selective enforcement audits, we will require you to perform duty-cycle testing as specified in §§ 1039.505 and 1039.510. The NTE standards of this section apply for those tests. We will not direct you to do additional testing under a selective enforcement audit to show that your engines meet the NTE standards.

[69 FR 39213, June 29, 2004, as amended at 70 FR 40462, July 13, 2005]

§ 1039.102 What exhaust emission standards and phase-in allowances apply for my engines in model year 2014 and earlier?

The exhaust emission standards of this section apply for 2014 and earlier model years. See § 1039.101 for exhaust emission standards that apply to later model years. See 40 CFR 89.112 for exhaust emission standards that apply to model years before the standards of this part 1039 take effect.

(a) *Emission standards for transient testing.* Transient exhaust emissions from your engines may not exceed the applicable emission standards in Tables 1 through 6 of this section. Measure emissions using the applicable transient test procedures described in subpart F of this part. See paragraph (c) of this section for a description of provisions related to the phase-in and phase-out standards shown in Tables 4 through 6 of this section. The emission standards for transient testing are limited for certain engines, as follows:

(1) The transient standards in this section do not apply for the following engines:

- (i) Engines below 37 kW for model years before 2013.
- (ii) Engines certified under Option #1 of Table 3 of this section. These are the small-volume manufacturer engines certified to the Option #1 standards for model years 2008 through 2015 under § 1039.104(c), and other engines certified to the Option #1 standards for model years 2008 through 2012.
- (iii) Engines certified to an alternate FEL during the first four years of the Tier 4 standards for the applicable power category, as allowed in § 1039.104(g). However, you may certify these engines to the transient standards in this section to avoid using temporary compliance adjustment factors, as described in § 1039.104(g)(2). Note that in some cases this four-year period extends into the time covered by the standards in § 1039.101.
- (iv) Constant-speed engines.
- (v) Engines above 560 kW.

(2) The transient standards in this section for gaseous pollutants do not apply to phase-out engines that you certify to the same numerical standards (and FELs if the engines are certified using ABT) for gaseous pollutants as you certified under the Tier 3 requirements of 40 CFR part 89. However, except as specified by paragraph (a)(1) of this section, the transient PM emission standards apply to these engines.

(b) Emission standards for steady-state testing. Steady-state exhaust emissions from your engines may not exceed the applicable emission standards in Tables 1 through 7 of this section. Measure emissions using the applicable steady-state test procedures described in subpart F of this part. See paragraph (c) of this section for a description of provisions related to the phase-in and phase-out standards shown in Tables 4 through 6 of this section.

TABLE 1 OF § 1039.102—TIER 4 EXHAUST EMISSION STANDARDS (G/KW-HR): KW < 19

Maximum engine power	Model years	PM	NO _x + NMHC	CO
KW < 8	2008–2014	1.040	7.5	8.0

§ 1039.102

40 CFR Ch. I (7-1-07 Edition)

TABLE 1 OF § 1039.102—TIER 4 EXHAUST EMISSION STANDARDS (G/KW-HR): kW < 19—Continued

Maximum engine power	Model years	PM	NO _x + NMHC	CO
8 ≤ kW < 19	2008–2014	0.40	7.5	6.6

¹For engines that qualify for the special provisions in § 1039.101(c), you may delay certifying to the standards in this part 1039 until 2010. In 2009 and earlier model years, these engines must instead meet the applicable Tier 2 standards and other requirements from 40 CFR part 89. Starting in 2010, these engines must meet a PM standard of 0.60 g/kWhr, as described in § 1039.101(c). Engines certified to the 0.60 g/kWhr PM standard may not generate ABT credits.

TABLE 2 OF § 1039.102—INTERIM TIER 4 EXHAUST EMISSION STANDARDS (G/KW-HR): 19 > kW < 37

Model years	PM	NO _x + NMHC	CO
2008–2012	0.30	7.5	5.5
2013–2014	0.03	4.7	5.5

TABLE 3 OF § 1039.102—INTERIM TIER 4 EXHAUST EMISSION STANDARDS (G/KW-HR): 37 > kW < 56

Option ¹	Model years	PM	NO _x + NMHC	CO
#1	2008–2012	0.30	4.7	5.0
#2	2012	0.03	4.7	5.0
All	2013–2014	0.03	4.7	5.0

¹You may certify engines to the Option #1 or Option #2 standards starting in the listed model year. Under Option #1, all engines at or above 37 kW and below 56 kW produced before the 2013 model year must meet the applicable Option #1 standards in this table. These engines are considered to be "Option #1 engines." Under Option #2, all these engines produced before the 2012 model year must meet the applicable standards under 40 CFR part 89. Engines certified to the Option #2 standards in model year 2012 are considered to be "Option #2 engines."

TABLE 4 OF § 1039.102—INTERIM TIER 4 EXHAUST EMISSION STANDARDS (G/KW-HR): 56 > kW < 75

Model years ¹	Phase-in option	PM	NO _x	NMHC	NO _x + NMHC	CO
2012–2013	Phase-in	0.02	0.40	0.19	4.7	5.0
	Phase-out	0.02	0.40	0.19	4.7	5.0
2014	All engines	0.02	0.40	0.19	4.7	5.0

¹See paragraph (d)(2) of this section for provisions that allow for a different phase-in schedule than that specified in paragraph (c)(1) of this section.

TABLE 5 OF § 1039.102—INTERIM TIER 4 EXHAUST EMISSION STANDARDS (G/KW-HR): 75 > kW < 130

Model years ¹	Phase-in option	PM	NO _x	NMHC	NO _x + NMHC	CO
2012–2013	Phase-in	0.02	0.40	0.19	4.0	5.0
	Phase-out	0.02	0.40	0.19	4.0	5.0
2014	All engines	0.02	0.40	0.19	4.0	5.0

¹See paragraph (d)(2) of this section for provisions that allow for a different phase-in schedule than that specified in paragraph (c)(1) of this section.

TABLE 6 OF § 1039.102—INTERIM TIER 4 EXHAUST EMISSION STANDARDS (G/KW-HR): 130 > kW < 560

Model years ¹	Phase-in option	PM	NO _x	NMHC	NO _x + NMHC	CO
2011–2013	Phase-in	0.02	0.40	0.19	4.0	3.5
	Phase-out	0.02	0.40	0.19	4.0	3.5
2014	All engines	0.02	0.40	0.19	4.0	3.5

TABLE 7 OF § 1039.102—INTERIM TIER 4 EXHAUST EMISSION STANDARDS (G/KW-HR): kW > 560

Model years	Maximum engine power	Application	PM	NO _x	NMHC	CO
	560 < kW ≤ 900	All	0.10	3.5	0.40	3.5
		Generator sets	0.10	0.67	0.40	3.5

TABLE 7 OF § 1039.102—INTERIM TIER 4 EXHAUST EMISSION STANDARDS (G/KW-HR): KW > 560—
Continued

Model years	Maximum engine power	Application	PM	NO _x	NMHC	CO
2011–2014	kW > 900	All except generator sets.	0.10	3.5	0.40	3.5

(c) *Phase-in requirements.* The following phase-in provisions apply for engines in 56–560 kW power categories meeting the interim Tier 4 standards in paragraphs (a) and (b) of this section:

(1) For each model year before 2014 noted in Tables 4 through 6 of this section, you must certify engine families representing at least 50 percent of your U.S.-directed production volume for each power category to the applicable phase-in standards, except as allowed by paragraph (c)(3), (d)(2), or (e) of this section. Any engines not certified to the phase-in standards must be certified to the corresponding phase-out standards.

(2) Engines certified to the phase-out standards in Tables 4 through 6 of this section must comply with all other requirements that apply to Tier 4 engines, except as otherwise specified in this section.

(3) At the time of certification, show how you intend to meet the phase-in requirements of this paragraph (c) based on projected U.S.-directed production volumes. If your actual U.S.-directed production volume fails to meet the phase-in requirements for a given model year, you must make up the shortfall (in terms of number of engines) by the end of the model year representing the final year of the phase-in period. For example, if you plan in good faith to produce 50 percent of a projected 10,000 engines in the 56–130 kW power category (*i.e.*, 5,000 engines) in 2012 in compliance with the Tier 4 phase-in standards for NO_x and NMHC in Table 4 of this section, but produce 4,500 such engines of an actual 10,000 engines, you must produce 500 engines in model year 2013 (*i.e.*, the final year of the phase-in for this power category) that meet the Tier 4 phase-in standards above and beyond the production otherwise needed to meet the 50-percent phase-in requirement for model year 2013. If any shortfall exceeds the appli-

cable limit of paragraph (c)(3)(i) or (ii) of this section, that number of phase-out engines will be considered not covered by a certificate of conformity and in violation of §1068.101(a)(1). The shortfall allowed by this paragraph (c)(3) may not exceed a certain number of engines, as follows:

(i) For engine families certified according to the alternate phase-in schedule described in paragraph (d)(2) of this section, for model years prior to the final year of the phase-in, 5 percent of your actual U.S.-directed production volume for that power category in that model year.

(ii) For all other engine families, for model years prior to the final year of the phase-in, 25 percent of your actual U.S.-directed production volume for that power category in that model year.

(iii) No shortfall is allowed in the final year of the phase-in.

(4) Engines you introduce into commerce beyond the limits described in paragraphs (c)(3) of this section will be considered not covered by a certificate of conformity and in violation of §1068.101(a)(1).

(5) For the purposes of this part, the term “phase-in” means relating to a standard that is identified in this section as a phase-in standard and the term “phase-out” means relating to a standard that is identified in this section as a phase-out standard. For example, a 200-kW engine from the 2012 model year that is certified to the 4.0 g/kW-hr NO_x+NMHC standard in Table 6 of §1039.102 is a phase-out engine.

(d) *Banked credits and alternate phase-in for 56–130 kW engines.* For engines in the 56–130 kW power category, you may use only one of the following additional provisions:

(1) For model years 2012 through 2014, you may use banked NO_x+NMHC credits from any Tier 2 engine at or above 37 kW certified under 40 CFR part 89 to

meet the NO_x phase-in standards or the NO_x+NMHC phase-out standards under paragraphs (b) and (c) of this section, subject to the additional ABT provisions in § 1039.740.

(2) Instead of meeting the phase-in requirements of paragraph (c)(1) of this section, you may certify engine families representing at least 25 percent of your U.S.-directed production volume for each model year from 2012 through 2014 to the applicable phase-in standards in Tables 4 and 5 of this section, except as allowed by paragraph (c)(3) or (e) of this section. Any engines not certified to the phase-in standards must be certified to the corresponding phase-out standards. Engines certified under this paragraph (d)(2) may generate NO_x emission credits only for averaging within the same power category during the same model year. For engines certified under this paragraph (d)(2), the 2014 model year may not extend beyond December 30, 2014.

(e) *Alternate NO_x standards.* For engines in 56-560 kW power categories during the phase-in of Tier 4 standards, you may certify engine families to the alternate NO_x standards in this paragraph (e) instead of the phase-in and phase-out NO_x and NO_x+NMHC standards described in Tables 4 through 6 of this section. Engines certified under this section must be certified to an NMHC standard of 0.19 g/kW-hr. Do not include engine families certified under this paragraph (e) in determining whether you comply with the percentage phase-in requirements of paragraphs (c) and (d)(2) of this section. Except for the provisions for alternate FEL caps in § 1039.104(g), the NO_x standards and FEL caps under this paragraph (e) are as follows:

(1) For engines in the 56-130 kW power category, apply the following alternate NO_x standards and FEL caps:

(i) If you use the provisions of paragraph (d)(1) of this section, your alternate NO_x standard for any engine family in the 56-130 kW power category is 2.3 g/kW-hr for model years 2012 and 2013. Engines certified to this standard may not exceed a NO_x FEL cap of 3.0 g/kW-hr.

(ii) If you use the provisions of paragraph (d)(2) of this section, your alternate NO_x standard for any engine fam-

ily in the 56-130 kW power category is 3.4 g/kW-hr for model years 2012 through 2014. Engines below 75 kW certified to this standard may not exceed a NO_x FEL cap of 4.4 g/kW-hr; engines at or above 75 kW certified to this standard may not exceed a NO_x FEL cap of 3.8 g/kW-hr.

(iii) If you do not use the provisions of paragraph (d) of this section, you may apply the alternate NO_x standard and the appropriate FEL cap from either paragraph (e)(1)(i) or (ii) of this section.

(2) For engines in the 130-560 kW power category, the alternate NO_x standard is 2.0 g/kW-hr for model years 2011 through 2013. Engines certified to this standard may not exceed a NO_x FEL cap of 2.7 g/kW-hr.

(f) *Split families.* For generating or using credits for engines in 56-560 kW power categories during the phase-in of Tier 4 standards, you may split an engine family into two subfamilies (for example, one that uses credits and one that generates credits for the same pollutant).

(1) Identify any split engine families in your application for certification. Your engines must comply with all the standards and requirements applicable to Tier 4 engines, except as noted in this paragraph (f). You may calculate emission credits relative to different emission standards (*i.e.*, phase-in and phase-out standards) for different sets of engines within the engine family, but the engine family must be certified to a single set of standards and FELs. To calculate NO_x+NMHC emission credits, add the NO_x FEL to the NMHC phase-in standard for comparison with the applicable NO_x+NMHC phase-out standard. Any engine family certified under this paragraph (f) must meet the applicable phase-in standard for NMHC. You may assign the number and configurations of engines within the respective subfamilies any time before the due date for the final report required in § 1039.730. Apply the same label to each engine in the family, including the NO_x FEL to which it is certified.

(2) For example, a 10,000-unit engine family in the 75-130 kW power category may be certified to meet the standards for PM, NMHC, and CO that apply to

phase-in engines, with a 0.8 g/kW-hr FEL for NO_x. When compared to the phase-out NO_x+NMHC standard, this engine family would generate positive NO_x+NMHC emission credits. When compared to the phase-in NO_x standard, this engine family would generate negative NO_x emission credits. You could create a subfamily with 2,500 engines (one-quarter of the 10,000 engines) and identify them as phase-in engines. You would count these 2,500, with their negative NO_x credits, in determining compliance with the 50-percent phase-in requirement in paragraph (c)(1) of this section. You would calculate negative credits relative to the 0.40 g/kW-hr NO_x standard for these 2,500 engines. You would identify the other 7,500 engines in the family as phase-out engines and calculate positive credits relative to the 4.0 g/kW-hr NO_x+NMHC standard.

(g) *Other provisions.* The provisions of § 1039.101(d) through (h) apply with respect to the standards of this section, with the following exceptions and special provisions:

(1) *NTE standards.* Use the provisions of § 1039.101(e)(3) to calculate and apply the NTE standards, but base these calculated values on the applicable standards in this section or the applicable FEL, instead of the standards in Table 1 of § 1039.101. All other provisions of § 1039.101(e) apply under this paragraph (g)(1). The NTE standards do not apply for certain engines and certain pollutants, as follows:

(i) All engines below 37 kW for model years before 2013.

(ii) All engines certified under Option #1 of Table 3 of this section. These are small-volume manufacturer engines certified to the Option #1 standards for model years 2008 through 2015 under § 1039.104(c), and other engines certified to the Option #1 standards for model years 2008 through 2012.

(iii) All engines less than or equal to 560 kW that are certified to an FEL under the alternate FEL program during the first four years of the Tier 4 standards for the applicable power category, as described in § 1039.104(g). However, if you apply to meet transient emission standards for these engines under § 1039.102(a)(1)(iii), you must also meet the NTE standards in this paragraph (g)(1).

(iv) Gaseous pollutants for phase-out engines that you certify to the same numerical standards and FELs for gaseous pollutants to which you certified under the Tier 3 requirements of 40 CFR part 89. However, the NTE standards for PM apply to these engines.

(2) *Interim FEL caps.* As described in 1039.101(d), you may participate in the ABT program in subpart H of this part by certifying engines to FELs for PM, NO_x, or NO_x+NMHC instead of the standards in Tables 1 through 7 of this section for the model years shown. The FEL caps listed in the following table apply instead of the FEL caps in § 1039.101(d)(1), except as allowed by § 1039.104(g):

TABLE 8 OF § 1039.102—INTERIM TIER 4 FEL CAPS, G/KW-HR

Maximum engine power	Phase-in option	Model years ¹	PM	NO _x	NO _x +NMHC
kW < 19		2008–2014	0.80		29.5
19 ≤ kW < 37		2008–2012	0.60		9.5
37 ≤ kW < 56		³ 2008–2012	0.40		7.5
56 ≤ kW < 130	Phase-in	2012–2013	0.04	0.80	
56 ≤ kW < 130	Phase-out	2012–2013	0.04		4.6
130 ≤ kW ≤ 560	Phase-in	2011–2013	0.04	0.80	
130 ≤ kW ≤ 560	Phase-out	2011–2013	0.04		6.4
kW > 560		2011–2014	0.20	6.2	

¹ For model years before 2015 where this table does not specify FEL caps, apply the FEL caps shown in § 1039.101.
² For engines below 8 kW, the FEL cap is 10.5 g/kW-hr for NO_x+NMHC emissions.
³ For manufacturers certifying engines to the standards of this part 1039 in 2012 under Option #2 of Table 3 of § 1039.102, the FEL caps of § 1039.101 apply for model year 2012 and later; see 40 CFR part 89 for provisions that apply to earlier model years.
⁴ For engines below 75 kW, the FEL cap is 7.5 g/kW-hr for NO_x+NMHC emissions.
⁵ For engines below 225 kW, the FEL cap is 6.6 g/kW-hr for NO_x+NMHC emissions.

(3) *Crankcase emissions.* The crankcase emission requirements of § 1039.115(a)

do not apply to engines using charge-air compression that are certified to an

§ 1039.104

40 CFR Ch. I (7-1-07 Edition)

FEL under the alternate FEL program in §1039.104(g) during the first four years of the Tier 4 standards for the applicable power category.

(4) *Special provisions for 37-56 kW engines.* For engines at or above 37 kW and below 56 kW from model years 2008 through 2012, you must take the following additional steps:

(i) State the applicable PM standard on the emission control information label.

(ii) Add information to the emission-related installation instructions to clarify the equipment manufacturer's obligations under § 1039.104(f).

§ 1039.104 Are there interim provisions that apply only for a limited time?

The provisions in this section apply instead of other provisions in this part. This section describes when these interim provisions apply.

(a) *Incentives for early introduction.* This paragraph (a) allows you to reduce the number of engines subject to the applicable standards in §1039.101 or §1039.102, when some of your engines are certified to the specified levels earlier than otherwise required. The engines that are certified early are considered offset-generating engines. The provisions of this paragraph (a), which describe the requirements applicable to offset-generating engines, apply beginning in model year 2007. These offset generating engines may generate additional allowances for equipment manufacturers under the incentive program described in §1039.627; you may instead use these offsets under paragraph (a)(2) of this section in some cases.

(1) For early-compliant engines to generate offsets for use either under this paragraph (a) or under §1039.627, you must meet the following general provisions:

(i) You may not generate offsets from engines below 19 kW.

(ii) You must begin actual production of engines covered by the corresponding certificate by the following dates:

(A) For engines at or above 19 kW and below 37 kW: September 1, 2012.

(B) For engines at or above 37 kW and below 56 kW: September 1, 2012 if you choose Option #1 in Table 3 of § 1039.102, or September 1, 2011 if you do not choose Option #1 in Table 3 of § 1039.102.

(C) For engines in the 56-130 kW power category: September 1, 2011.

(D) For engines in the 130-560 kW power category: September 1, 2010.

(E) For engines above 560 kW: September 1, 2014.

(iii) Engines you produce after December 31 of the year shown in paragraph (a)(1)(ii) of this section may not generate offsets.

(iv) You may not use ABT credits to certify offset-generating engines.

(v) Offset-generating engines must be certified to the Tier 4 standards and requirements under this part 1039.

(2) If equipment manufacturers decline offsets for your offset-generating engines under §1039.627, you may not generate ABT credits with these engines, but you may reduce the number of engines that are required to meet the standards in §1039.101 or 1039.102 as follows:

For every . . .	With maximum engine power . . .	That are certified to the applicable standards in . . .	You may reduce the number of engines in the same power category that are required to meet the . . .	In later model years by . . .
(i) 2 engines	19 ≤ kW < 37	Table 2 of § 1039.102 ¹ .	PM standard in Table 2 of § 1039.102 applicable to model year 2013 or 2014 engines or the PM standard in Table 1 of § 1039.101.	3 engines.
(ii) 2 engines	56 ≤ kW ≤ 560	Table 4, 5, or 6 of § 1039.102 for Phase-out engines.	Phase-out standards in Tables 4 through 6 of § 1039.102.	3 engines.
(iii) 2 engines	kW ≥ 19	Table 1 of § 1039.101	Standards in Tables 2 through 7 of § 1039.102 or standards in Table 1 of § 1039.101.	3 engines. ²
(iv) 1 engine	kW ≥ 19	Table 1 of § 1039.101 + 0.20 g/kW-hr NO _x standard.	Standards in Tables 2 through 7 of § 1039.102 or standards in Table 1 of § 1039.101.	2 engines. ²

¹The engine must be certified to the PM standard applicable to model year 2013 engines, and to the NO_x+NMHC and CO standards applicable to model year 2012 engines.