FINAL REGULATION ORDER

Note: This document is printed in a style to indicate changes from the existing provisions. All existing language is indicated by plain type. All additions to language are indicated by underlined text. All deletions to language are indicated by ~~strikeout~~. Only those portions containing the suggested modifications from the existing provisions are included. All other portions remain unchanged and are indicated by the symbol "* * * * *" for reference.

Amend Article 4, Chapter 9, Division 3, Title 13, California Code of Regulations (CCR), including recently adopted section 2425.1, to read as follows:

Chapter 9. Off-Road Vehicles and Engines Pollution Control Devices

Article 4. ~~Heavy-Duty~~ Off-Road Compression-Ignition~~Diesel Cycle~~ Engines and Equipment

§ 2423. Exhaust Emission Standards and Test Procedures – Off-Road Compression-Ignition Engines.

(a) This section shall be applicable to new heavy-duty off-road compression-ignition engines, produced on or after January 1, 1996, and all other new 2000 and later model year off-road compression-ignition engines. For the purposes of this section, these engines shall be called "compression-ignition engines."

(b)(1)(A) Exhaust emissions from new off-road compression-ignition engines, as sold in this state and as appropriate based on model year and maximum rated power, shall not exceed the levels contained in Table 1 a with respect to steady-state testing. Table 1a follows:

Table 1a. – Tier 1, Tier 2, and Tier 3 Exhaust Emission Standards
(grams per kilowatt-hour)

Maximum Rated Power (kW)[1]	Tier	Model Year	NO_x[2]	HC[3]	NMHC+ NO_x[4]	CO[5]	PM[6]
kW<8	Tier 1	2000-2004	—	—	10.5	8.0	1.0
	Tier 2	2005 ~~and later~~ 2007[7]	—	—	7.5	8.0	0.80
8≤kW<19	Tier 1	2000-2004	—	—	9.5	6.6	0.80
	Tier 2	2005 ~~and later~~ 2007[7]	—	—	7.5	6.6	0.80
19≤kW<37	Tier 1	2000-2003	—	—	9.5	5.5	0.80
	Tier 2	2004 ~~and later~~ 2007[7]	—	—	7.5	5.5	0.60
37≤kW<~~75~~56	Tier 1	2000-2003	9.2	—	—	—	—
	Tier 2	2004-2007	—	—	7.5	5.0	0.40
	Tier 3[8]	2008 ~~and later~~ 2011	—	—	4.7	5.0	— 0.40
56≤kW<75	Tier 1	2000-2003	9.2	—	—	—	—
	Tier 2	2004-2007	—	—	7.5	5.0	0.40
	Tier 3	2008-2011	—	—	4.7	5.0	0.40
75≤kW<130	Tier 1	2000-2002	9.2	—	—	—	—
	Tier 2	2003-2006	—	—	6.6	5.0	0.30
	Tier 3	2007 ~~and later~~ 2011	—	—	4.0	5.0	— 0.30
130≤kW<225	Tier 1	1996-2002	9.2	1.3	—	11.4	0.54
	Tier 2	2003-2005	—	—	6.6	3.5	0.20
	Tier 3	2006 ~~and later~~ 2010	—	—	4.0	3.5	— 0.20
225≤kW<450	Tier 1	1996-2000	9.2	1.3	—	11.4	0.54
	Tier 2	2001-2005	—	—	6.4	3.5	0.20
	Tier 3	2006 ~~and later~~ 2010	—	—	4.0	3.5	— 0.20
450≤kW≤560	Tier 1	1996-2001	9.2	1.3	—	11.4	0.54
	Tier 2	2002-2005	—	—	6.4	3.5	0.20
	Tier 3	2006 ~~and later~~ 2010	—	—	4.0	3.5	— 0.20
kW>560	Tier 1	2000-2005	9.2	1.3	—	11.4	0.54
	Tier 2	2006 ~~and later~~ 2010	—	—	6.4	3.5	0.20

1. kW means kilowatts.
2. NO_x means Oxides of Nitrogen.
3. HC means Hydrocarbons.
4. NMHC+NO_x means Non-Methane Hydrocarbons plus Oxides of Nitrogen.
5. CO means Carbon Monoxide.
6. PM means Particulate Matter.
7. Tier 2 standards for propulsion marine compression-ignition engines below 37 kW remain in effect beyond the 2007 end date.

8. Manufacturers may optionally certify engine families to the interim Tier 4 standards in Table 1b for this power category through 2012.

(B) Exhaust emissions from new off-road compression-ignition engines, as sold in this state and as appropriate based on model year and maximum engine power, shall not exceed the levels contained in Table 1b, with respect to steady-state testing, transient testing, and, after application of the criteria in Table 1c, not-to-exceed testing, as applicable. Other compliance options are permissible as provided in the 2008 and Later Test Procedures.

Table 1b. – Tier 4 Exhaust Emission Standards (grams per kilowatt-hour)

MAXIMUM ENGINE POWER	MODEL YEAR	TYPE	PM	NMHC+ NOX	NMHC	NOX	CO
			grams per kilowatt-hour				
kW<8[1]	2008 and later	FINAL	0.40[2]	7.5	-	-	8.0
8≤kW<19[1]							6.6
19≤kW<37[1]	2008-2012	INTERIM	0.30	7.5	-	-	5.5
	2013 and later	FINAL	0.03	4.7			
37≤kW<56[3]	2008-2012	INTERIM	0.30	4.7	-	-	5.0
	2013 and later	FINAL	0.03				
56≤kW<75	2012-2014[4]	PHASE-IN	0.02	-	0.19	0.40	5.0
		PHASE-OUT		4.7	-	-	
		or/ ALT NOX		-	0.19	3.4[5]	
	2015 and later	FINAL				0.40	
75≤kW<130	2012-2014[4]	PHASE-IN	0.02	-	0.19	0.40	5.0
		PHASE-OUT		4.0	-	-	
		or/ ALT NOX		-	0.19	3.4[5]	
	2015 and later	FINAL				0.40	
130≤kW≤560	2011-2013	PHASE-IN	0.02	-	0.19	0.40	3.5
		PHASE-OUT		4.0	-	-	
		or/ ALT NOX		-	0.19	2.0	
	2014 and later	FINAL				0.40	
560 kW<GEN[6]≤900 kW	2011-2014	INTERIM	0.10	-	0.40	3.5	3.5
	2015 and later	FINAL	0.03		0.19	0.67	
GEN>900 kW	2011-2014	INTERIM	0.10	-	0.40	0.67	3.5
	2015 and later	FINAL	0.03		0.19		
ELSE[7]>560 kW	2011-2014	INTERIM	0.10	-	0.40	3.5	3.5
	2015 and later	FINAL	0.04		0.19		

Notes:

1 Propulsion marine compression-ignition engines below 37 kW are not subject to Tier 4 standards or requirements. All previously adopted requirements remain applicable for these engines.

2 The Tier 4 PM standard for hand-start, air cooled, direct injection engines below 8 kW is 0.60 g/kW-hr, but is not required until 2010.

3 Engine families in this power category may alternately meet Tier 3 PM standards from 2008-2011 in exchange for introducing final PM standards in 2012.

4 Manufacturers have the option of complying with the Tier 4 standards over a two year period at 50% per year using banked Tier 2 credits or over a three year period at 25% per year without the use of Tier 2 credits. The three year phase-in period is shown. The 2014 model year cannot extend beyond December 30, 2014, when the 3 year phase-in option is used.

5 Manufacturers may comply with the standards during the transitional implementation years using either a phase-in / phase-out approach or by using the Alternate NOx approach. The three year 25% alternate NOx standard is shown in the table. The two year 50% phase-in NOx standard would be 2.3 g/kW-hr.

6 "GEN" refers to generator engines only.

7 "ELSE" refers to all mobile machinery excluding generator engines.

Table 1c. – Criteria for Determining NTE Limits[1]

Pollutant	Apply NTE Multiplier of 1.25 when ...	Apply NTE Multiplier of 1.50 when ...
NOx	NOx Standard or FEL ≥ 2.5 g/kW-hr	NOx Standard[2] or FEL< 2.5 g/kW-hr
NMHC	NOx Standard or FEL ≥ 2.5 g/kW-hr	NOx Standard[2] or FEL< 2.5 g/kW-hr
NMHC+NOx	NMHC+NOx Standard or FEL ≥ 2.7 g/kW-hr	NMHC+NOx Standard[2] or FEL< 2.7 g/kW-hr
PM	PM Standard or FEL ≥ 0.07 g/kW-hr	PM[2] Standard or FEL[3]< 0.07 g/kW-hr
CO	Always	Never

Notes:
1 Other provisions described in the 2008 and Later Test Procedures may affect the calculation of NTE limits.
2 Engines must be certified to these standards without the use of ABT credits.
3 For engines certified to a PM FEL less than or equal to 0.01 g/kW-hr, the PM NTE limit shall be 0.02 g/kW-hr.

(2) Manufacturers may elect to include engine families in ~~the~~one of two averaging, banking, and trading (ABT) programs, corresponding to the engine family's model year and emissions categorization. ~~t~~The provisions of ~~which~~these separate ABT programs are specified in Part 89, Subpart C of the 2000 Plus ~~and Later~~Limited Test Procedures and Part 1039, Subpart H of the 2008 and Later Test Procedures.

(A) For engine families subject to the 2000 Plus Limited Test Procedures, ~~T~~the manufacturer must set a family emission limit (FEL) not to exceed the levels contained in Table 2a. The FEL established by the manufacturer serves as the emission standard for that engine family. Table 2a follows:

Table 2a – Upper Limit for Tier 1, Tier 2, and Tier 3 Family Emission Limits (FEL)
(grams per kilowatt-hour)

Maximum Rated Power (kW)	Tier	Model Year	NO_x	$NMHC+NO_x$	PM FEL
kW<8	Tier 1	2000-2004		16.0	1.2
	Tier 2	2005 ~~and later~~ 2007		10.5	1.0
8≤kW<19	Tier 1	2000-2004		16.0	1.2
	Tier 2	2005 ~~and later~~ 2007		9.5	0.80
19≤kW<37	Tier 1	2000-2003		16.0	1.2
	Tier 2	2004 ~~and later~~ 2007		9.5	0.80
37≤kW<~~75~~56	Tier 1	2000-2003	14.6		
	Tier 2	2004-2007		11.5	1.2
	Tier 3[1]	2008 ~~and later~~ 2011		7.5	1.2
56≤kW<75	Tier 1	2000-2003	14.6		
	Tier 2	2004-2007		11.5	1.2
	Tier 3	2008-2011		7.5	1.2
75≤kW<130	Tier 1	2000-2002	14.6		
	Tier 2	2003-2006		11.5	1.2
	Tier 3	2007 ~~and later~~ 2011		6.6	1.2
130≤kW<225	Tier 1	2000-2002	14.6		
	Tier 2	2003-2005		10.5	0.54
	Tier 3	2006 ~~and later~~ 2010		6.6	0.54
225≤kW<450	Tier 1	2000	14.6		
	Tier 2	2001-2005		10.5	0.54
	Tier 3	2006 ~~and later~~ 2010		6.4	0.54
450≤kW≤560	Tier 1	2000-2001	14.6		
	Tier 2	2002-2005		10.5	0.54
	Tier 3	2006 ~~and later~~ 2010		6.4	0.54
kW>560	Tier 1	2000-2005	14.6		
	Tier 2	2006 ~~and later~~ 2010		10.5	0.54

1. Manufacturers may optionally certify engine families to the interim Tier 4 FEL caps in Table 2b for this power category through 2012.

(B) For engine families subject to the 2008 and Later Test Procedures, the manufacturer must set a family emission limit (FEL) not to exceed, as applicable, the levels contained in Table 2b. Three distinct FEL types (primary, interim, and alternate) are available conditionally. Primary FEL types are applicable to all power categories indefinitely, whereas interim and alternate FEL types are of variable duration and may be selectively applied to total or partial engine family production volumes as described in the 2008 and Later Test Procedures. The FEL established by the manufacturer serves as the emission standard for that engine family, and is used for determining NTE limits in conjunction with the criteria in Table 1c. Temporary compliance adjustment factors, as explained in the 2008 and Later Test Procedures, shall be applied by the manufacturer to compensate for the use of transitional alternate FELs (Type ALT 20% in Table 2b) when calculating emission credits. Table 2b follows:

Table 2b – Upper Limit for Tier 4 Family Emission Limits (FELs) and Alternate Allowances Part 1

MAXIMUM ENGINE POWER	FEL TYPE	MODEL YEAR	PM	NOX	NMHC+ NOX
			grams per kilowatt-hour		
kW<8	Primary	2008 and later	0.80	-	10.5
8≤kW<19	Primary	2008 and later	0.80	-	9.5
19≤kW<37	Interim	2008-2012	0.60	-	9.5
	Primary	2013 and later	0.05	-	7.5
	ALT 20%[1]	2013-2016	0.30	-	7.5
	ALT 5%[2]	2017 and later			
37≤kW<56	Interim	2008-2012[3]	0.40	-	7.5
	Primary	2013 and later[3]	0.05	-	7.5
	ALT 20%	2013-2016[3]	0.30	-	7.5
	ALT 5%	2017 and later[3]			
56≤kW<75	Phase-in	2012-2013	0.04	0.80	-
	Phase-out			-	7.5
	Alternate NOx Std[4]	2012-2013	0.04	3.0[7]	-
		2012-2014		4.4	
	Primary	2014/2015[5] and later	0.04	0.80	-
	ALT 20% PM	2012-2015	0.40		-
	ALT 20% NOX	2014-2015[6]		4.4	-
	ALT 5%	2016 and later	0.40	4.4	-

Notes:

1 This alternate FEL option is transitional for the four years specified and applies to at most 20% of a manufacturer's U.S. directed population of engine families per year.

2 This alternate FEL option is available indefinitely, but only applies to 5% of a manufacturer's U.S. directed population of engine families per year.

3 These dates correspond to the compliance option of meeting interim standards in 2008; else the primary and alternate FEL caps would begin and end one year earlier, and 2008-2011 engines would not be eligible for participation in the Tier 4 ABT program.

4 Two alternate NOx standards and corresponding FEL caps are available for this category with corresponding alternate phase-in options.

5 The effective date of the primary FEL cap follows the phase-in period of the selected NOx FEL cap.

6 If interim Tier 4 standards are not met in 2008, the alternate NOx FEL would only be available for 2015.

7 If neither the alternate phase-in option nor banked Tier 2 credits are used, either NOx standard and corresponding FEL may be applied for this category.

Table 2b – Upper Limit for Tier 4 Family Emission Limits (FELs) and Alternate Allowances Part 2

MAXIMUM ENGINE POWER	FEL TYPE	MODEL YEAR	PM	NOX	NMHC+ NOX
			grams per kilowatt-hour		
75≤kW<130	Phase-in	2012-2013	0.04	0.80	-
	Phase-out			-	6.6
	Alternate NOx Std[4]	2012-2013		3.0[7]	-
		2012-2014		3.8	-
	Primary	2014/2015[5] and later		0.80	-
	ALT 20% PM	2012-2015	0.30		-
	ALT 20% NOX	2014-2015[6]		3.8	-
	ALT 5%	2016 and later	0.30	3.8	-
130≤kW≤560	Phase-in	2011-2013	0.04	0.80	-
	Phase-out			-	6.6/6.4[8]
	Alternate NOx Std	2011-2013		2.7	-
	Primary	2014 and later		0.80	-
	ALT 20% PM	2011-2014	0.20		-
	ALT 20% NOX	2014		3.8	-
	ALT 5%	2015 and later	0.20	3.8	-
GEN>560kW	Interim	2011-2014	0.20	6.2	-
	Primary	2015 and later	0.05	1.07	-
	ALT 20%	2015-2018	0.10	3.5	-
	ALT 5%	2019 and later			-
ELSE>560kW	Interim	2011-2014	0.20	6.2	-
	Primary	2015 and later	0.07		-
	ALT 20%	2015-2018	0.10		-
	ALT 5%	2019 and later			-

Notes:
4 Two alternate NOx standards and corresponding FEL caps are available for this category with corresponding alternate phase-in options.
5 The effective date of the primary FEL cap follows the phase-in period of the selected NOx FEL cap.
6 If interim Tier 4 standards are not met in 2008, the alternate NOx FEL would only be available for 2015.
7 If neither the alternate phase-in option nor banked Tier 2 credits are used, either NOx standard and corresponding FEL may be applied for this category.
8 The phase-out NMHC+NOX FEL cap is 6.6 g/kW-hr for engines < 225 kW, and 6.4 g/kW-hr for engines ≥ 225 kW in this category.

(C) *Split family provision*. For generating or using credits in the 56 ≤ kW ≤ 560 power categories during the phase-in of Tier 4 standards, engine manufacturers may elect to split an engine family into two subfamilies (e.g., one which uses credits and one which generates credits for the same pollutant). The engine manufacturer must indicate in the application for certification that the engine family is to be split, and 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 must certify the engine family to a single set of standards and FELs. The engine manufacturer shall calculate NMHC+NOx emission credits by adding the NOx FEL to the NMHC phase-in standard for comparison with the applicable NMHC+NOx phase-out standard. Any engine family certified under the provisions of this paragraph (C) must meet the applicable phase-in standard for NMHC. The engine manufacturer shall be responsible for assigning the number and configurations of engines within the respective subfamilies before the due date of the final report required in Part 1039, Subpart H of the 2008 and Later Test Procedures. The same label must be applied to each engine in the family, and must include the NOx FEL to which the engine is certified.

(3)(A) The opacity of smoke emissions from new 1996 through 1999 model year heavy-duty off-road compression-ignition engines 175 to 750 horsepower, inclusive, or from all new 2000 and later model year compression-ignition engines sold in this state, shall not exceed, based on the applicable measurement techniques specified in Part 89, Subpart B of the 2000 Plus Limited Test Procedures and Part 1039, Subpart B of the 2008 and Later Test Procedures, the following:

1. 20 percent during the engine acceleration mode.
2. 15 percent during the engine lugging mode.
3. 50 percent during the peaks in either mode.

(B) The following engines are exempt from the requirements of this ~~section~~paragraph (3):

1. Single-cylinder engines.
2. Propulsion marine compression-ignition engines.
3. Constant-speed engines.
4. Engines certified to a PM emission standard or FEL of 0.07 grams per kilowatt-hour or lower

(4) Low-emitting Blue Sky Series engines requirements.

(A) *Voluntary standards.* Engines subject to the standards in (b)(1)(A) may be designated "Blue Sky Series" engines ~~through the 2004 model year~~ by meeting the voluntary standards contained in Table 3, which apply to all certification and in-use testing. Blue Sky Series engines shall not be included in the Averaging, Banking, and Trading program. Table 3 follows:

Table 3. – Voluntary Emission Standards
(grams per kilowatt-hour)

Maximum Rated Power (kW)	NMHC+NO_x	PM
KW<8	4.6	0.48
8≤kW<19	4.5	0.48
19≤kW<37	4.5	0.36
37≤kW<75	4.7	0.24
75≤kW<130	4.0	0.18
130≤kW≤560	4.0	0.12
KW>560	3.8	0.12

(B) *Additional standards.* Blue Sky Series engines are subject to all provisions that would otherwise apply under this part, except as specified in (C) of this section.

(C) *Test Procedures.* NO_x, NMHC, and PM emissions are measured using the procedures set forth in 40 CFR part 86, subpart N (July 1, 1999), which is incorporated by reference, in lieu of the procedures set forth in subpart E of the 2000 ~~and Later~~Plus Limited Test Procedures. CO emissions may be measured using procedures set forth in 40 CFR part 86, subpart N (July 1, 1999), or in subpart E of the 2000 and Later Test Procedures. Manufacturers may use an alternate procedure to demonstrate the desired level of control if approved in advance by the Executive Officer. Engines meeting the requirements to qualify as Blue Sky Series engines must be capable of maintaining a comparable level of emission control when tested using the procedures set forth in both Section 89.112(c) and subpart E of the 2000 and Later Test Procedures. The numerical emission levels measured using the procedures from subpart E of the 2000 ~~and Later~~Plus Limited Test Procedures may be up to 20 percent higher than those measured using procedures from 40 CFR part 86, subpart N (July 1, 1999), and still be considered comparable.

(5)(A) No crankcase emissions shall be discharged into the ambient atmosphere from any new 1996-1999 model year heavy-duty off-road compression-ignition engine or any Tier 2 or later off-road compression-ignition engine subject to the 2000 Plus Limited Test Procedures. This provision does not apply to petroleum-fueled diesel cycle engines using turbochargers, pumps, blowers, or superchargers for air induction.

(B) For off-road compression-ignition engines subject to the 2008 and Later Test Procedures, no crankcase emissions shall be discharged directly into the ambient atmosphere from any engine, unless the sum of those discharged emissions are added to the exhaust emissions (either physically or mathematically) during all emission testing. To be eligible for this option, a manufacturer must design its engines so that all crankcase emissions can be routed into the applicable sampling systems specified in the 2008 and Later Test Procedures, and must account for deterioration in crankcase emissions when determining exhaust deterioration factors. Crankcase emissions that

are routed to the exhaust upstream of exhaust aftertreatment during all operation are not considered to be discharged directly into the ambient atmosphere. Furthermore, engines using charge-air compression that are certified to a transitional alternate FEL (Type ALT 20% in Table 2b) during the first four years of the Tier 4 standards for the applicable power category are exempt from this subsection, but must instead comply with the requirements in Section 2423(b)(5)(A).

(6) Engine manufacturers that voluntarily certify engines to the Tier 4 standards in Table 1b earlier than required under this article may, according to the provisions in the 2008 and Later Test Procedures, generate additional ABT credits, or as an alternative, offset future Tier 4 compliance requirements should the equipment manufacturer that was provided the engine decline to use its early introduction incentives according to the provisions in Section 2423(d)(9). Table 4, as follows, summarizes the incentives for the early introduction of Tier 4 engines and some of the conditions that determine eligibility.

Table 4. – Early Introduction Incentives for Engine Manufacturers

EARLY INTRODUCTION	POWER CATEGORY	QUALIFYING STANDARDS [1] grams per kilowatt-hour	PER-ENGINE INCENTIVE
Final Tier 4 PM-Only [2]	19 ≤ kW < 56	0.03 PM	3 for 2 PM-Only
	56 ≤ kW < 560	0.02 PM	
Final Tier 4 ALL	19 ≤ kW < 56	0.03 PM / 4.7 NMHC+NOx	3 for 2
	56 ≤ kW ≤ 560	0.02 PM / 0.40 NOx / 0.19 NMHC	
	GEN > 560	0.03 PM / 0.67 NOx / 0.19 NMHC	
	ELSE > 560	0.04 PM / 3.5 NOx / 0.19 NMHC	
Ultra Low NOx	kW ≥ 19	Final Tier 4 PM & NMHC / 0.20 NOx	2 for 1

Notes:
1 All engines must meet the Tier 4 crankcase emissions requirements. Engines must certify using all test and other requirements otherwise required for final Tier 4 standards such as for transient and not-to-exceed limits.
2 Offsets must be earned prior to the start of phase-in requirements (prior to 2013 for 19 ≤ kW < 56 engines, prior to 2012 for 56 ≤ kW < 130 engines, prior to 2011 for 130 ≤ kW ≤ 560 engines, prior to 2015 for > 560 kW engines)

(7) *Provisions for small-volume manufacturers.* Small-volume engine manufacturers are entitled to special compliance provisions under this paragraph, but must notify the Executive Officer in writing before January 1, 2008, of the intent to use the provisions.

(A) Small-volume engine manufacturers may delay complying with certain otherwise applicable Tier 4 emission standards and requirements as described in the following table:

Table 5. – Small-Volume Engine Manufacturer Provisions

Maximum Engine Power	Temporary Relief Replacement Standards	Delay End Date (Model Year)
kW < 19	Tier 2	2011
19 ≤ kW < 37	Interim Tier 4	2016
37 ≤ kW < 56	See paragraph (7)(B) of this section for special provisions that apply for engines in this power range.	
56 ≤ kW < 130	Tier 3	2015

(B) The provisions of this paragraph (7) for engines 37 ≤ kW < 56 are applicable per one of the following options:

1. Manufacturers that comply with the 0.30 g/kW-hr PM standard in all model years from 2008 through 2012 without using PM credits may continue meeting that standard through 2015.

2. Manufacturers that choose not to comply with paragraph (7)(B)1. of this section may continue to comply with the standards and requirements in the 2000 Plus Limited Test Procedures for model years through 2012, but must begin complying in 2013 with the Tier 4 standards and requirements specified in Table 1b for model years 2013 and later.

(C) After the period of relief indicated in paragraphs (7)(A) and (B) of this section has expired, small-volume engine manufacturers must comply with the same Tier 4 standards and requirements as all other manufacturers.

(D) For engines not in the 19 ≤ kW < 56 power range, small-volume engine manufacturers must meet the following conditions for the model years in which compliance with the otherwise applicable standards under this paragraph (7) is delayed:

1. Produce engines that meet all the emission standards and other requirements under the 2000 Plus Limited Test Procedures applicable for that model year, except as noted in this paragraph (7).

2. Meet the labeling requirements in the 2000 Plus Limited Test Procedures, but must use the following in place of the otherwise required statement of compliance in Section 2424(c)(2): "THIS ENGINE COMPLIES WITH CALIFORNIA REGULATIONS FOR [CURRENT MODEL YEAR] OFF-ROAD COMPRESSION-IGNITION ENGINES UNDER 13 CCR 2423(b)(7)." The referencing of similar federal requirements under this provision is permitted.

3. Small-volume engine manufacturers must notify the equipment manufacturer that the engines produced under this section are excluded from the production volumes associated with the equipment manufacturer flexibility program in Section 2423(d).

(E) For engines in the 19 ≤ kW < 56 power range, small-volume engine manufacturers must meet the following conditions for the model years in which compliance with the otherwise applicable standards under this paragraph (7) is delayed:

1. Produce engines in those model years that meet all the emission standards and other requirements that applied for model year 2008 engines in the same power category.

2. Meet the labeling requirements in Section 2424(c)(3), but use the following compliance statement instead of the compliance statement in Section 2423(c)(3): "THIS ENGINE COMPLIES WITH CALIFORNIA REGULATIONS FOR [CURRENT MODEL YEAR] OFF-ROAD COMPRESSION-IGNITION ENGINES UNDER 13 CCR 2423(b)(7)." The referencing of similar federal requirements under this provision is permitted.

3. Notify the equipment manufacturer that engines produced under this section are excluded from the production volumes associated with the equipment-manufacturer allowance program in Section 2423(d).

(F) The provisions of this paragraph (7) may not be used to circumvent the requirements of this article.

(8) *Useful life*. For purposes of certification, a manufacturer must demonstrate compliance with the standards set forth in this paragraph (b) over the full useful life of the engine, as defined in the applicable test procedures.

(9) *NTE deficiencies*. A manufacturer may petition the Executive Officer to accept an off-road compression-ignition engine as compliant with the NTE requirements specified in the 2008 and Later Test Procedures even though specific elements of those requirements may not be fully met. Such grants of compliance, otherwise known as deficiencies, shall be limited to engines that have functioning emission-control hardware capable of allowing the engine to comply with the NTE limits. Deficiencies shall be granted by the Executive Officer according to the following stipulations:

(A) A manufacturer must apply for specific deficiencies at the time of, or prior to, submitting its application for certification. Deficiencies shall be assigned for an engine model within an engine family. The Executive Officer shall not approve deficiencies that are requested retroactively to cover engines already certified. The scope of each deficiency must be clearly identified in the certification application, and any auxiliary emission control device(s) used to control emissions to the lowest practical level must be identified with respect to each deficiency that is being requested.

(B) Deficiencies shall only be approved if compliance would be infeasible or unreasonable considering factors such as the technical feasibility of the given hardware, the availability of lead time, production cycles including the phase-in or phase-out of engines or vehicle designs, and planned computers upgrades. Other relevant factors may be considered.

(C) Deficiencies shall expire after a single model year and may be limited to specific engine configurations. The Executive Officer may approve a manufacturer's request for the same deficiency in the following model year if correcting the deficiency would require extreme hardware or software modifications and the manufacturer has demonstrated an acceptable level of effort toward complying.

(D) The number of deficiencies available to a manufacturer shall not be limited during the first three model years in which NTE limits apply to the manufacturer's engines. For the next four model years, up to three deficiencies per engine family shall be available to a manufacturer. Deficiencies of the same type that apply similarly to different power ratings within a family shall count as one deficiency per family. The Executive Officer may conditionally approve additional deficiencies during these four years, but may impose stipulations on their applicability as appropriate. Deficiencies shall not be approved beyond the seven-year period specified in this paragraph (8).

(10) *Adjustable parameters*. Manufacturers that design engines with adjustable parameters must meet all the requirements of this paragraph (b) for any adjustment in the physically adjustable range. An operating parameter is not considered adjustable if it is permanently sealed or if it is not normally accessible using ordinary tools. The Executive Officer may require that the adjustable parameters be set to any specification within the adjustable range during any testing, including certification testing, selective enforcement auditing, or in-use testing.

(11) *Prohibited controls*. A manufacturer shall not design engines with emission control devices, systems, or elements of design that cause or contribute to an unreasonable risk to public health, welfare, or safety while operating.

(12) *Defeat devices*. Engines equipped with a defeat device shall not be certified for sale in California. A defeat device is a component or system that reduces the effectiveness of emission controls under conditions that the engine may reasonably be expected to encounter during normal operation and use. This prohibition does not apply to auxiliary-emission control devices identified in the certification application if one of more of the following is true:

(A) The operating conditions where the auxiliary-emission control device is active were substantially encountered during all testing requirements as described in Part 1039, Subpart F of the 2008 and Later Test Procedures.

(B) The design of the auxiliary-emission control device is shown to be necessary for preventing engine (or equipment) damage or accidents.

(C) The auxiliary-emission control device only reduces the effectiveness of emissions control during engine starting.

(c)(1) The test procedures for determining certification and compliance with the standards for gaseous exhaust emissions from new 1996-1999 heavy-duty off-road compression-ignition engines sold in the state are set forth in the 1996-1999 Heavy-Duty Test Procedures.

(2)(A) The test procedures for determining certification and compliance with the standards for gaseous exhaust emissions and the standards for opacity of smoke emissions from new 2000 model year and later off-road compression-ignition engines for which the standards in paragraph (b)(1)(A) are applicable, and sold in the state, are set forth in the 2000 ~~and Later~~Plus Limited Test Procedures.

(B) The test procedures for determining certification and compliance with the standards for gaseous exhaust emissions, particulate exhaust emissions, opacity of smoke emissions, and not-to-exceed emissions from new 2008 model year and later off-road compression-ignition engines for which the limits in paragraph (b)(1)(B) are applicable, and sold in the state, are set forth in the 2008 and Later Test Procedures.

(3) The test procedures for determining certification and compliance with the standards for particulate exhaust emissions from new 1996 and later off-road compression-ignition engines for which the standards in paragraph (b)(1)(A) are applicable, and sold in the state, are set forth in the PM and Test Cycle Limited Test Procedures.

(4) The test procedures for determining certification and compliance with the standards for the opacity of smoke emissions from new 1996-1999 off-road compression-ignition engines sold in the state are set forth in the 1996-1999 Smoke Test Procedures.

(d) *Implementation flexibility for equipment and vehicle manufacturers and post-manufacture marinizers.* For a limited time, ~~O~~off-road equipment and vehicle manufacturers and post-manufacture marinizers may ~~take any of the otherwise prohibited actions identified in the 2000 and Later Test Procedures (Section 89.1003(a)(1)) with respect to~~ produce equipment with engines that are subject to less stringent emission standards than required by Tables 1a and 1b for new 2000 model year and later off-road equipment and vehicles and marine compression-ignition engines, subject to the requirements of paragraph (e) of this section. Separate provisions are provided for equipment with engines subject to the 2000 Plus Limited Test Procedures versus equipment with engines subject to the 2008 and Later Test Procedures, and are identified accordingly in the following subsections. Only manufacturers that have primary responsibility for designing and manufacturing equipment, and have manufacturing procedures for installing engines in equipment, are eligible to participate in the equipment manufacturer flexibility program provided by the

2008 and Later Test Procedures. Equipment manufacturers participating in this flexibility program must comply with the notification and reporting requirements specified in Section 2423(d)(7). Engines produced for this flexibility program using FELs greater than the applicable standards must be offset with sufficient ABT credits. The following allowances apply separately to each engine power category subject to standards under Section 2423(b)(1):

(1) *Percent-of-production allowances.*

(A) *Equipment rated at or above 37kW and subject to the 2000 Plus Limited Test Procedures.* ~~For off-road equipment and vehicles with engines rated at or above 37kW, a~~A manufacturer may ~~take any of the actions identified in the 2000 and Later Test Procedures (Section 89.1003(a)(1))~~ produce equipment and vehicles with engines rated at, or above, 37kW that are exempted from meeting current model year emission standards for a portion of its California-directed production volume ~~of such equipment and vehicles during~~. These percent-of-production flexibility allowances must be used within the seven years immediately following the date on which Tier 2 engine standards first apply to engines used in such equipment and vehicles, provided that the seven-year sum of the U.S.-directed portion~~s in each year~~ of the manufacturer's percent-of-production flexibility allowances~~, as expressed as a percentage for each year,~~ does not exceed 80 percent, expressed in cumulative yearly percentage increments, and provided that all such equipment and vehicles ~~or equipment~~ contain only ~~Tier 1~~ engines that have been certified to the Tier 1 or Tier 2 standards;

(B) *Equipment rated under 37kW and subject to the 2000 Plus Limited Test Procedures.* ~~For off-road equipment and vehicles and marine diesel engines with engines rated under 37kW, a~~A manufacturer or post-manufacture marinizer may ~~take any of the actions identified in the 2000 and Later Test Procedures (Section 89.1003(a)(1))~~ produce equipment and vehicles and marine engines with engines rated under 37kW that are exempt from meeting current model year emission standards for a portion of its California-directed production volume ~~of such equipment and vehicles during~~. These percent-of-production flexibility allowances must be used within the seven years immediately following the date on which Tier 1 engine standards first apply to engines used in such equipment and vehicles and marine engines, provided that the seven-year sum of the U.S.-directed portion~~s in each year~~ of the manufacturer's percent-of-production flexibility allowances~~, as expressed as a percentage for each year,~~ does not exceed 80 percent, expressed in cumulative yearly percentage increments~~.~~;

(C) *Equipment subject to the 2008 and Later Test procedures.* A manufacturer may produce equipment and vehicles with engines that are exempt from meeting current model year emission standards for a portion of its California-directed production volume. These percent-of-production flexibility allowances must be used within one of the seven-year flexibility usage periods specified in Table 6 for each applicable power category, provided that the seven-year sum of the U.S.-directed portion of the manufacturer's percent-of-production flexibility allowances does not exceed 80 percent,

expressed in cumulative yearly percentage increments, except as provided for in paragraph (d)(6) or (f). Equipment used as percent-of-production flexibility allowances must contain only engines that have been certified to, at least, the standards listed in Table 6, corresponding to the flexibility usage period selected by the manufacturer. All flexibility allowances for a power category must be used within the same flexibility usage period.

Table 6. – Tier 4 Flexibility Allowance Options

Power Category	7 Year Usage Period	Flexibility Standard
< 19 kW	2008 – 2014	Tier 2
19 ≤ kW < 56	2008 – 2014[1]	Tier 3[2]
	2012 - 2018	2008 Interim Tier 4
56 ≤ kW < 130	2012 - 2018	Tier 3
	2014 - 2020	2012 Interim Tier 4
130 ≤ kW ≤ 560	2011 - 2017	Tier 3
	2014 - 2020	2011 Interim Tier 4
> 560 kW	2011 - 2017	Tier 2
	2015 - 2021	2011 Interim Tier 4

Notes:
1 This usage period is not available for allowances greater than or equal to 37 kW unless interim Tier 4 standards have been met starting in 2008.
2 Flexibility allowances under 37kW may contain engines certified to the Tier 2 standards.

(2)(A) *Small volume allowances subject to the 2000 Plus Limited Test Procedures*. An off-road equipment or vehicle manufacturer or post-manufacture~~r~~ marinizer may exceed the production percentages in paragraphs (d)(1) (A) and (B) of this section for a portion of its California-directed production, provided that in each regulated power category the manufacturer's total number of U.S.-directed ~~excepted~~ off-road equipment and vehicles and marine diesel ~~engines~~applications that contain engines which are exempt from meeting current model year emission standards over the years in which the percent-of-production allowance applies:

~~(A)~~1. does not exceed 100 units times the number of years in which the percent-of-production allowance applies, and

~~(B)~~2. does not exceed 200 units in any year, and

~~(C)~~3. does not use engines from more than one engine family~~, or, for excepted equipment, vehicles, and marine diesel engines using engines not belonging to any engine family, from more than one engine manufacturer~~.

(B) *Small volume allowances subject to the 2008 and Later Test Procedures.* As an alternative to the percent-of-production allowance in Section 2423(d)(1)(C), an off-road equipment or vehicle manufacturer may produce equipment with engines that are exempt from meeting current model year emission standards for a portion of its California-directed production volume, provided that the exempt equipment is a subset of the manufacturer's U.S.-directed volume of exempt equipment and the manufacturer is in compliance with the following provisions:

1. *Single engine family provision.* A manufacturer may claim up to 700 U.S.-directed flexibility allowances within a power category during one of the seven-year flexibility usage periods specified in Table 6, but no more than 200 allowances in a single year within a power category, except as provided for in paragraph(d)(6) or (f). Engines within a power category that are used in these flexibility allowances must be from a single engine family within a given year.

2.a. *Multiple engine family provision for flexibility allowances below 130 kW.* A manufacturer may claim up to 525 U.S.-directed flexibility allowances within a power category during one of the seven-year flexibility usage periods specified in Table 6, but no more than 150 allowances in a single year within a power category, except as provided for in paragraph (d)(6) or (f). Engines within a power category that are used in these flexibility allowances may be from multiple engine families within a given year.

b. *Multiple engine family provision for flexibility allowances at or above 130 kW.* A manufacturer may produce up to 350 U.S.-directed flexibility allowances within a power category during one of the seven-year flexibility usage periods specified in Table 6, but no more than 100 allowances in a single year within a power category, except as provided for in paragraph (d)(6) of (f). Engines within a power category that are used in these flexibility allowances may be from multiple engine families within a given year.

(3)(A) *Inclusion of previous-tier engines.* Off-road equipment and vehicles and marine diesel engines built with previous tier or noncertified engines under the existing inventory provisions of the 2000 ~~and Later~~Plus Limited Test Procedures (40 CFR Section 89.1003(b)(4)) need not be included in determining compliance with paragraphs (d)(1)(A) and (B) and (d)(2)(A) of this section.

(B) *Inclusion of engines not subject to Tier 4 requirements.* Off-road equipment and vehicles built with engines otherwise exempt from the requirements of the 2008 and Later Test Procedures are not required to be counted toward the percentage, or number, of claimed flexibility allowances under the provisions in Subsections (d)(1)(C) and (d)(2)(B). Such exempted engines include unused inventories produced prior to the effective date of the Tier 4 standards, excluding stockpiled engines, and hand-startable, air cooled, direct-injection engines below 8 kW in 2008 and 2009 that do not meet the Tier 4 PM standard. Nonetheless, manufacturers may choose to include these engines in the count of total equipment produced from which the percentage of flexibility allowances in Subsection (d)(1)(C) is derived.

(4) *Early-use of flexibility allowances.* Manufacturers may start using a portion of the flexibility allowances in Subsections (d)(1)(C) and (d)(2)(B) for equipment and vehicles containing engines not yet subject to the Tier 4 standards, provided that the seven-year period for using flexibility allowances under the 2000 Plus Limited Test Procedures flexibility program has expired. All equipment and vehicles claimed as flexibility allowances under this early-use provision must contain engines that have been certified to, at least, the Tier 1 standards. Manufacturers must count these Tier 2 or Tier 3 equipment and vehicles toward the total percentage, or number, of flexibility allowances permitted under the provisions of Sections (d)(1)(C) and (d)(2)(B). The maximum cumulative early-use allowance is 10 percent under the percent-of-production provision in Section (d)(1)(C), or 100 units under the small volume provision in Section (d)(2)(B). Table 7 shows the applicable years for using early-use flexibility allowances. Table 7 follows:

Table 7. – Years for Early-Use Flexibility Allowances

Maximum Engine Power	Calendar Years
kW < 19	2007
19 ≤ kW < 37	2006 - 2011
37 ≤ kW < 56	2011
56 ≤ kW < 75	2011
75 ≤ kW < 130	2010 - 2011
130 ≤ kW < 225	2010
225 ≤ kW < 450	2008 - 2010
450 ≤ kW ≤ 560	2009 - 2010
> 560 kW	-

(5) *Labeling requirements.* Allowances claimed under the Tier 2/3 or Tier 4 equipment flexibility programs must be labeled, as appropriate, per the following:

(A) *Engine labeling.* Except for engines used in flexibility allowances prior to January 1, 2007, engine manufacturers shall meet the labeling requirements provided in Section 2424 with the following substitutions:

For flexibility engines meeting previous year emission requirements, the engine manufacturer shall substitute the following for the statement of compliance required in Sections 2424(c)(1)(E)6 and 2424(c)(2):

"THIS ENGINE COMPLIES WITH CALIFORNIA EMISSION REQUIREMENTS UNDER 13 CCR 2423(d). SELLING OR INSTALLING THIS ENGINE FOR ANY PURPOSE OTHER THAN FOR THE EQUIPMENT FLEXIBILITY PROVISIONS CITED MAY BE A VIOLATION OF STATE LAW SUBJECT TO CIVIL PENALTY." [Insert Engine Family Name]

For flexibility engines less than 37 kW and not subject to emission requirements under the Tier 2/3 program, the engine manufacturer shall substitute the following for the statement of compliance required in Section 2424(c)(1)(E)6:

"THIS ENGINE QUALIFIES FOR USE IN EQUIPMENT RATED BELOW 37 KW BY PROVISION OF 13 CCR 2423(d). SELLING OR INSTALLING THIS ENGINE FOR ANY PURPOSE OTHER THAN FOR THE EQUIPMENT FLEXIBILITY PROVISIONS CITED MAY BE A VIOLATION OF CALIFORNIA LAW SUBJECT TO CIVIL PENALTY."

As an alternative for flexibility engines produced under the Tier 2/3 program, and for which the engine manufacturer offers proof to the Executive Officer that the otherwise required statements of compliance in this subsection would be unduly burdensome or costly to implement, engine manufacturers may instead use the following:

"THIS ENGINE CONFORMS TO CALIFORNIA OFF-ROAD COMPRESSION-IGNITION ENGINE REGULATIONS UNDER 13 CCR 2423(d)." [Insert Engine Family Name if Certified]

These revised statements of compliance do not preclude the referencing of similar federal requirements that would be satisfied simultaneously by meeting the provisions of Section 2423(d). Furthermore, the Executive Officer may, upon request, approve alternate labeling specifications that are equivalent to the specifications in this subsection.

(B) *Equipment Labeling*. For all allowances claimed under the Tier 4 flexibility program, equipment manufacturers shall affix a permanent label to the engine, or to a readily visible section of the equipment that cannot be easily removed. The label shall be in the English language, shall supplement the manufacturer's emission control information label, and shall include the following information:

1. The label heading "EMISSION CONTROL INFORMATION".
2. The equipment manufacturer's corporate name and trademark.
3. The calendar year in which the equipment is manufactured.
4. The name, e-mail address, and phone number of a person to contact for further information.
5. The following statement:
   "THIS EQUIPMENT [or identify the type of equipment] HAS AN ENGINE THAT MEETS CALIFORNIA EMISSION STANDARDS UNDER 13 CCR 2423(d)."

This label content does not preclude the referencing of similar federal requirements that would be satisfied simultaneously by meeting the provisions of Section 2423(d).

(6) *Technical hardship allowances*. Equipment manufacturers may apply for additional flexibility allowances should extreme and unusual circumstances occur

leading to technical obstacles in complying with the Tier 4 requirements. A manufacturer may request additional allowances for power categories 19 ≤ kW ≤ 560 if it claims allowances under the provisions of Section 2423(d)(1)(C), but may only request additional allowances for power categories 19 ≤ kW < 56 if it claims allowances under the provisions of Section 2423(d)(2)(B). Additional flexibility allowances shall not be provided when the engine and equipment are produced by the same manufacturer, or affiliate. The Executive Officer shall review requests for additional flexibility allowances according to the following stipulations:

(A) The manufacturer requesting additional allowances must demonstrate that the circumstances necessitating them were outside the control of the manufacturer and could not have been avoided with reasonable discretion. The manufacturer must also demonstrate that it has exercised prudent planning and has taken reasonable steps to minimize the scope of the request.

(B) Manufacturers applying for additional flexibility allowances must do so in writing to the Chief of the Mobile Source Operations Division, or designee, prior to the earliest date in which the applying manufacturer would be in violation of Section 2423(b)(1). All applications shall provide, at a minimum, the following information:

1. A description of the manufacturer's equipment design process.

2. A description of the relationship with the engine supplier regarding product design.

3. An explanation of the technical hardship leading to this request, why it cannot be addressed without additional flexibility allowances, and an explanation of the circumstances behind the technical hardship and why it was unavoidable.

4. A description of the information and products provided by the engine supplier related to equipment design, including specifications, performance data, prototypes, and the dates of delivery.

5. A comparison of the design processes of the equipment model(s) for which additional allowances are needed versus those of other models that do not need additional allowances, and an explanation of how the technical differences between the models justify the request for additional allowances.

6. A description of all efforts to find and use other compliant engines, or otherwise an explanation why none are available.

7. A description of the steps taken to minimize the scope of the manufacturer's request, and any other relevant information.

8. An estimation of the number of additional allowances needed for each equipment model covered by the request, subject to Sections 2423(d)(6)(C) and (d)(6)(D) below.

Notwithstanding, the Executive Officer may require additional information as deemed necessary before making a determination for relief.

(C) The following limits shall apply for additional flexibility allowances granted in connection to the percent-of-production provisions in Section 2423(d)(1)(C):

1. A manufacturer's California-directed share of additional flexibility allowances for each power category shall be a subset of its U.S.-directed allowances for the same power category, provided that the additional U.S.-directed allowances do not exceed 70 percent of the U.S.-directed volume of production for the power category for one year.

2. All primary percent-of-production allowances must be completely used up prior to the use of any additional flexibility allowances.

3. All additional allowances shall expire 24 months after the start of the applicable flexibility usage period for each power category, as specified in Table 6. These allowances shall only be used for the specific equipment models covered in the manufacturer's written application for relief.

(D) The following limits shall apply for additional flexibility allowances granted in connection to the small volume provisions in Section 2423(d)(2)(B):

1. Only small equipment manufacturers, as defined below, that have not been granted additional flexibility allowances for the 19 ≤ kW < 56 power category under Section 2423(d)(6)(C), are eligible to request additional flexibility allowance under this provision.

"Small equipment manufacturer," for the purpose of this provision, means a federally defined small-business equipment manufacturer that had an annual U.S.-directed production volume of equipment using off-road diesel engines 19 ≤ kW < 56 of no more than 3,000 units in 2002 and all earlier calendar years, and has 750 or fewer employees (500 or fewer employees for nonroad equipment manufacturers that produce no construction equipment or industrial trucks). For manufacturers owned by a parent company, the production limit applies to the production of the parent company and all its subsidiaries and the employee limit applies to the total number of employees of the parent company and all its subsidiaries.

2. All primary small volume allowances for the 19 ≤ kW < 56 power category must be completely used up for a given year prior to the use of additional flexibility allowances.

3. Additional allowances shall only be used for equipment with engines rated 19 ≤ kW < 37.

4. A manufacturer's California-directed share of additional flexibility allowances under this provision shall be a subset of its U.S.-directed allowances, which shall not exceed 1,100.

5. All additional allowances shall expire 36 months after the start of the applicable flexibility usage period for each power category, as specified in Table 6. The allowances shall only be used for the specific equipment models covered in the manufacturer's written application for relief. The additional allowances are not subject to small volume annual limits.

(7) *Notification and reporting requirements for using Tier 4 flexibility allowances.* As a prerequisite to using any Tier 4 flexibility allowances, the equipment manufacturer shall notify the ARB of its intent to use such allowances. The manufacturer shall also send an annual report after each year that flexibility allowances have been used to verify that the allowances claimed do not exceed the number of allowances permitted.

(A) Before January 1 of the first year that flexibility provisions will be used, a written notice informing ARB of the manufacturer's intent to use flexibility allowances must be sent to the Chief of the Mobile Source Operations Division, or designee, containing the following information:

1. The equipment manufacturer's name and address, and the name and address of the parent company, if applicable.

2. The name and telephone number of a person to contact for more information.

3. The calendar years for which the Tier 4 flexibility provisions shall apply.

4. The engine manufacturer's name and address that produces the engines which will be used in the equipment claimed as flexibility allowances.

5. An accurate estimate of the number of flexibility allowances in each power category that will be produced under the percent-of-production provisions in Section 2423(d)(1)(C), or the small volume provisions in Section 2423(d)(2)(B).

6. A tabulation of U.S.-directed flexibility allowances in each power category that have been sold in previous calendar years under the provisions of Section 2423(d) and 40 CFR 89.102(d).

(B) For each year that Tier 4 flexibility allowances are used, the equipment manufacturer shall submit, by March 31 of the following year, a written report to the Chief of the Mobile Source Operations Division, or designee, documenting the utilization

of those allowances. This report shall include the total number of equipment sold by the manufacturer during the preceding year for each power category, based on actual U.S.-directed production information, and shall identify the flexibility allowances in each power category by reporting the percentages of U.S.-directed flexibility production corresponding to the number of equipment in each power category. The report shall also identify the cumulative yearly totals and percentages for all flexibility allowances sold for each power category. Alternatively, the percentage figures may be omitted from the report if the report states that percent-of-production allowances were not used. If available, end of year percentage figures for California-directed sales shall also be included in this report.

(8) *Import restrictions on the use of Tier 4 flexibility allowances.* Foreign equipment manufacturers may only import equipment with exempted flexibility engines into California according to the stipulations in Section 1039.626 of the 2008 and Later Test Procedures. These stipulations address the potential for abuse whereby individual importers could collectively import more flexibility allowances than permitted based on the foreign equipment manufacturer's total production for the United States market. The stipulations include acceptance by the foreign equipment manufacturer of random audits by the ARB or its representatives, and the posting of a monetary bond for each imported engine to cover the cost of any potential enforcement actions. Foreign equipment manufacturers who comply with the stipulations will be eligible to receive the same flexibility allowances as domestic manufacturers.

(9) *Early introduction incentives for equipment manufacturers.* In addition to the equipment flexibility allowances provided in Subsections (d)(1)(C) and (d)(2)(B), equipment manufacturers, as provided in the 2008 and Later Test Procedures, may earn additional allowances for the early introduction of equipment with engines meeting the Tier 4 standards in Table 1b. Equipment manufacturers installing engines at or above 19 kW that comply with the final Tier 4 PM and NOx standards could earn one flexibility allowance for each early Tier 4 compliant engine used in its equipment. Equipment manufacturers installing engines $56 \leq kW \leq 560$ that comply with the final Tier 4 PM standard and the alternative NOx standard could earn one-half of a flexibility allowance for each early Tier 4 engine used in its equipment. Table 8, below, summarizes the incentives for the early introduction of Tier 4 compliant equipment and some of the conditions that determine eligibility. Should an equipment manufacturer decline flexibility allowances earned with this provision, the allowances would then be available to the engine manufacturer that had supplied the early introduction engine, subject to the provisions in Section 2423(b)(6).

Table 8. – Early Introduction Incentives for Equipment Manufacturers

POWER CATEGORY	QUALIFYING STANDARDS (g/kW-hr)	INSTALLATION DEADLINE	FLEXIBILITY ALLOWANCE
19 ≤ kW < 56	0.03 PM / 4.7 NMHC+NOx	December 31, 2012 [1]	1 for 1
56 ≤ kW ≤ 130	0.02 PM / 0.40 NOx / 0.19 NMHC	December 31, 2011	1 for 1
	0.02 PM / 3.4 NOx / 0.19 NMHC [2]		1 for 2
130 ≤ kW ≤ 560	0.02 PM / 0.40 NOx / 0.19 NMHC	December 31, 2010	1 for 1
	0.02 PM / 2.0 NOx / 0.19 NMHC [2]		1 for 2
GEN > 560	0.03 PM / 0.67 NOx / 0.19 NMHC	December 31, 2014	1 for 1
ELSE > 560	0.04 PM / 3.5 NOx / 0.19 NMHC		

Notes:
1 The installation date for 37 ≤ kW ≤ 56 engines purchased from manufacturers choosing to opt out of the 2008 model year Tier 4 standards and instead comply with the Tier 4 standards beginning in 2012 would be December 31, 2011.
2 To be eligible, engines must meet the 0.02 g/kW-hr PM standard and the alternative NOx standards.

(e) *Recordkeeping and calculation to verify compliance.* The following shall apply to off-road equipment or vehicle manufacturers and post-manufacture marinizers who produce ~~excepted~~ flexibility equipment or vehicles or marine diesel engines under both the Tier 2/3 and Tier 4 flexibility provisions of paragraph (d) of this section, except as otherwise noted:

(1) For each power category in which excepted off-road equipment or vehicles or marine diesel engines are produced, a calculation to verify compliance with the requirements of paragraph (d) of this section shall be made by the off-road equipment or vehicle manufacturer or post-manufacture~~r~~ marinizer. This calculation shall be made for flexibility allowances under the Tier 2/3 program no later than December 31 of the year following the last year in which allowances are used, and as indicated in Subsection (d)(7)(B) for flexibility allowances under the Tier 4 program. The calculation shall be based on actual national production information from the subject years. If both the percent-of-production and small volume allowances have been exceeded, then the manufacturer is in violation of Section 2420(a)(3), except as provided under Subsection (d)(6) and paragraph~~s~~ (f) ~~and (h)~~ of this section.

(2) An off-road equipment or vehicle manufacturer or post-manufacture~~r~~ marinizer shall keep records of all off-road equipment and vehicles and marine diesel engines sold in California ~~and excepted~~ under the provisions of paragraph (d) of this section, for each power category in which ~~exceptions are taken~~flexibility allowances are claimed. These records shall include equipment and engine model numbers, serial numbers, and dates of manufacture, ~~and~~ engine rated power for Tier 2/3 flexibility engines, and maximum engine power for Tier 4 flexibility engines. In addition, the manufacturer shall keep records sufficient to demonstrate the verifications of

compliance required in paragraph (e)(1) of this section and the notifications and reports specified in Section 2423(d)(7), as applicable. All records shall be kept until at least two full years for flexibility allowances under the Tier 2/3 program and five full years for flexibility allowances under the Tier 4 program after the final year in which allowances are available for each power category, and shall be made available to the Executive Officer upon request.

(f) *Economic ~~H~~hardship relief.* Off-road equipment and vehicle manufacturers and post-manufacture marinizers may ~~take any of the otherwise prohibited actions identified in Section 89.1003(b)(4) of the 2000 and Later Test Procedures, if approved by the~~ request relief from the Executive Officer, or designee, ~~and~~ subject to the following requirements:

(1) The application for relief must be submitted for approval to the Chief of the Mobile Source Operations Division, or designee, in writing prior to the earliest date in which the applying manufacturer would be in violation of Section 2423(b)(1). The off-road equipment or vehicle manufacturer applying for hardship relief must submit evidence for approval, showing that the following requirements have been met:

(A) The off-road equipment or vehicle manufacturer applying for hardship relief must not be the manufacturer of the engines used in the equipment for which relief is sought. This requirement does not apply to post-manufacture~~r~~ marinizers.

(B) The conditions causing the impending violation must not be substantially the fault of the applying manufacturer.

(C) The conditions causing the impending violation must be such that the off-road equipment or vehicle manufacturer applying for hardship relief will experience serious economic hardship if relief is not granted.

(D) The off-road equipment or vehicle manufacturer applying for hardship relief must demonstrate that no allowances under paragraph (d) of this section will be available to avoid the impending violation.

(2) Any relief granted must begin within one year after the implementation date of the standard applying to the engines being used in the equipment, or to the marine diesel engines, for which relief is requested, and may not exceed ~~one year~~12 months (24 months for small volume manufacturers) in duration.

(3) The Executive Officer may impose other conditions on the granting of relief, including provisions to recover the lost environmental benefit. The labeling requirements in the 2008 and Later Test Procedures apply.

(g) *Alternative Flexibility for Post-Manufacture Marinizers.* Post-manufacture marinizers may elect to delay the effective date of the Tier 1 standards for marine

propulsion diesel engines rated under 37kW by one year, instead of using the provisions of paragraphs (d) and (f) of this section. Post-manufacture marinizers wishing to take advantage of this provision must inform the Executive Officer of their intent to do so in writing before the date that the standards would otherwise take effect.

(h) *Allowance for the production of engines.* ~~Engine manufacturers may take any of the otherwise prohibited actions identified in the 2000 and Later Test Procedures (Section 89.1003(a)(1)) with regard to uncertified engines or Tier 1 engines, as appropriate, if the engine is required t~~To meet the demand for engines created under paragraph (d), (f), or (g) of this section, engine manufacturers may produce engines that do not meet current year emission requirements. However, engine manufacturers must receive written assurance from each equipment manufacturer, prior to production, that a certain number of these engines are needed for the equipment manufacturer's Tier 4 equipment flexibility allowances. Engine ~~M~~manufacturers shall provide to the Executive Officer annually, as part of the certification application, a list of the equipment manufacturers requesting such engines for their Tier 2/3 and Tier 4 equipment flexibility allowances. The list shall include the equipment manufacturers' names, engine models, and estimated national production volumes. A copy of the original correspondence from the equipment manufacturer requesting the production of flexibility engines shall be kept on file by the engine manufacturer in addition to, and in accordance with, the provisions of § 1039.250 of the 2008 and Later Test Procedures, and shall be made available without delay to the Executive Officer upon request. Furthermore, all engines produced for sale in California under either of the transitional flexibility provisions for equipment manufacturers, must be covered by an Executive Order starting January 1, 2007. To obtain an Executive Order for these engines, the engine manufacturer shall comply with the following:

(1) Prior to the start of production, submit a letter to the Chief of the Mobile Source Operations Division, or designee, requesting certification for flexibility engines intended for sale in California, and

(2) Provide written assurance that the flexibility engines to be produced will be identical in all material respects to those for which a valid Executive Order has been issued in a previous model year. The engine family name of the previously certified engine family must be included in the manufacturer's request for certification.

Upon determination that the conditions in paragraphs (1) and (2) have been satisfied, the Executive Officer shall provide the engine manufacturer with an Executive Order covering the requested flexibility engine families for the current model year. The engine family names included in the Executive Order shall either be the same as, or a subset of the previously certified engine family names, and shall remain the same for as long as the engines continue to qualify as flexibility allowances regardless of model year. These engine family names shall be used by the engine manufacturer to comply with the labeling requirements of 2423(d)(5)(A).

(i) [Reserved]

(j)(1) A new compression-ignition off-road engine intended solely to replace an engine in a piece of off-road equipment that was originally produced with an engine manufactured prior to the applicable implementation date as specified in Section 2423, shall not be subject to the emission requirements of Section 2423 provided that:

(A) the engine manufacturer has ascertained that no engine produced by itself or the manufacturer of the engine that is being replaced, if different, and certified to the requirements of this article, is available with the appropriate physical or performance characteristics to repower the equipment; and

(B) unless an alternative control mechanism is approved in advanced by the Executive Officer, the engine manufacturer or its agent takes ownership and possession of the engine being replaced; and

(C) the engine manufacturer does not use the replacement-engine exemption to circumvent the regulations; and

(~~C~~D) the replacement engine is clearly labeled with the following language, or similar alternate language approved in advance by the Executive Officer:

"THIS ENGINE DOES NOT COMPLY WITH CALIFORNIA AND FEDERAL OFF-ROAD OR ON-HIGHWAY EMISSION REQUIREMENTS. SALE OR INSTALLATION OF THIS ENGINE FOR ANY PURPOSE OTHER THAN AS A REPLACEMENT ENGINE FOR AN ENGINE MANUFACTURED PRIOR TO JANUARY 1 [INSERT APPROPRIATE YEAR] IS A VIOLATION OF CALIFORNIA AND FEDERAL LAW SUBJECT TO CIVIL PENALTY."

2) At the conclusion of each of the 2000-~~2004~~ and later model years, the manufacturer must provide, by engine model, the actual number of replacement engines produced for California during the model year, and a description of the physical or performance characteristics of those models that indicate certified replacement engine(s) were not available as per paragraph (1).

(k) Any new engine certified to comply with California emission standards and test procedures for on-road applications may, upon approval by the Executive Officer, be considered to be in compliance with these regulations.

(l) *Practices and labeling requirements for rebuilt engines.* This subsection shall apply as provided in paragraph (1) below to all off-road compression-ignition engines subject to the requirements of Section 2423 that are rebuilt after December 31, 2006, including those engines that were originally manufactured on, or prior to, December 31, 2006.

(1) *Practices.* The rebuilding practices described in Part 89.130 of the incorporated 2000 Plus Limited Test Procedures, including the exemption for engines equal to or greater than 37 kW that meet the Tier 1 standard, and Part 1068.120 of the 2008 and Later Test Procedures shall apply. These practices are summarized in paragraphs (1)(A) and (1)(B) below, which are provided as respective references for the labeling requirements in paragraphs (2)(A) and (2)(B) of this subsection.

(A) Any person who rebuilds an engine that either remains installed in a piece of equipment during the rebuilding process or will be reinstalled after the rebuilding process has been completed shall rebuild the engine to the same certified configuration or the certified configuration of a later model year engine. For the purposes of this section, these engines shall be referred to as "rebuilt original engines."

(B) Any person who replaces the engine in a piece of equipment with a rebuilt engine (this includes engines that have been substantially assembled from parts originally belonging to one or more other engines) shall use a replacement engine with a certified configuration that is at least equivalent, from an emissions standpoint, to that of the engine being replaced. For the purposes of this section, these engines shall be referred to as "rebuilt replacement engines."

(2) *Labeling Requirements.*

(A) Rebuilt Original Engines. Any person who rebuilds engines for which the practices in paragraph (1)(A) of this subsection apply shall ensure that the rebuilt engines are labeled as follows:

1. An original engine that is rebuilt to the same emissions configuration employed by the engine at the time it was issued an Executive Order shall retain the emissions control label described in Section 2424. The rebuilder shall not remove or deface in any manner the original label and must take care to protect it from the effects of sandblasting, acid dipping, or any other restorative processes. Notwithstanding the preceding requirements and prohibitions of this paragraph (2)(A)1., the rebuilder shall substitute a new permanent label containing the text in paragraph (2)(A)2. below for the original emission control label if the rebuilder determines that the label has been irreparably corrupted due to extreme and unintentional circumstances (e.g., fire or collision). The rebuilder shall provide to the Executive Officer annually a list of all rebuilt engines for which original labels have been removed under this provision no later than two months after the end of each calendar year. The rebuilder shall retain all removed labels, or otherwise document the degree to which the labels were damaged or missing (e.g., photographic proof of the corruption), for a period of no less than eight years following the date of renovation, and shall make these available to the Executive Officer upon request. The rebuilder shall be subject to civil penalty under State law should the Executive Officer determine that the original emission control label did not warrant replacement or that the rebuilder is abusing this provision;

2. An original engine that is rebuilt to a more stringent emissions configuration shall be permanently re-labeled using the following text:

"THIS ENGINE HAS BEEN REBUILT UNDER 13 CCR 2423(l) USING MATCHED COMPONENTS OF THE SAME SPECIFICATIONS AND CALIBRATIONS AS THOSE OF A CERTIFIED TIER [*insert the numerical tier designation of the rebuilt engine*] OFF-ROAD COMPRESSION-IGNITION ENGINE. IF PLACED INTO SERVICE IN AN OFF-ROAD APPLICATION, THIS ENGINE MUST BE INSTALLED IN EQUIPMENT ORIGINALLY SOLD WITH A TIER [*insert the numerical tier designation of the rebuilt engine*] OR EARLIER ENGINE. [*insert the engine family name of the reference engine*]."

For the purpose of this label, "MATCHED" means a complete set of components corresponding to the certified emissions configuration being referenced (see the definition of "certified emissions configuration" in Section 2421(a)(13)). The reference engine is the engine family name corresponding to the certified emissions configuration to which the engine has been rebuilt. The label shall conform to the provisions of Section 2424 regarding location and visibility.

(B) Rebuilt Replacement Engines. Any person who rebuilds engines for which the practices in paragraph (1)(B) of this subsection apply shall ensure that the rebuilt engines are labeled as follows:

1. A replacement engine that is rebuilt to the same California emissions configuration employed by the engine at the time it was issued an Executive Order shall either retain the emission control label described in Section 2424 or be permanently re-labeled using the text in paragraph (2)(A)2 of this subsection. A replacement engine that is rebuilt to the same emissions configuration employed by the engine at the time it was issued a federal Certificate of Conformity, and for which no Executive Order exists, shall be permanently re-labeled using the text in paragraph (2)(A)2 of this subsection. prior to being installed in equipment that was originally sold with a California certified engine;

2. A replacement engine that is rebuilt to a more stringent emissions configuration shall be permanently re-labeled using the text in paragraph (2)(A)2. above;

3. An incomplete rebuilt replacement engine shall be permanently re-labeled using the text specified below. For the purposes of this subsection, "incomplete rebuilt replacement engine" means a rebuilt replacement engine that is sold or offered for sale in California without all the necessary components to enable engine operation including, but not necessarily limited to, the fuel system and the air system:

"THIS ENGINE HAS BEEN REBUILT UNDER 13 CCR 2423(l) AS AN INCOMPLETE ENGINE USING ONLY MATCHED COMPONENTS OF THE SAME SPECIFICATIONS AND CALIBRATIONS AS THOSE FOUND IN

OFF-ROAD COMPRESSION-IGNITION ENGINES CERTIFIED TO THE [*insert the numerical tier* or multiple tiers *designation of the rebuilt engine*]."

Any person who completes an incomplete rebuilt replacement engine with components that are not matched components, and the resulting engine is placed into service in California, is in violation of the rebuilding practices referenced under paragraph (1) of this subsection and subject to civil penalty under State law.

(C) Supplemental Labeling Requirements. Except as noted below, any person who sells or offers for sale any rebuilt engine subject to the provisions of subsection (l) shall affix a supplemental label to the rebuilt engine that:

1. states the name of the rebuilder, year of rebuild, and other pertinent information as determined by the rebuilder or specified by the Executive Officer; and

2. is clearly visible without the need to remove any engine components; and

3. does not obscure in any way the visibility of the original emission control label or the labels required under paragraphs (2)(A)2. or (2)(B)3. of this subsection; and

4. does not state or imply that the rebuilt engine is "new" or that it belongs to an engine family other than the one to which it was originally certified; and

5. has sufficient durability to remain intact and legible throughout all mandatory record keeping periods for rebuilt engines.

The requirement for a supplemental label shall be waived in cases where the rebuilder alternately chooses to incorporate the information in (C)1. above into the new permanent label specified in subsection (2)(A)2. or (2)(B)3.

(D) Rebuilt New Engines. Notwithstanding any other requirement of this subsection (l), any person who rebuilds an engine to comply with current-year emission requirements (including, but not limited to, durability and warranty), with the intent to sell or offer for sale the rebuilt engine as "new" under the coverage of a new and unique Executive Order, shall replace the original emission control label on that engine with one identifying the engine as belonging to a family meeting current-year emission requirements in accordance with the provisions of Section 2424. If desired, the rebuilder of a such an engine may optionally affix to it a supplemental label, but such a label would be required to comply with the same requirements specified in paragraph (C) of this subsection for any other rebuilt engine.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101 and 43104, Health and Safety Code. Reference: Sections 43013, 43017, 43018, 43101, 43104 and 43211-43212, Health and Safety Code.