

State of California
AIR RESOURCES BOARD

First Notice of Availability of Modified Text and Availability of Additional Documents

**PROPOSED REGULATION TO PROVIDE CERTIFICATION FLEXIBILITY FOR
INNOVATIVE HEAVY-DUTY ENGINES AND CALIFORNIA CERTIFICATION AND
INSTALLATION PROCEDURES FOR MEDIUM- AND HEAVY-DUTY VEHICLE HYBRID
CONVERSION SYSTEMS (INNOVATIVE TECHNOLOGY REGULATION)**

Public Hearing Date: October 20, 2016

Public Availability Date: May 31, 2017

Deadline for Public Comment: June 15, 2017

At its October 20, 2016, public hearing, the Air Resources Board (ARB or Board) approved for adoption the proposed California Code of Regulations, title 13, sections 2208, 2208.1 and 2208.2 (i.e., the proposed Innovative Technology Regulation); the proposed "California Certification and Installation Procedures for Medium- and Heavy-Duty Vehicle Hybrid Conversion Systems;" proposed amendments to California Code of Regulations, title 13, section 1956.8 (i.e., Exhaust Emission Standards and Test Procedures - 1985 and Subsequent Model Heavy-Duty Engines and Vehicles); proposed amendments to "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles;" and proposed amendments to "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines and Vehicles."

The proposed Innovative Technology Regulation and associated test procedures would provide targeted, short-term certification flexibility for: a heavy-duty engine meeting California's optional low oxides of nitrogen (NOx) emission standards; an engine that is to be installed in a hybrid heavy-duty vehicle; a heavy-duty engine that meets the proposed regulation's optional low carbon dioxide (CO₂) emission standards; and a truck or bus hybrid aftermarket conversion system. These technologies are each expected to play a role in helping California meet its long-term air quality and climate goals, and the proposed Innovative Technology Regulation is intended to facilitate their accelerated development and commercialization by addressing some of the challenges inherent in certifying a new technology for the first time.

The Board directed the Executive Officer to determine if additional conforming modifications to the proposed regulation were appropriate, and to make any proposed modified regulatory language available for public comment, with any additional supporting documents and information, for a period of at least 15 days, as required by California Government Code Section 11346.8. The Board further directed the Executive Officer to consider written comments submitted during the public review period and make any further modifications that are appropriate available for public comment for at least 15 days, and present the regulation to the Board for further consideration if warranted, or take final action to adopt the regulation after addressing all appropriate modifications.

The resolution and all other regulatory documents for this rulemaking are available online at the following ARB website:

<https://www.arb.ca.gov/regact/2016/itr2016/itr2016.htm>

The text of the modified proposed regulatory language is shown in Attachment 1 and the text of the modified proposed “California Certification and Installation Procedures for Medium- and Heavy-Duty Vehicle Hybrid Conversion Systems” is shown in Attachment 2. Modifications made in this 15-day notice are shown in ~~strikethrough~~ to indicate deletions and underline to indicate additions.

In the Final Statement of Reasons, staff will respond to all comments received on the record during the comment periods. The Administrative Procedure Act requires that staff respond to comments received regarding all noticed changes. Therefore, staff will only address comments received during this 15-day comment period that are responsive to this Notice, documents added to the record, and the changes detailed in Attachments 1 and 2.

Summary of Proposed Modifications

The following summary does not include all modifications to correct typographical or grammatical errors, changes in numbering or formatting, nor does it include all of the non-substantive revisions made to improve clarity.

Attachment 1: Proposed Regulation to Provide Certification Flexibility for Innovative Heavy-Duty Engines, and Certification and Installation Procedures for Medium- and Heavy-Duty Vehicle Hybrid Conversion Systems (Innovative Technology Regulation).

1. Section 2208(a) is being updated to add language to specify the particular sections of the California Code of Regulations, title 13, that make up the proposed regulation.
2. Sections 2208(b)(1)(A) and (b)(1)(C) are being updated to remove unnecessary incorporation by reference language.
3. Sections 2208(c)(1), 2208 (c)(10), 2208 (c)(12), 2208 (c)(13), 2208 (c)(18), 2208 (c)(19), and 2208 (c)(21) are being updated to correct improper capitalization of certain words, to correct internal references, to remove unnecessary incorporation by reference language, or to add necessary incorporation by reference language.
4. Section 2208(c)(18), which sets forth the definition for “low-NOx engine,” is being modified to include low-NOx Otto-cycle engines. The definition, as originally proposed, only included low-NOx diesel engines. This conflicts with the applicability of the proposed Innovative Technology Regulation, which would apply to both low-NOx diesel and low-NOx Otto-cycle engines.
5. Sections 2208.1(a)(1) and (2) are being updated to correct internal reference errors, to make word choice more accurate, or to remove unnecessary incorporation by reference language

6. Sections 2208.1(a)(2)(C), 2208.1(b)(3)(D), 2208.1(c)(2)(A)1., 2208.1(c)(2)(B)1., 2208.1(c)(3)(D), and 2208.1(c)(4)(D)2. are being updated to correct internal reference errors.
7. Sections 2208.1(b)(2) is being updated to modify the format of an internal reference, so that it is consistent with the format of other references in the proposed language.
8. Section 2208.1(c)(1)(C) is being updated to correct improper capitalization of certain words, to define the acronyms that are being used, and to correct the incorporation by reference language.
9. Section 2208.1(c)(2)(A)2.b. is being modified to clarify that only deficiencies related to the engine's integration into a hybrid vehicle would not be subject to the fines set forth in California Code of Regulations, title 13, sections 1971.1(k)(2) and (k)(3). Staff is making this change because the language, as originally proposed, could be interpreted to mean all deficiencies would not be subject to said fines. The original language conflicts with staff's intent, which is described in Appendix B to the Initial Statement of Reasons (Staff Report), "Summary and Rationale for Each Proposed Regulatory Provision." In addition, staff is removing redundant language that could cause confusion.
10. Section 2208.1(c)(2)(B)2.a.i. is being modified to clarify that the allowance to exclude one hybrid engine family from the calculation of a manufacturer's total number of engine families for the purposes of California Code of Regulations, title 13, section 1971.1(i)(2.2.3) applies on a per-model-year basis.
11. Section 2208.1(c)(2)(B)2.a.iii. was intended to allow a manufacturer to request an exemption from demonstration testing monitors that are not impacted by modifications such manufacturer has made to the engine or OBD system. However, the original proposed language would have allowed manufacturers to request an exemption from implementing, rather than just demonstration testing, said monitors. This was not staff's intent, which is described in Appendix B to the Staff Report. So the modified language clarifies the provision to accurately reflect the intent.
12. Section 2208.1(c)(4)(A)6 is being corrected so that it would only require a manufacturer of a hybrid powertrain utilizing an off-road, light-duty, or medium-duty engine to demonstrate no NOx emissions increase pursuant to section D of the "*California Interim Certification Procedures for 2004 and Subsequent Model Hybrid-Electric and Other Hybrid Vehicles, in the Urban Bus and Heavy-Duty Vehicle Classes*"¹ (Hybrid Vehicle Certification Procedures), instead of requiring full certification to such procedures. This modification is being made to address the fact that in order to certify to the Hybrid Vehicle Certification Procedures, manufacturers would be required to demonstrate compliance with the NOx emission factor ratio

1 - ARB; California Interim Certification Procedures for 2004 and Subsequent Model Hybrid-Electric and Other Hybrid Vehicles, in the Urban Bus and Heavy-Duty Vehicle Classes; October 21, 2014.

pursuant to Section E of those procedures through grams per brake-horsepower-hr (g/bhp-hr) emission values. Because g/bhp-hr emission values are not typically generated for light- and many medium-duty engines at the time of certification, meeting this requirement would require those engines to be re-tested on an engine dynamometer. This was not staff's intent, as indicated in the Staff Report, which states that for an off-road, light-duty, or medium-duty engine utilized in a heavy-duty hybrid, "[t]he engine would not be required to be re-certified as a heavy-duty engine on an engine dynamometer."

13. Section 2208.1(c)(4)(B)3. sets forth a requirement for off-road-equivalent engines used in on-road heavy-duty hybrids to meet the most stringent applicable emission standards for NOx and PM. This section is being modified to clarify that the standards that would apply are, appropriately, off-road, not on-road, emission standards.
14. Section 2208.1(c)(4)(C)2.c.ii., which sets forth production/sales limits for Tier 2 hybrids using light- and medium-duty engines, is being modified so that the language is consistent with the language in section 2208.1(c)(4)(B)2.c.ii., which sets forth equivalent production limits for Tier 2 hybrids using off-road engines. This change is being made to address staff's concern that the language difference could cause confusion.
15. Section 2208.1(c)(4)(C)3. would require the engine manufacturer, for an engine certified pursuant to section 2208.1(c)(4)(C), to first obtain written assurances from a hybrid vehicle manufacturer with regard to the total number of such engines they would need before shipping the engine to that hybrid vehicle manufacturer. This section, as originally proposed, would limit this requirement to light-duty engine and vehicle manufacturers only. Medium-duty engine manufacturers were inadvertently omitted from this requirement in the originally proposed language, and the omission conflicts with the fact that section 2208.1(c)(4)(C) applies to both light- and medium-duty engines. Therefore, the section is being corrected so that both light- and medium-duty engine manufacturers would be subject to requirement, as intended.
16. Section 2208.1(c)(4)(D) is being modified to clarify that the requirement to collect the specified data parameters applies to the vehicle manufacturer, not the actual engine or vehicle. In addition, the requirement to collect the data specified in section 2208.1(c)(4)(D)2. is being deleted because that section does not actually specify data to be collected, which could cause confusion.
17. Section 2208.1(c)(4)(D)1. is being modified to clarify that the manufacturer would be the entity responsible for presenting the data in the specified format. The language, as originally proposed, was not clear as to who would be responsible for presenting the data. The section is also being modified to remove redundant language and to correct word choice.
18. Section 2208.1(c)(4)(D)2. is being modified to improve clarity. The section, as originally proposed, cites the eligibility criteria in section 2208.1(c)(4)(A)6. as a condition for the section's applicability. Because the eligibility criteria in section 2208.1(c)(4)(A)6. would apply to all engines certifying pursuant to

section 2208.1(c)(4), the reference is being updated to refer to section 2208.1(c)(4) instead. Staff believes this change improves the clarity of the regulatory language. In addition, the section is being modified so that manufacturers would only be required to provide the specified data if the Executive Officer requests them. This change would help streamline the certification process in situations where the Executive Officer determines the specified data is not necessary.

19. Section 2208.1(d)(1)(B) is being modified to correct an inadvertent omission of Otto-cycle engines from a provision that would restrict hybrid engines certifying to the proposed optional low-CO₂ emission standards in California Code of Regulations, title 13, section 1956.8, from receiving the flexibilities intended for high-efficiency heavy-duty engines. This section, as originally proposed, would inadvertently apply only to diesel engines.
20. Incorporation by reference language related to the California Code of Regulations sections is being removed, since references to and incorporation of California Code of Regulations sections need not include this language. In addition, the adoption, amendment, and revision dates for test procedures, Code of Federal Regulation sections, and other references are being updated to the most recent versions, where applicable.

Attachment 2: California Certification and Installation Procedures for Medium- and Heavy-Duty Vehicle Hybrid Conversion Systems

1. Sections 4(a)(2)(A) through (C) are being modified to replace the requirement for a hybrid conversion manufacturer to demonstrate compliance with the three-day diurnal plus hot soak evaporative emission standard with a requirement for a hybrid conversion manufacturer to demonstrate compliance with the two-day diurnal plus hot soak evaporative emission standard instead. The modifications, which were introduced and presented at the October 20, 2016, public hearing, are being made based on staff's concerns that the three-day diurnal plus hot soak evaporative emission test (Three-Day Evaporative Test) would be unnecessarily burdensome for a conversion manufacturer to perform, and staff's belief that the two-day diurnal plus hot soak evaporative emission test (Two-Day Evaporative Test) is sufficiently effective for the purpose of ensuring no evaporative emission increase from the applicable medium- or heavy-duty hybrid vehicle conversion relative to the pre-converted vehicle.
2. Sections 4(a)(3), 5(f)(5)(A), 6(e)(5), 6(e)(5)(C)(ii.), 6(e)(6), and 7(c)(2)(D) are being modified to correct internal reference errors.
3. Sections 4(b)(1), 4(c)(1), 5(b)(1), and 5(c)(1) are being updated to improve the clarity of provisions that specify the deadlines by which hybrid conversion system certification applications would be required to be submitted.
4. Section 4(f)(4), which would require that revalidation testing of the On-Board Diagnostics (OBD) system be similar in scope to the verification of monitoring requirements described in California Code of Regulations, title 13, section 1968.2 (13 CCR 1968.2), is being modified to include the specific subdivision of

13 CCR 1968.2 that contains the relevant requirements for such revalidation testing. The specific subdivision was inadvertently omitted from the original proposal.

5. Section 4(f)(5) is being modified to correct a reference error. Specifically, the originally proposed language erroneously refers to California Code of Regulations, title 13, section 1968.2, subdivisions (c)(3)(D)5.a. and (c)(3)(D)5.b. for specific exceptions to the production engine/vehicle evaluation testing requirements set forth therein. It was not staff's intention to reference those subdivisions, which do not actually exist, so the language in Section 4(f)(5) is being modified to refer, instead, to its own subordinate subsections, as staff originally intended.
6. Sections 4(f)(1) through (5), including sections 4(f)(5)(A) and 4(f)(5)(B), are being moved under section 4(e). The original proposal erroneously included these sections in section 4(f).
7. Section 5(f)(2) is being modified to specify that the section's requirement refers to the readiness status of the OBD system. This is only a clarification, as the only OBD element that can be set to indicate "complete" is the readiness status. In addition, the section is being modified to clarify that the referenced Society of Automotive Engineers (SAE) documents are to be used for demonstrating the readiness status. The original proposal incorporates the SAE references, but does not specifically state that they are to be used. Lastly, references to California Code of Regulation, title 13, sections 1968.2 and 1971.1 are being corrected so that they refer to more appropriate subdivisions in those sections. The references in the original proposal refer to provisions addressing OBD monitors, while the updated references refer to provisions that specifically set forth provisions on readiness status.
8. Sections 5(f)(4)(B) and 6(e)(4) are being modified to remove references to subdivision (i)(4) of California Code of Regulations, title 13, section 1971.1. The references to that subdivision were included in error.
9. Sections 6(e)(5)(A)(i.) and (ii.) and sections 6(e)(5)(B)(i.) and (ii.), are being modified to correct provisions that specify the number of OBD monitors that would be required to be demonstrated for a converted hybrid vehicle. These requirements were erroneously reversed in the originally proposed language—that is, the requirements for a converted hybrid vehicle that was originally chassis-certified were inadvertently included as the requirements for a converted hybrid vehicle that utilizes an engine that was originally engine-certified, and vice versa. Therefore, these sections are being modified to correct this error. The changes align these requirements with how they are described in Appendix A to the Staff Report.
10. Sections 6(e)(5)(C)(i.) and (ii.) are being moved to new section 6(e)(5)(D) to improve the clarity of the procedures for durability data vehicle testing.
11. Section 6(e)(6)(A) is being modified to clarify that the requirement contained therein pertains to production evaluation testing.

12. Section 7(b)(7)(E) is being modified to remove an incorrect internal reference to Section 7(d) of the proposed procedures. Section 7(b)(7)(E) would only apply to testing pursuant to Section 7(c), which sets forth the provisions for emission testing using a Portable Emission Measurement System. However, the language, as originally proposed, also incorrectly referenced Section 7(d), which sets forth provisions for emission testing on a chassis dynamometer.
13. Section 7(c)(3)(G)(ii.) is being modified to correct an error in the provision. The section, as originally proposed, indicates that data from a transient test run are to be excluded if the test run's "average driving speed" or "average positive kinetic energy" (PKE) is between 15 and 30 mph, or between 0.85 and 1.50 feet per second squared, respectively. This is not what staff intended and is in direct conflict with the test route selection criteria described in section 7(c)(2)(A)(i.) of the proposed procedures. Therefore, the language is being corrected to state that data are to be excluded if "average driving speed" or "average positive kinetic energy" is not within the specified range.
14. Section 7(c)(4) is being modified in response to commenter requests to clarify that a minimum frequency rate of one hertz is required for the collection of all position or emission data, in order to ensure such data follow the latest technical specifications. This is only a clarification because the section, as originally proposed, states that the data would be required to be collected and reported on a second-by-second (i.e., one hertz) interval.
15. Section 7(c)(4)(A) is being modified to allow data collection through a sensor, if engine control module (ECM) data are not available. This change would align this section with Section 7(c)(4), which would allow the specified data to be collected from sources other than the ECM.
16. Sections 7(c)(4)(A)(i.) and 7(c)(4)(A)(iii.) are being modified to clarify the parameters that must be collected from the ECM, or sensor if necessary, and reported to ARB for the purpose of determining "real-time engine power output." Section 7(c)(4)(A)(i.), as originally proposed, specifies "real-time engine power output" as one of the parameters that must be collected and provided. However, that parameter is not typically recorded by an ECM. Instead, it is *derived* from other parameters that are recorded or stored on an ECM, such as reference torque, nominal friction percent torque, and actual engine percent torque. Therefore, the section is being updated to require the collection and submittal of data for the parameters mentioned above, rather than for "real-time engine power output" itself.
17. Section 7(c)(4)(A)(vi.) is being modified to move the "rechargeable energy storage system net energy change" parameter from section 7(c)(4)(A), which lists parameters to be collected from the ECM, to section 7(c)(4)(D), which lists parameters to be calculated. This modification is being made because the "rechargeable energy storage system net energy change" parameter is not a parameter that is recorded by the ECM, but rather, a parameter that would have to be calculated from other information.

18. Sections 7(c)(4)(A)(x.) is being modified to correct an inadvertent error. The appropriate parameter to be collected should be “exhaust temperature,” not “fuel temperature.”
19. Section 7(c)(4)(E) is being modified to include the specific section of title 40, Code of Federal Regulations, Part 86, that contains the procedures for calculating the emission values needed to determine fuel consumption. The original proposal references the entirety of title 40, Code of Federal Regulation, Part 86, without specifying a section. In addition, the reference to SAE J1094a, is being updated to refer to the stabilized version of the SAE document, SAE J1094, instead.
20. Section 7(d)(3)(A) is being modified to add language, including new sections 7(d)(3)(A)(i.) and 7(d)(3)(A)(ii.), to improve the clarity of the provisions describing the required duty cycles for heavy-duty vehicles that would be tested on a chassis dynamometer. Specifically, subsection 7(d)(3)(A)(i.) is being added, and subsection 7(d)(3)(A)(ii.) is being added to separate the language in section 7(d)(3)(A) that sets forth the transient duty cycle . Section 7(d)(3)(A) is also being modified to delete an existing reference to an obsolete electric power take-off (ePTO) duty cycle. As further described below, language describing an updated ePTO duty cycle is being added.
21. Section 7(d)(3)(B) is being added and the language originally in 7(d)(3)(B) is included in new section 7(d)(3)(C). Language is being added to the pre-existing language that is now in new section 7(d)(3)(C), including under new subsections 7(d)(3)(C)(i)-7(d)(3)(C)(iv.), to incorporate new requirements applicable to heavy-duty hybrid utility and refuse vehicles with ePTO functionality. Specifically, these modifications would align the ePTO duty cycle requirement, as well as provisions describing emission calculations and pass-fail determination, with federal Heavy-Duty Phase 2 GHG requirements.² These modifications were presented to the Board at its October 20, 2016, public hearing. In order to incorporate these modifications, the existing “Emission Calculations and Pass-Fail Determination” language in section 7(d)(3)(B) is being moved into new section 7(d)(3)(C), and new language describing updated ePTO duty cycle requirements is being added to section 7(d)(3)(B). In addition, new language describing emission calculation and pass-fail determination procedures applicable to ePTO testing is being added to new sections 7(d)(3)(C), 7(d)(3)(C)(i.), 7(d)(3)(C)(ii.), 7(d)(3)(C)(iii.), and 7(d)(3)(C)(iv.). Furthermore, section 7(d)(3) is being modified to reflect the changes to the ePTO requirements. That is, the existing language in section 7(d)(3), which references section 7(d)(3)(A), is being modified to add a reference to section 7(d)(3)(B), where the ePTO requirements are being moved.

These modifications do not change implementation of the regulation in any way that affects the conclusions of the environmental analysis included in the Initial Statement of Reasons (Staff Report) because the modifications consist primarily of definition and provision

- 2 - Federal Register; Volume 81, Number 206, October 25, 2016; *Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles – Phase 2*

clarifications that do not alter the compliance responses. Therefore, no additional environmental analysis or recirculation of the analysis is required.

MODIFICATIONS MADE TO THE STAFF REPORT

The following is a summary of the modifications made to the August 30, 2016, Staff Report:

1. In Section 2, "Heavy-Duty Hybrid Engine Certification Flexibility Provisions," of Appendix A to the Staff Report (Appendix A), under "Tier 2 OBD Flexibility Provisions" (page A-6), the description for the proposed Tier 2 certification flexibility provisions for a new heavy-duty hybrid engine indicates that the regulation would exempt up to three heavy-duty hybrid engine families from the calculation of a manufacturer's total number of engine families for determining the number of OBD system demonstration vehicles for a given model year. The Staff Report is incorrect. Section 2208.1, as proposed, would allow only one engine family to be exempted, which is what staff intended.
2. Section 2, "Heavy-Duty Hybrid Engine Certification Flexibility Provisions," in Appendix A, under "Tier 2 OBD Flexibility Provisions" (page A-7), indicates that the proposed regulation would extend the "free" deficiency provision of the OBD regulation by allowing up to four deficiencies related to monitoring of hybrid engine and driveline technologies to be excluded from the calculation of fines described in California Code of Regulations, title 13, section 1971.1, subdivision(k)(2). Appendix A is incorrect; the correct number of allowable "free" deficiencies on the hybrid engine and driveline technologies should only be three, which is how the provision is written in proposed section 2208.1.
3. Section 3, "OBD System Requirements for Hybrid Conversion Systems," of Appendix A, under "Tier 1 Hybrid Conversion System OBD System Exceptions" (page A-10), indicates the proposed regulation would require manufacturers of Tier 1 hybrid conversion systems to submit in-use monitoring performance ratio data from a minimum of one hybrid conversion vehicle to ARB within one year after the certified hybrid conversion system is first manufactured for sale in California. Appendix A is incorrect. It was not staff's intent to subject manufacturers to this requirement and as such, the requirement is not included in the proposed regulatory language.
4. Section VI., "Economic Impacts," of the Staff Report estimates that the proposed regulation would result in lifetime cost savings of between \$23.0 million to \$48.6 million. Under the originally proposed regulatory language, the \$48.6 million estimate slightly overstated the cost savings of the proposed ITR by approximately \$27,600, because it was based on evaluation of the evaporative emissions from hybrid conversions through the Two-Day Evaporative Test. The original proposal would have actually required the more-costly Three-Day Evaporative Test instead. However, because the required evaporative emission test is being modified as part of this Notice from the Three-Day Evaporative Test to the Two-Day Evaporative Test for the reasons summarized above, the estimate is an appropriate cost savings projection for the current proposal.

5. In Table VI-1 in section VI., “Economic Impacts,” of the Staff Report, several values in the “Incremental Cert. Costs (per engine family)” column are incorrect. The correct values are provided below:
 - a. Under the “Low NOx Engine Cert. Flexibility” heading, in the “Range of Costs” row, the range should be a cost savings of \$0.9M to \$2.9M instead of a cost savings of \$1.0M to \$3.0M, as originally stated;
 - b. Under the “Hybrids” heading, in the “Tier 2 Cert. Flexibility” row, the lower end of the range should be a cost savings of \$0.4M instead of a cost savings of \$0.1M, as originally stated;
 - c. Under the “Hybrids” heading, in the “Range of Costs” row, the range should be a cost savings of \$0.2M to \$0.6M instead of a cost of \$0.1M to a cost savings of \$1.3M, as originally stated; and
 - d. In the “Absolute Range of Costs” row, the range should be a cost savings of \$0.2M to \$2.9M instead of a cost savings of \$0.4M to \$3.0M, as originally stated.

In subsection C., “Economic Costs and Benefits of the Proposed Regulation,” of section VI., “Economic Impacts,” of the Staff Report, under “3. Costs and Savings to an Individual,” the language incorrectly describes the incremental cost calculation for Tier 2 hybrids derived from an off-road, light-duty, or medium-duty engine. The actual procedure for calculating the \$500 incremental cost involved summing all the miscellaneous per-vehicle costs, such as those for engine labeling, volume reporting, and data reporting, and then subtracting the minimum per-vehicle cost savings projection of \$1,300.

6. In subsection C., “Economic Costs and Benefits of the Proposed Regulation,” of section VI., “Economic Impacts,” of the Staff Report, under “4. Reporting Costs,” the language incorrectly states, “The total reporting costs for a new hybrid conversion manufacturer would then amount to \$2,200 per year (i.e., volume reporting costs of \$400 plus data reporting costs of \$1,800).” The errors are:
 - a. The \$1,800 data reporting costs would only apply to new hybrids derived from an off-road, light-duty, or medium-duty engine, not hybrid conversions; and
 - b. The \$2,200 figure was incorrectly derived through the addition of a per-engine (i.e., \$1,800) cost projection with a per-engine-family (i.e., multiple engines) cost projection (i.e., \$400). Because the \$400 volume reporting cost estimate assumed 400 engines, the estimated cost per-engine is \$1. Assuming this, the correct methodology would have been to add the \$1,800 data reporting cost with the \$1 volume reporting cost, to yield an estimated total annual reporting cost of roughly \$1,800 (i.e., the nominal volume reporting cost plus the \$1,800 data reporting cost).

These corrections match the proposed language of the regulation and test procedures put out for 45-day comment or the modifications proposed in this Notice, and do not affect any

other part of the August 30, 2016, Staff Report. These modifications do not change implementation of the regulation in any way that affects the conclusions of the environmental analysis included in the Initial Statement of Reasons (Staff Report) because the modifications consist primarily of clarifications that do not alter the compliance responses. Therefore, no additional environmental analysis or recirculation of the analysis is required.

In the interest of completeness, staff has also added to the rulemaking record and invites comments on the following additional documents:

Documents Incorporated by Reference

- Title 40, Code of Federal Regulations, Part 86, Appendix I, as amended on October 25, 2016
- Title 40, Code of Federal Regulations, Part 1037, Appendix II, as amended on October 25, 2016
- Title 40, Code of Federal Regulations, Part 1065, Section 1065.1001, as amended on October 25, 2016
- Title 40, Code of Federal Regulations, Part 1065, Section 1065.1005, as amended on October 25, 2016
- Title 40, Code of Federal Regulations, Part 86, Section 86.144-94, as amended on September 15, 2011
- Title 40, Code of Federal Regulations, Part 1037, Section 1037.540, as amended on October 25, 2016
- California Refueling Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles," as amended on September 2, 2015

Additional References and Supplemental Documents

- Federal Register; Volume 81, Number 206, October 25, 2016; *Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles – Phase 2*
- National Renewable Energy Laboratory (NREL); *Characterization of PTO and Idle Behavior of Utility Vehicles*; Technical Report: NREL/TP-5400-6674; July 2016
- NREL, Fuel and Emission Reduction in Electric Power Take-Off Equipped Utility Vehicles, Presented at Electric Vehicle Symposium and Exhibition (EVS29); June 22, 2016
- ARB; *Implementation Manual for the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project*; Effective Date: June 1, 2016
- *Synthesis: Medium- and Heavy-Duty Vehicle Innovators Roundtable*, hosted by Calstart and the South Coast Air Quality Management District; May 8, 2016

These documents are available for inspection by contacting Bradley Bechtold, Regulations Coordinator, at (916) 322-6533.

Agency Contacts

Inquiries concerning the substance of the proposed regulation, test procedures, and modifications identified in this Notice may be directed to Mr. David Chen, Manager, Advanced Emission Control Strategies Section, at (626) 350-6579.

Public Comments

Written comments will only be accepted on the modifications identified in this Notice. Comments may be submitted by postal mail or by electronic submittal no later than 5:00 p.m. on the due date to the following:

Postal mail: Clerk of the Board, Air Resources Board
1001 I Street, Sacramento, California 95814

Electronic submittal: <http://www.arb.ca.gov/lispub/comm/bclist.php>

Please note that under the California Public Records Act (Gov. Code § 6250 et seq.), your written and verbal comments, attachments, and associated contact information (e.g., your address, phone, etc.) become part of the public record and can be released to the public upon request.

In order to be considered by the Executive Officer, comments must be directed to ARB in one of the two forms described above and received by ARB by 5:00 p.m. on the deadline date for public comment listed at the beginning of this notice. Only comments relating to the above-described modifications shall be considered by the Executive Officer.

If you need this document in an alternate format or another language, please contact the Clerk of the Board at (916) 322-5594 or by facsimile at (916) 322-3928 no later than five (5) business days from the release date of this notice. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Si necesita este documento en un formato alterno u otro idioma, por favor llame a la oficina del Secretario del Consejo de Recursos Atmosféricos al (916) 322-5594 o envíe un fax al (916) 322-3928 no menos de cinco (5) días laborales a partir de la fecha del lanzamiento de este aviso. Para el Servicio Telefónico de California para Personas con Problemas Auditivos, ó de teléfonos TDD pueden marcar al 711.

CALIFORNIA AIR RESOURCES BOARD



Richard W. Corey
Executive Officer

Date: May 30, 2017
Attachments