

State of California  
AIR RESOURCES BOARD

**Final Statement of Reasons for Rulemaking,  
Including Summary of Comments and Agency Response**

PUBLIC HEARING TO CONSIDER PROPOSED AMENDMENTS TO ALTERNATIVE  
FUEL CONVERSION CERTIFICATION PROCEDURES

Public Hearing Date: September 26, 2013  
Agenda Item No.: 13-8-2

**I. GENERAL**

**A.** On August 7, 2013, the Air Resources Board (ARB or Board) issued the Staff Report: Initial Statement of Reasons for Rulemaking (Staff Report) entitled "Proposed Amendments to Alternative Fuel Conversion Certification Procedures." The Staff Report was also made available for public review and comment beginning August 7, 2013. The text of the proposed regulatory amendments to title 13, California Code of Regulations (CCR) sections 2030 and 2031 and the incorporated test procedure, and the text of the new incorporated test procedure were included as Appendices to the Staff Report. These documents were also posted on the ARB's Internet website for the rulemaking at <http://www.arb.ca.gov/regact/2013/altfuel2013/altfuel2013.htm>.

On August 9, 2013, ARB removed the Staff Report that was made available for public review and comment beginning August 7, 2013, and replaced it with a revised Staff Report. The revised Staff Report differs from the August 7, 2013 Staff Report in that it incorporates an economic impact assessment for the proposed amendments and new test procedure, (Section VII.G, page 28 of the revised Staff Report), and appends the following sentence to the last paragraph of VII.C "No alternative considered by the agency would be more effective in carrying out the purpose for which the regulation is proposed or would be as effective or less burdensome to affected private persons than the proposed regulation." (Section VII.C, page 25 of the revised Staff Report). The revised Staff Report provides the rationale for the proposed amendments to title 13, California Code of Regulations (CCR) sections 2030 and 2031 and the incorporated test procedure, and for the new incorporated test procedure. The text of the proposed regulatory amendments to title 13, California Code of Regulations (CCR) sections 2030 and 2031 and the incorporated test procedure, and to the text of the new test procedure were included as Appendices to the revised Staff Report. These documents were also posted on the ARB's Internet website for the rulemaking at <http://www.arb.ca.gov/regact/2013/altfuel2013/altfuel2013.htm>. This document incorporates by reference the Staff Report issued on August 9, 2013.

In this rulemaking, the ARB approved the adoption of amendments to title 13, California Code of Regulations (CCR) sections 2030 and 2031, including the test procedure “California Certification and Installation Procedures for Alternative Fuel Retrofit Systems for Motor Vehicles Certified for 1994 and Subsequent Model Years and for all Model Year Motor Vehicle Retrofit Systems Certified for Emission Reduction Credit,” last amended November 21, 1995, and new test procedure “California Certification and Installation Procedures for Alternative Fuel Retrofit Systems for 2004 and Subsequent Model Year On-Road Motor Vehicles and Engines,”<sup>1</sup> (hereafter referred to as the incorporated certification procedures) which are incorporated by reference in title 13, CCR, sections 2030 and 2031. The amendments and new test procedure establish streamlined requirements for manufacturers of alternative fuel conversion systems that retain testing and demonstration requirements for the most important components of emission control systems and waive many test requirements for those small volume conversion manufacturers that can demonstrate that their alternate fuel conversion systems do not significantly alter vehicles or engines previously certified in California. The amendments also provide alternative fuel conversion manufacturers options to demonstrate compliance with requirements, specify that approved alternative fuel conversions are effective indefinitely, provided the approved conversion system is not significantly modified from its approved configuration, and establish an expedited approval provision so that alternative fuel conversion manufacturers that obtain new vehicle or engine certifications from ARB can request certification of an alternative fuel retrofit system for in-use vehicles that is identical in configuration to the fuel system in the newly certified vehicle or engine.

On September 26, 2013, the Board conducted a public hearing, at which staff proposed suggest modifications in response to comments received during the public comment period (See “Staff’s Suggested Modifications to the Original Proposal” that was distributed at the hearing and included as Attachment D to Resolution 13-35). At the conclusion of the hearing and after fully considering the record, including oral and written comments, the Board adopted Resolution 13-35 approving staff’s proposal as modified.

In accordance with Government Code section 11346.8, Resolution 13-35 directed the Executive Officer to adopt the approved regulation and incorporated test procedures as proposed by staff and as modified in accordance with Attachment D to Resolution 11-35, after making the modified regulatory language

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<sup>1</sup> The new test procedure was initially entitled “California Certification and Installation Procedures for Alternative Fuel Retrofit Systems for On-Road Motor Vehicles and Engines” in the notice of public hearing and in the revised Staff Report. The title was subsequently changed to “California Certification and Installation Procedures for Alternative Fuel Retrofit Systems for 2004 and Subsequent Model Year On-Road Motor Vehicles and Engines” during a supplemental 15-day public comment period. This document will refer to the new test procedure by its revised title for purposes of clarity.

available for public comment for a period of 15 days, provided that the Executive Officer consider such written comments regarding the modification and additional supporting documents and information that were submitted during the public comment period, make such additional modifications as may be appropriate in light of the comments received, or present the approved regulation and test procedures to the Board for further consideration if warranted.

Subsequent to the hearing, the text of the modifications to the originally proposed amendments to the regulatory text and incorporated test procedure, and new test procedure was made available for a supplemental 15-day comment period by issuance of a "Notice of Public Availability of Modified Text." This Notice and the attachments thereto, with modifications indicated by strikeout and underline, were mailed on December 5, 2013 to all stakeholders, interested parties, and to other persons generally interested in ARB's rulemaking requirements applicable to alternative fuel conversion systems for on-road motor vehicles and engines. The "Notice of Public Availability of Modified Text" and the modified text, with modifications clearly indicated by strikeout and underline, were also made available to interested parties on ARB's website for this rulemaking: <http://www.arb.ca.gov/regact/2013/altfuel2013/altfuel2013.htm>.

Two written comments were received during this 15-day comment period.

After considering the comments received during the 15-day comment period, the Executive Officer issued Executive Order R-14-006, adopting the modified regulatory text, the modified incorporated test procedure "California Certification and Installation Procedures for Alternative Fuel Retrofit Systems for Motor Vehicles Certified for 1994 and Subsequent Model Years and for all Model Year Motor Vehicle Retrofit Systems Certified for Emission Reduction Credit," and the modified new test procedure "California Certification and Installation Procedures for Alternative Fuel Retrofit Systems for 2004 and Subsequent Model Year On-Road Motor Vehicles and Engines."

This Final Statement of Reasons (FSOR) updates the Staff Report by identifying and providing the rationale for the modifications made to the originally proposed regulatory text, including non-substantial modifications and clarifications made after the close of the 15-day comment period. This FSOR also contains a summary of the comments received by the Board on the proposed amendments and modifications, as well as ARB's responses to those comments.

## **B. MANDATES AND FISCAL IMPACTS TO LOCAL GOVERNMENTS AND SCHOOL DISTRICTS**

The Board has determined that this regulatory action will not result in a mandate to any local agency or school district whether or not the costs are reimbursable by the state pursuant to Part 7 (commencing with section 17500), Division 4, Title 2 of the Government Code.

### **C. CONSIDERATION OF ALTERNATIVES**

For the reasons set forth in the Staff Report, in staff's comments and responses at the hearing, and in this FSOR, the Board determined that no alternative considered by the agency would be more effective in carrying out the purpose for which the regulatory action was proposed, or would be as effective as and less burdensome to affected private persons, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provisions of law than the action taken by the Board. ARB staff considered three alternative strategies to the proposed rulemaking action but ultimately rejected the alternatives, in part, for the reasons discussed below.

The first alternative was to not amend the existing regulation. This alternative was rejected because ARB concurred that the proposed changes would accomplish the request from industry to reduce the alternative fuel conversion process burden for small volume conversion manufacturers without significantly risking emission impacts.

The second alternative considered was to adopt the procedures recently adopted by the U.S. EPA to approve vehicles and engines that have been converted to operate on alternative fuels such as natural gas or propane. This alternative was rejected because California has more severe air quality problems than most other states and currently does not meet federal air quality standards. California also has lower emissions standards for light-duty vehicles and will need to ensure that conversions to alternative fuel still achieve the expected emissions reductions. The newly adopted federal regulations provide a mechanism by which an alternative fuel converter can obtain a U.S. EPA exemption from the tampering prohibition in the federal Clean Air Act section 203. The proposed amendments will provide California an additional level of assurance that the emissions from converted vehicles and engines will not exceed the emissions of the original vehicles, commensurate with the greater assurance needed by California's motor vehicle emissions control programs.

Primarily, the federal program does not require small volume manufacturers to demonstrate durability or to demonstrate that once the conversion is conducted the on-board diagnostic (OBD) system meets the emission thresholds or malfunction criteria specified in the OBD regulations. For example, the federal program allows the use of a modified new catalyst for OBD demonstration testing whereas ARB requires a laboratory aged catalyst, which is representative of how catalysts deteriorate and malfunction in use.

Additionally, the federal program has less stringent requirements for conversions of older vehicles. For emissions compliance, an alternative conversion manufacturer needs to provide emissions test data for vehicles within their useful life and a technical description, supported by test data upon request, for vehicles outside their useful lives, that shows that the base vehicle emissions will be maintained. For in-use vehicles, the federal program only requires the

manufacturer to attest that the OBD system is fully functional and provide a simple report using the OBD scan tool without demonstrating the system performs as stated.

The third alternative considered was to allow for self-certification. Under the alternative, ARB would allow conversion manufacturers to self-certify that they comply with OBD requirements without submitting documentation and would then verify compliance after two years. The proposal saves time upfront without any significant cost savings for the conversion manufacturers that perform adequate testing to verify their systems design and functionality to take their product to the market. This alternative was rejected because the risk that poorly designed systems and errors in design would not be discovered for several years. Also, retroactive actions such as recalls or penalties would be more disruptive to the market than upfront review.

## **II. MODIFICATIONS MADE TO THE ORIGINAL PROPOSAL**

### **A. MODIFICATIONS APPROVED AT THE BOARD HEARING AND ADDED AFTER THE BOARD HEARING FOR THE 15-DAY COMMENT PERIOD**

Subsequent to the September 26, 2013 public hearing, staff proposed modifications to the regulatory text and incorporated test procedures, pursuant to the Health and Safety Code Sections 39515 and 39516. These modifications were explained in the “Notice of Public Availability of Modified Text” that was issued for a 15-day public comment period that began on December 5, 2013 and ended on December 20, 2013. In order to provide a complete FSOR for this rulemaking, the most significant modifications and clarifications are summarized below:

#### **1. Modifications to Regulatory Text of title 13, California Code of Regulations (CCR), Sections 2030 and 2031 “Alternative Fuel Conversion Certification Procedures.”**

- a. Sections 2030 and 2031 have been modified to reflect the updated title for the proposed new incorporated test procedure to clarify that the new proposed test procedures apply to 2004 and subsequent model years.

#### **2. Modifications to “California Certification and Installation Procedures for Alternative Fuel Retrofit Systems for 2004 On-Road Motor Vehicles and Engines”.**

- a. The title of the procedure was changed to clarify that the newly proposed procedures apply to alternative fuel systems for 2004 and subsequent model years, and will read as “California Certification and Installation Procedures for Alternative Fuel Retrofit Systems for 2004

and Subsequent Model Year On-Road Motor Vehicles and Engines.”

- b. Under 1(a), the title of the procedure was changed to clarify that the newly proposed procedures apply to alternative fuel systems for 2004 and subsequent model years, and will read as “California Certification and Installation Procedures for Alternative Fuel Retrofit Systems for 2004 and Subsequent Model Year On-Road Motor Vehicles and Engines.”
- c. Under 2(a)(18), the definition of “Small Volume Conversion Manufacturer” was changed from limited sales of 1500 systems to 4500 systems. This change was made to reflect industry feedback.
- d. Under 2(a)(19), the definition of “Sunset” was modified to clarify that the sunset provisions in the procedures will not apply to alternative fuel retrofit systems for 2018 and subsequent model year vehicles or engines but will continue to apply to alternative fuel retrofit systems for 2004 through 2017 model year vehicles or engines after the 2017 calendar year.
- e. Under 6(b), language was added to clarify that the fuel type(s) of a converted engine is necessary in determining applicable OBD requirements.
- f. Under 6(b)(1)(B)1, the addition of the word “gasoline” was added to clarify the type of fuel to be used for aging.
- g. Under 6(b)(1)(B)1, language was added to clarify that when manufacturers are conducting the bench aging cycle specified in 6(b)(1)(B)1.a through e, they can place the downstream catalytic converters closer to the upstream catalytic converters than in their OEM configured positions (i.e., place them so they are exposed to a hotter environment than their OEM configured position).
- h. Under 6(b)(1)(C)4, language was added to clarify that the Executive Officer is responsible for approving requests for waivers.
- i. Under 6(b)(2)(B)2, language was added to clarify the timeframe for submission of demonstration data is 90 calendar days after conditional certification is granted.
- j. Under 6(b)(1)(D), language for Certification Documentation requirements was deleted due to redundancy with section 6(c).
- k. Under 6(b)(2), numbering was corrected due to typographical error.

- I. In addition to the modifications above, the acronym EO has been changed to Executive Officer where necessary for additional clarity.

## **B. NON-SUBSTANTIAL MODIFICATIONS**

Subsequent to the first 15-day public comment period mentioned above, staff discovered that it had inadvertently provided incorrect page numbers and citations in the Table of Contents for the existing procedures titled “California Certification and Installation Procedures for Alternative Fuel Retrofit Systems for Motor Vehicles for 1994 and Subsequent Model years and for all Model Year Motor Vehicle Retrofit Systems Certified for Emission Reduction Credit.” Specifically, because the subject procedures were identified as Attachment B to the Staff Report, staff identified each page of the subject procedures with the prefix “B” (i.e., B-1, B-2, etc.) and used those page number designations in the table of contents. However, staff only intended to designate pages in the subject procedures by simple numeric indicators, and has accordingly modified the page numbers of the procedures and the references in the table of contents to only use numerals to correct this oversight.

These modifications constitute non-substantial changes to the regulatory text because they do not materially alter the requirements or conditions of the proposed rulemaking action.

## **III. DOCUMENTS INCORPORATED BY REFERENCE**

The regulation and the incorporated test procedures adopted by the Executive Officer incorporate by reference the following documents:

Code of Federal Regulations (40CFR), Part 86.1313-2007, dated July 1, 2011.

The American Society for Testing and Materials (ASTM) test method ASTM Test Method Number D1945-03(2010), referenced in 40 CFR, Part 86.1313-2007, dated July 1, 2011.

California Code of Regulations, title 13 CCR § 2292.6, as amended December 8, 1999.<sup>2</sup> The following ASTM test methods are incorporated by reference:

- ASTM Test Method Number D 2163-87, Standard Test Method for Analysis of Liquefied Petroleum (LP) Gases and Propene Concentrates by Gas Chromatography

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<sup>2</sup> Section 5(c)(3)(B) of the new test procedure entitled “California Certification and Installation Procedures for Alternative Fuel Retrofit Systems for 2004 and Subsequent Model Year On-Road Motor Vehicles and Engines” incorporates by reference title 13 CCR § 2292.6, as last amended December 08, 1999, which in turn incorporates the eight ASTM test methods identified in this document.

- ASTM Test Method Number D 1267-89, Standard Test Method for Vapor Pressure of Liquefied Petroleum (LP) Gases (LP-Gas Method)
- ASTM Test Method Number D 2598-88, Standard Practice for Calculation of Certain Physical Properties of Liquefied Petroleum (LP) Gases from Compositional Analysis
- ASTM Test Method Number D1837-86, Standard Test Method for Volatility of Liquefied Petroleum (LP) Gases
- ASTM Test Method Number D 2158-89, Standard Test Method for Residues in Liquefied Petroleum (LP) Gases
- ASTM Test Method Number D1838-89, Standard Test Method for Copper Strip Corrosion by Liquefied Petroleum (LP) Gases
- ASTM Test Method Number D 2784-89, Standard Test Method for Sulfur in Liquefied Petroleum Gases (Oxy-Hydrogen Burner or Lamp)
- ASTM Test Method Number D 2713-86, Standard Test Method for Dryness of Propane (Valve Freeze Method)

U.S. Environmental Protection Agency (U.S.EPA) Advisory Circular 17F, dated November 16, 1982, updated January 21, 1988.

U.S. EPA National Vehicle and Fuel Emissions Laboratory guidance letter CD-12-07 (Revised) for Assigned Deterioration Factors, dated March 30, 2012.

ARB test procedure “California 2001 through 2014 Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2009 through 2016 Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles,” as amended December 6, 2012.

ARB test procedure “California Non-Methane Organic Gas Test Procedures,” as amended December 6, 2012.

ARB test procedure “California Exhaust Emission Standards and Test Procedures for 2005 through 2008 Model Zero-Emission Vehicles, and 2001 through 2008 Model Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes,” as amended December 2, 2009, and incorporated by reference in title 13, CCR, § 1962.

ARB test procedure “California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes,” as amended December 6, 2012, and incorporated by reference in title 13, CCR, § 1962.1.

ARB test procedure “California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty



Vehicle Classes,” adopted March 22, 2012, as last amended December 6, 2012, and incorporated by reference in title 13, CCR, § 1962.2.

ARB test procedure “California 2001 through 2014 Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2009 through 2016 Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles,” as amended December 6, 2012, and incorporated by reference in title 13, CCR, § 1961(d).

ARB test procedure “California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles,” as amended December 6, 2012.

ARB test procedure “California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles” adopted August 5, 1999, as last amended March 22, 2012, and incorporated by reference in title 13, CCR, § 1976(c).

ARB test procedure “California Refueling Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles,” adopted August 5, 1999, as amended March 22, 2012, and incorporated by reference in title 13, CCR, § 1978(b).

ARB test procedure “California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel-Engines and Vehicles,” as amended April 18, 2013.

ARB certification procedure “California Interim Certification Procedures for 2004 and Subsequent Model Hybrid-Electric Vehicles, in the Urban Bus and Heavy-Duty Vehicle Classes,” adopted October 24, 2002.

The ARB test procedures for determining compliance with standards in title 13, CCR, § 1956.8(c)(1)(A) or (c)(1)(B) are set forth in the “California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines,” as amended April 18, 2013.

These documents were incorporated by reference because it would be cumbersome, unduly expensive, and otherwise impractical to publish them in the California Code of Regulations. In addition, some of the documents are copyrighted, and cannot be reprinted or distributed without violating the licensing agreements. The documents are lengthy and highly technical test methods and engineering documents that would add unnecessary additional volume to the regulation. Distribution to all recipients of the California Code of Regulations is not needed because the interested audience for these documents is limited to

the technical staff at a portion of reporting facilities, most of whom are already familiar with these methods and documents. Also, the incorporated documents were made available by ARB upon request during the rulemaking action and will continue to be available in the future. The documents are also available from college and public libraries, or may be purchased directly from the publishers.

**IV. SUMMARY OF COMMENTS AND AGENCY RESPONSE**

**A. Responses to Comments Received During the 45-Day Comment Period and at the Public Hearing**

Written comments were received during the 45-day comment period in response to the September 26, 2013 public hearing notice, and written and oral comments were presented at the Board Hearing.

Listed below are the organizations and individuals that provided comments during the 45-day comment period:

<b>Commenter</b>	<b>Date</b>	<b>Affiliation</b>	<b>Abbreviation</b>
Prescott, Neil	8/16/2013	KLS Engineering	KLS
Malouf, George	8/27/2013	California Environmental Engineering	CEE
Trauman, Todd	9/10/13	CarbonBlue, LLC	CBL
Szabo, Karen	9/24/2013	IMPCO Technologies	IMPCO
LaPant, Todd	9/25/2013	Transfer Flow Incorporated	TFI
Cox, David	9/26/2013	Coalition for Renewable Natural Gas	CRNG
Reed, John	9/26/2013	North American Repower	NAR
Garland, Lesley	Oral, 9/26/2013	Western Propane Gas Association	WPGA
Carmichael, Tim	Oral, 9/26/2013	Natural Gas Vehicle Coalition	NGVC

Set forth below is a summary of each comment regarding the regulatory action and the agency response to that comment, including an explanation of how the regulation was changed to accommodate the comment or the reason(s) for not making a change to the regulation. Comments not involving objections or recommendations specifically directed toward this rulemaking or to the procedures followed by ARB in this rulemaking are not included. The comments have been grouped by topic whenever applicable. When comments have been grouped, a brief summary of the comment is given to relay the content of all the comments in the group. All other comments are taken from documents submitted during the 45-day comment period, or from the September 26, 2013 Board Hearing transcript.

### **General Support**

1. Comment: ARB received comments of general support for efforts to amend the certification procedures. (CRNG, IMPCO, NAR, NGVC, TFI, WPGA)

Agency Response: ARB appreciates the support for its efforts to amend existing certification procedures.

### **ARB vs. EPA Certification**

2. Comment: The requirement for dual EPA and ARB certifications is bureaucratic misadministration because California Environmental agencies have been designated by EPA to perform environmental testing and certification. The ARB is fully qualified to perform the necessary functions. (KLS)

Agency Response: Existing state law requires that ARB certify alternative fuel retrofit systems before they are sold or used in California. With the adoption of the retrofit system requirements, manufacturers will be required to receive ARB certification for systems intended for sale and use in California. However, manufacturers interested in selling retrofit systems to other states must receive U.S. EPA certification. To minimize cost and time, certain aspects of the ARB and U.S. EPA requirements are similar, and manufacturers may use data generated for ARB certification to obtain U.S. EPA certification.

### **Application, Review, and Approval Process**

3. Comment: Existing approval procedures shall be revised to preclude cost of systems, replacement costs and maximum replacement costs as these are part of private enterprise vendor-client contracts. (KLS)

Agency Response: Similar to emission control regulations for new vehicles and retrofit systems, ARB requires manufacturers to provide purchasers a warranty for emission control parts. Manufacturers must warrant emission

control components to replace parts that are not robust and to maintain control of emissions. In addition, higher cost parts that are more critical to maintaining emissions must be warranted for an extended period of time.

4. Comment: Existing approval procedures shall be revised to require identification of major components only in 3D images and no dimensions. (KLS)

Agency Response: Similar looking parts that are produced to different specifications (e.g., materials, metallurgical process, production process including pressure, temperature, and tolerance) could have different durability and emission characteristics. A 3-D image is inadequate for describing the part's specifications. Staff needs to understand what the manufacturer includes in its kit and describe what is covered by the EO; such as catalyst loading, ignition timing, fuel injection pressure, and fuel tank pressure rating and capacity. At a minimum, the proposed amendments would require listing of parts, part numbers, and drawings of all parts included in the kit and would require various key specifications. This ensures a complete description of the ARB certified alternative fuel retrofit system and provides a means to identify and approve changes to the certified system. As part of the smog check inspection, technicians check part numbers to verify retrofits are complete as certified by ARB.

5. Comment: Existing processing procedures shall be revised so as to require ARB staff to review applications, simultaneously by all departments for a 28 days response to applicant. (KLS)

Agency Response: ARB staff review complete manufacturer's applications in a timely manner. Typically, a manufacturer separates an application into two main parts, one related to OBD requirements and one related to all other emissions requirements; for example, test results, label, and warranty. An Executive Order may only be approved when compliance with OBD and all other emission requirements have been met and approved by staff. Because determining OBD compliance is highly technical and complicated, and often involves a question and answer process to assess compliance, manufacturers often submit the OBD part of the application well in advance of the other part of the application. If ARB staff were to adhere to the suggested timeline, staff believes it would result in disapproval of a majority of applications. After making all necessary changes, the manufacturer may resubmit the application, however, by then the resubmitted application would be behind many others that were submitted during the intervening time. It is not feasible to adhere to the suggested timeline from the standpoint of both staff resources and fairness to all manufacturers.

6. Comment: Existing processing procedures shall be revised so as to require ARB staff to utilize supplemental email communication procedures with electronic signatures in addition to original postal copies. (KLS)

Agency Response: The proposed amendments do include a streamlined process. Currently, new vehicle manufacturers submit all material (e.g., tailpipe and OBD) electronically and aftermarket manufacturers submit hard copy via mail. Alternative fuel retrofit system manufacturers certifying under the proposed amendment will be required to submit their certification application electronically according to the format described by ARB. Additional discussions between ARB staff and manufacturers to clarify information in a manufacturer's application may use phone, email and face to face meetings to complete the certification process in a timely manner.

7. Comment: Existing processing procedures shall be revised to delete the requirement for Aftermarket Manufacturers to receive permission from the Original Engine Manufacturers because of non-feasibility and should be deleted. OEM agencies in California are cohesive in their programs to continue gasoline engines only, except for hybrids. (KLS)

Agency Response: The proposed procedures do not require alternative fuel retrofit system manufacturers to seek or receive permission from the original equipment manufacturer to develop, engineer or sell its retrofit system.

8. Comment: Streamline ARB's new and in-use alternative fuel conversion approvals so that 25 million gasoline fueled and diesel fueled vehicles can be converted within two (2) years to dual fuel propane-gasoline and propane-diesel fueled engines. (KLS)

Agency Response: The proposed amendments will streamline the existing conversion approval process, by providing conversion system manufacturers streamlined testing and administrative requirements, including providing small volume conversion manufacturers additional flexibility from certain testing requirements. However, the actual number of conversion systems certified under the new procedures will depend on the number of applications submitted by conversion system manufacturers.

## **Emissions Testing**

9. Comment: Catalyst temperatures of engines are performed by the OEM manufacturer when seeking an Executive Approval order. Additional engine temperature testing is a function of the emissions test. Propane in the fuel system requires additional cooling to that attained by replacement four (4) core copper radiators and air cooling. Additional engine temperature tests by the "Aftermarket Manufacturer" shall be required only when said test are a

part of the emission tests administered by the BAR at Licensed Testing Stations. (KLS)

Agency Response: Certified alternative fuel retrofit systems are required to meet ARB's durability and useful-life emission compliance requirement. Because the catalyst is critical for the control of vehicle and engine emissions, control of catalyst temperature is critical for ensuring the durability and emission performance of retrofit systems. As such, measuring and recording temperature profiles of the catalysts and engine are often a part of the manufacturer's developmental efforts in designing and engineering an alternative fuel retrofit system and form the manufacturer's overall test plan to demonstrate emission and durability compliance of its retrofit system. Such temperature measurements are typically measured using driving or operation cycles that are more rigorous and extensive than the cycles or tests run by California's Bureau of Automotive Repair testing stations.

10. Comment: For certification, ARB currently requires multiple tests for heavy-duty diesel conversions to alternative fuels. This is true for either dedicated alt fuel or dual-fuel (diesel-alt fuel mixture) conversions. These test cycles are run on a HD engine dynamometer and include Federal Test Procedure (FTP), European Stationary Cycle (ESC), Not-to-exceed (NTE) and Supplemental Emission Test (SET). U.S. EPA requires only the FTP. These additional tests are an economic barrier to market. (CEE, NAR)

Agency Response: All exhaust and evaporative certification requirements and test procedures which are required for original equipment manufacturer certification are required for alternative fuel retrofit system certification. These requirements apply to California retrofit system certification as well as US EPA conversion system certification. Each test cycle is designed to exercise the engine and emission controls through a series of speeds and loads to ensure compliance with emissions standards under all real life operations. ARB staff work with manufacturers to minimize the number of tests performed across product offerings by utilizing carryover and carry across provisions.

11. Comment: Emission testing requirements should be the same as utilized at BAR licensed stations. Separate testing requirements by ARB and BAR are not functional to "streamlining" of the existing procedures. (KLS)

Agency Response: The basis for certification of an alternative fuel retrofit system is the system manufacturer's demonstration of compliance with applicable new vehicle/engine standards, the same standards to which the original equipment manufacturer is subject. This demonstration is carried out by performing standard certification tests. BAR's smog check tests are not appropriate to show compliance with emissions standards. They are designed to identify mal-maintained, tampered, or gross emitter vehicles.

12. Comment: Global warming score as additional test is not performed at BAR licensed stations and is not functional to “streamlining” of the existing procedures. Emission test parameters shall be the same as approved for the original OEM or “testing chaos” will develop and introduction of dual fuel aftermarket engines will not occur. A result will be continuous utilization of gasoline for passenger vehicles, light-duty trucks and medium-duty trucks. (KLS)

Agency Response: Alternative fuel retrofit system manufacturers are not required to comply with the Global Warming Score requirements; the Environmental Performance Label requirements only apply to original equipment manufacturers of new passenger car, light-duty truck, and medium-duty manufacturers.

### **Deterioration Factors**

13. Comment: Deterioration factors (DFs) are a misnomer and should be deleted. The dual fuel modified engines shall meet the original OEM emission certifications or not be approved for vehicle renewal licensing. Emission testing at BAR licensed testing stations is the core of “streamlining” the existing procedures. (KLS)

Agency Response: Certified alternative fuel retrofit systems are required to meet the emission standards for useful life. As such, the certification procedures require durability demonstration to useful life by the alternative fuel retrofit system manufacturer. The amended procedures allow small volume manufacturers the option to utilize assigned deterioration factors in lieu of intermediate or high mileage testing. The amended procedures also include a provision for manufacturers of dual-fuel retrofit systems to request exemption from testing using the original fuel. Testing one time at BAR smog check stations using less rigorous test cycles is insufficient to demonstrate compliance with the useful life standards to which the retrofit system is certified. The Agency Response to comment 11 is incorporated by reference herein.

14. Comment: Page 33 of the proposed amendments state:

“Assigned DFs tend to be higher, more severe, than the average DF for a similar class of vehicle or engine.” ... “Currently, staff believes that certifying compliance to the lower LEV III standards can only be accomplished through actual testing and demonstration of the emission control and OBD systems. Waiving these tests through an engineering evaluation is not possible because technologies that will be used to comply with the new LEV III standards will need to be more sophisticated and durable. Additionally, the proposed deterioration factors used for complying with today’s standards are

unlikely to be representative of the deterioration factors for the lower LEV III standards.”

The proposal states that Assigned DFs tend to be more severe than the average DF and yet it also states that these DFs might not be representative of the DFs for the lower LEV III standards. However, per the LEV III regulations, small-volume manufacturers and manufacturers of small volume test groups will continue to be allowed to use Assigned DFs.

We propose the removal of the Assigned DF sunset provision. (IMPCO)

Agency Response: The sunset provision was proposed to provide ARB the ability to review technology and re-evaluate the use of assigned DFs for converting vehicles subject to LEV III emission standards. Based on this review, the Agency plans to either extend the use of assigned DFs or otherwise modify the provision by the sunset date. Such provision requires a regulation change or policy change. In the meantime, ARB may revise assigned DFs based on newer data from OEMs without a regulatory change. However, allowing unfettered usage of assigned DFs is not warranted as the sunset provision provides a safety net for limiting potential emission impacts should unforeseen issues arise as a result of the proposal, such as if specific emission control technologies for complying with the LEV III emission standards are not sufficiently durable.

15. Comment: The current proposal appears to maintain the multiplier deterioration factor (MDF) for heavy-duty diesel conversions. We request that the Board take steps to update heavy-duty diesel conversion certification procedures to allow for the utilization of additive deterioration factors (ADF) similar to what the Proposed Amendments will do for gasoline and light-duty vehicle conversions. In the interim, we request that you permit CARB staff to consider heavy-duty diesel conversions using additive DFs on a case by case basis. (CRNG, NAR, NGVC)

Agency Response: In the absence of assigned DFs provided by the ARB, small volume manufactures may use assigned DFs published by US EPA. Typically for current heavy-duty engines, hydrocarbon, carbon monoxide, and oxides of nitrogen emission DFs are multiplicative because of the use of aftertreatment technologies, per Code of Federal Regulations. Particulate emission DFs are additive to account for test to test variability. These basic uses of DFs are expected to carry over to retrofit systems. However, assigned DFs are considered on a case by case basis and may result in retrofit manufacturers being allowed to use additive assigned DFs, if appropriate. Additionally, the ARB allows small volume manufacturers to submit alternative DFs for executive officer approval with supportive data.



16. Comment: I believe there is sufficient evidence to support using the methodology of EPA to determine an additive ADF for HD diesel conversion. By compiling existing, previously submitted OEM DFs, and combining it with CARB's own data from VDECS certification, CARB is uniquely positioned to create an additive DF for heavy duty diesel conversion. CARB has on file all the heavy duty diesel and Natural Gas OEM DF's submitted at time of EO application since 1973. CARB also has two data points for in use FTP data for every VDEC certification. Consistent with CARB's prior leadership on Low Carbon Fuels laws and regulations, I request that the Board direct staff to compile the readily available data at its disposal to create an additive DF for heavy duty diesel conversions. (NAR)

Agency Response: ARB staff does not currently have enough in-use heavy-duty engine data to calculate and publish new assigned DFs for alternative fuel conversion systems. Use of heavy-duty OEM DFs may not be used to establish assigned DFs because they are not verified by actual in-use engine emission testing. In addition, VDECS data which represents the emissions of retrofit diesel particulate filters incorporated into older diesel engines is not representative of alternative fuel retrofits.

### **Durability Testing**

17. Comment: Durability Demonstration should be a function of emission testing at BAR licensed stations and license plate renewal of vehicles. The proposed 5 year, 100,000 mile 100% warranty is functional to protection of the user and the environment. Proposed requirements for accumulation of mileage on a prototype test vehicle to 100,000 and 180,000 miles is not functional. Bench testing for 100,000 miles will require 5000 gallons of propane. Bench testing for 180,000 miles will require 9000 gallons of propane. (KLS)

Agency Response: See Agency response to comment 13.

18. Comment: A requirement for periodic exhaust and evaporative emission tests during mileage accumulation other than at vehicle bi-annual smog testing is not functional. Testing procedures should be the same as BAR mandatory testing intervals. (KLS)

Agency Response: The basis for certification of an alternative fuel retrofit system is the system manufacturer's demonstration of compliance with applicable new vehicle/engine standards for useful life. This demonstration can be carried out by periodically performing standard certification tests, bench aging of the emission control systems, or the use of assigned deterioration factors. California's Bureau of Automotive Repair's smog tests are not appropriate for this demonstration because (i) BAR smog test is not rigorous or extensive as the certification tests, (ii) not all vehicles are subject to BAR's bi-annual smog test (e.g., heavy-duty vehicles), and (iii) by the time

a vehicle fails the bi-annual smog test, it will have emitted excess emissions into the air and harmed the health of California residents.

19. Comment: Base engine and retrofitted engine performance characteristics, such as horsepower and torque curves, fuel feed curves, air/fuel calibration control, catalyst temperature traces and other technical factors are a function of the competitive manufacturers' information data. The primary parameters for regulatory control should be continuous successful function of aftermarket installed equipment to pass emission testing. A lack of functional engine power will be a cause for rebate to the user under the 5 year, 100,000 mile 100% warranty. (KLS)

Agency Response: Comparative data between the base and modified vehicle/engine may be needed as part of the alternative fuel retrofit system manufacturer's overall test plan to demonstrate emissions and durability compliance of its system. Mere function or operation of the modified vehicle/engine is not adequate to determine emission durability compliance. The installation of the retrofit system must not affect the drivability of the vehicle/engine so as to encourage tampering by the consumer. ARB cannot enforce any voluntary warranty offered by the manufacturer. The warranty required under the amended procedures is any remaining original equipment manufacturer warranty or three years/50,000 miles and seven year/70,000 miles (extended warranty).

20. Comment: One-time demonstration of retrofit system durability for emissions, calibration, and catalyst temperature data at 4,000 miles is functional. Useful life demonstration at 100,000 and 180,000 miles is prohibitive to introduction of dual fuel aftermarket systems. The proposed 5 year, 100,000 mile 100% warranty and regulatory control for installation suspensions with recall of installed systems when new problems develop, is within historical consumer protection guidelines. (KLS)

Agency Response: Certified alternative fuel retrofit systems must meet the emission standards for useful life of 120,000 miles or longer. One time demonstration of emissions at 4,000 miles does not demonstrate that the retrofit system will be emissions complaint for the useful life. The amended procedures allow small volume manufacturers the option to utilize assigned deterioration factors in lieu of performing intermediate or high mileage testing to establish the deteriorated emission level.

The emissions warranty of the retrofit system required under the amended procedures is any remaining original vehicle/engine manufacturer warranty or three years/50,000 miles and seven years/70,000 miles (extended warranty). This is consistent with other ARB regulations. Emissions warranty is necessary because some emission failures do not have overt symptoms to cause the owners to seek repairs and as a result the vehicles/engines

continue to emit excess emissions that can harm the health of California residents.

21. Comment: To continue to require durability testing on vehicles and components that are past their useful life is an overreach regulatory action. If a vehicle is past its expected useful life and is able to pass the State approved testing at a Bureau of Automotive Repair licensed state inspection facility then such a vehicle should be able to be converted without any further regulatory intervention. Similarly, the requirement that any credit generating converted vehicle must be inspected by a BAR referee prior to releasing the vehicle to the consumer is not feasible. (TFI)

Agency Response: All vehicles, including those vehicles whose mileage is beyond their useful life miles, are part of the fleet contributing to California's air quality and are subject to California's tampering prohibitions in section 27156 of the California Vehicle Code. The amended procedures allow ARB to evaluate the retrofit system for exemption from the anti-tampering rules to ensure that the converted vehicles will continue to produce emissions that are not exceeding the emissions standards, thus durability testing is a requirement. The procedures also allow manufacturers to use assigned deterioration factors when demonstrating emissions compliance which eliminate the need to conduct durability testing. BAR's referee inspection requirement for retrofitted vehicles is necessary to ensure retrofit systems are installed properly according to manufacturer's instructions and was also a requirement from the preexisting conversion system certification procedures.

22. Comment: We propose the ability to use aggregate durability testing for certification. Data from multiple converted vehicles that have like systems installed with similar initial miles prior to conversion with different driving use, and therefore different accumulated mileage after conversion, would adequately prove the required durability testing. (TFI)

Agency Response: Manufacturers must accumulate the necessary mileage on one modified vehicle/engine to demonstrate durability of the complete system. Combining accumulated miles from multiple vehicles to achieve useful life mileage may not be appropriate for durability demonstration due to vehicle and duty cycle variations. As permitted by the retrofit system procedures, manufacturers may propose their methods and test plans to demonstrate durability for ARB approval. Manufacturers' durability test plans must be described in detail supported by data and other pertinent information for ARB review and approval.

23. Comment: We also suggest that a representative sample of high-mileage in-use emissions data on vehicles that have accumulated their full useful life on the alternative fuel would help solidify the industry's claims that their systems are durable. (CBL)

Agency Response: Emission data from high mileage in-use vehicles may be useful in generating the manufacturer's deterioration factors. Such factors may be used in future certification efforts provided that the retrofit system to be certified is appropriately represented by the system and application for which the factors were derived.

### **Evaporative Emissions Testing**

24. Comment: Sealed Housing for Evaporative Determination (SHED) testing for evaporative emissions are not functional to "streamlining" of the existing procedures. BAR licensed testing stations are equipped only for Spot testing with emission probes. (KLS)

Agency Response: Evaporative requirements and test procedures, including SHED testing, for alternative fuel retrofit system certification are the same as those required for OEM certification, and are required to demonstrate evaporative emissions do not exceed those of the original vehicle. The effects of installing the alternative fuel retrofit system on vehicle emissions are most effectively demonstrated using the same evaporative emission tests used for certification. Evaporative emission testing is limited to only those alternative fuels, such as propane, with significant evaporative emissions. California's Bureau of Automotive Repairs smog tests do not meet these requirements.

25. Comment: On-board Refueling Vapor Recovery (ORR) testing for refueling emissions is not a function of the vehicle systems. Refueling vapor recovery is performed by equipment at the fueling stations. The requirement for vehicles is not functional and should be made a part of fueling station requirement. (KLS)

Agency Response: Onboard refueling vapor recovery is part of the vehicle's emission control system in California. If an alternative fuel storage system is added as part of the retrofit system and if that fuel is subject to refueling emission regulations, the retrofit system is subject to the refueling emission standards.

26. Comment: Evaporative emission control system component bench aging, or request assigned deterioration factor and the below requirements are not functional to "streamlining" of the existing procedures. Evaporative emissions shall conform to test procedures performed at BAR licensed stations. (KLS)

Agency Response: See response to comment 24. ARB has proposed streamlining of existing retrofit system requirements where feasible, such as durability and OBD demonstration.

## **OBD System Demonstration Requirements**

27. Comment: The slave-style systems require an actual regulation change as opposed to demonstration change, and the proposal contains zero regulation change, which will continue to eliminate them from the California market. The issues are completely isolated to the continuous component monitoring requirements and the requirements that monitors are calibrated to 1.5 times the applicable standards. Slave control systems are not capable of communicating with the OEM controller and thus cannot force the OEM controller to record faults or directly monitor circuit faults of the alternative fuel system electrical components. Thus, most slave systems come with monitors of their own, often monitoring fuel pressure and other inputs and will sound an alarm and shut-down (dedicated fuel systems) or default to gasoline (dual fuel systems) if there is a problem. No OBD monitors are diluted or calibrated out from the OEM system. (CBL)

Agency Response: OBD systems are integral to ARB's emission warranty requirements. Further, they provide the mechanism for identifying and repairing vehicles with emission-related malfunctions through California's smog check program. It is essential to have communication of OBD-related information such as fault codes and the malfunction indicator light (MIL) status to a standardized or "generic" scan tool (i.e., a tool that is able to communicate OBD information from all makes and models of vehicles). As such, staff's proposal did not include changes to the actual monitoring requirements or standardization requirements for the MIL and scan tool communication, but instead streamlines the certification and demonstration procedures. The OBD regulations require all vehicles to be equipped with fully compliant OBD systems to ensure that emissions are kept low throughout the life of the vehicle. It takes a significant amount of effort to engineer a compliant and durable emission control system, which is finely tuned/optimized to specific vehicles. The OBD system is a critical part of this emission control system and has to be carefully calibrated to ensure monitors function properly and the MIL is illuminated. Shortcutting the process for an alternative fuel conversion could easily cause undetected emission compliance problems, compromised smog check, or unnecessary owner inconvenience due to false failure detection or incorrect pinpointing of malfunctions. In its proposal, staff has reduced the OBD demonstration requirements for OBD system evaluation for converted vehicles meeting the same exhaust emission standards. Unfortunately, the proposal may not accommodate vehicles with slave style systems. Any regulatory change to allow the less robust OBD systems in the field would compromise the integrity of OBD systems.

28. Comment: While a slave style system cannot be recalibrated to meet a 1.5 times the applicable standard for every monitor, many of our in-use conversion manufacturer clients cannot understand why the EPA's

methodology (not the same thing as “test protocol”) is not agreeable to the ARB. For example, the current EPA catalyst demonstration methodology involves incrementally increasing a fault on gasoline until a MIL is set (therefore finding what level of degradation translates to 1.5x), then performing the conversion, and running an emissions test on the alternative fuel with the same fault implanted. If emission levels are at or less than 1.5 times the applicable standard, the test is considered a pass. While the test protocol may be crude and require refinement (i.e., drilling a larger hole through a catalyst brick), the methodology seems sound. The same can be said for the other major emissions-related monitors. (CBL)

Agency Response: Staff does not have experience with EPA’s methodologies in practice. As noted in the previous comment, OBD systems, in conjunction with the smog check program, are used to identify malfunctions to be repaired on in-use vehicles. The OBD regulation requires detection of real world malfunctions before emissions exceed the levels specified in the regulation. Further, while staff’s proposal has reduced demonstration requirements for conversion systems certified to the same standard, the proposal maintains the demonstration requirements for the components and systems that are most critical for emissions control and are most likely to be disturbed by the conversion system (i.e., fuel system, oxygen sensors, and catalyst system). As noted by the commenter, slave-style systems cannot be recalibrated if needed to meet the required OBD thresholds. While it may be possible to certify vehicles with these designs at the federal level, ARB has a more rigorous certification and demonstration process. California has more severe air quality problems than most other states and currently does not meet federal ambient air quality standards. California also has lower emissions standards for light-duty vehicles and will need to ensure that conversions to alternative fuel still achieve the expected emissions reductions. The proposed amendments will provide California an additional level of assurance that the emissions from converted vehicles and engines will not exceed the emissions of the original vehicles, commensurate with the greater assurance needed by California’s motor vehicle emissions control programs.

29. Comment: We believe that the new regulations proposed will have little influence on the current state of affairs in California’s in-use market, and further, considering the emissions and economic impact of allowing alternative fuels to proliferate, it should be in the ARB’s best interest to pursue this further by conducting research to accurately define slave-style OBD deficiencies and confirm the claims that the major roadblocks are only related to CCM’s, ECM communication, and threshold calibration. Once completed, 1968.2, or other proposed language can be easily adjusted/created. (CBL)

Agency Response: Staff maintains that because slave-style systems are not integrated with the OEM OBD system, vehicles with this design may have

greatly increased emissions due to malfunctions that go undetected and unrepaired. When emissions control systems fail, the emissions can be 5 to 10 times higher than a properly functioning vehicle. Further, as discussed in agency responses to comments 27 and 28 and acknowledged by the commenter, slave-style systems lack standardized information, which will compromise smog check and hinder emission-related repairs. A robust OBD system is needed to assure that emissions of the converted vehicle aren't substantially higher than on the original fuel and that when malfunctions do occur, they are properly identified and readily repaired using the OBD system. Staff's proposal balances maintaining the integrity of the OBD program with addressing some of the challenges faced by the stakeholders. It was developed through the public process and addresses many of the issues presented by conversion system manufacturers, fuel providers, dealers, and customers. Alternative fuel vehicle converters are welcome to conduct additional research into this area and share the results with ARB staff for future consideration of the issue.

### **Test Groups**

30. Comment: The requirement that ARB staff will identify specific test groups planned for the year is not feasible and should be deleted, because ARB staff will identify several hundred test groups, which is unfeasible. Aftermarket manufacturers should only have to identify "one each" of the specific test groups for each engine type which is economically feasible on 4, 6 and 8 cylinder groups in OBD I and OBD II. Existing approval procedures shall be revised to require system testing only on one each cylinder (4, 6, 8) variation and one each OBD type only (OBD I and OBD II) at 4,100 miles, applicable to coincident approval for all engine groups, all model groups and all years of vehicle manufacturers, previously approved as new vehicles certifications of the Board. (KLS)

Agency Response: Original equipment manufacturers design, calibrate and certify their vehicles in test groups to meet specific emission standards (e.g., LEV, ULEV, SULEV) to meet their corporate fleet average requirement. For example, for model-year 2014, Ford used its 5.4-liter engine in six different test groups and certified them to different standards. Each test group may include the Ford eight cylinder engine, but its emissions characteristics are different because of engine calibration and emission control differences. Thus, a single emissions test on one of the Ford eight cylinder test groups as suggested by the commenter would not represent the emissions from the other test groups. Alternatively, ARB staff would work with the manufacturer to minimize the number of tests performed by utilizing carryover and carry across provisions. These options should reduce the number of tests required.

As discussed in agency response to comment 27, significant effort is necessary to engineer a compliant emission control system and OBD system

to meet a test group's standards based monitoring thresholds such that OEM vehicles typically have unique software programming per model year and per model. Nonetheless, the OBD regulation currently allows for test groups with similar OBD systems to be grouped together into OBD groups and allows manufacturers to submit an application from one test group to represent the OBD system for that entire OBD group. However, based on years of experience certifying vehicles and OBD systems, staff believes the OBD system on one vehicle per variant or testing just one vehicle per variant based on the commenter's proposal will not be representative of all vehicles/test groups within that variant group. It should be emphasized that all test groups are required to be fully compliant with the OBD regulations, and any one test group that does not fully meet the requirements may be subject to the OBD enforcement regulations, which may include enforcement actions such as fines or recalls. Further, as discussed in previous responses, the OBD system is a key component of California's Smog Check program, with OBD being the predominant factor used in passing and failing vehicles for 2000 and subsequent model year vehicles. Vehicles with non-robust OBD systems that don't fully meet the OBD requirements will compromise the integrity of the inspection and maintenance program.

### **Portable Emissions Measurement System**

31. Comment: PEMS (Portable Emission Devices) for on-road equipment shall be precluded. PEMS for stationary and off-road vehicles shall be included. (KLS)

Agency Response: The proposed procedures allow manufacturers to propose alternate testing procedures. A manufacturer interested in using PEMS as an alternate test procedure would have to provide test data showing relevancy and correlation with existing test protocols for ARB review and approval. The staff's proposal is not applicable to stationary and off-road vehicles and engines.

### **Installation**

32. Comment: Existing approval procedures shall be revised to require sale to and installation by manufacturer licensed installers only and shall preclude direct sales to 3rd party vendors and the public. (KLS)

Agency Response: The proposed amendments would require installers to be registered as Automotive Repair Dealers under California Business and Professions Code, section 9880 through sections 9889.68. The manufacturer may choose their own authorized staff to install the conversion kits or a registered installer. Regardless, the manufacturer and the installer have responsibilities and warranty obligations to ensure compliance.



33. Comment: Existing approval procedures shall be revised to require bi-annual update education for licensed installers at expense of the manufacturers. Manufacturers shall furnish to the Board update education information and attendance certification for each installer. (KLS)

Agency Response: The proposed amendments do not cover this issue, but require installers to provide 3 years or 50,000 mile warranty coverage on all alternative fuel conversion installations, provide warranty for the installation of the retrofit system to the customer, and present the converted vehicle to the Bureau of Automotive Repair (BAR) Referee Smog Check Station for inspection. BAR will inspect the vehicle to verify proper installation of the retrofit system and issue a Certificate of Compliance for the converted vehicle if it passes. Training of manufacturer's technicians and authorized personnel is not traditionally included in ARB's certification procedures because staff believe that market forces and rigorous enforcement by ARB of warranty, including installation warranty, and in-use compliance ensure that installation of retrofit systems will be carried out competently in most instances.

### **Post-Installation Testing**

34. Comment: Existing approval procedures for dual fuel propane-gasoline and propane-diesel dual fuel engines shall be revised to include a requirement for a maximum 3% carbon content in motor oil by color verification on dual fuel engines to be verified by BAR at emission testing intervals. (KLS)

Agency Response: This is not covered by staff's proposed amendments and current mobile source requirements. Using special fuels or oils, which are not commercially available or prohibitively expensive to vehicle owners, in order to meet durability and emission requirements defeats the purpose of certification to assure useful life emissions compliance in customer use. As such, regulations require manufacturers recommend commercially available oil only.

35. Comment: Existing procedures shall be revised to require ARB staff to prepare monthly information print and email information notices on dual fuel installations, vehicle types, systems problems, fuel consumption, emission failures and monthly mileage data under direction of a Registered Mechanical Engineer. Data shall be available on the ARB website. (KLS)

Agency Response: Currently, ARB posts the list of approved conversion systems for new and aftermarket vehicles and engines. This will continue. Staff's proposal only requires the keeping of installation, warranty, and repair records by the conversion manufacturer and installer. ARB does not have access to other information described as part of the certification process.

36. Comment: Existing procedures shall be revised to require suspension of Executive Order approval for new installations when there has been significant failure in installed systems. (KLS)

Agency Response: The proposed amendments include provisions to remedy noncompliance through In-use Enforcement testing and recall requirements. If manufacturers or installers do not comply with the regulations and the conditions of the executive order, ARB may investigate such activities. The outcome may result in recall, rescission of executive order or other enforcement action.

37. Comment: The requirement for emissions testing at State Referee Stations only is not feasible because State Referees are prejudiced against dual fuel certifications. Emissions testing should be modified to either private BAR licensed stations or State Referee Stations.

A requirement for prior to releasing a retrofitted vehicle to end user, installer shall submit the vehicle to the Bureau of Automotive Repair (BAR) Referee Smog Check Station for inspection and testing and obtains certificate of compliance is overzealous regulatory compliance. New and used OEM vehicles are not required to process thru State Testing Stations, because State Referees are prejudiced against dual fuel certifications. Emissions testing prior to release should be modified to either private BAR licensed stations or State Referee Stations. (KLS)

Agency Response: The Bureau of Automotive Repairs referee inspection requirement for retrofitted vehicles has been in place and has been performed since 1993, and is a carry-over requirement from existing procedures. To date, ARB staff is not aware of any inappropriate inspections of dual fuel vehicles by BAR referee smog check stations.

New vehicle/engine manufacturers may be subject to confirmatory emissions testing, assembly line testing, OBD production vehicle evaluation testing, and new vehicle audit testing. Retrofitters are not subject to these tests. The BAR inspection and testing provides a level of assurance that the installation has been performed as certified, components are operating as designed with no check engine lamps illuminated or OBD failures, and vehicles emissions are within smog check requirements.

## **Warranty**

38. Comment: Existing approval procedures shall be revised to require a 100% five (5) year, 100,000 mile warranty on parts and labor. (KLS)

Agency Response: This comment is inconsistent with current emissions warranties for new vehicles and engines. Staff's proposal requires 3

years/50,000 mile warranty coverage on all emissions related alternate fuel conversion parts and 7 years/70,000 miles on certain high cost parts or until the original vehicle emissions warranty expires, whichever is longer.

### **Carry-Over or Carry-Across Data**

39. Comment: The requirement to resubmit applications each year shall be revised to resubmittal only when the OEM manufacturer introduces new OBD electronic systems. Requirement for recertification for each model year is not functional to “streamlining” of the existing procedures. Applications shall only have to be resubmitted when the OEM manufacturer introduces new OBD electronic systems. (KLS)

Agency Response: According to the proposed requirements, a retrofit system manufacturer may submit an application to retrofit a certain model year base vehicle. When the executive order is issued, the retrofit system manufacturer may sell and perform installations for that model year base vehicle as approved. It does not have to reapply or recertify for that model year base vehicle again. However, as new model year base vehicles are certified, the retrofit system manufacturer would have to submit an application to retrofit the new model year base vehicle. In between model changeovers, manufacturers typically introduce minor to moderate changes in subsequent model years. Taken individually and collectively these changes can affect the emission characteristics of the newer vehicles that can in turn affect the emission characteristics of the converted vehicles. The requirement to certify the retrofit system specific to a base vehicle’s model year, thus the need to certify the retrofit system again specific to the base vehicle’s newer model year, will ensure that all retrofit vehicles comply with the emission standards and OBD requirements.

OBD certification for all engines/vehicles is done on a model-year basis, and as discussed in agency response to comment 30, OEM vehicles typically have unique software programming per model year and per model. Further, ARB staff does not believe the yearly certification process causes an undue burden on the manufacturer. First, the new streamlined requirements for certification documentation of OBD systems require that only information about the modifications, deletions, and additions to the OBD system on the base engine/vehicle need to be provided. Second, for engines/vehicles with no changes to the OBD system, emission control system, and conversion system from the previous model year system, certification would simply entail resubmitting the previous model year application with a statement that the system has not changed.

## **New vs. In-Use Vehicles and Engines**

40. Comment: The May 1, 2013 workshop was titled “Proposed Amendments to the Alternative Fuel Conversion Certification Procedures for New and In-Use Vehicles and Engines”. However, the August 7, 2013 proposed amendments are now inexplicably only applicable to “In-Use” vehicles.

In all discussions taken place thus far, be it through workshops, written documentation, conference calls or meetings, the proposed amendments were equally applicable to New and In-Use Vehicles and engines. However, the applicability to New Vehicles was dropped somewhere between May 1, 2013 and August 7, 2013 without explanation.

Per EPA 40CFR §85.502, the streamlined certification process applies to: “Clean alternative fuel conversion (or “fuel conversion” or “conversion system”) means any alteration of a motor vehicle/engine, its fueling system, or the integration of these systems, that allows the vehicle/engine to operate on a fuel or power source *different from the fuel or power source for which the vehicle/engine was originally certified*; and that is designed, constructed, and applied consistent with good engineering judgment and in accordance with all applicable regulations. A clean alternative fuel conversion also means the components, design, and instructions to perform this alteration.”

In other words, the EPA Part 85 regulations are applicable to new or in-use vehicles and engines that are modified from their original, certified configuration. To maintain consistency with EPA regulations, as is the intent of this rulemaking, the proposed certification requirements should be applicable to the modification of new or in-use vehicles that have already been certified by an OEM. Therefore, this is truly the modification of a certified vehicle and the EO may be issued under the tampering prohibition as opposed to a new-vehicle EO.

This regulation should be applicable to both New and In-Use Vehicles. If a distinction must be made between the two types of vehicles, the new-vehicle EO will expire December 31<sup>st</sup> of the year after the test group/engine family model year and the in-use vehicle EO has no expiration date. (IMPCO)

Agency Response: No change was made in response to this comment. The commenter correctly notes that ARB staff initially considered developing alternative fuel conversion procedures that would be applicable to both new and in-use on-road vehicles and engines. However, staff ultimately decided to limit the proposed amendments to only in-use on-road vehicles and engines. At a public workshop held in El Monte, California on May 1, 2013, staff communicated that the proposed amendments would not extend to alternative fuel conversions of new vehicles. Both the 45-day notice of public

hearing and the Staff Report for this rulemaking action state that the rulemaking amends ARB's existing regulations governing alternative fuel conversion certification procedures for on-road motor vehicles and engines, and such existing regulations only apply to conversions of in-use vehicles.

The ARB disagrees with the commenter's statement that the U.S. EPA's recently finalized regulation for certifying alternative fuel conversion systems for on-road vehicles and engines in title 40 Code of Federal Regulations Parts 85 and 86 (76 Fed. Reg. 19830-19874 (April 8, 2011)) is applicable to new vehicles. In the Notice of Final Rulemaking (NFRM) for the federal alternative fuel conversion system regulation, U.S. EPA clarified that the federal regulations do not apply to new vehicles.

*"See Section IV.A and Sections 85.505 and 85.510. Sections 85.505(b)(1) and 85.510 apply to "new and relatively new" vehicles or engines, i.e., where the date of conversion is in a calendar year that is not more than one year after the original model year of the vehicle/engine. In this preamble, we refer to these "new and relatively new" vehicles/engines as "new" only as a shorthand reference to the category of "new and relatively new" engines/vehicles. This shorthand use of "new is not intended to mean that these vehicles/engines are "new" under the Act or any EPA regulations."*<sup>3</sup>

Note that the definition of a new motor vehicle in section 216 of the federal Clean Air Act (CAA) is nearly identical to the definition of a new motor vehicle in the California Health and Safety Code.<sup>4</sup>

The ARB rejects the commenter's proposal to extend the applicability of the proposed rulemaking action to new on-road motor vehicles and engines. California law prohibits new motor vehicles and engines from being imported, delivered, purchased, rented, leased, acquired, received, offered for sale, sold, or registered for use in California unless they have first been certified by ARB. Certification is defined as a finding by ARB that a motor vehicle or engine has satisfied criteria adopted by ARB for the control of specified air contaminants from vehicular sources, and such criteria are set forth in regulations and associated test procedures that ARB has promulgated pursuant to the statutory authority of Health and Safety Code sections 43100 *et seq.* The requirements associated with obtaining a new vehicle certification require a manufacturer to demonstrate that its new motor vehicle complies with applicable exhaust and evaporative emissions standards over its useful life, and to also comply with other requirements, such as labeling and emissions warranty requirements. Only after a manufacturer obtains a

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<sup>3</sup> 76 Fed. Reg. 19830, 19832, fn 8. (Emphasis supplied). (April 8, 2011).

<sup>4</sup> Section 216(3) of the federal CAA [42 U.S.C. § 7550((3))] defines a new motor vehicle that is not imported or offered for importation as "a motor vehicle the equitable or legal title to which has never been transferred to an ultimate purchaser," and Cal. Health and Safety Code § 39042 defines new motor vehicle as "a motor vehicle, the equitable or legal title to which has never been transferred to an ultimate purchaser."

new vehicle certification from ARB can it legally place new vehicles that are covered by that certification into commerce in California. The ARB has regularly adopted increasingly stringent emission standards and associated test procedures for new motor vehicles and engines because California requires further emission reductions from on-road vehicles and engines in order to attain State and federal ambient air quality standards, and to address the challenges presented by climate change.

After the equitable or legal title to a certified on-road motor vehicle has been transferred to an ultimate purchaser, that vehicle may only be operated if its certified emission control system is correctly installed and operating, and no one may install, sell, offer for sale, or advertise any device, apparatus, or mechanism that alters or modifies the original design or performance of that emission control system unless that device, apparatus or mechanism has been exempted by ARB. The conversion of motor vehicles/engines to operate on fuels other than the fuels for which the vehicles/engines were originally certified constitutes modifications to required emission control systems. ARB is authorized to only exempt modifications to a certified configuration if it finds the modifications will not reduce the effectiveness of required motor vehicle pollution control devices or cause the emissions from the modified or altered vehicle to exceed applicable emissions standards for the model-year of the vehicle being modified or converted.

As discussed in the Staff Report, this rulemaking action amends ARB's existing alternative fuel conversion system certification procedures for on-road motor vehicles and engines by generally simplifying the application and approval process, updating requirements to better align with recent changes adopted by the U.S. EPA, and streamlining new and in-use alternative fuel vehicle and engine certification requirements. ARB developed these amendments in recognition of the fact that the alternative fuel conversion system certification procedures only apply to motor vehicles and engines which have been certified. That is, ARB's authority to approve conversions of motor vehicles/engines to operate on fuels other than the fuels for which the vehicles/engines were originally certified is contingent upon the manufacturers of those base vehicles and engines first demonstrating that such vehicles and engines comply with applicable new vehicle and engine certification requirements, and based on the underlying assurances provided by the underlying new vehicle and engine certifications, the Board determined that the flexibilities provided by the amendments were appropriate in light of the assurances provided by the underlying new vehicle and engine certifications.

The commenter's proposal to extend the applicability of the amendments to new vehicles and engines would substitute the less stringent requirements of the amendments for the more comprehensive and rigorous requirements of the new vehicle and engine certification requirements which ARB has

determined are necessary to ensure that new motor vehicles and engines comply with applicable emissions performance over their useful lives, and which have resulted in continual and significant improvements in air quality for California's residents. For instance, ARB's new vehicle certification regulations require new light-duty vehicles to be equipped with OBD systems which monitor virtually every component that can affect the emission performance of the vehicle, to ensure that the vehicle remains as clean as possible over its entire life, and to assist repair technicians in diagnosing and repairing problems with the computerized engine controls.<sup>5</sup> New light-duty vehicles are subject to OBD requirements that require manufacturers to conduct demonstration tests for each monitor that is calibrated to an emission threshold, including monitors for exhaust gas sensors, exhaust gas recirculation (EGR) system, variable valve timing, fuel system, misfire, secondary air injection, and the catalyst system.

In comparison, the amendments relax these requirements for small volume conversion manufacturers and allow such manufacturers, for a limited time, to only conduct OBD demonstration tests for the exhaust gas sensor monitor, fuel system monitor, catalyst system monitor, and any other monitor where either the monitor itself or original emission control system hardware or software was changed.

The amendments additionally allow converters to provide only information pertaining to the modifications that converters make to the base OBD systems, whereas original vehicle manufacturers must provide much more comprehensive and extensive information to obtain ARB approval of their OBD systems.

In summary, although the amendments establish requirements that are appropriate for alternative fuel conversion systems for vehicles and engines that have already been certified to new vehicle and engine requirements, such requirements are less stringent than applicable new vehicle and engine certification requirements and are therefore inadequate for demonstrating that new vehicles and engines comply with applicable certification requirements. The alternative fuel conversion system requirements supplement vehicle and engine certification requirements, and do not supplant them.

## **Fuels**

41. **Comment:** The ARB certification CNG specifications are so stringent that it is prohibitively expensive and time-consuming to acquire.

ARB certification CNG must be specially ordered and blended by a specialty gas company such as Praxair or Scott Specialty Gases. It takes 4 to 8 weeks to manufacture, costs approximately \$150 per gallon on a gasoline BTU-

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<sup>5</sup> Title 13, Code of California Regulations section 1968.2

equivalent basis, and there has been no demonstration that the use of non-certification CNG produces unrepresentative test results.

We are proposing that ARB remove the sunset provision for CNG certification fuel specifications, and allow manufacturers to use CNG test fuel that meets ARB over-the-road fuel specifications. (IMPCO)

Agency Response: The proposed amendments will allow small volume conversion manufacturers to use the less expensive and readily available commercial CNG fuel that meets the federal standards for testing in lieu of ARB CNG certification test fuel.

Staff is proposing the use of commercial fuel for the official certification testing through 2017 model year only as an interim cost savings for the industry. The concern with the use of such fuel is its quality and variability of properties, and the impacts on emissions. Data comparing emissions from vehicles and engines operated on both commercial and official certification fuels need to be generated to show no significant differences. ARB staff is committed to re-evaluate the use of Federal natural gas certification fuel for emission testing by the sunset date. ARB staff will consider industry provided test data showing emissions differences between the fuels in its evaluation. Industry may pool their resources over the next four years to generate the data.

42. Comment: There was also a comment made about how the ARB doesn't necessarily agree that CNG/LNG and LPG are cleaner-burning fuels, however, publically available data published from the EPA Verify system and emissions results on CARB EO's are to the contrary. (CBL)

Agency Response: The ARB is fuel neutral and does not favor one fuel type over the other and requires all vehicles and engines to comply with the emission control requirements. Emission levels over the useful life of the vehicle and OBD compliance depend on several factors including engine design, type of aftertreatment, calibration strategies of each system, and its certified emissions standards. Certain emission standards are more stringent than others. Moreover, some alternative fuel vehicles, engines and retrofit systems are certified to the same emission standards as their base vehicle/engine, and thus they are considered to be no "cleaner" than the base vehicle. However, many manufacturers certify their new alternative fuel vehicles to more stringent emission standards, and thus those vehicles are considered to be "cleaner" than the base vehicle.

### **Sunset Provision**

43. Comment: Staff is proposing to sunset the majority of the streamlining provisions after model year 2017 to serve as a safety net to contain potential emission impacts. Alternative Fuel Converters (AFCs) must already meet the



lower emissions standards when they take effect for new vehicles and engines, so a sunset date is not necessary. ARB should remove the sunset provision because such impacts would be discovered by the safety net already in place through emissions inspection and testing. (IMPCO, NGVH, TFI)

Agency Response: Staff believes that some of the test procedures will need to be updated to reflect the changes in emission control and OBD systems for the 2018 model year. By 2018, the declining LEV III exhaust emission fleet average will be driving a significant portion of the light-duty vehicles to lower exhaust emission levels with attendant changes in emission control system hardware and software calibrations. In addition, the heavy-duty OBD standards will be in full effect for conventional and alternative fueled engines in the 2018 model year. One justification AFCs gave in support of streamlining and reduced demonstration testing was that they had significant data and experience showing there are minimal to no OBD changes necessary when converting passenger cars, light-duty trucks and medium-duty vehicles to the same standards. However, that experience does not exist for heavy-duty alternative fueled engines which will first begin to have OBD systems in the 2018 model year. Staff believes it is prudent to require complete demonstration on the alternative fueled heavy-duty engines until actual experience shows the same trend as the lighter vehicles. Lastly, from an OBD standpoint, the sunset provisions only apply to small volume AFCs certified to the same emission standard as the base engine/vehicle, while small volume AFCs certified to lower, more stringent emission standards have streamlined provisions with no sunset. Further after the sunset, small volume AFCs certified to the same emission standard have the same streamlining provisions as small volume AFCs certified to more stringent emission standards.

44. Comment: ...while the staff has put in a great effort in revising these regulations, we still believe there are some other issues that we'd like to consider in the future. (WPGA, NGVH)

Agency Response: Staff will monitor impacts to emissions and changes to engine technology and will provide future recommendations to the Board as we near the sunset provision.

### **Pre-2004 Vehicles**

45. Comment: The proposed rules before you for consideration apply to 2004 and newer model year (MY) applications only. Since OBD is the key reference in determining the cutoff, it appears this MY restriction is meant to apply to the light duty sector. As heavy duty vehicles are much longer lived, I suggest that the language be modified to allow heavy duty converters the option to certify both pre- and post- MY2004 via the new procedures, as the

older trucks and buses will give us the largest gains in emissions reductions. (NAR)

Agency Response: No change was made in response to this comment. As stated in the Staff Report on pages 9 and 13, the amendments modify the existing test procedure to only apply to 1994 through 2003 model year motor vehicles and engines, and prescribe new test procedures that apply to 2004 and subsequent model year motor vehicles and engines. See also Section 1(a) of the new test procedure “California Certification and Installation Procedures for Alternative Fuel Retrofit Systems for 2004 and Subsequent Model Year On-Road Motor Vehicles and Engines,” which specifies that the new procedure applies to “alternative fuel retrofit systems designed for installation on conventional fueled on-road vehicles and engines in the passenger car, light-duty truck, medium-duty vehicle, and heavy-duty engine and vehicle classes for 2004 and subsequent model years.”

The new test procedures are not suited for conversions of 2003 or older model year heavy-duty engines and vehicles. First, the new procedures require that emissions testing be performed using test procedures applicable to 2004 and subsequent model year heavy-duty diesel and heavy-duty Otto-cycle engines, and those test procedures, in turn, include provisions that do not apply to 2003 or older heavy-duty engines or vehicles. For instance, the test procedures applicable to pre-2004 model year heavy-duty diesel engines only specify that exhaust emissions tests be conducted in accordance with the Federal Test Procedure (FTP). The FTP is a prescribed engine test cycle conducted in the laboratory that represents the typical operation of an in-use engine. However, new 2005 and subsequent model year heavy-duty diesel engines must also conduct testing using supplemental test procedures that include test conditions in addition to those specified in the FTP.

Consequently, the commenter’s proposal would require a manufacturer seeking to certify an alternative fuel conversion system for a pre-2004 model year heavy-duty diesel engine to conduct supplemental testing and to incur associated costs that are more stringent and more costly than the requirements applicable to the original engine manufacturer. Such a result is inconsistent with the ARB’s requirements imposed by Vehicle Code section 27156 to only exempt modifications that do not exceed the effectiveness of required motor vehicle pollution control devices or that do not cause the emissions from the modified engine or vehicle to exceed applicable emissions standards.

Second, in light of the fact that diagnostic systems were not required on heavy-duty engines until the 2007 model year, with more comprehensive heavy-duty OBD systems required beginning in the 2010 model year, the provisions of the new test procedures that provide streamlined OBD requirements have no impact to the OBD-related requirements, or lack

thereof, for manufacturers of pre-2004 model year alternative fuel conversion systems.

### **Small Volume Conversion Manufacturers**

46. Comment: A review of the latest publications by staff is that the only objection in the streamlining of new procedures for approval of dual fuel systems is that it should apply to large and small manufacturers. A differentiation is discrimination illegal and a hindrance to the goals of cleaner air. (KLS)

Agency Response: The application process requires retrofit system manufacturers to expend time and resources for designing, testing, and building emission compliant systems. Large manufacturers should be able to recoup such costs by the sheer volume of sales. For small volume conversion manufacturers, it is just the opposite and high certification costs and lengthy testing requirements may burden a converter's ability to certify and market conversion systems in a timely manner. To reduce costs and time for certifying alternative fuel conversions, staff is proposing amendments to reduce the testing requirements for small volume conversion manufacturers. From an OBD standpoint, the only new streamlined procedures that apply only to small volume manufacturers are reduced demonstration testing allowances, most of which will sunset in the 2018 model year. The demonstration testing provision that does not sunset delays the submission of the demonstration test data for some of the monitors – however, testing of all the monitors is still required, which is analogous to what is required for large manufacturers. Concerning the rest of the streamlined requirements, the reduced OBD certification documentation provisions apply to both small and large manufacturers.

### **B. Responses to Comments Received During the 15-Day Public Comment Period**

1. Comment: It appears that the new approved regulation only applies to vehicles made in '2004' and afterwards. I suggest that this date be changed to '1998' and newer for the following reasons: In 1996, the OBD-II specification was made mandatory for all cars sold in the United States, older vehicles produce a large percentage of the pollution in California and their conversion to CNG would be more valuable than the conversion of newer vehicles, older vehicles will not be adversely affected after they are converted if tuned correctly, many of the popular engines are still on the road, diesel engines can be driven for many years and operate well even with high mileage, and our conversion kits have been proven to work well on both new and older vehicles. (Gary Fanger – Cenergy Solutions)

Agency Response: This comment is outside the scope of the modifications that were made available during the 15-Day Public Comment Period, and therefore staff is not legally required to respond. However, staff wishes to point out that this comment is essentially identical to comment 45, for which ARB has provided a response.

2. Comment: We suggest that the progress made so far on the improved and eased certification process to be continued, so that the regulation can be administered much more nimbly, and more responsively, in the future, as these technologies continue their improvement in the commercial environment. California's ability to compete the global economy demands that our regulations and certification processes keep pace with the competition around the world.

We propose keeping the ARB/Industry Working Group convened, continuing the use of established website, seeking or establishing more in-use data, and allowing the ARB Executive Officer to approve necessary process modifications to improve and ease the certification protocols from time to time – responsive to market and regulatory conditions, and noticed in a public forum. (Peter Ward – Alternative Fuels Advocates, LLC)

Agency Response: This comment is outside the scope of the modifications that were made available during the 15-Day Public Comment Period, and therefore staff is not legally required to respond. However, staff wishes to point out that this comment is similar to comment 44, for which ARB has provided a response. ARB will continue its existing efforts to work with stakeholders to monitor the status of engine and conversion system technologies and to identify possible future modifications to the proposed requirements.

## **V. Peer Review**

Health and Safety Code Section 57004 sets forth requirements for peer review of identified portions of rulemakings proposed by entities within the California Environmental Protection Agency, including ARB. Specifically, the scientific basis or scientific portion of a proposed rule may be subject to this peer review process. Here, ARB determined that the rulemaking at issue does not contain a scientific basis or scientific portion subject to peer review, and thus no peer review as set forth in Section 57004 was or needed to be performed.