

State of California  
AIR RESOURCES BOARD

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

PROPOSED ALTERNATIVE CERTIFICATION REQUIREMENTS AND TEST  
PROCEDURES FOR HEAVY-DUTY ELECTRIC AND FUEL-CELL VEHICLES AND  
PROPOSED STANDARDS AND TEST PROCEDURES FOR ZERO-EMISSION  
POWERTRAINS

Public Hearing Dates: February 21, 2019, and June 27, 2019  
Agenda Item No.: 19-2-5; 19-6-1

**I. GENERAL**

On June 27, 2019, the California Air Resources Board (CARB or Board) approved for adoption the "Proposed Alternative Certification Requirements and Test Procedures for Heavy-Duty Electric and Fuel-Cell Vehicles and Proposed Standards and Test Procedures for Zero-Emission Powertrains (Zero-Emission Powertrain Certification Regulation)." The amendments made by this regulatory action are codified in California Code of Regulations, title 13, section 1956.8 (13 CCR 1956.8) and California Code of Regulations, title 17, section 95663 (17 CCR 95663), including the following test procedures:

- "California Greenhouse Gas Exhaust Emission Standards and Test Procedures for 2014 and Subsequent Model Heavy-Duty Vehicles," adopted on October 21, 2014, last amended on June 27, 2019, incorporated by reference in 17 CCR 95663.
- "California Standards and Test Procedures for New 2021 and Subsequent Model Heavy-Duty Zero-Emission Powertrains," adopted on June 27, 2019, incorporated by reference in 13 CCR 1956.8.

The Staff Report: Initial Statement of Reasons (staff report or ISOR) and Notice of Public Hearing (45-day notice) for the rulemaking were made available to the public on December 31, 2018. The staff report, which is hereby incorporated by reference herein, contains a description of staff's proposal and the rationale for the amendments. The 45-day notice announced the first public hearing to consider the proposed regulation (February 21, 2019) and initiated the proposal's 45-day comment period, which opened on January 4, 2019, and closed on February 19, 2019. The staff report and 45-day notice are available on CARB's website at: <https://ww2.arb.ca.gov/rulemaking/2019/zepcert2019>.

On February 21, 2019, the Board conducted the first public hearing to consider the proposed Zero-Emission Powertrain Certification Regulation (ZEP Cert Regulation). At this public hearing, staff presented the proposal, as described in the staff report, as well as additional suggested modifications to the regulatory text to address comments received following the release of the staff report. At the conclusion of the hearing, the Board approved Resolution 19-7, which directed the Executive Officer to make the proposed modified regulatory language discussed during the hearing, and any additional conforming

modifications, available for public comment, with any additional supporting documents and information, for a period of at least 15 days, as required by Government Code section 11346.8. The suggested modifications presented at the public hearing are set forth in Attachment D to Resolution 19-7.

Following the February 21, 2019, public hearing, the text of staff's proposed modifications to the originally proposed regulation, supporting documents, and an addendum to the ISOR were made available for a supplemental 15-day comment period through a "Notice of Public Availability of Modified Text and Additional Documents" (15-day notice) released on May 13, 2019. The 15-day notice included the suggested modifications presented at the public hearing as well as other modifications staff made to the proposed regulatory text to address comments received during the 45-day comment period and at the first public hearing. The proposed modifications also included changes that improved clarity and corrected spelling, grammatical, and editorial errors. The 15-day notice is available on CARB's website at <https://ww2.arb.ca.gov/rulemaking/2019/zepcert2019>.

On June 27, 2019, at the second public hearing to consider the proposed ZEP Cert Regulation, the Final Environmental Analysis (EA), Response to Comments on the Draft EA, and Final Regulation Order were presented to the Board. At the conclusion of this hearing, the Board adopted Resolution 19-15, which certified the Final EA, approved the Response to Comments on the Draft EA, and approved the findings and statement of overriding considerations and the adoption of the ZEP Cert Regulation. The Board also directed the Executive Officer to finalize the Final Statement of Reasons (FSOR) for the regulatory amendments and to submit the final rulemaking package to the Office of Administrative Law for review.

This FSOR contains a summary of the comments received by CARB on the rulemaking during the 45-day and 15-day comment periods, and oral and written comments received at the Board hearings on February 21, 2019 and June 27, 2019, as well as CARB's responses to those comments. This FSOR also identifies and provides 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.

#### **A. 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, the costs of which are reimbursable by the state pursuant to Part 7 (commencing with section 17500), Division 4, Title 2 of the Government Code.

#### **B. 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 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.

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

### **A. MODIFICATIONS APPROVED AT THE PUBLIC HEARING AND PROVIDED FOR 15-DAY COMMENTS**

Subsequent to the February 21, 2019, public hearing, modifications to the original proposal were made in order to address comments received during the 45-day public comment period and comments received at the February 21, 2019, public hearing. Staff released a 15-day notice that presented proposed modifications to the regulatory and test procedure text pursuant to the Board's direction provided in Resolution 19-7. These modifications were explained in the "Notice of Public Availability of Modified Text and Additional Documents" that was issued for a 15-day public comment period that began on May 13, 2019, and ended on May 28, 2019. Summarized below are the modifications and staff's rationale for making such modifications:

#### 1. Proposed Regulation Order

- a. Subsection (d) of 17 CCR 95663: This subsection was modified to update the "last amended" date of the "California Greenhouse Gas Exhaust Emission Standards and Test Procedures for 2014 and Subsequent Model Heavy-Duty Vehicles," incorporated by reference therein. This change was made to reflect recent amendments to the document that were adopted as part of the rulemaking entitled, "California Greenhouse Gas Emissions Standards for Medium- and Heavy-Duty Engines and Vehicles" (Phase 2), on December 19, 2018, and approved by the Office of Administrative Law on February 7, 2019.
- b. "Note" section: At the February 21, 2019, public hearing, staff proposed to delete erroneous authority and reference citations to California Health and Safety Code section 43107 set forth in the "Note" section of 13 CCR 1956.8. However, because these citations were deleted as part of the Phase 2 rulemaking, no additional changes to the "Note" section were necessary.

#### 2. "California Greenhouse Gas Exhaust Emission Standards and Test Procedures for 2014 and Subsequent Model Heavy-Duty Vehicles"

- a. Section B.3.1.1 of 1037.115: The section was modified to remove the erroneous reference to subsection 1 of 1037.615. The referenced subsection is not applicable, as 1037.615 does not include any provisions for zero-emission powertrains.
- b. Section B.3.1.2 of 1037.115: The section was modified to clarify the criterion used by the Executive Officer to approve any alternative protocols to meet the optical tell-tales requirement. This clarification provides

- additional guidance to manufacturers seeking to utilize this provision.
- c. Sections B.3.1.6, B.3.3.2, and B.3.3.3 of 1037.115: These sections were modified to clarify that, if a manufacturer has a dealer, the tools, diagnostic software, and *diagnostic and repair manual* that the manufacturer must make available to third-party repair facilities would need to be the same as those provided to its dealer(s), rather than those provided to their internal repair personnel. Staff determined, based on discussions with industry stakeholders, that the most appropriate tools, diagnostic software, and *diagnostic and repair manual* for third-party repair facilities would be those provided to a manufacturer's dealers. However, if a manufacturer does not have a dealer, the manufacturer would still be required to make available the tools, diagnostic software, and *diagnostic and repair manual* provided to its internal repair personnel, as originally proposed.
  - d. Section B.3.1.6.4 of 1037.115: This section was modified to adjust the criteria for determining a "fair and reasonable price" for repair tools. Specifically, the criterion that prices shall account for the ability of third-party repair facilities to afford such tools was removed. Manufacturers contended that at the low volumes expected in the near term, the research, development, and distribution costs for repair tools could be significant on a per-vehicle basis. As such, they were concerned that tool pricing based on affordability could result in substantial financial losses for manufacturers, especially at a time when the vehicles themselves may not yet be profitable. Staff agreed. While this modification could result in higher repair tool pricing when market volumes are low, staff expects that tool pricing will decrease as more electric and fuel-cell vehicles are deployed. Furthermore, staff does not believe the modification reduces the effectiveness of the regulation in achieving the primary objective of the criteria, which is to prevent manufacturers from deliberately inflating tool pricing to prevent access by third-party repair facilities. This is because staff believes the remaining pricing criteria are sufficient in achieving that objective.
  - e. Section B.3.1.7 of 1037.115: This section was modified to adjust the required sales disclosure statement to clarify that the approval of any alternative statement by the Executive Officer shall be based on whether the alternative statement is as effective as the original statement in communicating the applicable information. This clarification provides additional guidance to manufacturers seeking to utilize this provision. In addition, the section was modified to require that the sales disclosure statement include two additional disclosures: one addressing the possibility that the weight of a zero-emission powertrain could reduce the allowable payload of a vehicle and another that describes the potential impact of environment conditions on vehicle performance and durability. Staff has determined, based on more-recent discussions with stakeholders, that the additional disclosures would provide more specificity to the sales disclosure statement that would be useful to fleets purchasing battery-electric or fuel-cell vehicles for the first time.

Furthermore, the impact on manufacturers was determined to be minimal because the amendments only require them to include a few more lines of text to a disclosure document they were already be required to provide pursuant to the original proposal.

- f. Sections B.3.2 and B.3.3 of 1037.115: These sections were modified to add language to clarify that *owner's manual* and *diagnostic and repair manual* information is not required to be presented as one document so long as the information is made available. In addition, these sections were modified to clarify that the vehicle *owner's manual* and *diagnostic and repair manual* are not required to provide duplicative information that is already provided in the *owner's manual* and *diagnostic and repair manual* for the powertrain. These changes provide additional flexibility for manufacturers and closer align the requirements with how information is disseminated in the industry today. Ultimately, the modifications do not impact the access of purchasers and third-party repair facilities to the applicable information. The section was also modified to clarify that if a manufacturer chooses to provide the *owner's manual* in a format that is different from a physical document or digital downloadable file, the Executive Officer's approval would be contingent upon the alternative format being at least as accessible as one of those formats specified. This clarification provides additional guidance to manufacturers seeking to utilize this provision. In addition, the section was modified to remove the provision that requires manufacturers to only provide the *owner's manual* to the Executive Officer, if requested. The Executive Officer will need to evaluate whether the *owner's manual* meets applicable requirements and thus will always need a copy as part of the certification process.
- g. Section B.3.2.5 of 1037.115: This section was modified to replace the term "anticipated" with "generally expected" in the requirement for manufacturers to describe repair response times in their *owner's manuals*. Manufacturers contended that the regulatory language, as originally proposed, could be interpreted to mean a manufacturer would be required to update the information in the *owner's manual* on anticipated response times for each individual repair, which was not staff's intent. Therefore, this change simply clarified the intent of the proposal, which was to require that manufacturers provide a general estimate of repair response times (only once) in the *owner's manual* that is provided to the purchaser at the time of vehicle delivery. Furthermore, the Board directed staff to make this change per Resolution 19-7.
- h. Section B.3.3.5 of 1037.115: This section was modified to clarify that if a manufacturer chooses to present the *diagnostic and repair manual* in an alternative format different from a digital downloadable file, the Executive Officer's approval would be contingent upon the format being at least as accessible as a digital downloadable file. This clarification provides additional guidance to manufacturers seeking to utilize this provision.
- i. Section B.1 of 1037.615: This section was modified to remove a sentence stating that the vehicle manufacturer would be responsible for components

related to the integration of the powertrain into the vehicle. This is duplicative of the previous sentence, and the change does not affect the proposed requirements.

- j. Section B of 1037.801: This section was modified to change the term, “usable capacity,” to the correct term, “usable energy capacity.” This would only be a correction, as the term, “usable capacity,” is not defined in the proposed regulation.
  - k. In addition to the modifications described above, additional modifications correcting grammar, punctuation, and spelling have been made throughout the document. These changes were nonsubstantive.
3. "California Standards and Test Procedures for New 2021 and Subsequent Model Heavy-Duty Zero-Emission Powertrains"
- a. This document was modified to combine the two “NOTE” sections preceding Part I to reduce redundancy.
  - b. Part I, Section A: This section was modified to remove the last sentence from general applicability section because it lacked clarity and the voluntary nature of these test procedures are implied in the previous sentence.
  - c. Part I, Section B and Part II, Subsection A.3: These parts were modified to move the definition for “Authorized Service Establishment” from Part II to Part I and to remove the redundant definitions for “Executive Officer” and “Powertrain Manufacturer” in Part II. They were also modified to correct the definition of “inverter” by adding the term, “current.” This term was erroneously left out of the definition making the terms, “direct” and “alternating,” unclear. These modifications do not affect the requirements of the regulation and were only made to improve clarity and ensure consistency throughout the document.
  - d. Part I, Subsection C.1.1.2: This subsection was modified to correct the sentence, “Each unique battery type shall be responsible for the requirements set forth in subsection C.2 and section D,” so that it now reads, “The manufacturer shall be responsible for the requirements set forth in subsection C.2 and section D for each unique battery type.” This change modified the sentence so that it correctly specifies that it is the manufacturer (not the battery type) who is responsible for the requirements.
  - e. Part I, Subsection C.1.3: This subsection was modified to change the term, “Executive Order,” to the term, “family,” for clarity. While in the context of this subsection, the terms could be used interchangeably, it is clearer to use the term, “family,” instead, because that is how groupings of engines and vehicles are typically referred to by CARB staff and manufacturers for the purposes of California certification. In addition, the term, “rated capacities,” was changed to “rated energy capacities,” which is what staff initially intended. The term, “rated capacities,” was used in error and is not defined in the document.

- f. Part I, Subsection C.1.4: This subsection was modified to clarify that if a manufacturer opts to change the battery module type used in a currently certified zero-emission powertrain family, a new certification family would be required. This aligns with staff's original intent, which is supported by Part I, Subsection C.1.3, which states that manufacturers may only certify different energy storage systems together in the same family if they have identical components at a modular level.
- g. Part I, Subsection C.1.5: This subsection was modified to allow manufacturers to modify battery management and thermal management system strategies of a certification family mid-model year. The originally proposed language would have required manufacturers to certify a new powertrain family for such changes. Industry stakeholders contended that the provisions, as originally proposed, would have been too restrictive, especially given that the industry is still an emerging one and that they will be making many software modifications to their products in the near term. Staff agrees.
- h. Part I, Subsection C.2.1: This subsection, which would have required a manufacturer making hardware changes to the battery pack to certify a new powertrain family, was removed. This subsection contradicted subsection C.1.5, which allows different hardware configurations to be included within a single certification family so long as the same battery modules are used.
- i. Part I, Subsection C.2.2: This subsection was modified to clarify the types of changes to the system monitoring and diagnostic system that manufacturers are required to report to the Executive Officer. Specifically, the subsection was modified to add examples of such changes and further explanation that the subsection only applies to changes that alter the information originally submitted in their certification application. In addition, language applicable to hardware changes was removed, because hardware changes are already addressed in Part I, Subsection C.1.5.
- j. Part I, Subsection C.3.1: This subsection was modified to add an allowance for alternative communications hardware and protocols other than those already specified. Based on discussions with stakeholders, staff determined that it was appropriate to allow manufacturers to use alternative methods so long as those methods are readily available to third-party repair facilities and provide similar functionality to the communication methods that were already described in the original proposal. Furthermore, this change was presented to the Board at its February 21, 2019 public hearing.
- k. Part I, Subsection C.3.2: This subsection was modified to clarify the terms "default percentage charge limit" and "discharge limit" by adding examples. Staff also changed the term, "tools," to "hardware and/or protocols" and the term, "readings," to "signals." This was only a clarification, as these new terms more accurately characterize the nature

of diagnostic communications of a powertrain and are more widely understood.

- i. Part I, Subsections C.3.2, C.4.1, C.4.3.2, and C.4.3.3: These subsections were modified to clarify that, if a manufacturer has a dealer, the tools, diagnostic software, and *diagnostic and repair manual* that the manufacturer must make available to third-party repair facilities would need to be the same as those provided to its dealer(s), rather than those provided to their internal repair personnel. Staff determined, based on discussions with industry stakeholders, that the most appropriate tools, diagnostic software, and *diagnostic and repair manual* for third-party repair facilities would be the ones provided to a manufacturer's dealers. However, if a manufacturer does not have a dealer, the manufacturer would still be required to make available the tools, diagnostic software, and *diagnostic and repair manual* provided to its internal repair personnel, as originally proposed.
- m. Part I, Subsection C.4.1.4: This subsection was modified to adjust the criteria for determining a "fair and reasonable price" for repair tools. Specifically, the criterion that prices shall account for the ability of third-party repair facilities to afford such tools was removed. Manufacturers contended that at the low volumes expected in the near term, the research, development, and distribution costs for repair tools could be significant on a per-vehicle basis. As such, they were concerned that tool pricing based on affordability could result in substantial financial losses for manufacturers, especially at a time when the vehicles themselves may not yet be profitable. Staff agrees. While this modification could result in higher repair tool pricing when market volumes are low, staff expects that tool pricing will decrease as more electric and fuel-cell vehicles are deployed. Furthermore, staff does not believe the modification reduces the effectiveness of the regulation in achieving the primary objective of the criteria, which is to prevent manufacturers from deliberately inflating tool pricing to prevent access by third-party repair facilities. This is because the remaining pricing criteria are sufficient to achieve that objective.
- n. Part I, Subsection C.4.2: This subsection was modified to clarify that if a manufacturer chooses to provide the *owner's manual* in a format that is different from a physical or digital downloadable file, the Executive Officer's approval would be contingent upon the format being at least as accessible as one of those formats specified. This clarification provides additional guidance to manufacturers seeking to utilize this provision. In addition, the provision that requires manufacturers to only provide the *owner's manual* to the Executive Officer, if requested, was removed. The Executive Officer will need to evaluate whether the *owner's manual* meets applicable requirements and thus will always need a copy as part of the certification process.
- o. Part I, Subsections C.4.2.1 and C.4.3: These subsections were modified to add language to clarify that *owner's manual* and *diagnostic and repair manual* information is not required to be presented as one document so



long as the information is made available. This provides additional flexibility for manufacturers and more closely aligns the requirement with how information is disseminated in the industry today. Ultimately, the modification does not affect the access of purchasers and third-party repair facilities to the applicable information.

- p. Part I, Subsection C.4.2.5: This subsection was modified to replace the term "anticipated" with "generally expected" in the proposed requirement for manufacturers to describe repair response times in their *owner's manuals*. Manufacturers contended that, the regulatory language, as originally proposed, could be interpreted to mean a manufacturer would be required to update the information in the *owner's manual* on anticipated response times for each individual repair, which was not staff's intent. Therefore, this change simply clarified the intent of the proposal, which was to require that manufacturers provide a general estimate of repair response times (only once) in the *owner's manual* that is provided to the purchaser at the time of vehicle delivery. Furthermore, the Board directed staff to make this change per Resolution 19-7.
- q. Part I, Subsection C.4.3.4: This subsection was modified to clarify that if a manufacturer chooses to present the *diagnostic and repair manual* in an alternative format different from a digital downloadable file, the Executive Officer's approval would be contingent upon the format being at least as accessible as the digital downloadable file. This clarification provides additional guidance to manufacturers seeking to utilize this provision.
- r. Part I, Section D: This section was modified to clarify that the requirements for testing are also applicable to batteries that are part of plug-in-capable fuel-cell powertrains, which was staff's original intent. This is supported by Part I, section C.1.2, which states that batteries designed to directly accept charge and integrated in fuel-cell powertrains will be treated as independent battery packs. In addition, this section was modified to correct the fact that the reference, Society of Automotive Engineers J1798, is incorporated in 13 CCR 1956.8, not 17 CCR 95663, as indicated in the originally proposed language. The corrected reference is consistent with the information provided in the 45-day notice. This section was also modified to clarify that manufacturers should seek Executive Officer approval of alternative test procedures in advance of performing the testing. This ensures that manufacturers do not waste resources in running a test that the Executive Officer ultimately determines does not meet the applicable test criterion. This section was also modified to correct all instances of "usable capacity" and "rated capacity" by changing the terms to "usable energy capacity" and "rated energy capacity," respectively. These changes were only corrections, as "usable capacity" and "rated capacity" are not defined in the document.
- s. Part II, Sections A, D, F, G, J, N, and P: These sections were modified to correct the inconsistent usage of "nonconformity," "warrantable recall condition," and "failure," throughout Part II of this document. These terms were used interchangeably in several sections in Part II. All of these

terms are similar, but “nonconformity” refers to a certification family, while “warrantable recall condition” and “failure” refer specifically to failed component on a particular vehicle or powertrain.

- t. Part II, Subsection A.2: This subsection was modified to clarify the applicability of the recall provisions for zero-emission powertrains installed in California-registered vehicles that were originally registered outside of California. This change clarifies that the recall requirements would only apply to such zero-emission powertrains once the manufacturer becomes aware that the vehicle has been registered in California.
- u. Part II, Subsection A.3: This subsection was modified to remove a number of definitions, including “influenced recall,” “quarterly reports,” and “vehicle integration components,” as language using such terms from the document was also removed as part of the 15-day changes. In addition, this subsection was modified to clarify the definitions for “nonconformity,” “ordered recall,” and “voluntary recall,” and to remove definitions already provided in Part I, Section B.
- v. Part II, Subsection B.6: This subsection was modified to clarify that the list of warranted parts subject to Executive Officer approval is the same list that is required to be furnished with each new zero-emission powertrain pursuant to subsection B.5. This was merely to ensure consistency with other parts of this paragraph, which specifically refer to subsection B.5 when referencing the list of warranted parts.
- w. Part II, Section D: The language in this section was reworded to improve clarity.
- x. Part II, Sections F, G, H, and K: These sections were modified to remove influenced recalls from the regulation because it was determined to be an unnecessary process. Staff determined that while an influenced recall is a process important for internal combustion vehicles and engines, it is a process that would not likely be utilized for zero-emission powertrains. This is because zero-emission powertrain failures that trigger a recall pursuant to the regulation affect the operability of the vehicle, and thus can be expected to be consistently reported. In contrast, failures of emission control components on an internal combustion vehicle may go unreported, as vehicles with failing emission control components could still be operable. Therefore, for internal combustion engines and vehicles, there is a material need for the ability to initiate a recall based on data sources other than warranty reports. As such, the influenced recall element was removed from the regulation. While the change is not expected to impact the effectiveness of the regulation’s warranty and recall provisions, it did streamline the recall provisions, which is consistent with staff’s intention, as presented to the Board at its February 21, 2019 public hearing.
- y. Part II, Section G.9: This section was modified to clarify that only the negative impacts on range, performance, durability, and safety of recall repairs or adjustments would need to be reported to the Executive Officer. The intent of this provision is to notify the Executive Officer of any

potential issues that could arise with a proposed repair or adjustment, and thus, it is not necessary to provide information about how a repair could positively impact the range, performance, durability, or safety of affected vehicles.

- z. Part II, Sections H and Q: These sections were modified to allow, subject to Executive Officer approval, manufacturers to provide a digital label in lieu of a physical label, if the repair subject to recall is not performed at a physical repair facility (e.g., an over-the-air update to the powertrain's computer). A digital label is still required to include the same information required on a physical label, except that it can be stored in the on-board computer and made accessible via a scan tool or an on-vehicle display screen. Because vehicles would not be brought into a physical repair facility in these situations, allowing for a digital label helps reduce labeling errors. This section was also modified to clarify the criterion by which the Executive Officer would evaluate for approval the location of a physical label or accessibility of a digital label.
- aa. Part II, Sections I and P: These sections were modified to clarify that the warranty statement is only required on recall notifications in cases where the statement actually applies. That is, if failing to bring a vehicle in for a recall repair does not affect an owner's warranty rights, the warranty statement does not need to be included in the recall notification. Omitting the warranty statement would require Executive Officer approval to verify that a statement is not applicable. This modification is appropriate as it prevents powertrain owners from receiving information that does not apply to them during a recall.
- bb. Part II, Sections I and P: These sections were modified to clarify that manufacturers are not required to ensure that a certain percentage of zero-emission powertrains are brought in for repair. That is, there is no required capture rate. This proposed change was presented to the Board at its February 21, 2019, public hearing.
- cc. Part II, Sections J and T: These sections were modified to reduce the manufacturer's reporting obligation during a recall. Specifically, the modifications reduced the manufacturer's reporting obligation from six quarterly reports to one annual report describing the progress of a recall. Because manufacturers would not be required to ensure a certain percentage of vehicles are brought back in for repair during a recall, the submittal of quarterly updates would not be necessary. While these modifications streamlined the recall reporting procedures, they still ensure that important information related to recalls will be provided to the Executive Officer. In addition, these sections were modified to remove the provisions requiring manufacturers to use a data storage device when providing vehicle identification numbers, remove the provision allowing the Executive Officer to change the frequency of reporting vehicle identification numbers, and clarify that the information collected would only need to be made available upon request. These modifications streamline reporting procedures while still ensuring manufacturers provide

information important for recall reporting and are consistent with staff's intent to streamline the warranty recall provisions, as presented to the Board at its February 21, 2019, public hearing.

- dd. Part II, Sections J and T: These sections were modified to remove a number of data parameters required to be reported as part of the recall reporting. This is because the data parameters that would be removed could be calculated or determined via other information that would be provided as part of a recall status report. These proposed modifications would streamline reporting while still ensuring manufacturers provide information important for recall reporting. This would streamline the warranty recall provisions, as presented to the Board at its February 21, 2019, public hearing.
- ee. Part II, Section L: This section was modified to clarify that only failures that render the vehicle inoperable are considered for the purposes of ordered recalls. This change was only intended to clarify staff's original intent and was presented to the Board at its February 21, 2019, public hearing. This section was also modified to add a reference to the section discussing the ordered recall plan for clarity.
- ff. Part II, Section L and Z: This section was modified to remove the requirement for field information reports. Staff determined that while field information reports are an intermediate step important for warranty reporting of internal combustion vehicles and engines, they are not necessary for zero-emission powertrains. Failures of emission control components on an internal combustion vehicle could go unreported, as vehicles with failing emission control components may still be operable. Therefore, field information reports provide an additional mechanism with which to identify problematic vehicles. However, field information reports are not needed for zero-emission powertrains because zero-emission powertrain failures that trigger recall would affect the operability of the vehicle and thus, can be expected to be consistently reported. This change is consistent with staff's intent to streamline the warranty reporting provisions, as presented to the Board at its February 21, 2019, public hearing.
- gg. Part II, Section P: This section was modified to remove subsection P.3, a provision that stipulated the Executive Officer could require manufacturers to provide subsequent notification to vehicle or powertrain owners after the original notification for an ordered recall. Such a provision is necessary for internal combustion warranty requirements, because during a recall, manufacturers of internal combustion vehicles are required to bring in a certain percentage of vehicles in for repair. However, zero-emission powertrain manufacturers are not subject to that same requirement and thus, staff determined that re-notification of owners would not be necessary. That said, the remaining provisions still allow the Executive Officer to determine the means by which a manufacturer must provide the initial notification to owners. This change is consistent with staff's intent to

- streamline the warranty recall reporting provisions, as presented to the Board at its February 21, 2019, public hearing.
- hh. Part II, Section T: This section was removed and instead references section J, which has identical requirements, to reduce redundancy.
  - ii. Part II, Section V: This section was modified to clarify that manufacturers offering extended warranties are not required to meet the warranty and recall requirements of this regulation beyond the duration of the warranty period specified in subsection B.2. This is consistent with staff's intent and ensures that this section is not misinterpreted.
  - jj. Part II, Sections X and Z: These sections were modified to clarify that only failures that render the vehicle inoperable are considered for the purposes of ordered recalls. This was staff's original intent, and this clarification was presented to the Board at its February 21, 2019, public hearing.
  - kk. Part II, Section Y: This section was modified to increase the warranty threshold at which a manufacturer must submit an unscreened warranty report. Staff determined that it was unnecessary to have manufacturers submit unscreened warranty reports unless the true failure rate approached a level such that a manufacturer would be required to take recall action. The language was also modified to increase the number of days a manufacturer has to file an unscreened warranty report from 25 to 45 days, which aligns it with the length of time for the screened warranty information report. This change reduces the amount of reporting required and streamlines the warranty reporting requirements, as presented to the Board at its February 21, 2019, public hearing. In addition, additional modifications were made to the language in this section for clarity.
  - ll. Part II, Section Y: This section was modified to include a requirement that, in the unscreened warranty information report, manufacturers provide a reporting number for tracking purposes. In addition, the regulatory language was modified to require that manufacturers report the potential causes of a failure in the unscreened warranty information report. This information was originally required as part of a field information report, which staff removed, as described in paragraph 2.ff of this document.
  - mm. Part II, Section AA: This section was modified to clarify that only failures that render the vehicle inoperable are to be included in a screened warranty information report. This was staff's original intent and this clarification was presented to the Board at its February 21, 2019 public hearing. In addition, the warranty reporting requirements were modified so that the total number of affected zero-emission powertrains and the number anticipated to fail within the warranty period are reported in the screened warranty report, rather than the unscreened warranty report, as initially proposed. This is because manufacturers would be better able to project the number of anticipated failures once warranty claims are verified through the warranty screening process.
  - nn. Part II, Section AB: This section was modified to clarify that the evaluation of the need for a recall is based on the screened warranty information report. The language in the 45-day package was unclear as to which

warranty information report (screened or unscreened) would be used. This change aligns with staff's original intent because the verified failures counted in a screened warranty information report are the most reliable way to identify component failure rates.

- oo. Part II, Section AB: This section was modified to clarify that the requirements in this section are intended to apply to the screened warranty information reports, not both screened and unscreened warranty information reports. This change aligns these requirements, as intended, with the internal combustion warranty recall requirements upon which these provisions were based. Furthermore, this proposed change was consistent with staff's intent to streamline the recall provisions, as presented to the Board at its February 21, 2019, public hearing.
- pp. In addition to the modifications described above, additional modifications correcting grammar, punctuation, and spelling have been made throughout the document. These changes were nonsubstantive.

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

Summarized below are non-substantive changes made subsequent to the release of the 15-day notice, as well as staff's rationale for making them:

1. In the 45-day notice package, the following text of the proposed amendments to 13 CCR 1956.8 was underlined in error, as it was existing language and not a proposed change: "(i) Definitions Specific to this Section. The following definitions apply to this section 1956.8." The text was correctly shown without an underline in the 15-day notice package.
2. In the 15-day notice version of staff's proposed Zero-Emission Powertrain Certification Amendments to the "California Greenhouse Gas Exhaust Emission Standards and Test Procedures for 2014 and Subsequent Model Heavy-Duty Vehicles":
  - a. On page B-i, extra spacing was deleted under paragraph number 5, between the text: "California Standards and Test Procedures for New 2021 and Subsequent Model Heavy-Duty Zero-Emission Powertrains,' as adopted June 27, 2019" and "(incorporated by reference in section 1956.8(a)(8), title 13, CCR)." The adoption date was added as well.
  - b. The section numbering in the table of contents was updated to reflect modifications made as part of the Phase 2 rulemaking, which was finalized on April 1, 2019.
  - c. Section B.3.1.7 of 1037.115: A period (punctuation mark) was added to the end of "etc" in subparagraph 7.
  - d. Section B.3.2.1 of 1037.115: In the first sentence, an extra instance of the word "Officer" was deleted. It was erroneously duplicated in the 15-day notice version.

3. In the 15-day notice version of staff’s proposed “California Standards and Test Procedures for New 2021 and Subsequent Model Heavy-Duty Zero-Emission Powertrains”:
  - a. Part I, Section C.2.2: The font style was changed from bold to regular for the following: the semicolons (punctuation marks) used to separate Sections C.2.2.1 through C.2.2.4 and the period (punctuation mark) at the end of Section C.2.2.6.
  - b. Part II, Section H.1: The provided parenthetical example “(e.g., an over-the-air software update)” was moved within the sentence to improve clarity. This modification was a non-substantial change that does not materially alter the requirements of the regulation.
  - c. Part II, Sections J.1, M.1, X.2, and Y.3: The “Emissions Compliance, Automotive Regulations and Science Division” was changed to “Emissions Certification and Compliance Division” to reflect the current CARB division to which manufacturers must submit their certification applications.
  - d. Part II, Section P.1: The provided parenthetical example “(e.g., an over-the-air software update)” was moved within the sentence to improve clarity. The modification was a non-substantial change that does not materially alter the requirements of the regulation.
  
4. Staff identified two errors in the section numbering of the 15-day notice. The corrections are as follows:
  - a. Section C.25 of the Summary of Proposed Modifications. The description of the proposed modification incorrectly referenced Part II, Section G.7.9 of the "California Standards and Test Procedures for New 2021 and Subsequent Model Heavy-Duty Zero-Emission Powertrains," instead of Part II, Section G.9, the section that was actually modified.
  - b. Section C.39 of the Summary of Proposed Modifications. The description of the proposed modification incorrectly referenced Part II, Section Z of the "California Standards and Test Procedures for New 2021 and Subsequent Model Heavy-Duty Zero-Emission Powertrains," instead of Part II, Section AB, the section that was actually modified.

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

The regulation adopted by the Executive Officer incorporates by reference the following documents:

- “California Standards and Test Procedures for New 2021 and Subsequent Model Heavy-Duty Zero-Emission Powertrains,” as adopted June 27, 2019 (incorporated by reference in section 1956.8(a)(8), title 13, California Code of Regulations).

- "California Greenhouse Gas Exhaust Emission Standards and Test Procedures for 2014 and Subsequent Model Heavy-Duty Vehicles," adopted October 21, 2014, last amended June 27, 2019 (incorporated by reference in section 95663(d), title 17, California Code of Regulations).

The following documents are incorporated by reference in the "California Standards and Test Procedures for New 2021 and Subsequent Model Heavy-Duty Zero-Emission Powertrains":

- Society of Automotive Engineers International (SAE) Standard J1798: "Recommended Practice for Performance Rating of Electric Vehicle Battery Modules," as revised on July 8, 2008. Copyrighted.
- Section 1037.801, Title 40, Code of Federal Regulations, as last amended by the United States Environmental Protection Agency (U.S. EPA) on July 1, 2015.

The following documents are incorporated by reference in the "California Greenhouse Gas Exhaust Emission Standards and Test Procedures for 2014 and Subsequent Model Heavy-Duty Vehicles," adopted October 21, 2014, last amended June 27, 2019:

- Section 86.1803-01, Title 40, Code of Federal Regulations, as last amended by U.S. EPA on July 1, 2011.
- SAE J2402: "Road Vehicles-Symbols for Controls, Indicators, and Tell-Tales," as last revised January 7, 2010. Copyrighted.
- International Organization for Standardization (ISO) 2575: "Road Vehicles - Symbols for controls, indicators, and tell-tales," as revised on July 1, 2010. Copyrighted.

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 CARB 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. 45-DAY COMMENTS AND AGENCY RESPONSES**

Written comments were received during the 45-day comment period in response to the February 21, 2019, public hearing notice, and written and oral comments were presented to



the Board at its public hearing. Listed below are the organizations and individuals that provided comments during the 45-day comment period:

| <b>Commenter</b>                      | <b>Affiliation</b>                                                                           |
|---------------------------------------|----------------------------------------------------------------------------------------------|
| Wall, Francesca (February 15, 2019)   | Tesla, Inc. (Tesla)                                                                          |
| Leacock, Kent (February 19, 2019)     | Proterra, Inc. (Proterra)                                                                    |
| Trichka, Stephen (February 19, 2019)  | BAE Systems, Inc. (BAE)                                                                      |
| Blubaugh, Timothy (February 19, 2019) | Truck and Engine Manufacturers Association (EMA)                                             |
| Ahn, Eddie (February 19, 2019)        | Brightline Defense (Brightline)                                                              |
| Goldsmith, Hannah (February 19, 2019) | California Electric Transportation Coalition (CalETC) on behalf of the Coalition (Coalition) |
| Goldsmith, Hannah (February 19, 2019) | CalETC on behalf of the Joint Parties (Joint Parties)                                        |
| Nagrani, Urvi (February 20, 2019)     | Motiv Power Systems, Inc. (Motiv)                                                            |

The following individuals submitted written comments at the February 21, 2019, public hearing:

| <b>Commenter</b> | <b>Affiliation</b>                       |
|------------------|------------------------------------------|
| McGhee, Lisa     | San Diego Airport Parking Company (SDAP) |

The following individuals, listed in the order in which they spoke, provided oral testimony at the February 21, 2019, public hearing:

| <b>Commenter</b>  | <b>Affiliation</b>                          |
|-------------------|---------------------------------------------|
| Goldman, Joshua   | Transpower, Inc. (Transpower)               |
| Barrett, William  | American Lung Association (ALA)             |
| Goldsmith, Hannah | CalETC                                      |
| Van Cleve, Sarah  | Tesla                                       |
| Nagrani, Urvi     | Motiv                                       |
| Blubaugh, Timothy | EMA                                         |
| Kayes, David      | Daimler Trucks North America LLC (Daimler)  |
| Le, Huy           | None                                        |
| Schuchard, Ryan   | CALSTART                                    |
| Shumaker, Cory    | California Hydrogen Business Council (CHBC) |
| McGhee, Lisa      | SDAP                                        |

## 1. Overall Support

CARB received several comments of general support of the proposal from Proterra, BAE, Transpower, and ALA.

Comment: “The regulation would help reduce variability in the quality and reliability of HDEVs and HDFCVs, ensure information regarding HDEVs and HDFCVs and their powertrains are effectively and consistently communicated to purchasers, and accelerate progress towards greater vehicle repairability. Adding market transparency, consistency, and stability will help towards broad market adoption of zero-emission technology in the heavy-duty sector.” (Proterra)

“BAE Systems appreciates the efforts of the Air Resources Board (ARB) staff to propose a new, optional certification pathway for heavy-duty electric and fuel cell vehicles and their zero emission powertrains to meet the state’s clean transportation and freight movement goals.” (BAE)

“We support the efforts of ARB and staff in this proposed Alternative Certification Requirements and Test Procedures for these heavy-duty electric and fuel-cell vehicles, and the standards for zero-emission powertrains.” (Transpower)

“So with all of that, we -- we do appreciate the intention to provide consumer and fleet confidence in zero-emission technologies. Boosting consumer confidence and comfort with zero-emission vehicles is a key step forward for expanding the market to accelerate clean air and climate benefits that we’re all trying to achieve.” (ALA)

Agency Response: Staff appreciates the commenters’ support and acknowledgment of the importance of this measure in accelerating the adoption of zero-emission technology. Staff remains committed to working with industry to ensure successful implementation of this measure. No change was made to the regulatory language in response to this comment.

## **2. Support for Diagnostic Communications Flexibility**

Comment: “For electric vehicles, OBD is archaic and not used by many manufacturers. OBD is more than 30 years old and many electric vehicles today do not utilize OBD at all, because its main purpose is monitoring emissions components. Tesla, therefore, appreciates the language included in Section C.3.1 which gives a manufacturer the option to choose how to best provide relevant diagnostic information to the vehicle operator.” (Tesla)

Agency Response: Staff appreciates the commenter’s support for this provision. No change was made to the regulatory language in response to this comment.

## **3. Add More Diagnostic Communications Flexibility**

Comment: “The proposed ZEP Cert. regulations require that a zero-emission powertrain have ‘a connector meeting the requirements in subsection (h)(2) of title 13, CCR, section 1971.1, On-Board Diagnostic System Requirements..., with a vehicle controller area network communications protocol that is capable of connection and communication with scan tools..., unless [the manufacturer has] a device permanently

installed on the vehicle capable of displaying the information required in section 3.2 without the need for additional diagnostic tools.’ While these standards may be used by current ICE powertrain and vehicle manufacturers, these standards do not reflect current industry practice for all ZEV manufacturers. As a result of this disconnect in current practices, some manufacturers would be detrimentally impacted by this requirement. We recommend modifying this section to say that the information must be accessible, and include flexibility with how this information is conveyed or accessed (e.g., allow comparable standards or tools, so long as the information is accessible), instead of dictating the way this information must be communicated. For example, one alternative could be ISO 14229-1:2013, Unified Diagnostic Services (UDS), which is based on general diagnostics, instead of emissions communications, and specifies data link requirements of diagnostic services.” (Joint Parties)

Agency Response: Changes were made to the regulatory language in response to this comment. Language allowing additional flexibility has been added as part of the 15-day package. See Section II.A.3.j for additional details on this modification.

#### **4. Reduce Diagnostic Communications Requirements for Battery Voltage and Temperature**

Comment: “There could be dozens, hundreds of battery cells and modules, each with different voltages and temperatures that might be easily readable through a thermometer temperature gun or through a volt meter. But adding the requirement to broadcast all the information about all of these things through communication protocol meant to broadcast simply diagnostic faults or other key information adds a lot of extensive burdens to us.” (Daimler)

Agency Response: Changes were made to the regulatory language in response to this comment. As originally proposed, the regulation would have only required the communication of battery voltage and temperature signals from existing sensors (i.e., sensors that the manufacturer has installed on its own) that are useful for diagnosis or repair. As part of the 15-day package, staff further relaxed this requirement by limiting it to only those voltage and temperature signals that are readable to its dealers (or internal repair personnel, if the manufacturer does not have a dealer). Considering the above, staff does not believe this requirement will add undue burden to manufacturers. See Section II.A.3.i for additional details on this modification.

#### **5. Costs of Battery Testing**

Comment: “The elements of certification that would impose the unreasonable costs at issue include certification testing of new battery packs to SAE Recommended Practice J1798—standard that heavy-duty manufacturers have no experience with and for which CARB apparently has not conducted even a single test of battery packs suitable for a heavy-duty vehicle.” (EMA)

Agency Response: No change was made to the regulatory language in response to this comment. As disclosed in the staff report, staff estimated the cost of the required rated energy capacity test to be approximately \$7,500. This cost was determined in consultation with the Idaho National Laboratory, which is experienced in performing the tests described in SAE J1798. Staff expects that each powertrain certification family will only require one test, the data of which can be carried over into future model years, so long as the same battery module type is used. That means test costs could potentially be spread across zero-emission powertrains sold over several years.

In addition, subject to Executive Officer approval, ZEP Cert allows for alternative test procedures that are substantially similar to SAE J1798 to be used. As such, staff expects that some manufacturers will be able to utilize their existing (or slightly modified versions of their existing) test procedures and/or equipment to determine rated energy capacity. In such cases, actual incremental test costs would be significantly lower than the staff estimated test cost of \$7,500.

## **6. Recall Provisions Are Not Necessary Because Zero-Emission Powertrains Don't Produce Emissions and They Are More Stringent Than for Internal Combustion Engines and Vehicles**

### Comments:

"While Tesla recognizes the need to ensure a vehicle is compliant with emissions requirements to prevent pollution, it is unclear why a heavy-duty ZEV, which by definition produces no emissions, should be subject to the same recall requirements." (Tesla)

"Current recall-triggering requirements are intended for violation of emissions standards by internal combustion vehicles, and it does not make sense to apply these same recall requirements to heavy-duty ZEVs, which do not produce emissions impacts considered by CARB. By avoiding this apples-to-oranges comparison in a recall requirement, California should ensure its certification requirements are not uniquely burdensome to ZEVs, especially compared to internal combustion vehicles." (Brightline)

"Additionally, the mandatory recall-triggering requirements for zero-emission powertrain components are stringent, especially as compared to the emissions-recall requirements for heavy-duty internal-combustion-engine components that cause a violation of emissions standards. The Coalition finds these requirements problematic, as a failure triggering recall of a zero-emission-powertrain component is not the same as a violation of emissions or safety standards." (Coalition)

"Unlike an ICE vehicle, a ZEV produces no tailpipe emissions, and this does not change over the course of a ZEV's useful life. For ICE vehicles, the parts that trigger a CARB recall are those tied to emissions – the engine and its certified components (like aftertreatment devices) – which ensures the vehicle stays in compliance with emissions requirements throughout its life." (Joint Parties)

Agency Response: Changes were made to the regulatory language in response to these comments. As stated in the staff report, the primary purpose of ZEP Cert is to provide a consistent certification process that can be used to support future zero-emission regulatory and incentive measures. While ZEP Cert was proposed as optional, other zero-emission measures may incorporate the ZEP Cert process, as deemed appropriate. The Zero-Emission Airport Shuttle Regulation (ZEAS), considered at the same public hearings as ZEP Cert, was the first to incorporate the ZEP Cert process. In that regulation, ZEP Cert will be required for heavy-duty zero-emission airport shuttles starting with the 2026 model year.

California's regulatory approach towards the heavy-duty sector includes *fleet rules*, which are measures that require fleets to purchase cleaner vehicles and phase out older, more-polluting ones. Moving forward, many heavy-duty *fleet rules* in California will require the transition to zero-emission technology (like ZEAS). However, because the heavy-duty zero-emission market is still emerging, heavy-duty fleets that will be required to transition to zero-emission technology, especially in the near term, will face greater risks (e.g., of extended vehicle downtime, poor reliability, etc.) than those who purchase conventional technology from established engine and vehicle manufacturers. The recall requirements, and other requirements of ZEP Cert, serve to reduce such risks by helping ensure that the zero-emission products fleets are required to purchase will be well supported. Ultimately, although battery-electric or fuel-cell vehicles do not directly produce emissions, their failure or lack of support (and resulting downtime) is expected to result in higher usage of internal combustion vehicles and greater emissions. By reducing the number of failures and/or the amount of downtime caused by failures, ZEP Cert will provide some level of protection to regulated fleets and help ensure that the emission reductions attributed to the measures it aims to support will actually be achieved.

While staff acknowledges that manufacturers generally oppose the recall element of the regulation, staff believes it is necessary for the reasons described in the ISOR. That said, staff believes that the most significant concerns manufacturers had about specific provisions of the recall element have been addressed by clarifications made through the 15-day change process. See Sections Section II.A.3.bb and II.A.3. ee for additional details on these modifications.

## **7. ZEP Cert Applicability Timeline**

Comment: ZEP Cert should remain optional until a designated model year, limiting any program from incorporating ZEP Cert before that specific year. (Tesla, EMA, Brightline, Coalition, Joint Parties, and CalETC). Both 2023 (Brightline, Coalition, Joint Parties and CalETC) and 2026 (EMA) were mentioned as potential model years, before which any other program should not be allowed to require ZEP Cert. In addition, Joint Parties suggested that CARB staff report back to the Board annually on the status of implementation of the regulation.

Agency Response: No change was made in response to these comments. Staff does not believe it would be appropriate for ZEP Cert to provide a blanket requirement limiting its adoption by other programs. The timing and extent of its potential inclusion in any other future regulatory or incentive program should be considered during the development process of those individual programs. In addition, all future programs that could consider ZEP Cert as a requirement would each be subject to their own public process. For the reasons cited above, staff also does not believe it would be necessary to report back to the Board solely for the purpose of providing a status update on ZEP Cert implementation.

## **8. Definition of Zero-Emission Powertrain Should be Clarified**

Comment: “Appendix A includes a definition for zero emission powertrain which encompasses numerous components. While this definition is generally appropriate, we recommend the regulation more clearly spell out what is not considered part of the zero emission powertrain to the extent there is any simplification that can be made over time. To be more specific, especially in the case of electric vehicles, the term powertrain could include terms not connected with the power generation or vehicle range, such as the service brakes system, climate control, and accessory power consumption circuits.” (Tesla)

Agency Response: No change was made to the regulatory language in response to this comment. The language in the regulation lists the specific components that may be included as part of the powertrain. Because the service brakes system, climate control, and accessory power consumption circuits are not specifically mentioned in the list, they are not considered part of the powertrain. Staff believes the language, as adopted, is clear and listing items that are not included would result in an excessively long list or a list that leads to more confusion than clarity.

## **9. Continue to Work with Industry**

Comment: “We urge ARB to continue working closely with the industry to clarify the certification issues that may rise as OEMs, powertrain manufacturers and component suppliers work toward meeting certification requirements.” (BAE, Tesla, Transpower, ALA, CalETC, and EMA)

Agency Response: Staff appreciates this comment and acknowledges that working closely with industry will be critical to ensure successful implementation of this regulation. No change was made to the regulatory language in response to these comments.

## **10. CARB Lacks Statutory Authority to Adopt this Regulation for Zero-Emission Powertrains**

Comment:

“Taken together, the proposed Zero-Emission Powertrain (‘ZEP’) Certification Regulation and the proposed Zero-Emission Airport Shuttle Regulation would establish mandatory certification, warranty, defect reporting and recall requirements for ZEPs. CARB does not have the statutory authority to establish or enforce those types of ZEP-related regulatory requirements.

[W]hen the two pending rulemakings are read together, it is clear that the certification requirements at issue are not optional. It also is clear that CARB does not have the statutory authority to adopt mandatory ZEP certification requirements, which...renders those proposed requirements invalid as a matter of law...

[N]one of the...multiple regulatory requirements relate to engine or vehicle emissions standards or to engine vehicle emissions performance in-use. Rather, all of the...requirements relate to consumer awareness or protection, all aimed at spurring consumers’ purchases of and satisfaction with heavy-duty ZEVs...

CARB’s repeated statements in the ISORs at issue confirm that the proposed ZEP certification requirements are not intended to limit the quantity of specified emissions from heavy-duty vehicles or engines. To the contrary, CARB staff explicitly concede that the purpose of the proposed certification requirements is to enhance consumers’ acceptance of and satisfaction with heavy-duty ZEVs — to promote the ‘broad market adoption of zero-emission technology in the heavy-duty sector.’ Those types of consumer-protection and market-promotion regulations, however, are beyond the scope of CARB’s certification authority under the relevant California statutes.

Health and Safety Code (‘HSC’) section 39018 defines ‘certification’ to mean ‘a finding by the state board that a motor vehicle, motor vehicle engine, or motor vehicle pollution control device has satisfied the criteria adopted by the state board for the control of specified air contaminants from vehicular sources.’ (Emphasis added.) HSC section 39040 defines ‘motor vehicle pollution control device’ to mean ‘equipment designed for installation on a motor vehicle for the purpose of reducing the air contaminants emitted from the vehicle.’ HSC sections 43013(a) and 43101(a) provide that ‘the state board shall adopt motor vehicle emission standards . . . for the control of air contaminants and sources of air pollution,’ and shall ‘adopt and implement emission standards for new motor vehicles for the control of emissions from new motor vehicles.’ (Emphasis added.) In that regard, HSC section 39027 defines ‘emission standards’ to mean ‘specified limitations on the discharge of air contaminants into the atmosphere.’ Finally, HSC section 43102(a) states that,

*No new motor vehicle or new motor vehicle engine shall be certified by the state board, unless the vehicle or engine, as the case may be, meets the emission standards adopted by the state board pursuant to Section 43101 . . . .* (Emphasis added [sic].)...

CARB’s certification authority is inherently tied to the assessment and verification that new motor vehicles and engines — not specific zero-emission powertrain components —

– are compliant with specified limitations on the discharge of air contaminants. Mandating that manufacturers provide ‘consistent and reliable information about zero-emission technology’ simply does not fit within the scope of CARB’s delegated certification authority as delineated by the relevant HSC statutes. Where a system for vehicle tractive effort is comprised of powertrain components that cannot and do not produce any emissions, those components, by definition and by law, are outside the ambit of CARB’s certification authority for the control of specified air contaminants from motor vehicles and engines.

All of the foregoing statutory provisions support the conclusion that CARB does not have the authority to certify specific heavy-duty powertrains and powertrain components that have no capability to generate or discharge emissions of any air contaminants. Consequently, CARB’s proposals to adopt detailed ZEP-related certification requirements pertaining to battery capacity, labeling, purchasing guidance, on-board information, diagnostics and repairs, are simply beyond the scope of CARB’s legislatively delegated authority, and so are invalid.

The same holds true for CARB’s specific proposals to prescribe warranties and recall requirements relating to ZEP components... CARB’s warranty authority under the HSC is limited to ensuring that manufacturers comply with the tailpipe emission standards and other emissions-related requirements that apply to motor vehicles and motor vehicle engines. CARB’s statutorily-limited warranty authority does not extend to enhancing the ‘market transparency, consistency and stability’ for the various components of ZEPs, or to promoting the ‘broad market adoption of zero-emission technology in the heavy-duty sector.’ The relevant provisions of HSC section 43205.5 do not by any stretch authorize regulations geared to provide ‘policy support to accelerate’ the maturation of the heavy-duty ZEV/ZEP market. Nor do they cover powertrain components at all. Rather, the governing statutory provisions constrain and restrict CARB’s warranty authority to regulations that help to ensure that new motor vehicles and new motor vehicle engines remain in compliance with quantitative emissions standards and related requirements for the period of use that the state board determines. CARB’s proposal for ZEP warranties — which again is aimed at enhancing customers’ acceptance of and satisfaction with the componentry of heavy-duty ZEPs, not at ensuring robust tailpipe emissions compliance — exceeds the bounds of CARB’s statutory authority.

Similarly, CARB’s proposal to establish defect reporting and recall requirements centered around the number of failures of ZEP components also is beyond the scope of CARB’s delegated regulatory authority. Under HSC section 43105, CARB-mandated corrective actions, including recalls, are limited to circumstances where it can be demonstrated, through reported failure rates or otherwise, that a manufacturer’s motor vehicles or motor vehicle engines are in violation of ‘emission standards’ or related ‘test procedures.’ Accordingly, the corrective actions, along with the monitoring that might lead to corrective actions that are permitted under HSC section 43103 do not encompass actions intended to promote the market for ‘zero-emission’ powertrain component parts, such as generators, on-board chargers or battery management



systems. Those types of non-emissions-related consumer-satisfaction issues are simply outside the boundaries of CARB's emissions-related mission and legislative grants of authority, especially as it pertains to warranties, defect reporting, and recall requirements.

For all the foregoing reasons, therefore, CARB's proposed mandatory requirements for ZEP-related certifications, warranties, defect reporting, and recalls are inconsistent with CARB's enabling statutes [sic], and so are invalid and unlawful." (EMA)

"In briefest summary, the proposed ZEP Certification requirements exceed ARB's legal authority, impose significant excessive costs on manufacturers, which among other things, will impede the market acceptance of ZEV products, will cause manufacturers to divert limited technical experts away from developing and improving ZEV products, and may require expensive and counterproductive recall campaigns." (EMA)

"While CARB's authority to regulate engines and emissions systems is clear, the regulatory oversight of non-emitting vehicle components that do not change the ability of the vehicle to have emissions would be an expansion." (Motiv)

"While Tesla recognizes the need to ensure a vehicle is compliant with emissions requirements to prevent pollution, it is unclear why a heavy-duty ZEV, which by definition produces no emissions, should be subject to the same recall requirements. This is especially unusual considering that light-duty ZEVs are not subject to recall requirements. Additionally, given the language in the current proposed regulation, it is unclear how the criteria will be applied to determine when a mandatory recall is necessary and whether some component considerations, such as those causing the vehicle to be deemed inoperable, will be given more weight than others. Most types of failures do not take such vehicles out of service, and heavy-duty electric trucks can remain in service until fleet managers feel it is appropriate to remedy. Among other things, fleet managers already have ready access to maintenance information and service bulletins, and where situations may rise in severity, manufacturers issue proactive campaigns to remedy." (Tesla)

Agency Response: No change was made to the regulatory language in response to these comments. CARB disagrees with the commenters' assertion that it does not have authority to adopt ZEP Cert requirements. CARB is authorized to adopt standards, rules and regulations, and to perform such acts as may be necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law (California Health and Safety Code (H&SC) sections 39600 and 39601). H&SC sections 39002 and 39003 place the responsibility for controlling air pollution from motor vehicles on CARB. Additionally, H&SC section 38560 directs CARB to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions from sources, including mobile sources. The growth and successful adoption of heavy-duty battery-electric and fuel-cell vehicles, which will lead to reductions in mobile source emissions, is critical

to California meeting its air quality standards and GHG reduction goals. The ZEP Cert and ZEAS Proposed Regulations further those reduction goals.

A “motor vehicle” is defined in H&SC section 39039 (referencing California Vehicle Code section 415) as a vehicle that is self-propelled. A “new motor vehicle” means a motor vehicle, the equitable or legal title to which has never been transferred to the ultimate purchaser (H&SC 39042) and a “new motor vehicle engine” means a new engine in a motor vehicle (H&SC 49042.5). Clearly, a new heavy duty battery-electric or fuel-cell vehicle and its engine, (which comprises a primary part of the powertrain), fall within these definitions. New motor vehicles and engines may not be imported, delivered, purchased, rented, leased, acquired, offered for sale, sold, or registered for use in California unless they have first been certified by CARB. Thus, a heavy-duty battery-electric or fuel-cell vehicle, like a heavy-duty internal combustion engine vehicle, must be certified by CARB. Certification includes setting emission standards<sup>1</sup> (H&SC 43101) and test procedures (H&SC 43104) and necessary ancillary requirements such as warranty and recall (see H&SC sections 39600, 39601, 43205.5, 43214, 43106, and 43105). These provisions broadly apply to all new vehicles and engines – there are no exemptions for battery-electric or fuel-cell vehicles and their powertrains.

Furthermore, EMA misconstrues the nature of both the ZEP Cert and ZEAS rulemakings – those rulemakings do establish emission standards and other emission related requirements for heavy-duty battery-electric and fuel cell vehicles and their powertrains.<sup>2</sup> [as one of the commenters (EMA) recognizes in its statement above “[t]aken together, the proposed Zero-Emission Powertrain (‘ZEP’) Certification Regulation and the proposed ZEAS Regulation would establish mandatory certification, warranty, defect reporting and recall requirements for ZEPs.”]

To be clear, ZEP Cert establishes optional certification procedures associated with the California Phase 2 GHG regulation for 2021 and subsequent model years and they operate in conjunction with the ZEAS regulation to establish requirements for affected fleets to purchase specified quantities of ZEP Cert certified airport shuttles, beginning in the 2026 MY, which comprise emission standards under title II of the Clean Air Act.<sup>3</sup>

ZEP Cert adopts emission standards and associated requirements that would help reduce the variability in the quality and reliability of battery-electric and fuel-cell vehicles, which will encourage higher utilization of battery-electric and fuel-cell

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<sup>1</sup> In 2004, the U.S. Supreme Court clarified that the definition of “standard” as it applies to emissions from motor vehicles and motor vehicle engines under Title II of the federal CAA, relates to the emission characteristics of vehicles or engines and includes not only traditional emissions limits for specified pollutants (e.g., 0.4 grams of oxides of nitrogen per mile), but also requirements that vehicles and engines be equipped with certain types of pollution-control devices, or incorporate design features related to the control of emissions. *Engine Mfrs. Ass'n v. S. Coast Air Quality Mgmt. Dist.*, 541 U.S. 246, 253, 124 S. Ct. (2004).

<sup>2</sup> See fn 1.

<sup>3</sup> See fn 1.

vehicles. The language in the ISOR regarding raising consumer awareness of ZEP technology identifies CARB's policy goals in this action, but ZEP Cert does not primarily comprise a consumer protection regulation – rather, it establishes steps to enable the development and growth of future heavy-duty zero-emission vehicle measures.

Ultimately, although battery-electric or fuel-cell vehicles do not directly produce emissions, their failure or lack of support (and resulting downtime) is expected to result in higher usage of internal combustion vehicles and greater emissions. By reducing the number of failures and/or the amount of downtime caused by failures, ZEP Cert will provide some level of protection to regulated fleets and help ensure that the emission reductions attributed to the measures it aims to support will actually be achieved.

## **11. The Costs are Underestimated**

Comment: EMA, Joint Parties, and Motiv commented that the ISOR underestimated the cost to certify zero-emission powertrains and vehicles through ZEP Cert. EMA and Joint Parties commented that they estimate the cost of certification to be between \$500,000 and \$5,000,000 for one powertrain and one vehicle certification family. This is due to provisions requiring manufacturers to conduct battery-capacity testing, provide tools and information to third-party repair facilities, be subject to recall provisions, and others. Motiv also commented that if they made a change to a component, it would require them to create a new family, which would result in further increased costs.

Agency Response: No changes were made to the regulatory language in response to these comments. Staff acknowledges that the additional cost of the ZEP Cert requirements could increase the cost of heavy-duty battery electric and fuel-cell vehicles. Staff disagrees with the cost estimates provided by EMA and the Joint Parties of \$500,000 to \$5,000,000 for one powertrain and one vehicle certification family for the first year of production. These dollar figures were not sufficiently substantiated and were provided without any breakdown of the cost for each component of the regulation.

The cost estimates provided in the ISOR were the best estimates based on the information available. The estimates for ZEP Cert are meant to represent the incremental cost associated with meeting ZEP Cert requirements relative to the baseline costs of designing and building a battery-electric or hydrogen fuel-cell powertrain and vehicle and certifying the vehicle to Phase 2 requirements. The costs were not assessed for any actions that a manufacturer would already be expected to take in order to bring a heavy-duty battery-electric or fuel-cell vehicle to market, even in the absence of ZEP Cert.

Staff acknowledges that there is a cost associated with preparing tools and information for third-party repair facilities. However, because it is expected that manufacturers will already be preparing this information for their own dealership repair networks, the additional cost associated with this provision will be minimal. In addition, it is expected that, initially, there will be low demand from third-party repair facilities to undergo the manufacturer-authorized service training necessary for servicing heavy-duty

battery-electric and fuel-cell vehicles when sales volumes are low. The purpose of this provision is to remove barriers for when the transition to higher sales volumes occurs and there is increased demand for tools and diagnostic information from third-party repair facility.

With the clarifying changes included as part of the 15-day package and as discussed at the February 21, 2019, public hearing, a manufacturer is not required to bring in a certain percentage of vehicles in for repair or require a fleet to remove a vehicle from service during a recall. Instead, if ordered to conduct a recall through the ZEP Cert program, a manufacturer would only be required to offer the repair free of charge to affected owners or provide an alternative remedy addressing the component failure, as approved by the Executive Officer. While the cost of these repairs may be high, because the warranty length of 3 years or 50,000 miles, whichever first occurs, aligns with the current general industry practice for minimum warranty lengths, it is expected that manufacturers creating a robust product would already be providing these repairs or offering an alternative option, such as an extended warranty or a service campaign for any failing part, even in the absence of ZEP Cert. For this reason, the process of allowing fleets to bring their affected vehicles in for a repair would not pose an additional cost for manufacturers above the actions they would be expected to take without ZEP Cert.

Staff disagrees with Motiv's comments that each new family would be subject to its own ZEP Cert requirements, which could potentially require adjustment to documents, such as the manual. Flexibility is granted in the regulation to allow different powertrain component configurations to be included together in the same certification family. Unless the manufacturer changes the battery module type, they would not be required to create a new powertrain family.

As discussed in the ISOR, the ZEP Cert cost analysis was meant to capture the powertrains and vehicles that would voluntarily certify through ZEP Cert. As a best estimate, the cost analysis assumed this population would be the vehicles funded through the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP), which targets commercially-ready products. Future measures that require ZEP Cert will need to include the cost of the ZEP Cert requirements as part of each specific measure.

## **12. The Increased Costs will have a Negative Impact on Market Growth**

Comment: CARB received comments that the complexity and cost of ZEP Cert could increase the cost of heavy-duty battery-electric and fuel-cell vehicles and limit or slow their entry into the market. (Coalition, EMA, Joint Parties, and Motiv)

Agency Response: No change was made to the regulatory language in response to these comments. Staff agrees that powertrains and vehicles certified through ZEP Cert will be subject to a higher cost than those not certified through ZEP Cert. However, the requirements in ZEP Cert are baseline requirements that align with what manufacturers making a robust product are already doing today. Therefore, staff does not expect

incremental costs to be substantial for those manufacturers that are preparing market-ready powertrains and vehicles. Furthermore, the impact of ZEP Cert will be that fleets will receive a more reliable product. Staff believes positive experiences for fleets will result in increased demand for, and utilization of, zero-emission technology, which would accelerate overall market growth. In addition, technology applications that are newer to market will be unhindered as they would still be able to use the existing certification process, which does not contain any of the new requirements established by ZEP Cert.

### **13. System Monitoring and Diagnostic Requirement would be too Burdensome**

Comment: The System Monitoring and Diagnostic Information section would require manufacturers to report voluminous detailed information to CARB, and to further report on any changes to the information...The requirement for manufacturers to create a new certification family whenever they make a major change to their monitoring and diagnostics systems would not only establish yet another enormous administrative burden, but it would also significantly delay the deployment of product improvements. (EMA and Daimler)

To avoid such an unintended negative consequence, CARB should revise the requirement to instead allow manufacturers to submit running changes to their existing certification when they make a major change to a ZEP monitoring or diagnostic system. In addition to streamlining the ZEP Cert requirements, allowing running changes in those situations would be consistent with existing certification requirements for internal combustion engines. (EMA and Joint Parties)

“Reporting of system-monitoring and diagnostic components and software strategies is a lengthy and complicated task, as it requires explaining algorithms and logic of extensive software codes. The lack of clear framework and boundaries in the current proposal could lead to subjective disapprovals for how this information is reported...We suggest language be added to clarify that this requirement of certification is met so long as the information requested in sections 2.1 through 2.5 is provided at a basic level...We also recommend that subsection 2.2 be limited in scope so that a summary description of minor changes be deemed acceptable.” (Joint Parties)

Agency Response: Changes were made as part of the 15-day package to address the commenter’s concerns. Specifically, the changes removed the provision that would require manufacturers to create a new certification family whenever they make a major change to the system monitoring and diagnostics systems and provided language to allow running changes. See Section II.A.3.h for additional details on this modification.

The regulatory language does not require a manufacturer to include specific lines of software code. Staff believes the language is clear in its intention to require manufacturers to provide a ‘list’ of parameters or a ‘description’ of diagnostic and monitoring systems.

#### 14. Owner's and Diagnostic Repair Manuals are Costly

Comment: "CARB should revise the owner's, and diagnostic and repair, manual requirements for both zero-emission powertrain and vehicles to take into account the high cost-per-powertrain or vehicle of developing complete manuals, the counter-productive nature of diverting limited product development technical experts to developing the manuals, and the limited utility of the manuals in a commercial vehicle environment. To make the manuals more cost-effective, and instead of requiring complete published manuals, CARB should allow powertrain and vehicle manufacturers to provide a compilation of information that addresses the required elements. Additionally, where the required information is provided with the powertrain, the regulations should not require the vehicle manufacturer to repeat it in the vehicle manuals." (EMA)

"The Joint Parties respectfully request CARB add an appropriate threshold of vehicles, such as 500, under which manufacturers would not be required to provide either manual for a given powertrain." (Joint Parties)

"This assumption doesn't include the time needed to acquire the level of technical expertise needed to produce a manual, the cost of that labor, or the scarcity of technical experts with the knowledge. The experts who are capable of doing this work are also those designing these systems, and increasing the time they are working on documentation reduces their ability to design and expand the technical solutions available. Furthermore, the cost of a label or a manual is not in the physical document or sticker, but rather in the cost of integrating the requirements contained within those pieces. If a manufacturer wanted to sell 1 new vehicle application which is technically feasible (for example a modification of a previously certified system with an upgraded motor) – this would be a new family. This new family would need new documentation, a new submission to CARB, and a manual for the owner would be its own documentation project. Upon approval this would then need to be released from a certification team to manufacturing with updated Bill of Materials for this variation. The build documentation produced by engineers for a technician would not be a user facing manual, so that manual production would be a new cost on top of non-recurring engineering costs." (Motiv)

Agency Response: Changes were made as part of the 15-day notice package to address the commenter's concerns. The regulatory language was modified to allow flexibility in how the information in the *owner's manual* and *diagnostic and repair manual* is presented. Specifically, the modification allows the information required to be provided as a compilation of different sources. Staff believes that stakeholders are supportive of the flexibility granted as part of the 15-day package. See Section II.A.2.f and II.A.3.o for additional details on this modification.

While staff agrees that the development of an *owner's manual* or *diagnostic and repair manual* could be costly, it is expected that a manufacturer making a robust, well-supported product will already have the information required by the *owner's manual* and *diagnostic and repair manual* provisions of ZEP Cert readily available. Therefore,

staff does not believe making this existing information available to vehicle owners and third-party repair facilities creates unreasonable burden for a manufacturer.

### **15. Third-Party Repair Facility Information Should be Modified**

Comment: EMA commented that the tools and software required to be made available to third-party repair facilities should be the same as those provided to their dealerships, rather than those provided to their ‘internal repair personnel,’ as described in the regulation.

Agency Response: Staff agrees. As such, amended language was introduced as part of the 15-day change package to modify the applicable requirement so that the tools and information a manufacturer is required to provide to a third-party repair facility may be those provided to its dealerships, instead of those provided to its internal repair personnel. See Section II.A.2.c and II.A.3.l for additional details on this modification.

### **16. Applicability of Warranty and Recall Requirements**

Comment: EMA and the Joint Parties commented that the ZEP Cert warranty, reporting, and recall requirements should not extend beyond the required three-year/50,000-mile warranty period should a manufacturer choose to offer an longer warranty to the fleet purchaser.

Agency Response: Staff believes this was a misinterpretation and has clarified as part of the 15-day package that the ZEP Cert warranty, reporting, and recall requirements are limited to the required three-year/50,000-mile warranty period. See Section II.A.3.ii for additional details on this modification.

### **17. Simplify Warranty Reporting**

Comment: EMA commented that the warranty reporting requirements should be changed to remove the requirement to submit field information reports, to align warranty-reporting failure thresholds with recall failure thresholds, and to modify the requirements for screened warranty reports so that only manufacturer-validated failures that render the vehicle inoperable are required to be included.

Agency Response: Staff agrees and, per the Board’s direction to streamline warranty reporting requirements, has made the commenter’s suggested changes as part of the 15-day package. See Sections II.A.3.ff, II.A.3.kk, and II.A.3.mm for additional details on these modifications.

### **18. Clarify That Recalls Are Only Triggered by Failures That Render Vehicle Inoperable**

Comment: EMA and the Joint Parties both commented that it should be clarified that only failures ‘that render the vehicle inoperable’ should be counted towards the warranty recall failure thresholds.

Agency Response: Staff has made the commenter's suggested changes as part of the 15-day package as per the Board's direction. See Section II.A.3.ee, II.A.3.jj, and II.A.3.nn for additional details and rationale on these modifications.

## **19. Remove Influenced Recall Provisions**

Comment: EMA and CalETC commented that influenced recalls should be removed from the regulatory proposal.

Agency Response: Staff has made the commenters' suggested changes as part of the 15-day package as per the Board's direction to streamline warranty recall requirements. See Section II.A.3.x for additional details and rationale on this modification.

## **20. Modify Recall Applicability Language**

Comment: EMA commented that the regulatory language indicating that a powertrain family, test group, or subgroup "shall be subject to an ordered recall" when it reaches the failure level thresholds specified in the regulation should be changed to "may be subject to an ordered recall," because the Executive Officer maintains discretion on whether or not a recall is necessary.

Agency Response: No change was made to the regulatory language in response to this comment. The full provision states that, "A zero-emission powertrain family, test group or subgroup shall be subject to an ordered recall when the number of screened failures of a specific warranted part that render the vehicle inoperable exceeds the failure level set forth below, unless the Executive Officer determines from the screened warranty information report that a recall is unnecessary pursuant to the criteria set forth in subsection AB.1 and AB.2." This provision clearly states that the manufacturer may not be subject to an ordered recall if the Executive Officer determines that it is not necessary.

## **21. Reduce Recall Reporting**

Comment: EMA commented that manufacturers should only be required to submit one recall campaign progress report (one year after the manufacturer initiates a voluntary or ordered recall) instead of quarterly progress reports.

Agency Response: Staff has made the commenter's suggested changes as part of the 15-day package as per the Board's direction to streamline warranty recall requirements. See Section II.A.3.cc for additional details and rationale on this modification.



## **22. Allow Flexibility in Reporting of Vehicle Identification Numbers**

Comment: EMA commented that manufacturers should not be required to provide the vehicle identification numbers (VINs) of unrepaired powertrains in “standardized computer data storage devices.”

Agency Response: Staff has made the commenter’s suggested changes as part of the 15-day package as per the Board’s direction to streamline warranty recall requirements. See Section II.A.3.cc for additional details on this modification.

## **23. A Physical Repair Label is not Necessary**

Comment: EMA commented that a physical label should not be required for a powertrain that has been repaired as part of a warranty recall if a certificate has been provided to the powertrain owner.

Agency Response: No change was made to the regulatory language in response to this comment. The reason a label is necessary is so that it is possible to identify whether or not a specific powertrain has been repaired. This could be useful when a powertrain is being transferred on the secondary market or when it is necessary to assess the effectiveness of a particular powertrain repair. This is also consistent with the labeling requirements for internal combustion vehicle warranty recall program.

## **24. Rename ‘Recall’ Provisions**

Comment: Joint Parties commented that the term, “recall,” should be changed in the regulation because it has a negative connotation and a generally understood meaning that does not align with the way the recall provision applies in ZEP Cert.

Agency Response: No change was made to the regulatory language in response to this comment. The term, “recall,” is a familiar term that implies there is a consistent failure of a specific component. The term conveys the seriousness of recall issues and will be effective in catching the attention of consumers. Furthermore, at the February 21, 2019, public hearing, the Board heard oral testimony about this specific issue and expressed support for maintaining the term “recall.”

## **25. ZEP Cert should not be linked to the Zero-Emission Airport Shuttle Regulation**

Comment: Motiv had various comments related to the proposal for the ZEAS, including recommending that the ZEAS not utilize the ZEP Cert procedures.

Agency Response: No change was made to the regulatory language in response to this comment. Comments related to ZEAS are outside the scope of this rulemaking and those comments, including this one, are addressed separately as part of the Zero-Emission Airport Regulation Rulemaking process.

## **26. ZEP Cert as a Mandatory Certification Process**

Comment: SDAP commented that ZEP Cert should be a mandatory, not optional, certification process in order to protect fleets adopting new technology and support small business investment in the technology. In addition, SDAP commented that as a mandatory certification process, ZEP Cert would improve vehicle safety.

Agency Response: No change was made to the regulatory language in response to this comment. While ZEP Cert is an optional process, it was established with the intent of incorporating it as a requirement into other zero-emission regulatory measures that specifically target heavy-duty battery-electric and fuel-cell vehicles that have been deemed “market-ready” (e.g., ZEAS). Staff chose to take this approach because of the diversity of the heavy-duty vehicle segment and the varying levels of maturity of zero-emission technology in different heavy-duty vehicle applications. That is, while some heavy-duty technology applications are more commercialized and ready for broad deployment, others are more cutting-edge and need time to develop. While ZEP Cert will be key in supporting measures that accelerate deployment of more-mature zero-emission technology applications, staff does not believe it is appropriate to apply ZEP Cert to technology applications that have not yet demonstrated market viability. For such technology applications, staff believes ZEP Cert would provide very limited practical benefit at the expense of potentially hindering continued innovation.

## **27. ZEP Cert Should Regulate Gross Vehicle Weight Rating**

Comment: SDAP commented that ZEP Cert should require fleets to test and report their gross vehicle weight rating during the ZEP Cert certification process because of the possibility of the weight changing with the addition of zero-emission powertrain components, such as battery packs.

Agency Response: While staff agrees that zero-emission technology may affect the operating weight of a vehicle, staff does not believe that requiring testing and reporting of gross vehicle weight rating (GVWR) is appropriate in ZEP Cert because there are already GVWR laws and regulations in place. However, staff agrees that it is important for fleet purchasers to understand the impacts of the potential added weight of a zero-emission powertrain, so as a complementary measure, staff has made a change to the sales disclosure statement as part of the 15-day package to highlight this concern for fleets purchasing vehicles certified through the ZEP Cert process. See Section II.A.2.e for additional details and rationale on this modification.

## **28. ZEP Cert Should Include Complete Medium-Duty Vehicles**

Comment: SDAP commented that ZEP Cert should include complete vehicles in the medium-duty vehicle classes (8,501-14,000 pounds gross vehicle weight rating).

Agency Response: No change was made to the regulatory language in response to this comment. There is already a comprehensive certification process for *complete* medium-

duty battery-electric and fuel-cell vehicles under CARB's Light-Duty Zero-Emission Vehicle (LD ZEV) program, which includes requirements, such as a range test. ZEP Cert was not intended to modify any requirements set forth in the LD ZEV program.

### **29. Warranty Period Should be Longer**

Comment: SDAP commented that the 3-year or 50,000-mile warranty period in ZEP Cert should be longer to improve longevity of vehicles.

Agency Response: No change was made to the regulatory language in response to this comment. The ZEP Cert warranty length was based on the required warranty length in HVIP. Aligning with HVIP ensures that this baseline warranty level moves beyond its applicability to incentive programs and becomes an industry-minimum in the regulated space as well. In addition, staff believes this is an appropriate warranty length based on discussions with fleets. When vehicles have failed in the past, the failures generally occurred within the ZEP Cert warranty period. Furthermore, the new ZEP Cert recall requirements will help ensure that corrections to failures are appropriate and prevent recurring issues. Lastly, if new information warrants it, staff could consider extending the warranty period in a future rulemaking.

### **30. Garage Repair Services**

Comment: SDAP commented that CARB should require garages to support zero-emission technology and provide incentive funding to support the growth of the repair network.

Agency Response: No change was made to the regulatory language in response to this comment. While staff acknowledges the importance of a strong repair network, the scope of the ZEP Cert regulation was limited to powertrain and vehicle manufacturers. That said, ZEP Cert includes several requirements that help reduce the barriers to repair network expansion for heavy-duty zero-emission technology. Therefore, should repair facilities choose to service heavy-duty battery-electric and fuel-cell vehicles in the future, there would be a pathway to acquire the necessary training, tools, and information. Incentive funding is outside of the scope of this regulation, but all incentive programs go through their own public process where stakeholders can provide feedback and input.

### **31. Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP)**

Comment: SDAP commented that increasing incentive funding in the HVIP program will accelerate adoption.

Agency Response: No change was made to the regulatory language in response to this comment. Incentive funding is outside of the scope of this regulation, but all incentive programs go through their own public process where stakeholders can provide feedback and input.

### **32. Treatment of Manufacturers in HVIP**

Comment: SDAP commented that manufacturers should be penalized in HVIP if their product fails.

Agency Response: No change was made to the regulatory language in response to this comment. Incentive funding is outside of the scope of this regulation, but all incentive programs go through their own public process where stakeholders can provide feedback and input.

### **33. ZEP Cert Should Include A Minimum Charging Rate**

Comment: SDAP commented that ZEP Cert should include a minimum charging rate standard and provide incentive funding for charging.

Agency Response: No change was made to the regulatory language in response to this comment. Charging rate standards were discussed during the development of this rulemaking. While staff agrees that charging rate standards will be important for broad zero-emission technology adoption, given the diversity of systems in use in the industry today and the rapidly evolving nature of the market, staff does not believe there is sufficient support for one standard over others at this time. Incentive funding is outside of the scope of this regulation, but all incentive programs go through their own public process where stakeholders can provide feedback and input.

### **34. Efficiency Standard for Electric Vehicles**

Comment: SDAP commented that ZEP Cert should establish a baseline efficiency standard for battery electric vehicles.

Agency Response: No change was made to the regulatory language in response to this comment. Given the variety of duty cycles in the heavy-duty segment and the fact that the heavy-duty zero-emission industry is still an emerging one, staff determined it was not appropriate to establish minimum efficiency standards at this point in time. That said, ZEP Cert includes a provision that will allow fleets to track the energy efficiency of their particular vehicles once deployed in use.

### **35. Charging Connection Standards**

Comment: SDAP commented that ZEP Cert should establish charging connection standards.

Agency Response: No change was made to the regulatory language in response to this comment. Charging connection standards were discussed during the development of this rulemaking. While staff agrees that charging connection standards will be important for broad zero-emission technology adoption, given the diversity of systems in use in

the industry today and the rapidly evolving nature of the market, staff does not believe there is sufficient support for one standard over others at this time.

### **36. Purchase Guide Statement**

Comment: CHBC commented that they would recommend a purchase guidance statement for a manufacturer to specify key performance parameters of the powertrain at the beginning and end of service of the powertrain. The information on this statement could be aggregated across different manufacturers or fleets and anonymized. This information would be useful for providing CARB with a means to assess the results of incentive programs as well as fleet purchasers to receive valuable vehicle operation information.

Agency Response: No change was made to the regulatory language in response to this comment. It is unclear to staff exactly how the commenter suggests this provision would work. In addition, this concept was not presented to staff during the development of the proposal. Staff will potentially look into a provision of this type in the future, if warranted.

### **37. Miscellaneous Comments**

Comment: Le made a comment about the high costs of repairing his diesel truck.

Agency Response: This comment was outside the scope of this rulemaking. However, this is one example of a type of issue that ZEP Cert is intended to address for heavy-duty electric and fuel-cell vehicles.

## **B. 15-DAY COMMENTS AND AGENCY RESPONSES**

Written comments were also received during the 15-day comment period in response to the May 13, 2019 15-day notice. Listed below are the organizations and individuals that provided comments during the 15-day comment period:

| <b>Commenter</b>                 | <b>Affiliation</b> |
|----------------------------------|--------------------|
| Goodarzi, Abas (May 28, 2019)    | US Hybrid          |
| McGhee, Lisa (May 28, 2019)      | SDAP               |
| Goldsmith, Hannah (May 28, 2019) | CalETC             |
| Dake, Jason (May 28, 2019)       | Orange EV          |
| Chia, Dan (May 28, 2019)         | Tesla              |
| Cioffi, Al (May 28, 2019)        | PlugPower          |

## **1. Support the 15-Day Notice Modifications**

Comment: CARB received comments of support for the 15-day modifications from Tesla and PlugPower.

Agency Response: Staff appreciates the commenters' support of the modifications. No change was made to the regulatory language in response to these comments.

## **2. Additional Performance Metrics**

Comment: CARB received a comment from US Hybrid that the regulatory language should include additional metrics to more effectively describe performance. US Hybrid included a list of performance parameters and descriptions.

Agency Response: No change was made to the regulatory language in response to this comment. This comment is outside the scope of the amendments included in the 15-day notice. Nevertheless, staff has provided the following response. It is unclear how the commenter suggests that these parameters be incorporated into the regulation. In addition, this concept was not presented to staff during the development of the proposal. That said, staff recognizes that the parameters and descriptions may be useful for evaluating powertrain and vehicle performance and may consider the potential inclusion of such parameters in a future rulemaking, if warranted.

## **3. ZEP Cert Applicability Timeline**

Comment: CalETC commented that ZEP Cert should remain optional until 2023, limiting any program from incorporating ZEP Cert before that specific year. In addition, the commenter suggested that CARB staff report back to the Board annually on the status of implementation of the regulation.

Agency Response: No change was made to the regulatory language in response to this comment. The comment is outside the scope of the amendments included in the 15-day notice. However, a similar comment was provided in response to the 45-day package; staff's response is provided in section IV.A.7, above.

## **4. ZEP Cert is Based on Combustion Engine Certification Framework**

Comment: "These rules appear to be based upon combustion engine certification framework. This seems unnecessary and impractical to apply combustion engine certification standards for the certification of an all-electric zero-emission vehicle. Please help us understand how applying the same framework furthers CARB's emission reduction goals." (Orange EV)

Agency Response: No change was made to the regulatory language in response to this comment. The comment is outside the scope of the amendments included in the 15-

day notice. However, similar comments were provided in response to the 45-day package; staff's response is provided in section IV.A.6, above.

## **5. ZEP Cert Would Slow Innovation**

Comment: "The proposed rules apply standards to emerging technology that would slow innovation due to the diversion of resources to unnecessary compliance activities rather than focusing on further advancing vehicle performance. These proposed rules would result in substantial cost and effort for companies such as Orange EV without benefit." (Orange EV)

Agency Response: No change was made to the regulatory language in response to this comment. The comment is outside the scope of the amendments included in the 15-day notice. However, similar comments were provided in response to the 45-day package; staff's response is provided in section IV.A.12, above.

## **6. ZEP Cert Would Affect Off-Road Terminal Trucks**

Comment: "We respect CARB's mission to promote and protect public health, welfare and ecological resources through the effective and efficient reduction of air pollutants, while recognizing and considering the effects of the state's economy, per the Mulford-Carrell Act. The rules proposed seem beyond the scope of this directive. Further these rules appear to impose on-road vehicle standards to off road vehicles while requiring outdated dealer-based sales & service models. While built for both on and off-road usage, terminal trucks are principally off-road equipment used in goods movement hubs (like distribution centers, rail intermodal site, seaports, etc.). The proposed rules would place an unnecessary technical burden on OEMs, forcing them to apply passenger on-road vehicle technology requirements to equipment that has specialized use principally for off road, industrial applications. To demonstrate this and help clarify, please note that Orange EV's electric terminal trucks will be funded by the upcoming Clean Off-Road Equipment (CORE) incentive program." (Orange EV)

Agency Response: No change was made to the regulatory language in response to this comment. The comment is outside the scope of the amendments included in the 15-day notice. ZEP Cert is an on-road program and does not apply to off-road terminal trucks. In addition, incentive funding is outside of the scope of this regulation, but all incentive programs go through their own public process where stakeholders can provide feedback and input.

## **7. SAE Standards are Not Appropriate for ZEP Cert**

Comment: "[T]he SAE standards have an array of codes that are predefined and are ubiquitous across all automobiles; however, the equipment types participating in CORE are industrial, construction and agricultural equipment, not automobiles. Applying this SAE standard on non-automobiles does not make sense. Furthermore, the SAE

standards are based upon a combustion automobile and do not have codes necessary to properly evaluate the performance of an electric vehicle.” (Orange EV)

Agency Response: No change was made to the regulatory language in response to this comment. The comment is outside the scope of the amendments included in the 15-day notice. In addition, as stated in the response provided in section IV.B.6, above, incentive funding is outside of the scope of this regulation. Nevertheless, staff has provided the following response. Staff would like to clarify that ZEPCCert is only applicable to on-road heavy-duty vehicles, not off-road vehicles as this commenter suggests. In addition, while it was unclear which SAE standard the commenter was referring to, for the purpose of this response, staff assumed the commenter was referring to SAE J2402. A response to a similar comment about applying SAE J2402 to electric vehicles is provided in section IV.B.8, below.

#### **8. SAE J2402 Should Not be Included in ZEPCCert**

Comment: Orange EV commented that “SAE J402” should not be required in ZEPCCert, because it does not reflect the operating principles of electric vehicles.

Agency Response: No change was made to the regulatory language in response to this comment. Staff believes the commenter is referring to SAE J2402 and is referencing the 45-day version of the regulatory text, which has been modified as part of the 15-day package in a way that addresses the commenter’s concerns. The modification allows manufacturers to use either SAE J2402, ISO 2575, or an alternative approach approved by the Executive Officer. When considering an alternative approach, the Executive Officer will rely on information submitted by the applicant and good engineering judgment.

#### **9. ZEPCCert Should Not Apply SAE Standards to the Diagnostic Communications Connector Requirement**

Comment: Orange EV commented that ZEPCCert should not require zero-emission vehicle manufacturers to use the same SAE connector standards established for the on-board diagnostics systems implemented on internal combustion engines and vehicles.

Agency Response: No change was made to the regulatory language in response to this comment. The comment is outside the scope of the amendments included in the 15-day notice. However, staff would like to clarify that the provision in the regulatory language to which the commenter refers (Section B.3.1.4 of 1037.115) does not require manufacturers to apply the SAE standards as the commenter suggests. Instead, the provision references California Code of Regulations, title 13, section 1971.1 for the purpose of specifying where and how the connector shall be installed on the vehicle.



## **10. Manufacturers Should Not be Required to Provide Diagnostic and Repair Manuals to Third-Party Repair Facilities**

Comment: “This proposed change requires an OEM to provide all of its repair and diagnostic manuals to third-party repairs facilities. This standard presumes the OEM does not self-perform repair and maintenance at a level acceptable to the customer. Orange EV, an OEM, self performs much of the necessary work at a level which we believe, and our customers agree, that surpasses current industrial service levels. Further, this language fails to require that those repair facilities to be certified by the OEM. This could lead to unqualified parties attempting to make repairs on a vehicle which could result in at least the owner being financially harmed and at most serious bodily injury to a person or person [sic]. We recommend that you add language to clarify that this clause only applies to OEMs who do not use a direct service model and are therefore enabling the third parties certified by the OEM itself to perform service.” (Orange EV)

Agency Response: No change was made to the regulatory language in response to this comment. The comment incorrectly implies that the manufacturer is required to provide access to third-party repair facilities that have not undergone manufacturer-authorized service training. Staff would like to clarify that the language allows the manufacturer to require technical training before providing access to diagnostic and repair manuals. As discussed in the staff report, the purpose of this provision is to reduce barriers to the expansion of the repair network, which is expected to improve available support for fleets using zero-emission technology in the future.

## **11. Changing Battery Technology Within a Certification Family Should be Allowed Without Requiring Recertification**

Comment: “Please clarify whether the proposed language would require re-certification only if a different battery technology were used. A replacement battery with substantially similar specifications should be allowed without requiring re-certification.” (Orange EV)

Agency Response: No change was made to the regulatory language in response to this comment. The comment is outside the scope of the amendments included in the 15-day notice. Nevertheless, staff has provided the following response. As stated in the regulation, “The manufacturer shall be required to create separate certification families if the battery modules are not identical.” Different battery pack configurations may still be included in the same certification family.

## **12. The Level of Detail Required in the Application Package is Not Necessary**

Comment: Orange EV commented that the level of detail required in the application is unnecessary, as it will not aid in determining the emissions of a zero-emission vehicle.

Agency Response: No change was made to the regulatory language in response to this comment. The comment is outside the scope of the amendments included in the 15-day notice. Nevertheless, staff has provided the following response. The comment provided was general and did not cite any specific regulatory language. Therefore, staff was not certain which regulatory element(s) to which the commenter was referring. That said, for the purpose of the response, staff assumed the commenter was referring to the requirements for system monitoring and diagnostic information. This information is required at the time of certification because it will help staff understand powertrain problems that occur in use and inform staff decisions during a recall.

### **13. Rename ‘Recall’ Provisions**

Comment: Tesla commented that the term “recall” should be changed to “owner maintenance notification program” or an equivalent phrase because “recall” has a negative connotation and may have a public relations impact.

Agency Response: No change was made to the regulatory language in response to this comment. The comment is outside the scope of the amendments included in the 15-day notice. However, similar comments were provided in response to the 45-day package; staff’s response is provided in section IV.A.24, above.

### **14. Provisions Applicable to Fuel-Cell Vehicles**

Comment: “As a matter of language editing, I would point out that several sentences and sub-sections still start off by stating ‘for Battery Electric Vehicles’ even though the words that follow are equally applicable to both BEV and FCEV.” (PlugPower)

Agency Response: No change was made to the regulatory language in response to this comment. The comment is outside the scope of the amendments included in the 15-day notice. Nevertheless, staff has provided the following response. Fuel-cell vehicles were deliberately excluded from certain regulatory provisions established specifically to address concerns applicable to battery-electric technology.

### **15. ZEP Cert Should Include All Medium-Duty Vehicles**

Comment: SDAP commented that ZEP Cert should include both incomplete and complete class 2b and 3 vehicles in the medium-duty vehicle classes (8,501-14,000 pounds gross vehicle weight rating).

Agency Response: No change was made to the regulatory language in response to this comment. The comment is outside the scope of the amendments included in the 15-day notice. Nevertheless, staff has provided the following response. The commenter is referring to the fact that complete class 2b and 3 vehicles are not included in ZEP Cert. Similar comments were provided in response to the 45-day package; staff’s response is provided in section IV.A.28, above.

## **16. Miscellaneous Information**

Comment: SDAP provided a definition for “bus” as well as information on safety, maintenance, and recordkeeping requirements for motor carriers.

Agency Response: No change was made to the regulatory language in response to this comment. The comment did not appear to include an actual recommendation or concern. As such, staff considered the comment as additional background information provided to support SDAP’s other comments submitted in response to the 45-day notice package. Their 45-day notice comments are summarized in sections IV.A.26 and IV.A.30, above.

## **17. Licensing of Repair Information Should be Allowed to Improve Affordability**

Comment: SDAP commented that manufacturers should be allowed to meet the ZEP Cert requirements by making diagnostic software and tools available to third-party repair facilities through licensing agreements, rather than a sale. This would potentially reduce the cost to third-party repair facilities.

Agency Response: No change was made to the regulatory language in response to this comment. The comment is outside the scope of the amendments included in the 15-day notice. Nevertheless, staff has provided the following response. Staff agrees that licensing could provide a lower-cost means for third-party repair facilities to access the diagnostic tools and software needed to repair vehicles. While the provisions in ZEP Cert would require a manufacturer to make diagnostic tools and software available for sale, manufacturers would not be precluded from entering into a licensing agreement with third-party repair facilities.

## **18. ZEP Cert Should Require a Standardized Diagnostic Communications Port**

Comment: SDAP commented that manufacturers should be required to provide a diagnostic communications port compliant with CARB’s on-board diagnostic systems (OBD II) regulation to improve ease of access to third-party repair facilities.

Agency Response: No change was made to the regulatory language in response to this comment. Based on discussions with stakeholders, staff determined that there are multiple standardized communications protocols that provide reasonable access to diagnostic information to third-party repair facilities. The flexibility provided in the regulation for the diagnostic communications protocol is expected to result in lower costs to manufacturers without hindering access to diagnostic information by third-party repair facilities.

## **19. Manufacturers Should be Required to Perform a Weight Analysis**

Comment: No change was made to the regulatory language in response to this comment. SDAP commented that they support the amendments to the sales disclosure

statement, but that the statement should be further modified to include a disclosure on payload, which should be determined by requiring manufacturers to perform a weight analysis.

Agency Response: Staff appreciates SDAP support of the amendments. Similar comments regarding a weight/payload analysis were provided in response to the 45-day package; staff's response is provided in section IV.A.27, above. No change was made to the regulatory language in response to this comment.

## **20. Warranty Period Should be Longer**

Comment: SDAP commented that the 3-year or 50,000-mile warranty period in ZEP Cert should be longer to improve longevity of vehicles.

Agency Response: No change was made to the regulatory language in response to this comment. The comment is outside the scope of the amendments included in the 15-day notice. However, similar comments were provided in response to the 45-day package; staff's response is provided in section IV.A.29, above.

## **21. The Recall Thresholds Should be Changed**

Comment: SDAP commented that the warranty recall thresholds of the greater of 4% of sales or 25 claims on a single component should be changed to be based only on the 4% threshold.

Agency Response: No change was made to the regulatory language in response to this comment. The comment is outside the scope of the amendments included in the 15-day notice. Nevertheless, staff has provided the following response. Staff believes the recall threshold is appropriate. The threshold is designed to allow manufacturers to enter the market at low volumes without risk of a recall campaign.

## **22. Garage Repair Services Should Support Zero-Emission Technology**

Comment: SDAP commented that CARB should require local garages to support zero-emission technology and provide incentive funding to support the growth of the repair network.

Agency Response: No change was made to the regulatory language in response to this comment. The comment is outside the scope of the amendments included in the 15-day notice. However, similar comments were provided in response to the 45-day package; staff's response is provided in section IV.A.30, above.

### **23. Small Businesses Need Additional Support In Regards to Zero-Emission Technology.**

Comment: “Both Garage stations services and fleets will mainly be made up of small business. The feasibility is not the same for small business; thereby more feasible support is necessary at this early stage.” (SDAP)

Agency Response: No change was made to the regulatory language in response to this comment. The comment is outside the scope of the amendments included in the 15-day notice. Nevertheless, staff has provided the following response. Staff agrees with the commenter’s sentiment that small businesses need more support. Staff believes the safeguards established by ZEP Cert will have the greatest impact on smaller businesses, who are more vulnerable to the current risks associated with zero-emission technology.

### **24. Missing Appendix H**

Comment: CARB received a comment from SDAP that they could not find Appendix H as an attachment to the 15-day notice.

Agency Response: No change was made to the regulatory language in response to this comment. There was no Appendix H to the 15-day notice. Rather, “Appendix H” referred to Appendix H to the Initial Statement of Reasons for the Phase 2 rulemaking (Further Detail on Cost and Economic Analysis), which was added as a reference to this rulemaking to support an assumption used in the economic analysis. Its inclusion did not affect any of the regulatory text.

## **C. SECOND HEARING COMMENTS AND AGENCY RESPONSES**

Written and oral comments were also received during the second public hearing on June 27, 2019. The following individuals submitted written comments at the June 27, 2019, public hearing:

| <b>Commenter</b> | <b>Affiliation</b>                |
|------------------|-----------------------------------|
| McGhee, Lisa     | SDAP                              |
| Kerste, Douglas  | Commercial Fleet Industries (CFI) |

The following individuals, listed in the order in which they spoke, provided oral testimony at the June 27, 2019, public hearing:

| <b>Commenter</b>  | <b>Affiliation</b>           |
|-------------------|------------------------------|
| Blubaugh, Timothy | EMA                          |
| Garcia, Claire    | The Lion Electric Co. (Lion) |
| McGhee, Lisa      | SDAP                         |
| Wall, Francesca   | Tesla                        |
| Goldsmith, Hannah | CalETC                       |

## **1. Support for the 15-Day Notice Modifications**

Comment: CARB received comments of support for the 15-day modifications from EMA, Tesla, and CalETC.

Agency Response: Staff appreciates the commenters' support of the modifications. No change was made to the regulatory language in response to these comments.

## **2. Overall Support**

Comment: CARB received a comment of general support of the proposal from Lion.

Agency Response: Staff appreciates the commenters' support and acknowledgment of the importance of this measure in accelerating the adoption of zero-emission technology. No change was made to the regulatory language in response to this comment.

## **3. ZEP Cert Will Add Complexity and Cost**

Comment: CARB received a comment from EMA that ZEP Cert will add complexity and cost that will cost more than was estimated in the ISOR.

Agency Response: Similar comments were provided in response to the 45-day package; staff's response is provided in section IV.A.12 above. No change was made to the regulatory language in response to this comment.

## **4. ZEP Cert Applicability Timeline**

Comment: CalETC and EMA commented that ZEP Cert should remain optional until 2023, limiting any program from incorporating ZEP Cert before that specific year. In addition, the commenters suggested that CARB staff report back to the Board on the status of implementation of the regulation.

Agency Response: No change was made to the regulatory language in response to this comment. The Board did not provide direction to make this change. A similar comment was provided in response to the 45-day package; staff's response is provided in section IV.A.7, above.

## **5. ZEP Cert Should Include All Medium-Duty Vehicles**

Comment: SDAP commented that they are concerned that class 2b and 3 (medium-duty) vehicles are not included in ZEP Cert because such vehicles represent 40 percent of the vehicles that will need to be turned over pursuant to the Zero-Emission Airport Shuttle Regulation. The commenter also mentioned that zero-emission vehicles in those classes today are typically produced by vehicle

modifiers that replace the internal combustion engine of an existing vehicle with a zero-emission conversion kit. The commenter suggested that because these conversions are often performed poorly, ZEP Cert is needed to ensure modifiers of medium-duty vehicles are also held accountable for problems.

Agency Response: No change was made to the regulatory language in response to this comment. First, staff would like to clarify that ZEP Cert does apply to incomplete class 2b and 3 vehicles. For incomplete class 2b and 3 vehicles, similar comments were provided in response to the 45-day package; staff's response is provided in section IV.A.28, above.

## **6. EPA Has no Certification Procedures for Electric Vehicles**

Comment: SDAP provided a written comment that EPA has no certification procedure for electric vehicles.

Agency Response: No change was made to the regulatory language in response to this comment. Staff is unclear on what the commenter was referring to with this comment but assumed it was background information pertaining to their oral testimony at the June 27, 2019 hearing, as discussed in IV.C.7, above. Comments related to U.S. EPA's certification procedures are outside the scope of this rulemaking.

## **7. Miscellaneous Information**

Comment: SDAP provided a written comment with background information about how the California Energy Commission defined pilot production and about vehicle sales in HVIP.

Agency Response: No change was made to the regulatory language in response to this comment. The comment did not appear to include an actual recommendation or concern. As such, staff considered the comment as additional background information provided to support SDAP's other comments submitted at the June 27, 2019 public hearing.

## **8. Diagnostic Communication Should be Standardized**

Comment: CFI commented that the vehicle communication systems for electric vehicles should be standardized and advised that new electric vehicles use the existing diagnostic communications port compliant with CARB's on-board diagnostic systems (OBD II) connector to communicate diagnostic and repair information.

Agency Response: Although it is unclear in the comment, staff assumed the commenter was referring to including this requirement to standardize the communication as part of the ZEP Cert procedures. A similar comment was made in response to the 15-day package; staff's response is provided in section IV.B.18, above. No change was made to the regulatory language in response to this comment.

## **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 CARB. Specifically, the scientific basis or scientific portion of a proposed rule may be subject to this peer review process. Here, CARB 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 needs to be performed.