Public Hearing to Consider Advanced Clean Cars II Regulations

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

Public Hearing Date: August 25, 2022

Agenda Item No.: 22-10-1

Table of Contents

I. General

The Advanced Clean Cars II (ACC II) regulations, or simply ACC II, are, as explained in the Initial Statement of Reasons (ISOR), critical to meeting California's state and federal air quality standards, protecting public health, and achieving the State's climate goals. The regulations aim to further curb criteria, toxic, and greenhouse gas (GHG) emissions by increasing the stringency of emission standards for internal combustion engine vehicles (conventional vehicles), ensuring emissions are reduced under real-world operating conditions, and reducing emissions by increasing the requirements for zero-emission vehicles (ZEVs), through both increased stringency of ZEV sales requirements and associated actions to support wide-scale adoption and use of ZEVs beginning with the 2026 model year.

With respect to ZEVs, ACC II is designed to reach 100% new vehicle ZEVs and clean plug-in hybrid-electric vehicles (PHEVs) in California by the 2035 model year. At present, the ZEV technologies are battery electric vehicles (BEVs) and hydrogen fuel cell electric vehicles (FCEVs). Additionally, ACC II includes innovative charging and ZEV assurance measures, which include ZEV warranty and durability requirements, serviceability, and battery labeling requirements, to help ensure consumers can successfully replace their conventional vehicles within California households with new or used ZEVs and PHEVs that meet their needs for transportation and protect the emission benefits of the program. This will ensure that ZEVs permanently reduce and displace the emissions from conventional vehicles.

These standards are overwhelmingly beneficial considering the value of the health benefits that will result. Mortality and hospitalizations will decrease, allowing everyone who breathes to live longer and more productive lives. On an individual level, the standards reduce the costs of transportation. Zero-emission passenger cars and light trucks under the regulations have lower operating costs over their useful lives (the total cost of ownership or TCO), and are expected to reach purchase-price parity with conventional vehicles during the time of the regulations. As ZEV technology has improved, the range of vehicle models and their capabilities are projected to increase over the time of the regulations to correspond to offerings of conventional vehicles, preserving choices for consumers for vehicles that meet their needs and interests in style, features, capabilities, and range. This is already occurring, with many new models scheduled for introduction in model years 2023 and 2024, before ACC II begins to apply.

The ACC II regulations are also projected to equitably help reduce pollution for Californians. Improving access to clean transportation and mobility options for low-income households and communities most impacted by pollution supports equity and environmental justice and is key in achieving emission reductions.[1] The California Air Resources Board's (CARB or Board) statewide strategy to address these goals, known as the Community Air Protection Program Blueprint,[2] identifies ACC II in helping to reduce exposure to criteria pollution and toxic air contaminants in burdened communities. The significant pollution reductions from the regulation as a whole, when accounting for cleaner conventional vehicles as well as ZEVs,

[1] Infra., Chapter II.B.

[2] CARB, Community Air Protection Blueprint, 2018, available at *https://ww2.arb.ca.gov/sites/default/files/2020-03/final_community_air_protection_blueprint_october_2018_acc.pdf*.

will reduce exposure to vehicle pollution in communities throughout California, including in low-income and disadvantaged communities that are often disproportionately exposed to vehicular pollution.[3] Further, the ZEV assurance measures, discussed in Chapter III.D. of the ISOR, will ensure these emissions benefits are realized and long-lasting, while supporting more reliable ZEVs in the used vehicle market, where the cost of ZEVs become more affordable to lower-income households.

CARB has also adopted provisions, discussed in Chapter IX of the ISOR, to encourage manufacturers to take actions that improve access to ZEVs for disadvantaged, low-income, and other frontline communities. These provisions encourage supporting community car-share programs, producing ZEVs at lower price points, and keeping used vehicles in California to support CARB's complementary equity incentive programs. The ACC II regulations include provisions aimed to increase manufacturers' participation in these programs through the accumulation of such vehicle values used to comply with the regulations.

ACC II will result in a cumulative reduction of 69,885 tons of oxides of nitrogen (NOx), 4,481 tons of fine particulate matter ($PM_{2.5}$) and 395.1 million metric tons (MMT) of carbon dioxide-equivalent CO_2-e emissions from 2026 to 2040, including potential projected reductions from fuel production. Based on these emission benefits, ACC II will lead to approximately 1,287 fewer cardiopulmonary deaths, 211 fewer hospital admissions for cardiovascular illness, 252 fewer hospital admissions for respiratory illness, and 647 fewer emergency room visits for asthma.

This regulation has been developed through an extensive public process. In addition to years of discussions during early stages of development, CARB held an initial 45-day public comment period for ACC II that began on April 15, 2022. The Staff Report: Initial Statement of Reasons for Rulemaking (ISOR), entitled Public Hearing to Consider the Proposed Advanced Clean Cars II Regulations, released April 12, 2022, is incorporated by reference herein. The ISOR contained a description of the purpose and rationale for the ACC II regulations. On April 12, 2022, CARB made available to the public all references relied upon and identified in the ISOR. This Final Statement of Reasons (FSOR) updates the information contained in the ISOR. The ACC II proposal was described in the ISOR and the associated Notice of Public Hearing (45-Day Notice). A total of 181 comments were submitted from individuals and organizations during the initial comment period.

Following the comment period, CARB considered the ACC II proposal at its June 9, 2022, public hearing. At that public hearing, staff presented the proposal as released in the 45-Day Notice, and CARB considered the written and oral comments on the proposal. At the June 9, 2022, Board hearing, 42 comment submissions were received along with comments from 107 individuals who gave oral testimony.

---

[3] Infra., Chapter IX; see also Apte 2019. Apte, Joshua S, Sarah E Chambliss, Christopher W Tessum, and Julian D Marshall. 2019. A Method to Prioritize Sources for Reducing High PM2.5 Exposures in Environmental Justice Communities in California. CARB Contract Number 17RD006. Accessed February 25, 2022. https://ww2.arb.ca.gov/sites/default/files/classic/research/apr/past/17rd006.pdf.

The Chair of the Board directed the Deputy Executive Officer[4] to consider the oral and written comments on the proposed regulations and develop any appropriate related modifications to the proposed regulations and to make any such proposed modified regulatory language available for public comment, with any additional supporting documents and information, for a period of at least 15 days, in accordance with Government Code section 11346.8.

The Chair of the Board also directed the Deputy Executive Officer to evaluate all comments received during the public comment periods, including comments raising significant environmental issues, and prepare written responses to such comments as required by the California Environmental Quality Act (CEQA), Public Resources Code, section 21000, et seq., under CARB's certified regulatory program (Cal. Code Regs., tit. 17, §§ 60000-60007), and by Government Code section 11346.9, subdivision (a).

Subsequently, staff proposed modifications to the original proposed regulation to address the direction given by the Board as well as the comments received. The regulatory text with the modifications clearly identified and additional supporting information was made available starting July 12, 2022, and corrected on July 13, 2022, for a 15-day comment period ending July 28, 2022, by issuance of a "Notice of Public Availability of Modified Text and Availability of Additional Documents and Information" (First 15-Day Notice). Thirty-four written comments were received during the first 15-day comment period.

Additional documents that were relied upon in adopting the regulations or that were incorporated by reference into the regulations were made available for public review starting August 8, 2022, for a second 15-day comment period ending August 23, 2022, by issuance of a "Notice of Public Availability of Additional Documents" (Second 15-Day Notice). Eight written comments were received during the second 15-day comment period.

The Final Environmental Analysis (Final EA) and written responses to the Draft Environmental Analysis (Draft EA) were posted on August 24, 2022, for public review and tribes requesting notice under Assembly Bill 52[5] were provided notice. No requests for tribal consultation were received.

Staff presented the modified proposal to CARB for further consideration on August 25, 2022, at which 11 comment submissions were received along with 57 individuals who gave oral testimony. At that hearing, CARB considered the final Environmental Analysis (Final EA) and the Response to Environmental Analysis Comments in accordance with the requirements of CEQA and CARB's certified regulatory program. CARB adopted Resolution 22-12, which adopted the Findings and Statement of Overriding Considerations, approved written responses to the Draft EA, certified the Final EA, and adopted the ACC II regulations, including the modified ZEV regulations. The adopted regulations reflect the final modifications that were made available for the supplemental comment periods and non-

[4] On June 24, 2022, the Chair delegated her authority to fulfill the Executive Officer's obligations under the Health and Safety Code, including as directed here, to CARB's Chief Counsel and Deputy Executive Officers, until that authority is superseded or repealed. CARB. Executive Order G-22-276, June 24, 2022.
[5] Gatto, Stats. 2014, ch. 532.

substantial changes that were appropriate to be made, as reflected in the Final Regulation Orders made available for the hearing.

This Final Statement of Reasons for Rulemaking (FSOR) updates the ISOR by identifying and explaining the modifications that were made to the original proposal at the Board's direction and in response to comments. It updates the information in the ISOR and summarizes and responds to the written and oral comments to CARB on the regulations or the process by which they were adopted.

In adopting the ACC II regulations, CARB has amended the following sections of title 13, in the California Code of Regulations (CCR): sections 1900, 1961.2, 1961.3, 1962.2, 1962.3, 1965, 1968.2,1969, 1976, 1978, 2037, 2038, 2112, 2139, 2140, 2147, 2317, and 2903. CARB also adopted the following sections of title 13, division 3, chapter 11, CCR: sections 1961.4, 1962.4, 1962.5, 1962.6, 1962.7, and 1962.8.

Mandates and Fiscal Impacts to Local Governments and School Districts

CARB has determined that this regulatory action will result in a mandate that affects local agencies or school districts.[6] However, CARB finds that these costs are not reimbursable pursuant to Part 7 (commencing with section 17500), Division 4, Title 2 of the Government Code for several reasons. Foremost, they result in net savings from the total cost of ownership of vehicles.[7] To the extent ACC II imposes costs at the time of purchase, ACC II applies equally to private and public entities, so does not impose unique new requirements on local agencies and is not a reimbursable mandate.[8] Further, ACC II does not mandate a new program or a higher level of service of an existing program on local agencies or school districts, even though it could affect state and local government finances indirectly through changes in taxes and fees collected from changes in fuel expenditures and other tax and fee revenues. Agencies are not required by ACC II to purchase vehicles. They do so at their own election. Therefore, ACC II does not impose "costs mandated by the state" under section 17514 of the California Government Code.[9] Costs are also not reimbursable when they may be fully financed by local agencies raising their own fees.[10] Local governments may raise fees, if needed, to address the costs of ACC II. Therefore, ACC II does not impose a reimbursable mandate.

Consideration of Alternatives

Alternatives were identified and discussed in the ISOR, the SRIA, and the Draft Environmental Assessment. For the reasons set forth in the ISOR, in staff's comments and responses at the

---

[6] Gov. Code, § 11346.9, subd. (a)(2).
[7] State Administrative Manual, § 6606.
[8] *County of Los Angeles v. State of California*, 43 Cal. 3d 46 (1987). *https://scocal.stanford.edu/opinion/county-los-angeles-v-state-california-28508*. January 1987.
[9] *County of Contra Costa vs. State of California*, 177 Cal App 3d 62.79 (1986).
[10] See, e.g., *Clovis Unified School Dist. v. Chiang* (2010) 188 Cal App. 4th 794, 812; *Connell v. Superior Court* (1997) 59 Cal. App. 4th 382, 397-403; *County of Fresno v. State of California* (1991) 53 Cal. 3d 482, 487-88; Gov. Code, § 17556, subd. (d).

hearing, and in this FSOR, CARB determined that no alternative considered by the agency would be more effective in carrying out the purpose of the regulatory action, 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 CARB.

1. Small Business Alternative

Section 11346.9, subdivision (a)(5), of the Government Code provides that the FSOR shall contain an "explanation setting forth the reasons for rejecting any proposed alternative that would lessen the adverse economic impact on small businesses." The Advanced Clean Cars II regulations do not apply directly to small businesses. CARB has not identified any reasonable alternatives that would be as effective in carrying out the purposes of the regulatory action and that would lessen any adverse indirect impacts of the ACC II regulations on small business. As explained in the response to comments in Master Response (MR) 4, Total cost of ownership including incremental vehicle purchase cost, the analyses in this rulemaking predict that many businesses will enjoy net benefits from ownership and operation of ZEVs.

II. Modifications Made to the Original Proposal

Modifications Approved at the Board Hearing and Provided for in the 15-Day Comment Periods

Subsequent to the June 9, 2022, Board hearing, modifications to the original proposal were made at the Board's direction and to address comments received at the hearing and during the 45-day public comment period. Staff released the First 15-Day Notice on July 12, 2022, and corrected it on July 13, 2022, which notified the public of additional documents added into the regulatory record and presented additional modifications to the regulatory text.

The following provides a general overview of the modifications, their purpose, and the reasons for making them. This overview does not address non-substantive modifications to correct typographical or grammatical errors, changes in numbering or formatting, addition of or edits to internal regulatory cross-references, or similar revisions that improve clarity.

1. Modifications for Low-Emission Vehicle Regulations

Staff proposed changes to the Low-Emission Vehicle (LEV) regulations in response to comments received from stakeholders during the 45-day comment period. The proposed changes included revisions to define more precisely the exemption requirements for PHEV high-power cold-start emission testing, revisions that will reduce testing burden for PHEVs, additional end-of-test criterion to reduce testing burden during US06 all-electric range testing, updates for the super ultra-low-emission vehicle (SULEV) 20 high-altitude emission standard to harmonize with U.S. Environmental Protection Agency (U.S. EPA) rules, revisions to medium-duty vehicle (MDV) fleet-average phase-in requirements, updates to include new MDV Supplemental Federal Test Procedure (SFTP) phase-in requirements for small volume manufacturers, revisions to better define the new MDV in-use test procedure requirements, and updates to the evaporative puff emission standards for minimum canister size. Overall,

the proposed changes intended to provide more clarity to emission compliance requirements and to reduce vehicle emission testing burden without affecting emission benefits.

Background: US06 High-Power Cold-start Emission Test for PHEVs

The regulatory language proposed in the 45-day package included a new US06 high-power cold-start emission test for PHEVs to determine compliance with the proposed PHEV high-power cold-start emission standards. The 45-day proposal also included an exemption for certain PHEVs from the new US06 cold-start emission test. The intention of this exemption was to avoid unnecessary emission testing of PHEVs that are US06 capable, meaning they can drive the US06 test cycle using only electric power and without using the combustion engine. By avoiding the use of the combustion engine, these PHEVs inherently exhibit zero emissions on the US06 high-power cold-start test cycle. Therefore, the 45-day package included an exemption for US06 capable PHEVs to avoid potentially unnecessary testing.

A stakeholder comment during the 45-day comment period presented an issue with the proposed exemption. As written in the 45-day package, the exemption required PHEVs to fulfill all the requirements given in 1962.4 subsection (e)(1)(A) or (e)(1)(B). Stakeholders noted that staff's intent, as presented at workshops and stakeholder discussions, was to allow an exemption based on whether a PHEV was US06 capable, but the requirements given in 1962.4 subsection (e)(1)(A) and (e)(1)(B) included several additional provisions, such as requiring extended warranty, meeting battery labeling and service information requirements, and others, which did not have any bearing on a PHEV's emission performance or all-electric capability on the US06 test cycle. Staff reviewed the relevant sections in 1962.4 and agreed with the stakeholder comments and refined the regulatory language to reduce the scope of requirements for the exemption to PHEVs that meet the 40 miles of US06 all-electric range requirement in 1962.4 subsection (e)(1)(A)9 or the 10 miles of US06 all-electric range requirement in (e)(1)(B)2.

Background: Remove Requirement to Measure Direct Current Energy During PHEV Charging

Existing PHEV test procedures require direct current (DC) energy to be measured when a PHEV is charged after an all-electric range test or a charge-depleting emission test. Stakeholder comments during the 45-day comment period indicated that measurement of DC energy during PHEV charging is a time consuming and burdensome process that requires the PHEV to be modified to gain access to the high voltage connection terminals for measuring DC energy. Furthermore, stakeholders commented that the DC energy measurement is not required for determining compliance with any regulatory standards.

Staff reviewed existing and proposed regulations and determined that information pertaining to DC energy during charging is not necessary for evaluating vehicle emissions or determining compliance with any regulatory standards. As a result, staff's updated proposal removed the requirement for PHEVs to report DC energy to fully charge the battery after an all-electric range test or a charge-depleting emission test. The removal of this provision will ease compliance obligations for 2026 and subsequent model year vehicles without sacrificing any required information for evaluating compliance.

Background: End-of-Test Criteria for US06 All-Electric Range Test

The 45-day regulatory package included PHEV test procedures for US06 all-electric range testing to determine compliance with US06 all-electric range requirements given in section 1962.4, subsections (e)(1)(A)9 and (e)(1)(B)2. As a part of the PHEV test procedures, two criteria were included for determining the end of the US06 all-electric range test: (1) auxiliary power unit (combustion engine) starts, or (2) the PHEV can no longer keep up with the US06 speed trace limits. These two criteria were the same as the criteria used for US06 all-electric range testing in existing LEV PHEV test procedures. Meeting either one of these two criteria is sufficient to end a valid US06 all-electric range test.

Stakeholder comments during the 45-day comment period suggested that a third end-of-test criterion should be added for the US06 all-electric range test. The stakeholder comment explained that completion of five full US06 drive cycles, of 8 miles per cycle, will be enough to demonstrate compliance with the 40 miles US06 all-electric range requirement in 1962.4 subsection (e)(1)(A)9 and that completion of five full US06 drive cycles should be added as a third end-of-test criterion. Staff reviewed vehicle test data for the US06 test cycle and found that, although the nominal distance for the US06 test cycle was 8 miles, there were instances where less than 8 miles were driven during an actual US06 test, such as 7.99 miles. These slight differences are due to human driver variations when following speed trace limits. Due to these variations, five US06 drive cycles may not necessarily demonstrate compliance with the 40 miles of all-electric range requirement in section1962.4 subsection (e)(1)(A)9. In addition, staff determined that it would be valuable information to know whether a PHEV is barely meeting the 40 miles requirement and this information would not be available if only five US06 drive cycles were completed. Therefore, staff's proposed 15-day changes included an additional (third) end-of-test criterion for the US06 all-electric range test whereby the test can be ended if the PHEV completes six full US06 drive cycles using only electric power and without use of the combustion engine. Utilizing six US06 drive cycles, rather than the stakeholder's suggestion of five, ensures that the PHEV will complete at least 40 miles of driving, regardless of human driver variations, to demonstrate compliance with the 40 miles US06 all-electric range requirement. This additional third criterion will be especially useful for reducing testing burden for PHEVs that have extended US06 all-electric range, well-beyond 40 miles, as it will allow testing to be terminated after the minimum 40 miles all-electric range requirement has been demonstrated rather than continuing to test until the engine starts or the PHEV can no longer maintain the speed trace, which may require additional test cycles beyond six.

Background: Reduced SULEV20 High-Altitude Standard to Match U.S. EPA

CARB amended the SULEV 20 high-altitude standard for nonmethane organic gases plus oxides of nitrogen (NMOG+NOx) for the Federal Test Procedure (FTP) test cycle in response to stakeholder comments. Stakeholder comments requested changes to the high-altitude standards for emission bins ranging from SULEV15 to SULEV25 and suggested a 2x multiplier for these bins. In response to these comments, staff reviewed the high-altitude standards and found that the high-altitude standards for the SULEV15 and SULEV25 bins already included a 2x multiplier, as suggested by the commenters. In case of the SULEV20 emission bin, staff discovered that U.S. EPA's SULEV20 high-altitude standard was 0.030 g/mile and

revised the LEV IV SULEV20 high-altitude standard to 0.030 g/mile to harmonize with U.S. EPA. The revised SULEV20 high-altitude standard is not a 2x multiplier as the commenter requested, but a 1.5x multiplier, because CARB concluded that a 2x multiplier would not be appropriate for the SULEV20 bin as it would result in a less stringent standard than U.S. EPA's requirement.

Background: MDV Fleet Average Phase-in Requirement for Fleets with Four Test Groups

The regulatory language in the 45-day package for section 1961.4 allowed an alternate phase-in for MDV manufacturers with four test groups to phase in all four-test groups by model year 2031 for the fleet average requirement. The 15-day language for section 1961.4, subsection (e)(1)(C)1, made a change to the alternate phase-in for manufacturers with four test groups requiring them to certify all their test groups by model year 2030. The change was necessary to ensure all manufacturers were fully phasing-in all their test groups by model year 2030 for the fleet average requirements. Allowing a longer phase-in for manufacturers with four test groups would have made the requirement less stringent than the other phase-in requirements for the fleet average.

Background: MDV SFTP Emission Standards Phase-in for Small Volume Manufacturers

The regulatory language in the 45-day package for section 1961.4 did not have a small volume manufacturer phase-in for the MDV SFTP requirements. The 15-day language added new language in section 1961.4 that allows MDV small volume manufacturers to follow the SFTP phase-in described in subsection (e)(3)(B)3 in lieu of following the SFTP phase-in for subsections (e)(3)(B)1 or (e)(3)(B)2. This gives MDV small volume manufacturers flexibility in their SFTP phase-in and ensures consistent flexibility for the certification phase-in requirements for MDV small volume manufacturers.

Background: In-use Testing Emissions Standards for MDVs in 1961.4

The regulatory language in the 45-day package for section 1961.4 did not have language stating MDVs subject to the LEV regulations are required to meet the moving average window (MAW) standards. The 15-day language adds subsection (e)(6) to 1961.4 stating 2027 and subsequent model year MDVs with a gross combined weight rating (GCWR) greater than 14,000 pounds must comply with the MAW test procedures and standards in the "California 2026 and Subsequent Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles." This language is necessary to clarify that MDV manufacturers subject to the LEV regulations will have to comply with the new in-use test procedures and standards, which previously was only included in the test procedures incorporated by reference.

Background: In-use Testing Test Procedure Requirements for MDVs in LDTP

The original 45-day regulatory package included language in the "California 2026 and Subsequent Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles" for the MAW test

procedures and standards in Part I section I.4. The 15-day changes included changes to various subsections in section I.4.

In I.4.6, the original language required manufacturers to perform the in-use test towing a minimum GCWR percentage. Stakeholder comments suggested that testing at 70% GCWR was still within the vehicle's GCWR capacity and using a trailer was not necessary. The new language now states that the manufacturer must perform operation at the minimum GCWR percentage requirement. This allows the manufacturer to test their vehicle without a trailer if they can achieve the minimum GCWR requirement with the weight loading in the vehicle.

Following discussions with stakeholders, additional language was added to I.4.5 of the procedure to clarify which restrictions do not apply to Executive Officer testing for in-use compliance. Lastly, sections I.4.6 through I.4.10 were revised to reference the Code of Federal Regulations (CFR) language with amendments for the California test procedures. The changes to I.4.6 through I.4.10 do not change the requirements of these sections because the original test procedure language in the 45-day package is identical to the CFR regulatory text with the modifications for California. The references to the CFR ensures consistency with CARB's format for referencing regulatory text in the CFR.

Background: Evaporative Puff Emission Minimum Canister Size Requirement

Vehicles with internal combustion engines are required to have canisters of adsorbents to collect fuel vapor emissions when refueling and during other modes of vehicle operation. For the minimum canister size standard to control evaporative puff emissions, the aging factor in the compliance equation has been changed to be more reflective of applicable data. The data used is based on a reduction in gasoline working capacity (GWC) rather than butane working capacity (BWC) which was used to derive the factor initially. GWC is a more realistic depiction of canister performance than BWC. This adjustment was determined by reviewing to the degree to which GWC changes on canisters aged to full useful life versus at an initial stabilized condition. The data reviewed came from multiple stakeholders, which informed the revised value.

Background: On-Board Diagnostics

CARB initiated the On-Board Diagnostics II (OBD II) rulemaking in a separate proceeding in 2021, prior to the release of the ACC II regulations. Because of this, the ACC II 45-day package presented the proposed amendments to section 1968.2 as it was then in effect and without the changes proposed in the OBD II proceeding, which had not been finalized at the time CARB adopted the ACC II regulations. The 15-day language further amends section 1968.2 to align with the new LEV regulation. Staff intends for all the changes to section 1968.2 that are ultimately adopted in the OBD II proceeding to apply along with the changes in the ACC II proceeding. To ensure the public clearly understands how the ACC II regulations would amend section 1968.2 along with the current OBD II proposal, the ACC II proposed amendments were made available for public comment for 15 days to show the relevant changes in conjunction with those proposed in the OBD II proceeding.

2. Modifications for the Zero-Emission Vehicle and Related Regulations

Staff proposed changes to the ZEV regulation in response to comments and direction from the Board at its first hearing. These changes were intended to facilitate compliance, ensure emissions are reduced, further support emissions reductions aligned with equity goals, and minimize burdens that do not have a corresponding benefit.

Background: Medium-Duty ZEVs

Currently under Advanced Clean Cars program (ACC I), manufacturers that produce medium-duty ZEVs can earn credit through either CCR, title 13, section 1963, et seq. (the Advanced Clean Trucks Regulation, or ACT), or section 1962.2 (the current ZEV regulation). ACC II as proposed in the ISOR, however, did not include this provision. Several stakeholders commented on the proposal asking CARB to retain the option for a manufacturer to choose under which regulation (ACC II or ACT) to earn vehicle values or credits for medium-duty ZEVs, as there is overlap between ACC I and ACT for vehicles between 8,501 and 14,000 pounds gross vehicle weight rating (GVWR). However, the test procedures for 2026 and subsequent model year ZEVs and PHEVs did include medium-duty ZEVs and envisioned some medium-duty ZEVs still needing a certification path, even to be counted under ACT.

Following stakeholder conversations, staff modified proposed section 1962.4 to explicitly apply to medium-duty vehicles, similar to the current ZEV regulation and the proposed ZEV test procedures that apply to medium-duty vehicles, allowing manufacturers to choose to certify such vehicles under ACC II, provided the vehicles are counted in the production volume used to calculate a manufacturer's requirement and meet other requirements that staff proposed. This inclusion is additionally important as light-duty trucks transition to full electric models. For example, as noted in the ISOR, Ford Motor Company has certified and is bringing to market the F-150 Lightning, a full-function BEV with over 300 miles of electric range. In transforming the F-150 from a gasoline truck to a fully-electric truck, the weight of the battery has caused this truck, which is typically classified as a light-duty truck, to be classified as a medium-duty vehicle in some of the electric versions. Other manufacturers may find themselves in a similar position and the regulation should accommodate that possibility in ways consistent with its goals. These amendments ensure consistency with the test procedures and current regulatory practice, are responsive to stakeholder feedback, and promote compliance with the ZEV requirements.

Background: Production Volume Determination Methods

Prior to the current ACC I, regulated manufacturers were provided the option to choose a previous-year-average method or a same-year method for determining their production volume, which was then used to calculate a manufacturer's annual ZEV obligation. However, this option led to manufacturers often choosing the method that would give them a lesser requirement for any given model year. Therefore, staff switched in the ACC I program to a

default previous-average method, with the option to switch only when a manufacturer experienced a significant drop in sales.[11]

During the 45-day comment period for ACC II, stakeholders commented that the default previous-year average method should continue to aid in planning for future compliance. Stakeholders also indicated a desire for a same-year method while agreeing that the regulation should be designed to preclude choosing a method solely to reduce compliance obligations in ACC II. Additionally, staff's proposed 2035 model year 100% stringency could only reach 100% of sales if a same-year method for manufacturers is used in model year 2035. If a previous-year average continues to be the default method to determine production volume through 2035 model year, manufacturers may be required to offer for sale more ZEVs than the actual number of vehicles they produce in 2035 or may be required to offer for sale less than 100% ZEVs and PHEVs. This modification to the previous-year average method facilitates compliance with the requirements for 100% ZEV and PHEV sales by the 2035 model year.

Background: ZEV Durability Requirements and Enforcement

Battery durability is a critical component of the ACC II regulations, as it ensures that ZEVs can function as full replacements for internal combustion engine vehicles with similar lifespans and ranges. Durable and repairable batteries also are needed for a robust used vehicle market, where many people buy cars, thereby preserving the emission benefits of the regulations if buyers have the necessary information to confirm they can rely on these vehicles. However, based on discussions with manufacturers and suppliers, battery cell or chemistry design changes continue to require significant lead time to incorporate into vehicles. Accordingly, manufacturers have already committed to battery designs that they will be using in the early years to meet ACC II ZEV regulations requirements. Given the standards were not in place when the manufacturers had to make these design choices, several have acknowledged that they have already selected upcoming battery designs that sacrifice durability relative to today's batteries to reduce cost. Further, while manufacturers have developed methods to simulate aging of batteries to project in-use degradation, most manufacturers still have limited experience with older and high-mileage on-road vehicles to validate their aging test methods. Recognizing the designs that have already been selected and the lead time needed to cost-effectively plan for the ZEV durability standards while also refining methods to simulate aging, staff made modifications to reduce the durability requirement from 80% to 70% for model years 2026 through 2029 in order to provide additional time for implementing the more stringent form of the durability standards while still setting standards for each model year that will ensure a baseline of performance. This will facilitate compliance and remove barriers from long-term design and manufacturing decisions made before the regulations were adopted, while still providing these protections and increasing them over time.

[11] CARB 2012. California Air Resources Board. Advanced Clean Cars Initial Statement of Reasons (P. 41-42) https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2012/zev2012/zevisor.pdf Accessed May 24, 2022.

Background: Changes to Converted ZEV and PHEV Values

Recognizing that increased sales of ZEVs and PHEVs above currently required levels benefit the public and reduce emissions, the 45-day proposal allowed for crediting a portion of these sales, including those in coming years before the first year of the new program, against program compliance. Specifically, staff proposed for converted ZEV and PHEV values to be allowed for use to meet up to 15% of a manufacturer's annual requirement in the cases where they have not produced sufficient vehicles to fully meet the requirement (called a manufacturer's ZEV shortfall). For context, converted ZEV and PHEV values are excess credits earned under the existing ZEV regulation (Cal. Code Regs., tit. 13, § 1962.2) that have been converted using a factor to be useable within the proposed ZEV regulation. During the 45-day comment period and at the June 9, 2022, hearing, manufacturers commented that they need additional flexibility to use converted ZEV and PHEV values between the 2026 and 2030 model years, which staff found reasonable given some manufacturers are further behind in electrification. In essence, this flexibility provides some compliance options for manufacturers, but only so long as real cars are being introduced into the market, and encouraging even earlier introductions than might have otherwise occurred. Multiple changes were made. The first change was to use the same conversion factor for both ACC I PHEV and ZEV credits, rather than two different factors as proposed in the ISOR. As originally proposed, ZEV and PHEV credits were converted using different factors, which inadvertently resulted in significantly reduced ZEV credits while having minimal impact on the PHEV credits. However, this approach did not recognize how the credit system within ACC I already was set up to equalize PHEVs and ZEVs with variable credit amounts for each technology. Therefore, staff modified the proposal, taking an average of all ZEVs and PHEVs, which resulted in a common factor of 2.1, to convert all ACC I credits into converted ZEV and PHEV values in order to more accurately reflect vehicle production and regulatory treatment for the two technologies.

Second, staff created a cumulative allowance option in addition to the annual allowance of converted ZEV and PHEV values. This allows manufacturers to use the same total number of converted ZEV and PHEV values but with more flexibility on when to apply those values between the 2026 and 2030 model years. This change is not expected to lead to any fewer 2026 through 2030 ZEVs and PHEVs but will facilitate compliance by reducing burdens. Additionally, because of the chosen regulatory design of CARB's vehicle emission standards to reduce criteria pollutant and greenhouse gas emissions through fleet-wide averages, those standards maintain the expected emission reductions from manufacturers' fleets of conventional vehicles independently of the emission reductions from the ACC II ZEV requirements.

Third, staff linked the usage of environmental justice values to usage of the full cumulative allowance option. In response to public comment and direction from the Board, staff made this change to encourage manufacturers' generation of environmental justice values, so as to promote more direct action in disadvantaged communities and support ZEV adoption among lower-income drivers. A manufacturer that uses environmental justice values equal to or greater than 0.5% of their annual requirement in one model year will be able to use a larger cumulative allowance for three model years. A manufacturer that uses the threshold amount of environmental justice values in one or two additional model years will have this flexibility

extend for one or two more model years, respectively. Setting the threshold for a manufacturer to use the larger cumulative allowance in relationship to environmental justice value use will help incentivize use of the environmental justice values, furthering the intent of the regulations to reduce emissions in disproportionately impacted communities.

Background: Changes to Environmental Justice Values

In addition to linking environmental justice values to the cumulative allowance option, staff also included proposed provisions to expand two of the three environmental justice value options. First, staff extended the timeline for manufacturers to generate vehicle values for community-based clean mobility programs to include the 2024 and 2025 model years. Implementers of community-based clean mobility programs already purchase vehicles based on a community's unique needs and driving patterns, and therefore such a change could provide discounts on individual vehicles earlier than they otherwise would, delivering benefits that much sooner. Second, staff included an additional value to direct those off-lease ZEVs and PHEVs delivered to the dealer toward those program participants. The additional value is intended to incentivize manufacturers to incentivize the dealers they provide with vehicles to direct those off-lease ZEVs and PHEVs toward those most in need of the vehicles.

Background: Proportional FCEV Values

Current regulations under ACC I provide manufacturers with an additional incentive to produce and deliver FCEVs for sale by allowing proportional values of FCEVs sold in one state to count towards ZEV sales requirements in other states that have adopted CARB's regulations under Section 177 of the Clean Air Act (42 U.S.C. § 7507; commonly called Section 177 ZEV states). This flexibility in ACC I accounts for the inherent need for hydrogen fueling infrastructure to be developed in a given state before FCEVs become a viable option for manufacturers and consumers in that state. Hydrogen station development has progressed significantly in California over the past two decades but is still limited in other states. Privately-funded efforts have developed stations in some Northeast states, but regulatory and other issues have kept them from opening for retail hydrogen fuel sales. Hydrogen proponents report recent momentum in some Northwest states towards initiating hydrogen infrastructure development but no retail hydrogen fueling stations have yet been developed in the region. Significant retail hydrogen infrastructure development outside of California is still not expected for several years.

At the same time, scenarios modeled in staff's compliance pathway for the proposed ACC II regulations suggest that FCEVs will be an important technology to virtually eliminate light-duty vehicle emissions from new sales (save for the remaining PHEVs). While staff's modeled compliance pathway shows FCEVs are expected to be higher cost than comparable BEVs in the near-term, some vehicle platforms and duty cycles are projected to be very attractive for FCEV technology in 2030 and later model years. To this end, provisions were included to allow proportional values for FCEVs through 2030. To limit this flexibility, staff set a maximum allowance of 10% of a manufacturer's annual requirement that could be met with such proportional values. This will facilitate compliance and promote development of FCEV technology by allowing manufacturers to continue to use FCEVs to meet part of their annual ZEV requirement in California or any states that have chosen to adopt California's standards

where infrastructure may effectively limit sales. The allowance limits the number of proportional values generated to maintain much of the emission benefits of the technology.

Updates to Analysis as a Result of Modifications

Due to the modifications included in the 15-day package, staff updated the emissions and economic impact analyses to reflect the costs and benefits of the adopted regulation. Largely due to the reduced durability requirements that lowered battery costs in the early years of the regulation, staff estimate slightly more BEVs than PHEVs in the final regulations than originally estimated, as some BEVs become less costly than PHEVs. As a result, the total criteria pollutant and greenhouse gas emission reductions increased slightly while the total compliance costs decreased slightly. The cumulative cost of compliance for automakers decreased by about 1.5% during the 2026 – 2040 timeframe; in this same timeframe, emission benefits increased by less than 1%, which in turn results in a small increase in health benefits. Overall, the benefit-cost ratios of the regulation and the alternatives are higher than those estimated in the ISOR. However, the updated analysis does not alter the determinations that both alternatives should be rejected. The full updated analysis can be found in Appendix F.

Nonsubstantial Changes

Subsequent to the 15-day public comment periods mentioned above, staff identified the following additional nonsubstantial changes to the regulation:

1. ***Modification to Section 1961.4***

a. Section 1961.4(f)(1): "Requirement to" was removed from the header of (f)(1) because this provision is not a requirement, and thus the title was inaccurate.

2. ***Modification to Section 1962.8***

a. Section 1962.8(a)(2): This applicability section was modified to add "to earn vehicle values in California pursuant to California Code of Regulations, title 13, section 1962.4" to the final version of the regulations. This change only further clarifies this is the correct interpretation of the requirements (that 1962.8 applies to PHEVs that are certified to earn vehicle values) and does not change the applicability of the section nor meaning of the provision.

3. ***Modifications to "California Test Procedures for 2026 and Subsequent Model Year Zero-Emission Vehicles and Plug-In Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes"***

a. *Sections B.2, E.12.3, and E.12.4:* In section B.2, the abbreviation "Rcdcsh" was used for the term "highway charge depleting to charge sustaining range". However, in section E.12.3, "highway charge depleting to charge sustaining range" used the abbreviation "Rcdtcs" and, in section E.12.4, the abbreviation "Rcdtcs" was used for both urban and highway charge depleting to charge sustaining range.

For consistency and clarity, the instances in B.2, E.12.3, and E.12.4 have all been changed to use the same abbreviation "Rcdtcsh" when referring to "highway charge depleting to charge sustaining range." These changes are necessary to avoid confusion that might arise if two different abbreviations are used for the same term or the same abbreviation is used for multiple terms.

b. *Sections B.2, E.12.2, and E.12.4:* In section B.2, the abbreviation "Rcdcsu" was used for the term "urban charge depleting to charge sustaining range." However, in section E.12.2, "urban charge depleting to charge sustaining range" used the abbreviation "Rcdtcs" and, in section E.12.4, the abbreviation "Rcdtcs" was used for both urban and highway charge depleting to charge sustaining range. For consistency and clarity, the instances in B.2, E.12.2, and E.12.4 have all been changed to use the same abbreviation "Rcdtcsu" when referring to "urban charge depleting to charge sustaining range." These changes are necessary to avoid confusion that might arise if two different abbreviations are used for the same term or the same abbreviation is used for multiple terms.

c. *Section B.2:* In section B.2, "urban charge depleting actual range" was defined using the abbreviation "Rcdau" while in numerous locations throughout section E.11 the same term was using a different abbreviation "Rcda". For consistency and clarity, the instance in B.2 was changed to "Rcda" to match the usage of the same term in section E.11. This change is necessary to avoid confusion that might arise if two different abbreviations are used for the same term.

d. *Section E.4.5.6.2:* The definitions for mqd and Dqd in section E.4.5.6.2 gave an incorrect reference to section E.4.5.3. This was a typo and would have been obvious to regulated entities since E.4.5.3 is non-sensical to refer to in this instance. This has been corrected to refer to section E.4.5.2.

e. *Section E.13.2:* This section contains incorrect references to section F Figure 1 and section F Figure 2. These figure references are from an older version of the test procedures and there are no such figures in the current document. Instead, the references have been fixed to correctly refer to the figures in section F.2 and F.3. This change is needed to provide clarity as in which sections the actual figures can be found.

The above-described modifications constitute non-substantial changes to the regulatory text and do not materially alter the requirements or conditions of the adopted rulemaking action. In addition to these changes, additional non-substantive changes were made to correct numbering, formatting, and grammatical changes throughout the amended and adopted regulation text and incorporated test procedures.

III. Documents Incorporated by Reference

The regulations incorporate by reference the following documents:

- SAE International, 2017. SAE J1772, "Electric Vehicle and Plug in Hybrid Electric Vehicle Conductive Charger Coupler," as revised by SAE International in October 2017 (copyrighted), in Section 1962.3 (c)(1) and Section 1962.4 (e)(3)(A)4
- Underwriter Laboratory LLC, 2016. UL 2594, "Standard for Electric Vehicle Equipment," December 2016, in Section 1962.3 (c)(3)(D)
- SAE International, 2016. SAE J1962, "Diagnostic Connector," July 2016 (copyrighted), in Section 1962.5(c)
- SAE International, 2022. SAE J1979-3, "E/E Diagnostic Test Modes: Zero Emission Vehicle Propulsion Systems on UDS (ZEVonUDS)," published draft June 2022 (copyrighted), in Section 1962.5(c)
- SAE International, 2021. SAE J1979-DA, "Digital Annex of E/E Diagnostic Test Modes," April 2021 (copyrighted), in Section 1962.5(c)
- SAE International, 2016. SAE J2012, "Diagnostic Trouble Code Definitions," December 2016 (copyrighted), in Section 1962.5(c)
- SAE International, 2018. SAE J2012DA_201812, "Digital Annex of Diagnostic Trouble Code Definitions and Failure Type Byte Definitions," December 2018 (copyrighted), in Section 1962.5(c)
- CARB 2021a. "Data Record Reporting Procedures for Over-the-Air Reprogrammed Vehicles and Engines Using SAE J1979-2," December 2021, in Section 1962.5(c)(6)(B).
- SAE International, 2021. SAE J2984, "Chemical Identification of Transportation Batteries for Recycling," September 2021 (copyrighted), in Section 1962.6 (b)(1)(A)
- SAE International, 2020. SAE J2288, "Life Cycle Testing of Electric Vehicle Battery Modules," November 2020 (copyrighted), in Section 1962.6 (b)(1)(C)
- Idaho National Laboratory, 2015. INL/EXT-15-34184, "Battery Test Manual for Electric Vehicles," Revision 3, June 2015, in Section 1962.6 (b)(1)(B)
- International Standards Organization, 2015. ISO 18004:2015, "Information technology — Automatic identification and data capture techniques — QR Code bar code symbology specification," adopted February 2015, in Section 1962.6(b)(3)(B)
- SAE International, 2017. SAE J1930, "Electrical/Electronic Systems, Diagnostic Terms, Definitions, Abbreviations, and Acronyms - Equivalent to ISO/TR 15031-2," as revised by SAE International in March 2017 (copyrighted), in Section 1969(f)(2)(K)1
- SAE International, 2014. SAE J2403, "Medium/Heavy-Duty E/E Systems Diagnosis Nomenclature," as revised by SAE International in February 2014 (copyrighted), in Section 1969(f)(2)(K)2
- SAE International, 2020. SAE J2534-2_202012, "Optional Pass-Thru Features," December 2020 (copyrighted), in Section 1969 (g)(3)(A)

- SAE International, 2022. SAE J2534-5_0404_202201, "Pass-Thru Interface – Alternate Platforms for API Version 04.04," January 2022 (copyrighted), in Section 1969 (g)(3)(A)
- SAE International, 2022. SAE J2534-2/9_0500_202201, "Pass-Thru Extended Features – Ethernet NDIS," January 2022 (copyrighted), in Section 1969 (g)(3)(A)
- SAE International, 2022. SAE J2534-5_0500_202201, "Pass-Thru Interface – Alternate Platforms for API Version 05.00," January 2022 (copyrighted) in Section 1969 (g)(3)(A)
- SAE International, 2022. SAE J2534-2/RE_0500_202201, "Pass-Thru Extended Feature – Resource Document," January 2022 (copyrighted) in Section 1969 (g)(3)(A)
- SAE International, 2022. SAE J2534-2/BA_0500_202201, "Pass-Thru Extended Feature – Base Document," January 2022 (copyrighted) in Section 1969 (g)(3)(A)
- "California 2015 through 2025 Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Year Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," of which the title has changed, dated August 25, 2022, re-incorporated by reference with a changed title in sections 1961.2, 1965, 2037, and 2038
- "California 2026 and Subsequent Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," dated August 25, 2022, in sections 1961.2, 1961.4, 1965, 2037, 2038, 2140, and 2903
- "California Evaporative Emission Standards and Test Procedures for 2001 through 2025 Model Year Passenger Cars, Light-Duty Trucks, Medium-Duty Vehicles, and Heavy-Duty Vehicles and 2001 and Subsequent Model Year Motorcycles," adopted August 1999, amended August 25, 2022, re-incorporated by reference with a changed title in section 1976
- "California Evaporative Emission Standards and Test Procedures for 2026 and Subsequent Model Year Passenger Cars, Light-Duty Trucks, Medium-Duty Vehicles, and Heavy-Duty Vehicles," dated August 25, 2022, in section 1976
- "California Refueling Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles," adopted August 1999, amended August 25, 2022, in Section 1978 to reflect new amended date
- "California Non-Methane Organic Gas Test Procedures for 2017 and Subsequent Model Year Vehicles," dated August 25, 2022, in Section 1961.4, and in Section 1961.2 to reflect new amended date
- "California Test Procedures for Evaluating Substitute Fuels and New Clean Fuels in 2015 and Subsequent Years," amended August 25, 2022, in Section 2137 to reflect new amended date
- "California Exhaust Emission Standards and Test Procedures for 2018 through 2025 Model Year Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car,

Light-Duty Truck and Medium-Duty Vehicle Classes," of which the title has changed, dated August 25, 2022, re-incorporated by reference with a changed title in sections 1961.2 and 1962.2

- "California Test Procedures for 2026 and Subsequent Model Year Zero-Emission Vehicles and Plug-In Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," dated August 25, 2022, incorporated by reference in section 1961.4, 1962.4, 1962.5, and 1962.7

The following documents are incorporated by reference in the "California 2015 through 2025 Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Year Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles":

- SAE International, 2017. SAE J1930, "Electrical/Electronic Systems, Diagnostic Terms, Definitions, Abbreviations, and Acronyms - Equivalent to ISO/TR 15031-2," as revised by SAE International in March 2017 (copyrighted)

The following documents are incorporated by reference in the "California 2026 and Subsequent Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles":

- ASTM Standard D975, 2021. "Standard Specification for Diesel Fuel," ASTM International, West Conshohocken, PA, 2010 (copyrighted)
- ASTM Standard D5769, 2010. "Standard Test Method for Determination of Benzene, Toluene, and Total Aromatics in Finished Gasoline by Gas Chromatography/Mass Spectrometry," ASTM International, West Conshohocken, PA, 2010 (copyrighted)
- SAE International, 2010. SAE J1711, "Recommended Practice for Measuring the Exhaust Emissions and Fuel Economy of Hybrid-Electric Vehicles, Including Plug-in Hybrid Vehicles," as revised by SAE International in June 2010 (copyrighted)
- SAE International, 2017. SAE J1930, "Electrical/Electronic Systems, Diagnostic Terms, Definitions, Abbreviations, and Acronyms - Equivalent to ISO/TR 15031-2," as revised by SAE International in March 2017 (copyrighted)
- SAE International, 2017. SAE J1979, "E/E Diagnostic Test Modes," as revised by SAE International in February 2017 (copyrighted)
- SAE International, 2020. SAE J2807 "Performance Requirements for Determining Tow-Vehicle Gross Combination Weight Rating and Trailer Weight Rating," as revised by SAE International in February 2020 (copyrighted)

The following documents are incorporated by reference in the "California Evaporative Emission Standards and Test Procedures for 2026 and Subsequent Model Year Passenger Cars, Light-Duty Trucks, Medium-Duty Vehicles, and Heavy-Duty Vehicles":

- "California 2026 and Subsequent Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," dated August 25, 2022

- "California Test Procedures for 2026 and Subsequent Model Year Zero-Emission Vehicles and Plug-In Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," dated August 25, 2022

The following documents are incorporated by reference in the "California Refueling Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles":

- "California 2026 and Subsequent Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," dated August 25, 2022
- "California Test Procedures for 2026 and Subsequent Model Year Zero-Emission Vehicles and Plug-In Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," dated August 25, 2022
- "California Evaporative Emission Standards and Test Procedures for 2026 and Subsequent Model Year Passenger Cars, Light-Duty Trucks, Medium-Duty Vehicles, and Heavy-Duty Vehicles," dated August 25, 2022

The following documents are incorporated by reference in the "California Non-Methane Organic Gas Test Procedures for 2017 and Subsequent Model Year Vehicles":

- "California 2026 and Subsequent Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," dated August 25, 2022

The following documents are incorporated by reference in the "California Test Procedures for Evaluating Substitute Fuels and New Clean Fuels in 2015 and Subsequent Years":

- "California 2026 and Subsequent Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," dated August 25, 2022

The following documents are incorporated by reference in the "California Test Procedures for 2026 and Subsequent Model Year Zero-Emission Vehicles and Plug-In Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes"

- "California 2026 and Subsequent Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," dated August 25, 2022
- "California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Year Motor Vehicles," amended August 25, 2022
- SAE International, 2021. SAE J1634, "Battery Electric Vehicle Energy Consumption and Range Test Procedure," April 2021 (copyrighted)
- SAE International, 2010. SAE J1711, "Recommended Practice for Measuring the Exhaust Emissions and Fuel Economy of Hybrid-Electric Vehicles, Including Plug-in Hybrid Vehicles," June 2010 (copyrighted)

- SAE International, 2014. SAE J2572, "Recommended Practice for Measuring Fuel Consumption and Range of Fuel Cell and Hybrid Fuel Cell Vehicles Fueled by Compressed Gaseous Hydrogen," October 2014 (copyrighted)

The following documents were incorporated by reference in the regulations and added to the record through the First 15-Day Notice:

- Idaho National Laboratory, 2015. INL/EXT-15-34184, "Battery Test Manual for Electric Vehicles," Revision 3, June 2015, in Section 1962.6 (b)(1)(B)
- SAE International, 2022. SAE J1979-3, "E/E Diagnostic Test Modes: Zero Emission Vehicle Propulsion Systems on UDS (ZEVonUDS)," published draft June 2022 (copyrighted), in Section 1962.5(c)
- SAE International, 2020. SAE J2534-2_202012, "Optional Pass-Thru Features," December 2020 (copyrighted), in Section 1969 (g)(3)(A)
- SAE International, 2022. SAE J2534-5_0404_202201, "Pass-Thru Interface – Alternate Platforms for API Version 04.04," January 2022 (copyrighted), in Section 1969 (g)(3)(A)
- SAE International, 2022. SAE J2534-2/9_0500_202201, "Pass-Thru Extended Features – Ethernet NDIS," January 2022 (copyrighted), in Section 1969 (g)(3)(A)
- SAE International, 2022. SAE J2534-5_0500_202201, "Pass-Thru Interface – Alternate Platforms for API Version 05.00," January 2022 (copyrighted) in Section 1969 (g)(3)(A)

The following documents were incorporated by reference in the regulations and added to the record through the Second 15-Day Notice:

- SAE International, 2022. SAE J2534-2/BA_0500_202201, "Pass-Thru Extended Feature – Base Document," January 2022 (copyrighted) in Section 1969 (g)(3)(A)
- SAE International, 2022. SAE J2534-2/RE_0500_202201, "Pass-Thru Extended Feature – Resource Document," January 2022 (copyrighted) in Section 1969 (g)(3)(A)

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. The incorporated documents were made available by CARB upon request during the rulemaking action and will continue to be available in the future; they are also available from college and public libraries, or may be purchased directly from the publishers.

IV. Summary of Comments and Agency Response

Written comments were received during the 45-day comment period in response to the June 9, 2022, public hearing notice, and written and oral comments were presented at the Board Hearing as well as during the first 15-day comment period. Written comments were also received during the second 15-day comment period as well as written and oral comments during the second Board hearing on August 25, 2022. Tables 1-7 list the organizations and individuals who commented during each comment period, followed by a code that indicates where it is responded to in the responses.

Table 1. Written Comments Received During the 45-Day Comment Period[12]

Commenter, Date	Affiliation	Commenter Code
Dutton, George (April 15, 2022)	[none submitted]	OP-1
Howard, Lisa (April 17, 2022)	[none submitted]	OP-2
Bullock, Mike (April 17, 2022)	Associate Member, County Democratic Part	OP-3
Shoquist, Eric (April 18, 2022)	[none submitted]	OP-4
Davies, Donna (April 21, 2022)	[none submitted]	OP-5
Hevel, Claudia (April 23, 2022)	[none submitted]	OP-6
Smith, Bob (April 26, 2022)	[none submitted]	OP-7
Stein, Ronald (April 26, 2022)	PTS Advance	OP-8
Stein, Ronald (April 26, 2022)	PTS Advance	OP-9
Rabinowitz, Noel (May 2, 2022)	[none submitted]	OP-10
Labey, Georgia (May 3, 2022)	[none submitted]	OP-11
Mejia, Marianna and Freddie (May 3, 2022)	[none submitted]	OP-12
Becker, Tom (May 8, 2022)	T. Becker Power Systems	OP-13
Ma, Kevin (May 10, 2022)	[none submitted]	OP-14
Morrall, Andrew (May 10, 2022)	[none submitted]	OP-15
Beerman, Robert (May 11, 2022)	[none submitted]	OP-16
Tournis, Monika (May 12, 2022)	[none submitted]	OP-17
Vanderspek, Anna (May 16, 2022)	Green Energy Consumers Alliance	OP-18
Fogarty, Matthew (May 19, 2022)	[none submitted]	OP-19
Kraus, Dalton (May 23, 2022)	[none submitted]	OP-20
Gordon, Mike (May 23, 2022)	[none submitted]	OP-21
Dwyer, Susan (May 23, 2022)	[none submitted]	OP-22
Webb, Kathryn (May 24, 2022)	350 Sacramento	OP-23
Bishop, Lorna (May 24, 2022)	[none submitted]	OP-24
Knight, Cindy (May 24, 2022)	[none submitted]	OP-25

[12] All entries are as provided by the commenters.

Commenter, Date	Affiliation	Commenter Code
Ibarra, Angel (May 25, 2022)	City of Brisbane	OP-26
Ellison, Jon (May 25, 2022)	[none submitted]	OP-27
Yeates, Thomas (May 25, 2022)	350.org	OP-28
Sohal, Santokh (May 25, 2022)	[none submitted]	OP-29
Marvin, Henry (May 25, 2022)	[none submitted]	OP-30
Holden, Jeff (May 25, 2022)	[none submitted]	OP-31
Post, Kenneth (May 25, 2022)	[none submitted]	OP-32
Faubion, Patrick (May 26, 2022)	[none submitted]	OP-33
Wiley, Bob (May 26, 2022)	[none submitted]	OP-34
Camphire, Greg (May 26, 2022)	[none submitted]	OP-35
Perlman, Jamie (May 26, 2022)	[none submitted]	OP-36
Gallagher, Michael (May 26, 2022)	[none submitted]	OP-37
Zaire, Dania (May 26, 2022)	[none submitted]	OP-38
Bergstrom, Joshua (May 26, 2022)	[none submitted]	OP-39
Link, David (May 26, 2022)	[none submitted]	OP-40
Ulring, Karen (May 26, 2022)	[none submitted]	OP-41
Gomez, Marcus (May 26, 2022)	Cal Hispanic Chamber of Commerce	OP-42
Muhle, Jens (May 26, 2022)	[none submitted]	OP-43
Nixon, Bonnie (May 26, 2022)	[none submitted]	OP-44
K., Saran (May 26, 2022)	[none submitted]	OP-45
Skvarla, Mikhael (May 26, 2022)	California Hydrogen Coalition, Linde, True Zero, Shell, Energy Independence Now, Air Liquide, Iwatani Corporation of America	OP-46
Robinson, Judy (May 26, 2022)	[none submitted]	OP-47
Cato, Mark (May 26, 2022)	[none submitted]	OP-48
Dorian, Peter (May 26, 2022)	[none submitted]	OP-49
Gopinathan, Narayan (May 26, 2022)	[none submitted]	OP-50
Melendez Martineau, Alexia (May 26, 2022)	Plug In America	OP-51
Bocchetti, Ralph (May 27, 2022)	[none submitted]	OP-52
Meredith, Andrew (May 27, 2022)	State Building Trades	OP-53
Bento, Anthony (May 27, 2022)	California New Car Dealers Association	OP-54
Fink, David (May 27, 2022)	Los Angeles Business Council	OP-55
Tunick, Lance (May 27, 2022)	ACC II SVM Group	OP-56
Kliesch, Jim (May 27, 2022)	American Honda Motor Co., Inc.	OP-57
Warren, Diane (May 27, 2022)	[none submitted]	OP-58
Lee, Bonnie (May 28, 2022)	[none submitted]	OP-59
Coyne, Alasdair (May 28, 2022)	[none submitted]	OP-60

Commenter, Date	Affiliation	Commenter Code
Geiser, Sharon (May 28, 2022)	Pass Democratic Club	OP-61
Allum, Richard (May 28, 2022)	[none submitted]	OP-62
Johnson, Louise (May 28, 2022)	[none submitted]	OP-63
Reynolds, Linda (May 28, 2022)	[none submitted]	OP-64
Graser-Lindsey, Elizabeth (May 28, 2022)	[none submitted]	OP-65
Becker, Thomas (May 29, 2022)	T. Becker Power Systems	OP-66
Angell, JL (May 30, 2022)	[none submitted]	OP-67
Jacques, Karen (May 30, 2022)	[none submitted]	OP-68
Whitney, Dawn (May 30, 2022)	Climate Coalition, Third Act, 350	OP-69
Missik, Leah (May 30, 2022)	Climate Solutions	OP-70
Fleck, Jack Lucero (May 30, 2022)	350 Bay Area	OP-71
Kessler, Estella (May 30, 2022)	Si Se Puede Central Valley	OP-72
Kessler, Doug (May 30, 2022)	Si Se Puede Central Valley Exec Dir	OP-73
Garcia, Michael (May 30, 2022)	Si Se Puede Central Valley	OP-74
Roe, Jeffrey (May 30, 2022)	Roe Oil Company, Inc.	OP-75
Nittler, Lynne (May 30, 2022)	[none submitted]	OP-76
Minggang, Zhao (May 31, 2022)	Government of China	OP-77
Mendelson, Joseph (May 31, 2022)	Tesla, Inc.	OP-78[13]
Mendelson, Joseph (May 31, 2022)	Tesla, Inc.	OP-79
Mendelson, Joseph (May 31, 2022)	Tesla, Inc.	OP-80
Mendelson, Joseph (May 31, 2022)	Tesla, Inc.	OP-81
Mendelson, Joseph (May 31, 2022)	Tesla, Inc.	OP-82
Khan, Ameen (May 31, 2022)	California Environmental Voters	OP-83
Barad, Daniel (May 31, 2022)	Sierra Club California	OP-84
Barad, Daniel (May 31, 2022)	Sierra Club California	OP-85
Blynn, Kelly (May 31, 2022)	Colorado Energy Office	OP-86
Lowe, Aaron (May 31, 2022)	Auto Care Association	OP-87
Lopez, Victor (May 31, 2022)	Central Valley Latino Mayors & Elected Officials Coalition	OP-88
Sachs, Sarah (May 31, 2022)	Businesses Support	OP-89

[13] Tesla incorporated by reference its comments to CARB on draft regulatory documents that preceded the proposed ACC II regulations. Tesla did not explain how any of the content of its previous comments relate to the proposed regulations or the process by which they were adopted. It is unclear how these materials are comments on the ACC II regulations. Because CARB would have to speculate it is not responding further.

Commenter, Date	Affiliation	Commenter Code
Melendez Martineau, Alexia (May 31, 2022)	Plug In America	OP-90
Braddy, Roger (May 31, 2022)	[none submitted]	OP-91
Yeager, Jackie (May 31, 2022)	Cummins Inc.	OP-92
Nassar, Josh (May 31, 2022)	International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (UAW)	OP-93
Anderson, Marisa (May 31, 2022)	Ford Motor Company	OP-94
Wuttke, Jeff, Stellantis (May 31, 2022)	Stellantis	OP-95
Tamborra, Nick (May 31, 2022)	Volkswagen Group of America, Inc.	OP-96
Smith, Steven (May 31, 2022)	Phillips 66	OP-97
Lutsey, Nic (May 31, 2022)	General Motors	OP-98
Harris, Kathy (May 31, 2022)	Natural Resources Defense Council (NRDC)	OP-99
Jaff, Dylan (May 31, 2022)	Consumer Reports	OP-100
Eichert, Benjamin (May 31, 2022)	Romero Institute	OP-101
Moller, David (May 31, 2022)	[none submitted]	OP-102
Mello, Brian (May 31, 2022)	Associated General Contractors (AGC) of California	OP-103
Haynie, Matt (May 31, 2022)	POET, LLC	OP-104
Korbatov, Anna Bella (May 31, 2022)	Fermata Energy	OP-105
Garcia, Noah (May 31, 2022)	Advanced Energy Economy	OP-106
Taylor, Dean (May 31, 2022)	Strong PHEV Coalition	OP-107
Jaff, Dylan (May 31, 2022)	Consumer Reports	OP-108
Miller, Paul (May 31, 2022)	NESCAUM	OP-109
Mendelson, Lindsey (May 31, 2022)	Chesapeake Climate Action Network & CCAN Action Fund, Maryland Sierra Club, Elders Climate Action Maryland, Policy Foundation of Maryland, Labor Network for Sustainability (LNS), Strong Future Maryland	OP-110
Martinez, Anthony (May 31, 2022)	City of Paramount	OP-111
Ethridge Chavarria, Sharon (May 31, 2022)	Dinuba Democratic Club	OP-112
Chavarria, Miranda (May 31, 2022)	[none submitted]	OP-113
O'Koniewski, Robert (May 31, 2022)	Massachusetts State Automobile Dealers Association	OP-114
Garcia, Kristine (May 31, 2022)	Si Se Puede Central Valley	OP-115

Commenter, Date	Affiliation	Commenter Code
Ruacho, Mariela (May 31, 2022)	American Lung Association	OP-116
Moorhead, Laurel (May 31, 2022)	Transfer Flow, Inc.	OP-117
Aruj, Alexander (May 31, 2022)	[none submitted]	OP-118
Lapsley, Robert (May 31, 2022)	California Business Roundtable	OP-119
Lilly, Amy (May 31, 2022)	Mercedes-Benz R&D North America	OP-120
Hernandez, Jennifer (May 31, 2022)	Holland & Knight LLP	OP-121
Hernandez, Jennifer (May 31, 2022)	Holland & Knight LLP	OP-122
Saragosa, Michael (May 31, 2022)	Vice Mayor- City of Placerville	OP-123
Somorai, Sarah (May 31, 2022)	Hyundai	OP-124
Green, Emily (May 31, 2022)	Conservation Law Foundation	OP-125
Chiacos, Michael (May 31, 2022)	Community Environmental Council	OP-126
Bultman, Zoe (May 31, 2022)	Rivian	OP-127
Cox, Janet (May 31, 2022)	350 Silicon Valley	OP-128
Poire, Patty (May 31, 2022)	Kern County Farm Bureau	OP-129
Wunder, Andy (May 31, 2022)	Environmental Entrepreneurs (E2)	OP-130
Weintraub, Coreen (May 31, 2022)	Union of Concerned Scientist	OP-131
Weintraub, Coreen (May 31, 2022)	Union of Concerned Scientist	OP-132
White, Linda (May 31, 2022)	BMW of North America	OP-133
Tutt, Eileen (May 31, 2022)	California Electric Transportation Coalition (CalETC)	OP-134
Wunder, Andy (May 31, 2022)	E2	OP-135
Fazeli, Bahram (May 31, 2022)	Communities for a Better Environment	OP-136
Bliley, Chris (May 31, 2022)	Growth Energy	OP-137
Dykema, Angela (May 31, 2022)	Nevada Clean Cars Coalition	OP-138
Boland, Catherine (May 31, 2022)	Motor & Equipment Manufacturers Association (MEMA)	OP-139
Stever Blattler, Tricia (May 31, 2022)	Tulare County Farm Bureau	OP-140
Bourbon, Elizabeth (May 31, 2022)	Valero	OP-141
Su, Andy (May 31, 2022)	Environmental Defense Fund	OP-142
Tighe, Julie (May 31, 2022)	New York League of Conservation Voters and Sierra Club Atlantic Chapter	OP-143
Aronin, Ruben (May 31, 2022)	CA Business Alliance for a Clean Economy	OP-144
(CFDC), Clean Fuels Developm, (May 31, 2022)	Clean Fuels Development Coalition (CFDC)	OP-145
Cunha, Jr., Manuel (May 31, 2022)	Nisei Farmers League	OP-146

Commenter, Date	Affiliation	Commenter Code
Aguilar, Josue (May 31, 2022)	NRDC	OP-147
Douglas, Steven (May 31, 2022)	Electric Vehicle Manufacturers	OP-148
Slowik, Pete (May 31, 2022)	International Council on Clean Transportation (ICCT)	OP-149
Lord, Michael (May 31, 2022)	Toyota Motor North America	OP-150
Wright, Sara (May 31, 2022)	350 Salem Oregon, Climate Solutions, Emerald Valley Electric Vehicle Association, Green Energy Institute, Lewis & Clark Law School, Metro Climate Action Team, NW Energy Coalition, Oregon Environmental Council, Oregon League of Conservation Voters, Sierra Club, Renew Oregon	OP-151
Koehler, Neil (May 31, 2022)	Renewable Fuels Association	OP-152
Thusu, Dr. Kuldip (May 31, 2022)	Dinuba City Council Member	OP-153
Witt, Daniel (May 31, 2022)	Lucid Group, Inc.	OP-154
Douglas, Steven (May 31, 2022)	Alliance for Automotive Innovation	OP-155
Fazeli, Bahram (May 31, 2022)	Communities for a Better Environment	OP-156
Truillo, John (May 31, 2022)	Selma City Council	OP-157
Pfeifle, Jason (May 31, 2022)	Center for Biological Diversity	OP-158
Wilson, Justin (May 31, 2022)	ChargePoint, Inc.	OP-159
Pfeifle, Jason (May 31, 2022)	Center for Biological Diversity	OP-160
Verburg, Jim (May 31, 2022)	Western States Petroleum Association (WSPA)	OP-161
Parra, Daniel (May 31, 2022)	Fowler City Council	OP-162
Guerra, Ruben (May 31, 2022)	Latin Business Association	OP-163
Allison, Tim (May 31, 2022)	[none submitted]	OP-164
Oliver, Elise (May 31, 2022)	California Apple Commission, California Blueberry Association, Olive Growers Council of California, California Blueberry Commission	OP-165
Oliver, Madeline (May 31, 2022)	Better World Group	OP-166
Burgess, Ed (May 31, 2022)	Vehicle Grid Integration Council	OP-167
Dillard, Joyce (May 31, 2022)	[none submitted]	OP-168
Hume, Suzanne (May 31, 2022)	CleanEarth4Kids.org	OP-169
Reichmuth, David (May 31, 2022)	Union of Concerned Scientist	OP-170
Heartquist, Christina (May 31, 2022)	Individuals through the Clean Cars Campaign website	OP-171
Reichmuth, David (May 31, 2022)	Union of Concerned Scientist	OP-172
Patterson, David (May 31, 2022)	CHAdeMO Association	OP-173

Commenter, Date	Affiliation	Commenter Code
Kalina, Brian (May 31, 2022)	[none submitted]	OP-174
O'Malley, Doug (May 31, 2022)	Environment New Jersey	OP-175
Thomas, Orville (June 1, 2022)	CALSTART	OP-176
Pearce, Jeannine (June 1, 2022)	Ventura County, District 5, City of Long Beach, Culver City, Daly City, City of Pinole, Los Angeles City Councilmember, Santa Clara City Councilmember, Glendale City Councilmember, Santa Monica City Councilmember, Long Beach City Councilmember, District 1, Long Beach City Councilmember, District 2, Long Beach City Councilmember District 7, City of Moonpark Councilmember, West Hollywood City Councilmeber, Long Beach Councilmember Emeritis, San Luis Obispo Mayor Emeritis, Fowler City Councilmember	OP-177
Barrett, William (June 1, 2022)	American Lung Association	OP-178
Parker, Richard (June 1, 2022)	Climate Group EV100	OP-179
Regan, Sylvia (June 2, 2022)	Center for Biological Diversity	OP-180
Signatories of Montclair Presbyterian Church (July 12, 2022)	Montclair Presbyterian Church	OP-181

Table 2. Oral Comment Presented at the First Board Hearing

Commenter, Date	Affiliation	Commenter Code
Perez-Martinez, Vicente (June 9, 2022)	No affiliation	T1-1
Issod, Andrea (June 9, 2022)	Sierra Club; herself	T1-2
Floyd, Kim (June 9, 2022)	Resident of Palm Desert, Riverside County, California	T1-3
Graham, Robert (June 9, 2022)	Strong Plug-in Hybrid Vehicle Coalition	T1-4
Allis Druffel (June 9, 2022)	California Interfaith Power and Light	T1-5
Barker, David (June 9, 2022)	North American Subaru	T1-6
Henderson, Steven (June 9, 2022)	Ford Motor Company	T1-7
Curley, Kevin (June 9, 2022)	Mazda North America	T1-8
Somorai, Sarah (June 9, 2022)	Hyundai Motor America	T1-9
Verburg, Jim (June 9, 2022)	WSPA	T1-10

Commenter, Date	Affiliation	Commenter Code
Gilger, Jenny (June 9, 2022)	American Honda Motor Company	T1-11
Wuttke, Jeff (June 9, 2022)	Stellantis	T1-12
Douglas, Steven (June 9, 2022)	Alliance for Automotive Innovation	T1-13
Lilly, Amy (June 9, 2022)	Mercedes-Benz Research and Development North America	T1-14
Cackette, Tom (June 9, 2022)	Environmental Defense Fund	T1-15
Brierley, Scott (June 9, 2022)	Fermata Energy	T1-16
Bento, Anthony (June 9, 2022)	California New Car Dealers Association	T1-17
Sharpe, Chip (June 9, 2022)	Resident of Northern California	T1-18
Brezny, Rasto (June 9, 2022)	Manufacturers of Emission Controls Association (MECA)	T1-19
Brown, Kevin (June 9, 2022)	MECA	T1-20
Potter, Greg (June 9, 2022)	Equipment and Tool Institute	T1-21
Mui, Simon (June 9, 2022)	NRDC	T1-22
Schulock, Chuck (June 9, 2022)	NRDC	T1-23
Magavern, Bill (June 9, 2022)	Coalition for Clean Air	T1-24
Oatey, Anne-Marie (June 9, 2022)	LA and Orange Co building trades, local unions, and district councils	T1-25
Barad, Daniel (June 9, 2022)	Sierra Club California	T1-26
Northrup, Jade (June 9, 2022)	Pixar Animation Studios; Extinction Rebellion	T1-27
Spooner, Craig (June 9, 2022)	Scientist Rebellion and Extinction Rebellion	T1-28
Rosetti, Leana (June 9, 2022)	Extinction Rebellion	T1-29
Kerridge, Kathy (June 9, 2022)	350 Bay Area Action	T1-30
McCabe, Emily (June 9, 2022)	Environment California	T1-31
Pesante, Lori (June 9, 2022)	Dolores Huerta Foundation	T1-32
Deehan, Laura (June 9, 2022)	Environment California	T1-33
Bricca, Tatanka (June 9, 2022)	Circle of 100	T1-34
Jaff, Dylan (June 9, 2022)	Consumer Reports	T1-35
Barrios, Kalysta (June 9, 2022)	Environment California	T1-36
Lord, Michael (June 9, 2022)	Toyota	T1-37
Khan, Ameen (June 9, 2022)	California Environmental Voters	T1-38
Van Heeke, Tom (June 9, 2022)	Rivian Automotive, LLC	T1-39
Marquez, Cristina (June 9, 2022)	IBEW569	T1-40
Fahy, James (June 9, 2022)	Mercedes-Benz North America	T1-41
Slowik, Peter (June 9, 2022)	ICCT	T1-42
Mendelson, Joseph (June 9, 2022)	Tesla, Inc.	T1-43
Patterson, Dave (June 9, 2022)	CHAdeMO Association for North America	T1-44

Commenter, Date	Affiliation	Commenter Code
Keller, Ben (June 9, 2022)	350 Bay Area Action	T1-45
Saadat, Sasan (June 9, 2022)	Earthjustice	T1-46
Loewenstein, Carol (June 9, 2022)	Circle of 100, Romero Institute, Let's Green California	T1-47
Ratto, Nick (June 9, 2022)	No affiliation	T1-48
Pearce, Jeannine (June 9, 2022)	Better World Group	T1-49
Aronin, Rubin (June 9, 2022)	California Business Alliance for a Clean Economy	T1-50
Harmon, Heidi (June 9, 2022)	Let's Green California	T1-51
Shain, Tony (June 9, 2022)	Extinction Rebellion	T1-52
Reichmuth, Dave (June 9, 2022)	Union of Concerned Scientists	T1-53
Alexander, Meredith (June 9, 2022)	EV100	T1-54
Koehler, Neil (June 9, 2022)	Renewable Fuels Assn.	T1-55
Moorhead, Laurel (June 9, 2022)	Transfer Flow Inc.	T1-56
Abernathy, Kevin (June 9, 2022)	Milk Producers Council	T1-57
Wait, Matt (June 9, 2022)	No affiliation	T1-58
Bergren, Kathy (June 9, 2022)	National Corn Growers Assn.	T1-59
Wilson, Justin (June 9, 2022)	ChargePoint	T1-60
Chiacos, Michael (June 9, 2022)	Community Environmental Council	T1-61
Partida-Lopez, Roman (June 9, 2022)	The Greenlining Institute	T1-62
Shears, John (June 9, 2022)	Center for Energy Efficiency and Renewable Technologies	T1-63
Becker, Thomas (June 9, 2022)	No affiliation	T1-64
Velez, Enrique (June 9, 2022)	Latin Business Association	T1-65
Cao, Andrea (June 9, 2022)	California Asian Pacific Chamber of Commerce	T1-66
Consiglier, Jo Ann (June 9, 2022)	SB 1230, greencal.org, Romero Institute, Circle of 100	T1-67
Tutt, Eileen (June 9, 2022)	CalETC	T1-68
Shumway, Megan (June 9, 2022)	No affiliation	T1-69
Hochberg, Scott (June 9, 2022)	Center for Biological Diversity	T1-70
Yip, Emma (June 9, 2022)	Center for Biological Diversity	T1-71
Hoffman, John (June 9, 2022)	No affiliation	T1-72
Cooke, Teresa (June 9, 2022)	California Hydrogen Coalition	T1-73
McFadden, James (June 9, 2022)	letsgreencal.org, Romero Institute	T1-74
Beer, Julie (June 9, 2022)	Citizen of Palo Alto, California	T1-75
Raucho, Mariela (June 9, 2022)	American Lung Association	T1-76
Barrett, Will (June 9, 2022)	American Lung Association	T1-77
Kennedy, Jim (June 9, 2022)	Health Air Alliance	T1-78

Commenter, Date	Affiliation	Commenter Code
Fleck, Jack Lucero (June 9, 2022)	350 Bay Area	T1-79
McClure, Ellen (June 9, 2022)	350 Bay Area	T1-80
Gomez, Marcus (June 9, 2022)	California Clothing Recyclers	T1-81
Villegas, Tony (June 9, 2022)	Resident of Fresno, California	T1-82
Ayala, Sal (June 9, 2022)	California Hispanic Chamber of Commerce	T1-83
Stephanie (June 9, 2022)	Together We Will, Indivisible Los Gatos, Orchard City Indivisible	T1-84
Hamilton, Kevin (June 9, 2022)	Central California Asthma Collaborative, San Joaquin Valley Environmental Justice Collaborative, San Joaquin Valley Clean Vehicle Empowerment Collaborative	T1-85
Romera, Erika (June 9, 2022)	Valley Clean Air Now	T1-86
Ortega, Samantha (June 9, 2022)	Chargerhelp!	T1-87
Yuhnke, Bob (June 9, 2022)	Elders Climate Action	T1-88
Hagiwara, Stephanie (June 9, 2022)	Private citizen	T1-89
Dow, Jamison (June 9, 2022)	Private citizen	T1-90
Bliley, Chris (June 9, 2022)	Growth Energy	T1-91
Chavarria, Sherry (June 9, 2022)	Dinuba Democratic Club, Si Se Puede	T1-92
Solorzano, Carlos (June 9, 2022)	Hispanic Chamber of Commerce for San Francisco, Northern Region of California Hispanic Chambers	T1-93
Williams, Mike (June 9, 2022)	International Warehouse Logistics Association	T1-94
Canete, Julian (June 9, 2022)	California Hispanic Chambers of Commerce	T1-95
Duarte, Silvia (June 9, 2022)	No affiliation	T1-96
Maravillo, Emily (June 9, 2022)	Resident of Salinas, California	T1-97
Garcia, Ysidro (June 9, 2022)	Latin Business Association	T1-98
Kessler, Doug (June 9, 2022)	Si Se Puede Central Valley	T1-99
Relles, Jim (June 9, 2022)	Sacramento small business owner	T1-100
Partida, Joe (June 9, 2022)	Oakland Latino Chamber of Commerce	T1-101
Marvillo, Timothy (June 9, 2022)	Resident of Salinas, California	T1-102
Kessler, Estella (June 9, 2022)	Resident of Selma, California	T1-103
Torres, Magali (June 9, 2022)	Merced County Hispanics Chambers of Commerce	T1-104
Conway, Elaine (June 9, 2022)	Resident of Dinuba, California	T1-105
Gonzalez, Jess (June 9, 2022)	Si Se Puede of Fresno	T1-106
Little, Katie (June 9, 2022)	California Farm Bureau	T1-107

Table 3: Written Comment Presented at the First Board Hearing[14]

Commenter, Date	Affiliation	Commenter Code
Brown, Kevin (June 9, 2022)	Manufacturers of Emission Controls Association	B1-1
Curley, Kevin (June 9, 2022)	Mazda	B1-2
Shears, John (June 9, 2022)	The Center for Energy Efficiency and Renewable Technologies (CEERT)	B1-3
Shears, John (June 9, 2022)	CEERT	B1-4
Wuttke, Jeff (June 9, 2022)	Stellantis	B1-5
Mui, Simon (June 9, 2022)	Natural Resources Defense Council (NRDC)	B1-6
Hsu, Regina (June 9, 2022)	Earthjustice	B1-7
Mui, Simon (June 9, 2022)	NRDC	B1-8
Hargitt, Dana (June 9, 2022)	American Haval Motor Technology	B1-9
Van Heeke, Tom (June 9, 2022)	Rivian	B1-10
Bergren, Kathy (June 9, 2022)	The National Corn Growers Association (NCGA)	B1-11
Patterson, David (June 9, 2022)	CHAdeMO Association	B1-12
Yuhnke, Bob (June 9, 2022)	Elders Climate Action	B1-13
Gomez, Marcus (June 9, 2022)	California Clothing	B1-14
Leslie, Mary (June 9, 2022)	Los Angeles Business Council (LABC)	B1-15
Cunha, Jr., Manuel (June 9, 2022)	Nisei Farmers League	B1-16
Scott, Jr., Will (June 9, 2022)	African American Farmers of California	B1-17
Rowe, Shirley (June 9, 2022)	African American Farmers of California	B1-18
Sander, Steven (June 9, 2022)	[none submitted]	B1-19
Barker, David (June 9, 2022)	North American Subaru	B1-20
Sharpe, Chip (June 9, 2022)	[none submitted]	B1-21
Shears, John (June 9, 2022)	CEERT	B1-22
Casler, Angela (June 9, 2022)	Sustainability Management Association	B1-23
Cunha, Jr., Manuel (June 9, 2022)	Nisei Farmers League	B1-24
Deeham, Laura (June 9, 2022)	Environment California	B1-25
Berland, Laura (June 9, 2022)	E2	B1-26
Scott, Will (June 9, 2022)	African American Farmers of California	B1-27
Rowe, Shirley (June 9, 2022)	African American Farmers of California	B1-28

[14] All entries are as provided by the commenters.

Commenter, Date	Affiliation	Commenter Code
Lord, Michael (June 9, 2022)	American Honda Motor Co., Hyundai Motor America, Toyota Motor North America	B1-29
Brown, Stephanie (June 9, 2022)	Orchard City Indivisible and Together We Will Indivisible Los Gatos	B1-30
Bode, Richard (June 9, 2022)	Davis Electric Vehicle Association	B1-31
Zang-Rosetti, Leana (June 9, 2022)	Extinction Rebellion SF Bay	B1-32
Hamilton, Kevin (June 9, 2022)	Central California Asthma Collaborative	B1-33
Marpillero Colomina, Andrea (June 9, 2022)	GreenLatinos	B1-34
Lilly, Amy (June 9, 2022)	Mercedes-Benz	B1-35
Fahy, James (June 9, 2022)	Mercedes-Benz	B1-36
Dow, Jamie (June 9, 2022)	[none submitted]	B1-37
Newman, Thomas (June 9, 2022)	[none submitted]	B1-38
Hall, Guy (June 9, 2022)	Electric Auto Association	B1-39
Peichel, Ellie (June 9, 2022)	Plug in America	B1-40
Peichel, Ellie (June 9, 2022)	Plug in America	B1-41
Ortega, Samantha (June 9, 2022)	ChargerHelp	B1-42

Table 4. Written Comment Received During the First 15-Day Comment Period[15]

Commenter, Date	Affiliation	Commenter Code
Dow, Jamie (July 12, 222)	[none submitted]	15-1
Johnson, Kenneth (July 13, 2022)	[none submitted]	15-2
Ko, Kwan Kok (July 14, 2022)	[none submitted]	15-3
Kharidia, Gail (July 18, 2022)	Elders for Climate Action	15-4
Treydte, Peter (July 21, 2022)	Specialty Equipment Market Association	15-5
Bauhaus, Mark (July 21, 2022)	Voter, Taxpayer, Resident, Business Executive	15-6
Wait, John (July 21, 2022)	[none submitted]	15-7
Mendelson, Joseph (July 26, 2022)	Tesla, Inc.	15-8
Markley, Stephen (July 26, 2022)	[none submitted]	15-9
Bui, Anh (July 27, 2022)	The ICCT	15-10
Ball, Betty (July 27, 2022)	[none submitted]	15-11
Miller, Paul (July 27, 2022)	NESCAUM	15-12
Kobernick, Phillip (July 27, 2022)	Peninsula Clean Energy	15-13

[15] All entries are as provided by the commenters.

Commenter, Date	Affiliation	Commenter Code
Brown, Kevin (July 27, 2022)	Manufacturers of Emission Controls Association	15-14
Woodard, Tracy (July 28, 2022)	Nissan	15-15
Sachs, Sarah (July 28, 2022)	Signatories from major businesses, institutions, healthcare systems, employers, and investors	15-16
Lilly, Amy (July 28, 2022)	Mercedes-Benz R&D North America	15-17
Van Heeke, Tom (July 28, 2022)	Rivian Automotive, LLC	15-18
Garcia, Noah (July 28, 2022)	Advanced Energy Economy	15-19
Harris, Kathy (July 28, 2022)	Natural Resources Defense Council	15-20
Jaff, Dylan (July 28, 2022)	Consumer Reports	15-21
Lord, Michael (July 28, 2022)	Toyota	15-22
Enstrom, James (July 28, 2022)	Retired UCLA Research Professor (Epidemiology) President of Scientific Integrity Institute	15-23[16]
Douglas, Steven (July 28, 2022)	Alliance for Automotive Innovation	15-24
Oliver, Madeline (July 28, 2022)	Better World Group	15-25
Wilson, Justin (July 28, 2022)	ChargePoint, Inc.	15-26
Tutt, Eileen (July 28, 2022)	California Electric Transportation Coalition	15-27
Reichmuth, David (July 28, 2022)	Union of Concerned Scientists	15-28
Watts, Mark (July 28, 2022)	Transportation California	15-29
Henderson, Steve (July 28, 2022)	Ford Motor Co.	15-30
Sinnamon, Hilary (July 28, 2022)	Environmental Defense Fund	15-31
Saadat, Sasan (July 28, 2022)	Earthjustice	15-32
Sykes, Adam (July 28, 2022)	BMW of North America	15-33
Gregerson, Gary (July 18, 2022)	[none submitted]	15-34

[16] CARB has considered the documents submitted with comment 15-23 and found that the evidence before it supported adopting the ACC II regulations. CARB is not obligated to divine the comments that are being provided on the proposed regulations or the process by which they were adopted that are premised on the submitted documents or their relevance to the comment opposing the ACC II regulations.

Table 5. Written Comment Received During the Second 15-Day Comment Period[17]

Commenter, Date	Affiliation	Commenter Code
Dow, Jamie (August 8, 222)	[none submitted]	15b-1
Hernandez, Jennifer (August 16, 2022)	The Two Hundred for Homeownership	15b-2[18]
Becker, Thomas, T. (August 20, 2022)	Becker Power Systems	15b-3
Peterson, Doug (August 20, 2022)	Pro-ZEV Journalist	15b-4
Cunha, Jr., Manuel (August 23, 2022)	Nisei Farmers League	15b-5
Scott, Jr., Will (August 23, 2022)	African American Farmers of California	15b-6
Rowe, Shirley (August 23, 2022)	African American Farmers of California	15b-7
Aronin, Ruben (August 23, 2022)	California Clean Cars Coalition	15b-8

Table 6. Oral Comment Presented at the Second Board Hearing

Commenter, Date	Affiliation	Commenter Code
DeRivi, Tanya (August 25, 2022)	WSPA	T2-1
Olivares, Ector (August 25, 2022)	Catholic Charities Diocese of Stockton	T2-2
Saragosa, Michael (August 25, 2022)	Latin Business Association	T2-3
Raj, Tanisha (August 25, 2022)	[none submitted]	T2-4
Kay, Heather (August 25, 2022)	Si Se Puede	T2-5
Cackette, Tom (August 25, 2022)	Environmental Defense Fund	T2-6
Douglas, Steve (August 25, 2022)	Alliance for Automotive Innovation	T2-7
Lilly, Amy (August 25, 2022)	Mercedes-Benz Research and Development North America	T2-8
Barad, Daniel (August 25, 2022)	Sierra Club California	T2-9
Holmes, Laurie (August 25, 2022)	Kia Corporation	T2-10

[17] All entries are as provided by the commenters.

[18] The Two Hundred for Homeownership incorporated by reference its comments to CARB on the Draft 2022 Scoping Plan. The Two Hundred for Homeownership did not explain how the content of its previous comments relate to the proposed regulations or the process by which they were adopted. It is unclear how these materials are comments on the ACC II regulations. Because CARB would have to speculate it is not responding further. Additionally, these comments were received during the comment period related to additional documents or incorporated documents added to the record, none of which pertain to the Draft 2022 Scoping Plan and therefore these comments are outside the scope of the comment period.

Commenter, Date	Affiliation	Commenter Code
Gomez, Marcus (August 25, 2022)	California Hispanic Chamber of Commerce	T2-11
Mendelson, Joseph (August 25, 2022)	Tesla	T2-12
Druffel, Alice (August 25, 2022)	California Interfaith Power and Light	T2-13
Lopez, Bianca (August 25, 2022)	Valley Improvement Projects	T2-14
Apodaca, Robert (August 25, 2022)	The Two Hundred for Homeownership	T2-15
Corina with Sarahy Morales (August 25, 2022)	Madera Coalition for Community Justice	T2-16
Gonzalez, Yanni (August 25, 2022)	Central California Asthma Collaborative/Clean Vehicle Empowerment Collaborative	T2-17
Nguyen, Christine (August 25, 2022)	American Lung Association	T2-18
Jaff, Dylan (August 25, 2022)	Consumer Reports	T2-19
Magavern, Bill (August 25, 2022)	Coalition for Clean Air	T2-20
Thomas, Orville (August 25, 2022)	CALSTART	T2-21
Gonzalez, Gema (August 25, 2022)	California Hispanic Chambers of Commerce and Foundation	T2-22
Pearce, Jeannine (August 25, 2022)	[none submitted]	T2-23
Aronin, Ruben (August 25, 2022)	Better World Group at the California Business Alliance for a Clean Economy	T2-24
Renger, Laura (August 25, 2022)	CalETC	T2-25
Reichmuth, David (August 25, 2022)	Union of Concerned Scientists	T2-26
Harris, Kathy (August 25, 2022)	Natural Resources Defense Council	T2-27
Mui, Simon (August 25, 2022)	Natural Resources Defense Council	T2-28
Kabateck, John (August 25, 2022)	National Federation of Independent Business	T2-29
Williams, Mike (August 25, 2022)	International Warehouse Logistics Assn.	T2-30
Hamilton, Kevin (August 25, 2022)	Central California Asthma Collaborative	T2-31
Somorai, Sarah (August 25, 2022)	Hyundai Motor America	T2-32
Wilson, Justin (August 25, 2022)	ChargePoint	T2-33
Wuttke, Jeff (August 25, 2022)	Stellantis	T2-34
Shears, John (August 25, 2022)	Center for Energy Efficiency and Renewable Technologies	T2-35
Hsu, Regina (August 25, 2022)	Earthjustice	T2-36

Commenter, Date	Affiliation	Commenter Code
Henderson, Steve (August 25, 2022)	Ford Motor Company	T2-37
Leon, Manny (August 25, 2022)	California Alliance for Jobs	T2-38
Bradley, Thomas (August 25, 2022)	Strong Plug-In Hybrid Electric Vehicle Coalition	T2-39
Hunt, Jeremy (August 25, 2022)	Northeast States for Coordinated Air Use Management (NESCAUM)	T2-40
Van Heeke, Tom (August 25, 2022)	Rivian Automotive	T2-41
Brierley, Scott (August 25, 2022)	Fermata Energy	T2-42
Marquez, Christina (August 25, 2022)	IBEW 569	T2-43
Rodriguez, Reyna (August 25, 2022)	Central California Environmental Justice Network	T2-44
Patterson, David (August 25, 2022)	CHAdeMO North America	T2-45
Treydte, Peter (August 25, 2022)	Specialty Equipment Market Association (SEMA)	T2-46
Partida-Lopez, Roman (August 25, 2022)	The Greenlining Institute	T2-47
Brezny, Rasto (August 25, 2022)	MECA	T2-48
Krazan, Tom (August 25, 2022)	Californians for Affordable Drinking Water in Rural Areas (CADWRA)	T2-49
Dow, Jameson (August 25, 2022)	California resident	T2-50
Fernandes, Hayley (August 25, 2022)	California Farm Bureau	T2-51
Yuhnke, Bob (August 25, 2022)	Elders Climate Action	T2-52
Wade, John (August 25, 2022)	[none submitted]	T2-53
Moorhead, Laurel (August 25, 2022)	Transfer Flow, Incorporated	T2-54
Becker, Tom (August 25, 2022)	[none submitted]	T2-55
Valentine, Kiana (August 25, 2022)	Transportation California Today	T2-56
Murphy, Jeanna (August 25, 2022)	[none submitted]	T2-57

Table 7. Written Comment Presented at the Second Board Hearing[19]

Commenter, Date	Affiliation	Commenter Code
Tilley, Matthew (August 25, 2022)	[none submitted]	B2-1

[19] All entries are as provided by the commenters.

Commenter, Date	Affiliation	Commenter Code
Lee, Tommy (August 25, 2022)	[none submitted]	B2-2
Patterson, David (August 25, 2022)	CHAdeMO Association	B2-3
Bradley, Thomas (August 25, 2022)	Colorado State University	B2-4
McFarland , Christina (August 25, 2022)	[none submitted]	B2-5
Lilly, Amy (August 25, 2022)	Mercedes-Benz R&D North America	B2-6
Vogelsang, Roman (August 25, 2022)	obo ChargePoint Inc.	B2-7
Lupo, Gary (August 25, 2022)	[none submitted]	B2-8
Patterson, David (August 25, 2022)	CHAdeMO Association	B2-9
Becker, William (August 25, 2022)	[none submitted]	B2-10
Korbatov, Anna Bella (August 25, 2022)	Fermata Energy	B2-11

CARB has summarized and responded to the written and oral comments on the ACC II regulations and the process by which they were adopted. These comment summaries and responses are contained in multiple appendices to the FSOR, sorted by subject matter listed below.

The following notes about the comments and responses will help with understanding how the comments are structured and labeled:

- Each comment has a unique code, as identified in the tables above. Each code indicates the comment period or context of the submission, followed by a unique number for each comment submitted within that comment period or context. For example, comment "OP-1" indicates a comment received during the original (45-day) comment period ("OP" standing for "original period"), and 1 is the unique number identifying the specific comment. Certain lengthy or complex comments have been given additional code information identifying sections of the comment. For example, comment OP-155-1 would indicate a comment received during the original (45-day) comment period, unique comment identifier 155, and the first substantive portion of the comment. These additional sub-comment codes are shown in the copies of the comments included in the rulemaking file.
- Comments are grouped thematically by section and subsection. Repetitive comments are listed under the same comment number and responded to holistically. Each individual comment excerpt is preceded by "Comment:" and followed by its comment identification code, allowing readers to distinguish among repetitive individual comment excerpts that are bundled under the same comment number.
- Comments are excerpted verbatim unless otherwise noted. In some instances, comment excerpts are preceded by the statement, "Commenter says," with the comment excerpt

in quotation marks. In other instances, the verbatim excerpt is presented without any preface or quotation marks. Comments that have been summarized, rather than quoted, are indicated by a preface such as "Commenter says that . . ." and are not followed by quotation marks.
- In verbatim comment excerpts, CARB has not corrected or noted errors in the original (for example, by adding "[sic]"). Comment excerpts' formatting may differ from the formatting of the original comment.
- Footnotes in comments generally have been omitted, though the footnote numbers may remain in the text of the comment excerpt.
- In general, CARB has noted where it made changes in response to the comment. Where it is not noted, no changes were made in response to the comment.

The summary of comments and agency responses are provided in the following Appendices:

- Appendix A – Overall ACC II Regulations, including comments related to the program in general, economic impacts, emissions impacts, and legal authority
- Appendix B – Low-Emission Vehicle Regulation, including comments related to the light-duty vehicle exhaust emission standards, medium-duty exhaust emission standards, evaporative emission standards, and test procedures
- Appendix C – Zero Emission Vehicle Regulation, including comments related to the program stringency, environmental justice values, program structure and flexibilities, Section 177 states, plug-in hybrid electric vehicle requirements, and test procedures
- Appendix D – ZEV Assurance Measures, including comments related to vehicle durability requirements and enforcement, warranty requirements and enforcement, minimum ZEV range, data standardization, service information, battery labeling, and charging requirements
- Appendix E – Comments outside the scope of this rulemaking, including comments related to complementary policies, Resolution language, and other CARB proceedings

Appendices F and G do not contain responses to comments but provide additional information. Appendix F contains updates to the emissions and economic impact analyses to reflect the costs and benefits of the adopted regulation reflecting the modifications included in 15-day changes. Appendix G supplements the ISOR with additional explanation of the purpose and rationale of certain elements of the adopted regulations that were proposed in the 45-day package.

V. Peer Review

Health and Safety Code section 57004 sets forth requirements for peer review of identified portions of rulemakings adopted by entities within the California Environmental Protection Agency, including CARB. Specifically, CARB must submit the scientific portions of any regulation it proposes, along with a statement of the scientific findings, conclusions, and assumptions on which the scientific portions of the proposed rule are based and the supporting scientific data, studies, and other appropriate materials, to external scientific peer review.

ACC II is not based on new scientific principles or bases under the statutes. ACC II is premised on established science and the application of technological principles. It is not premised on new scientific principles or research and is therefore not subject to the requirements for peer review under section 57004 of the Health and Safety Code. Specifically, for vehicles powered by internal combustion engines, this rulemaking primarily establishes exhaust and evaporative emission standards for various categories of internal combustion engines and the vehicles they power. The technological factors CARB considered in proposing and adopting such standards constitute engineering principles and their application and are premised on well-established science. For instance, the factors affecting the specification of the emission standards include which technologies can be developed and implemented on affected engines and their liquid fuel systems within the proposed time frames, how those technologies can be customized to control emissions during various dynamic operating conditions, how effective those technologies are in reducing emissions of affected engines in relation to existing emission control systems and components, and estimating the relative sizes, weights, costs, and maintenance requirements associated with each anticipated compliance technology.

This rulemaking also imposes requirements for increasing percentages of sales of zero-emission vehicles and related performance-based metrics to ensure those vehicles effectively displace conventional vehicles and thus permanently reduce vehicle emissions. The technological factors CARB considered in adopting such standards also entirely relate to engineering matters. For instance, they concern the charge characteristics, durability, and weight of batteries, fuel-cell systems, and related componentry of zero-emission vehicles.

The technological factors CARB considered for these regulations are all aspects of engineering design. They reflect the application of established scientific and engineering principles to develop appropriate and feasible emission control standards and related requirements and performing engineering evaluations of technical feasibility and costs. They did not involve analysis of new scientific findings or the development of new scientific theories.

Moreover, the scientific studies and assessments used to analyze the potential health and environmental impacts of these regulations, such as the findings that engine emissions are air contaminants and that greenhouse gases contribute to climate change, were developed previously and subjected to peer review.

Subjecting CARB's application of engineering principles in developing the regulations would result in repetitious review of established science. As the California Environmental Protection Agency has concluded in its guidance for conducting peer review and determining when review is required, rules that rely on established science that is used in substantially the same context or manner as when it was previously subject to peer review, including rules that rely on technical, economic, or technological issues, such as pollution control standards and manufacturing requirements for vehicle emission standards including these, are not subject to review under Health and Safety Code section 57004. (California Environmental Protection Agency, *CalEPA External Scientific Peer Review Program, Guidance for Staff of CalEPA Organizations* (June 2022), page 8.)

Further, requirements related to the emission standards and zero-emission vehicle production and sales requirements that ensure and enable monitoring of compliance, which pertain to aspects such as testing, recordkeeping, reporting, and warranties, do not establish "a regulatory level, standard, or other requirement for the protection of public health or the environment." As such, they also lack a "scientific basis" or "scientific portion" that forms the foundation of a regulatory standard or level within the scope of the statute. They are thus also not subject to peer review under Health and Safety Code section 57004.