Attachment I-1

Descriptions of the proposed changes to the regulations and the reasons for making them.

This discussion 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.

Proposed Modifications to Section 1962.5, Data Standardization Requirements for 2026 and Subsequent Model Year Light-Duty Zero Emission Vehicles and Plug-in Hybrid Electric Vehicles

1. Subsection (a)(2). Staff is proposing to expand the provisions plug-in hybrid electric vehicles (PHEVs) must meet in this section 1962.5 to include the accuracy of the battery state of health parameter and the calculation of such a parameter. Like zero-emission vehicles (ZEVs), PHEVs have a battery for propulsion, and, as with ZEVs and further explained in Appendix F-7 to the Initial Statement of Reasons (ISOR) (pp. 17-20), the ability to report an accurate battery state of health parameter that is readable by consumers, repair technicians, and the California Air Resources Board (CARB) is a necessary requirement to ensure compliance with the proposed standards for battery warranty (title 13, California Code of Regulations (CCR) section 1962.8) and overcome barriers to consumer acceptance necessary to achieve the intended emission reductions. This reported parameter will be relied on by consumers to verify if their battery has degraded to the point of qualifying for a warranty replacement, by used car buyers and sellers to properly account for the state of battery degradation in the valuation of the car, and by repair technicians when diagnosing vehicles. An accurate parameter is also necessary for CARB to mediate in warranty disputes between consumers and the vehicle manufacturer's warranty stations or in evaluating manufacturers' compliance with reporting of warranty rates to CARB through section 1962.8.

2. Subsection (a)(3). Staff is proposing to define what shall be submitted in a manufacturer's phase-in plan. The data that staff is proposing to require (planned ZEV and applicable PHEV models, projected sales for each model, designation of which models will be complying with the applicable requirements) are necessary to verify the manufacturer's calculation of its phase-in percentages to ensure the manufacturer is complying with the phase-in requirements.

3. Subsection (b). Staff is proposing changes to align the definition for "propulsion-related part" with other sections proposed in this rulemaking (title 13, CCR sections 1962.8 and 1969). Staff is proposing to change the definition for "propulsion-related part" to expand and make clear the types of components

that are covered by this provision in response to stakeholder comments. Staff is proposing to amend the definition of "propulsion-related part" to make explicit that the term applies only to a system, component, or part that is integral to any of the listed processes, such that its failure directly impedes the process, rather than a part with tangential, non-integral interaction with a listed system. Staff is also proposing to make explicit the breadth of the terms "propel the vehicle" and "the power electronics, electronic control units, and thermal management systems" of the included components and systems. Additionally, staff included language that advanced driver assistance systems and safety-related components are not considered "propulsion-related parts", as these fall outside of the intent of covering parts whose failure would hinder the propulsion of the vehicle. These amendments are necessary to clarify the scope of the definition and the applicability of this section's requirements pertaining to propulsion-related parts.

4. Subsection (c)(1)(B). Staff is proposing to update the version of SAE J1979-3 that is incorporated by reference to the most recent version available. This change is necessary as an updated version became available following the publication of the 45-day notice version of this proposed section. Staff have been working with SAE committee members to ensure the J1979-3 specification is consistent and appropriate for the proposed regulatory provisions requiring adherence to it and as a result, several sections within the specification were amended or clarified in the updated draft.

5. Subsection (c)(3). Staff is proposing to add language to clarify that the standardized protocol to be used for communication of the added data parameters required for PHEVs in section 1962.5 shall be the standardized protocol required to be used by PHEVs to communicate the data parameters in section 1968.2, title 13, CCR. This is necessary to reduce regulatory burden. PHEVs are already subject to section 1968.2; requiring them to comply with a different standardized protocol for communication on just a subset of data parameters would undermine the intent of standardized data by requiring two different protocols to access different subsets of data. The proposed language is necessary to avoid these unintended consequences.

6. Subsection (c)(4)(A)2.a. Staff is proposing to add a data parameter, reserve battery energy, to be stored and made available on demand via the data link connector on every off-board charge capable vehicle where the manufacturer has implemented a design strategy to initially hold back some battery capacity in reserve. In such a design, the manufacturer will gradually open up access to this reserve capacity in an attempt to reduce or slow the amount of battery degradation observable to the vehicle owner. This additional parameter indicates the quantity of battery energy still being held in reserve by the manufacturer and not yet made available by the control system to the vehicle user. Reporting of this parameter is necessary to allow CARB (or other parties) to determine what type of testing is needed to determine the total amount of usable energy measured during official testing to verify compliance with the

battery state of health (SOH) accuracy requirements or the vehicle durability requirements. If this data parameter confirms no battery energy is held in reserve, testing can be done without restriction; if some reserve energy still exists, official testing will require testing the vehicle in a unique manner with software created by the manufacturer to temporarily enable usage of the reserve energy. This, like the other reporting under the proposed regulations, is necessary for the health, safety, and welfare of the people of the state because it helps ensure and allows verification of compliance with the emission standards.

7. Subsection (c)(4)(A)3. Staff is proposing to modify the language regarding reporting of fuel cell system current, voltage, and energy. The original language indicated these parameters needed to be "measured at the output" while the modified language clarifies that they need to "represent" these values at the output. This language is necessary to reduce the burden on vehicle manufacturers by more closely aligning with the capability of existing systems that already use existing sensors at various points in the fuel cell system to enable calculation of the current, voltage, and resultant calculated energy at the output of the system rather than direct measurement of those parameters in all cases. Absent this language change, manufacturers could incur increased costs and development burdens to equip their vehicles with additional sensors in order to directly measure the required parameters in the specified location.

8. Subsection (c)(4)(A)4.c. Staff is proposing to modify how the battery SOH accuracy requirement is expressed to ensure a consistent interpretation and avoid confusion associated with applying an accuracy specification in terms of percent to a parameter that is also a percentage. The new language is necessary to ensure there is sufficient clarity such that manufacturers design to the correct accuracy specification and to allow CARB to verify manufacturers comply with the requirement in a consistent manner. Specifically, the new language better explains that the required accuracy of the reported SOH is for it to be within 5 percentage points of the actual SOH (e.g., no higher than 75 percent reported SOH when actual SOH is 70 percent) rather than within 5 percent of actual value (e.g., no higher than 73.5 percent reported SOH when actual SOH is 70 percent). This change is also necessary to add clarity by better aligning the terminology in this section defining the requirement with the terminology in section 1962.7(e)(5)(B) that addresses compliance testing by CARB to verify this accuracy.

9. Subsection (c)(4)(A)4.d. Staff is proposing to specify the number of days manufacturers have to respond to the Executive Officer's request for means to conduct testing to verify the accuracy of the SOH parameter. A 10-day period for OEMs to provide a means of testing upon Executive Officer request is necessary and reasonable to balance the OEM's need for time to prepare and transmit the means (potentially including international shipping of physical items) with CARB's need for expeditious verification testing when the Executive Officer identifies a need to verify the reported SOH information. When conducting such testing, many levels of coordinated steps are involved including identifying potential

eligible vehicles, screening such vehicles, and procuring such vehicles temporarily from their owners to perform testing at CARB's laboratory. From past experience with testing privately-owned vehicles, vehicle owners are generally reluctant to allow CARB to retain their car for more than 1 to 2 weeks for testing, enabling a fairly short window of opportunity after confirming the vehicle is eligible to officially procure the vehicle, conduct the testing, and return the car thus necessitating a fairly expeditious timeframe to receive necessary software or hardware from the manufacturer to enable proper testing. Staff is also proposing to specify how manufacturers may transmit items to the Executive Officer in response to a request for means to conduct SOH verification testing. Staff is proposing that a manufacturer send any physical items (e.g., a pre-programmed electronic control unit) to CARB's Riverside laboratory and that a manufacturer may provide information or code electronically to CARB upon mutual agreement, as provided under Civil Code sections 1633.7 and 1633.8. The possibility of mutual agreement of electronic transmission is necessary and appropriate because a manufacturer may provide electronic "means of testing" that vary greatly, including simple information provided to CARB (e.g., instructions to put the vehicle into a special test mode), an electronic transmission uploaded directly to the vehicle (e.g., a remote software update), or large files of code that CARB staff would download and use to reprogram an on-board computer in the vehicle.

10. Subsection (c)(4)(D)1.r. Staff is proposing to modify this subsection to specify how average battery temperature is reported at various states of operation and non-operation on a vehicle. The modified language expands the requirement to cover battery temperature during periods of non-operation of the vehicle (e.g., parked) as stakeholders commented that even time spent at high temperature while the battery is parked can have an accelerated impact on battery degradation. The new text also eliminates a requirement to weight the time at temperature by the instantaneous battery energy usage as stakeholders commented that this adds substantial complexity to storing the data while yielding no appreciable benefit in the correlation to battery degradation. This information is necessary to be able to assess the cumulative amount of time the battery is exposed to higher temperatures, a known factor in accelerating battery aging, to ensure that vehicles with excessive time at high battery temperature can be properly excluded from durability compliance testing per section 1962.7.

11. Subsection (c)(4)(D)1.s. Staff is proposing to add this subsection to require vehicles to have stored data reflecting total time the vehicle has been at various battery state of charge conditions. Stakeholders commented that the cumulative time the vehicle spends at a high state of charge (e.g., parked for longer periods of time while fully charged), can have an impact on the rate of battery degradation. Having this information stored on individual vehicles is necessary to assess the impact of state of charge on battery degradation and to ensure that vehicles with excessive time at a high state of charge can be properly excluded from durability compliance testing per section 1962.7.

12. Subsection (c)(4)(D)1.t. Staff is proposing to add this subsection to require vehicles to have stored data reflecting the cumulative number of charge events following varying levels of depths of discharge of the battery. Stakeholders commented that the driver's vehicle usage and charging behavior in terms of how fully they charge the battery and how far down they deplete the battery between charges can have an impact on battery degradation especially in cases of routine deep discharge and charge events. Having this information stored on individual vehicles is necessary to help assess the impact on degradation and to ensure that vehicles with an excessive frequency of deep discharge and charge events can be properly excluded from durability compliance testing per section 1962.7.

13. Subsections (c)(4)(D)3.a. and b. Staff is proposing to remove the language of subsection (c)(4)(D)(3)b. because it is redundant to existing requirements (e.g., State Administrative Manual, Statewide Information Management Manual, State Contracting Manual, and, with regard to individual owners, Information Practices Act of 1977 (Civil Code §§ 1798-1798.78)). In accordance with these existing requirements, CARB can collect and maintain information that identifies a vehicle (i.e., vehicle identification number, license plate) or registered owner but will protect such information from unauthorized access and from disclosure. For formatting purposes, the remaining text in subsection (c)(4)(D)(3)a. was moved to the higher level subsection (c)(4)(D)(3) given the removal of subsection (c)(4)(D)(3)b. The phrase "or leased" was added to subsection (c)(4)(D)3. to clarify that CARB would seek informed consent from the vehicle operator regardless of if the vehicle was technically owned or leased by a private individual. These proposed changes are necessary for clarity.

14. Subsection (e)(5)(A). Staff is proposing to add text that specifies a 30-day timeframe by which CARB must notify a manufacturer if their submitted corrective action plan is approved. A 30-day period for CARB to provide notification upon an OEM's submission of a corrective action plan is necessary and reasonable to balance CARB's need for time to assess and evaluate the plan with the manufacturer's need for reasonably timely review of the plan and the public's need for timely implementation of necessary and appropriate corrective action.

15. Subsection (h)(1). Staff is proposing to add this subsection to make explicit that submitting incorrect information or failing to submit required information to the Executive Officer violates this section and to make explicit that violations may incur penalties as provided by law. CARB's enforcement and penalty decisions are made on a case-by-case basis and rely on statute, so the additional provisions, while necessary to provide clarity and transparency to manufacturers and other stakeholders, do not create or change enforcement or penalty risks for violations of this section.

16. Subsection (h)(3). Staff is proposing to add this subsection to notify manufacturers and other stakeholders that CARB may require corrective action for violations of

this section's requirements for vehicles that are not subject to testing-based corrective action under proposed section 1962.7. CARB's enforcement decisions are made on a case-by-case basis and rely on statute, so this additional language, while necessary to provide clarity and transparency to manufacturers and other stakeholders, does not create or change enforcement or penalty risks for violations of this section.

17. Note. Authority and Reference sections were added to reflect the proposed enforcement and penalty provisions that are authorized by, and are implementing and making specific, the cited sections: Section 38580, 43023, 43154, 43211, and 43212 of the California Health and Safety Code. Civil Code sections 1633.7 and 1633.8 were also added to Authority to reflect the proposed provision of allowing electronic submission upon mutual agreement between a manufacturer and CARB.