February 15, 2019

Chair Mary Nichols and Members of the Board
California Air Resources Board
1001 I Street
Sacramento, CA 95812

RE: Propose Alternative Certification Requirements and Test Procedures for Heavy-Duty Electric and Fuel-Cell Vehicle and Proposed standards and Test Procedures for Zero Emission Powertrains

Dear Chair Nichols and Members of the Board:

Tesla appreciates the opportunity to provide comments on the proposed Zero Emission Powertrain (ZEPCert) regulation that was released by staff of the California Air Resources Board (CARB) on December 31, 2018.

CARB's efforts to reduce greenhouse gas (GHG) emissions and ensure growth in zero emission technologies in the light-, medium- and heavy-duty vehicle market continue to be critically important. One of the objectives of the ZEPCert is to help foster growth of the zero-emission market and support continued innovation. Furthermore, in the Initial Statement of Reasons (ISOR), staff indicates that this optional certification pathway aims to "reduce variability in the quality and reliability of heavy-duty zero-emission technology, ensure information regarding heavy-duty electric and fuel-cell vehicles (and their powertrains) are effectively and consistently communicated to purchasers, and accelerate progress towards greater vehicle repairability."[1]

Tesla agrees that zero-emission trucks will play a critical goal in helping meet California's 2030 and beyond climate and public health goals but that it is important to balance the sometimes competing objectives of growth, durability and innovation. As currently drafted, the ZEPCert provides transparency to purchasers but also includes provisions that can have a negative effect on the growth potential for zero emission trucks in California with little added benefit to potential purchasers. We focus our comments below on the following items:

- Enabling manufacturer flexibility for monitoring and diagnostic communications and battery testing requirements is important
- Mandatory recall provision as drafted is burdensome and not tied to vehicle emissions
- Timeline for voluntary certification pathway should be clarified
- Definition of zero emission powertrain should be clarified

[1] ISOR, p.ES-3,

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Support Flexibility for Diagnostic Communications and Battery Testing Requirements

Section C, General Requirements for Powertrain Certification, Part 2, of Appendix D deals with system monitoring and diagnostics information while Part 3 covers the required diagnostic communications tools compatibility. Specifically, the proposed regulation states that a manufacturer must include a connector that meets On-Board Diagnostic (OBD) system requirements "unless they have a device permanently installed on the vehicle capable of displaying the information."[2] In the ISOR, CARB staff indicates that its proposal does not require full compliance with a standardized communication protocol and only maintains that certain data is made available via a generic scan tool.[3]

For electric vehicles, OBD is archaic and not used by many manufacturers. OBD is more than 30 years old and many electric vehicles today do not utilize OBD at all, because its main purpose is monitoring emissions components.[4] Tesla, therefore, appreciates the language included in Section C.3.1 which gives a manufacturer the option to choose how to best provide relevant diagnostic information to the vehicle operator.[5] This provision is important because it provides the vehicle purchasers and operators with the necessary operating information for repairability while maintaining product design flexibility and more optimal customer experience, which is critical to driving product innovation and adoption.

Section D of Appendix D deals with certification testing for new battery packs. Staff's proposal would establish a consistent methodology for energy-capacity testing requirements for batteries used in certifying zero-emission powertrains.[6] The proposed regulation references SAE J1798 as one testing mechanism and includes an option for an alternative testing method stating that "a substantially similar alternative test procedure to determine rated capacity if approved by the Executive Officer" can be utilized.[7] Tesla supports providing optionality for the testing method for rated capacity and appreciates staff's recognition of the fact that some manufacturers may be able to perform more specialized testing that conforms to the same parameters as those referenced in SAE J1798, and that SAE J1798 is not yet an industry-accepted standard for heavy-duty electric vehicles.

Mandatory Recall Provision is Burdensome and not Tied to Vehicle Emissions

In Part II for Heavy-Duty Zero Emission Powertrain Warranty and Recall Requirements, Part X of Appendix D, the failure levels triggering mandatory recall are set so that "a zero-emission powertrain in a certification family is subject to recall at the following failure levels: 4 percent or 25 (whichever is

[2] Appendix D, p.D-8.
[3] ISOR, p.18.
[4] ISOR, p.9.
[5] "Unless they have a device permanently installed on the vehicle capable of displaying the information required in section 3.2 without the need for additional diagnostic tools." Appendix D,p.D-8.
3.2. Required
[6] ISOR, p.16.
[7] Appendix D, p.D-11.

greater) for 2021 and subsequent model-year zero-emission powertrains." Part AB of Appendix D provides information on the evaluation of the need for a mandatory recall at the discretion of the Executive Officer.[8] Under the factors that could be considered to evaluate the need for recall is whether the failure results in a warrantable condition. Warrantable condition is defined as "the failure of a warranted part that renders the vehicle inoperable and triggers the responsibility of the manufacturer to take corrective action."[9] Finally, regarding the recall requirements, staff states that "one of the objectives of this proposal is to ensure zero-emission powertrains deployed in their intended applications are as effective and reliable as the internal combustion engines they replace."[10]

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

Lastly, if the sole intent of the mandatory recall provision is to instill fleet purchaser confidence in the product, it is unclear how this is achieved by including a mandatory recall provision at a low and seemingly arbitrary threshold. This threshold percentage was taken from general industry norms in negotiations with CARB where part failures result in emissions impact, and in which CARB has always considered the emissions impact. In its best case, CARB could be comparing emissions impact not of the ZEV, but of a properly working replacement vehicle, which is an otherwise certified ZEV or conventional vehicle. Thus, there is no logical tie-in to past industry norms.

The proposed certification also includes several other provisions including warranty requirements that will help instill consumer confidence. At the same time, it has not been tested whether utilizing such a voluntary ZEP certification will have the intended impact of driving heavy-duty ZEV growth by instilling consumer confidence in the product. Currently, a stringent and mandatory recall provision does not exist in the light-duty ZEV market, and its absence has not resulted in negative consequences to the robustness of that market. Likewise, there is no clear evidence to believe that such stringent requirements for products that cannot impact emissions and provide little added value to the customer

[8] Appendix D, p.D-34.
[9] Appendix D, p.D-16.
[10] ISOR, p.39.

could have the desired result. We believe the exact opposite impact is more likely and that these costly requirements will chilling both manufacturers and fleet purchasers in the heavy-duty ZEV market, which is currently at a very nascent state.

Tesla, therefore, recommends removing the mandatory recall provisions from the draft regulation as they are not tied to emissions and do not appear to serve the intended purpose. Over time, we encourage CARB staff to work with manufacturers, fleets, purchasers and other stakeholders to evaluate additional mechanisms for ensuring product durability, beyond those already in the current draft regulation, as needed and further refine the proposed regulations to ensure they are not disrupting the market at a such a critical time.

Timeline for Voluntary Certification Should be Clarified

Tesla appreciates that the certification is currently proposed as optional as this enables further opportunity to ensure it does not have unintended consequences for medium- and heavy-duty ZEV deployment and growth. CARB staff indicates throughout the ISOR that other programs can incorporate this as a mandatory provision going forward. For example, CARB staff is proposing to rely on the ZEPCert in the Zero Emission Airport Shuttle Regulation. However, no clear timeline is provided for when the ZEPCert requirements will be incorporated.[11]The uncertainty about when other programs may incorporate the voluntary certification as a mandatory provision is concerning. The proposed voluntary ZEPCert regulations should provide sufficient notification to manufacturers and program participants prior to proposing to incorporate these a mandatory provision in any regulatory or incentive program. Again, CARB's work with limited certification requirements and beneficial ZEV credits in the light-duty ZEV market spurred California as the worldwide leader in ZEVs. We recommend CARB emulate that same approach now rather than taking the opposite tact.

Definition of Zero Emission Powertrain

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

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Tesla appreciates the opportunity to provide feedback on the proposed ZEPCert in advance of its consideration by the CARB Board. As discussed above, Tesla is generally supportive of CARB's goals via the voluntary certification to foster growth and consumer confidence in heavy-

[11] ISOR, p. ES-1, p.5.

duty zero emission trucks. Yet, the current mandatory recall requirements included in the proposal significantly undermines these goals. Therefore, Tesla recommends removing the mandatory recall provisions and instead direct CARB staff continue to work with stakeholders on a more reasonable pathway that provides consumer confidence and at the same time does not risk delaying the acceleration of heavy-duty ZEVs. Thank you for CARB's leadership on this issue.

Sincerely,

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