June 24, 2019

Chair Mary Nichols and Members of the Board
California Air Resources Board
1001 I St.
Sacramento, CA 95814

Re: Proposed 45-day Language Regarding Electric Vehicle Supply Equipment Standards

Dear Chair Nichols and Members of the Board:

Tesla, Inc. (Tesla) appreciates the opportunity to provide feedback on the proposed Electric Vehicle Supply Equipment (EVSE) standards that were released by staff of the California Air Resources Board (CARB) on May 7, 2019. CARB is developing the EVSE standards in its implementation of Senate Bill (SB) 454, the EV Charging Stations Open Access Act, which the California Legislature adopted in 2013.

As of June 2019, Tesla has deployed 1,594 supercharger charging stalls at 113 locations in California and 13,344 supercharger charging stalls at 1,533 locations globally. Tesla has also deployed 2,283 Level 2 destination chargers at 894 locations in California. Today, the Supercharging and Destination Charging networks are services Tesla provides to its electric vehicle (EV) customers. Tesla has invested a significant amount of its own capital building out this network, which is not intended to be a profit center for Tesla. To access Supercharging in CA, all new Tesla customers are billed a small per kilowatt-hour (kWh) fee. Some Tesla customers have access to free Supercharging, either on an unlimited basis or through blocks of credits, which was provided as an incentive for the purchase of their vehicle. Destination charging is an amenity provided by site hosts and today, is free of charge to Tesla customers.

As a California based manufacturer of electric vehicles with a significant California and global charging infrastructure network, Tesla recognizes the importance of providing access to charging infrastructure to help spur the deployment of EVs and meet California's goal of 5 million zero emission vehicles (ZEVs) on the road by 2030. Providing a seamless, transparent customer charging experience has been and continues to be one of Tesla's key objectives in developing both the Supercharger and Destination Charging networks. Per the language provided in statute and the proposed regulation, this regulation applies to all publicly available EVSE. The

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regulation does not apply to workplaces, private residents or multi-unit dwellings that are clearly marked as such, or to EVSE provided by a manufacturer of EVs for the exclusive use by the vehicles it manufactures.[1]

Tesla appreciates staff's recognition that per statute, this regulation is not applicable to the Supercharger and Destination Charging networks. Because charging services are provided to our customers directly and integrated with the vehicle user interface and Tesla mobile app, Tesla has been able to provide access to convenient and affordable charging infrastructure that provides a seamless and excellent customer experience. While often ignored or not central to the regulatory process, we strongly believe that a positive customer experience is a critical component to electrifying the transportation sector.

Tesla recognizes the importance of this proposed regulation from the perspective of Tesla drivers who may be accessing other networks, the broader EV industry, the technological advancement of charging infrastructure and sound publicly policy. Therefore, Tesla provides brief comments below regarding the impact this proposed regulation could have on the existing and future development and deployment of public charging infrastructure in California, focusing on the following elements:

- Payment mechanisms should maintain flexibility
- Existing infrastructure compliance timelines should reflect useful life of the infrastructure
- Coordination with DMS' proposed regulatory efforts is important

I. Payment mechanisms should maintain flexibility to reflect market trends, minimize costs, ensure scalability and drive innovation.

Tesla supports the proposed regulation's goal "to provide drivers with ease of access to charging infrastructure."[2] Equitable and open access to charging infrastructure is important to driving EV adoption and we appreciate CARB staff's leadership in taking on this important effort. The staff report states that "because the Legislature intended SB 454 to benefit consumers and promote EV charging, CARB is interpreting SB 454's mandate to require [electric vehicle service providers] EVSPs to give consumers a choice: consumers may use a credit card or consumers may use a mobile payment at an EVSE in California."[3] Given the potential for technological advancement in the timeframe between the passage of SB 454 (2013) and the implementation of the current proposed regulation, it appears that SB 454's main goal was providing EV drivers the confidence that they will be able to charge their

[1] CARB staff report p.35
[2] CARB staff report, p.8.
[3] CARB staff report, p.36.

vehicles at publicly accessible charging stations across California with consistent and reliable payment methods and without having to pay a subscription fee. This could be facilitated in a number of ways, such as using a credit card or mobile technology, as outlined in SB 454. SB 454 maintained flexibility in how to enable a more consistent payment experience for EV drivers. Staff's report further notes that "the proposed regulation will standardize the driver charging experience by requiring the installation of credit card readers on all public EVSE. The proposed regulation will require, at a minimum, an [Europay, Mastercard, Visa] EMV chip reader.[4]"

Tesla appreciates CARB staff's thoughtful evaluation when developing the credit card reader requirement and at least some level of flexibility provided in the proposed regulation that enables the use of a kiosk in lieu of having a credit card reader physically located on the EVSE.[5] However, we are concerned at the impact this requirement will have on the EV charging station market at a time when the state desperately needs to deploy more charging infrastructure and permitting, deployment, operation, and maintenance costs are already a barrier. As highlighted in the staff report, the "number of chargers in California is still far too low to support widespread EV adoption…and the California Energy Commission (Energy Commission) estimates California needs 229,000 to 279,000 connectors to support 1.5 million ZEVs by 2025."[6] The charging infrastructure deployed in California today represents only 7% of the anticipated future need.[7]

At Tesla, we recognize the need for innovation and cost reductions in a nascent, yet growing, global marketplace for EVs and charging infrastructure. Setting a credit card reader mandate for charging providers at a time when innovation in customer payment technology is needed to provide a more seamless charging experience will not help grow EV charging station deployment in California. Most of the charging industry is indicating that credit card readers are not the direction the market is moving to enable more equitable and open payment access. For instance, charging providers are starting to integrate AutoCharge or Plug and Charge into their networks whereby the customer's EV is automatically recognized and the charging process begins without needing to open an app or using a credit card.[8] This is similar to how Tesla drivers today can access Tesla Supercharging, which is all integrated via the vehicle. Additionally, there are on-going announcements between charging providers that are establishing back-end interoperability for their customers via roaming

[4] CARB staff report, p.30.
[5] Proposed regulation, 2360.2(d), p.A-7.
[6] CARB staff report p.56.
[7] CARB staff report p.56.
[8] https://www.electrive.com/2019/04/15/evgo-leads-with-autocharge-in-the-usa/

agreements that enable a driver with one charging provider account or tap card to access networks of other providers.[9]

In general, any point-of-sale payment method requirement should provide the flexibility for companies to meet the evolving needs of consumers, which is moving away from physical card readers on each charger toward mobile payments on the phone or within the vehicle. Mobile payments are becoming increasingly common as more people adopt smartphone and mobile payment technology. The Pew Research Center estimates that 81% of people in the U.S. have a smart phone in 2019, which has more than doubled since 2011, and adoption has been increasing including in lower-income households.[10] Cell phone ownership is estimated at 95% and smartphone ownership at 71% in households earning less than $30,000 per year.[11] As a result, mobile payments that offer a more seamless experience for customers through an app or within the vehicle will become increasingly popular and accessible.

Furthermore, a recent report by the Digital Citizens Alliance concludes that "the remote, unmonitored, unattended nature of EV charger deployments make them an unacceptable risk to integrate Magnetic Swipe Readers and EMV Chip readers. Simply put, it can be expected that EV chargers would surpass gas pumps as the most inviting target for skimmer and shimmer fraud."[12] Given the technological changes that are driving innovation in payment technology and potential data security consequences of physical card readers, it is important to re-evaluate whether a mandate for credit card readers is the most beneficial and cost effective strategy for enabling convenient and consistent payment at all public charging stations.

At minimum, if CARB deems it necessary and appropriate to mandate credit card readers, it should provide the option for utilizing contactless credit card readers. Additionally, this requirement should be re-evaluated annually starting in July 2020, well in advance of the July 1, 2023 compliance timeline for new Level 2 EVSE given that payment technologies such as contactless credit card readers and mobile or in-vehicle payment options are rapidly evolving and will continue to be more readily available going forward. While some level of standardization may be needed in the payment methods for EV charging stations, it should not lock the market or consumers into one particular technology that may be more costly to maintain over

[9] https://www.evgo.com/about/news/evgo-announces-new-roaming-access-for-ev-charging/; https://www.chargepoint.com/about/news/chargepoint-electrify-america-collaborate-agreement-expand-public-ev-charging-access/; https://www.chargepoint.com/about/news/chargepoint-and-greenlots-partner-increase-access-ev-charging-throughout-north-america/.
[10] http://www.pewinternet.org/fact-sheet/mobile/
[11] http://www.pewinternet.org/fact-sheet/mobile/
[12] https://www.digitalcitizensalliance.org/clientuploads/pdf/Charging_in_the_Crosshairs.pdf

time. Rather, flexibility should be maintained to the greatest extent possible to enable multiple payment options and a seamless customer experience for all consumers.

II. A 10-year phase in is appropriate for existing charging infrastructure compliance.

Several stakeholders, including other charging providers, have previously noted that the existing stations built before the compliance dates, July 1, 2020 for DCFC and July 1,2023 for Level 2, should not be required to be retrofit or replaced prior to the end of their useful life. Focusing on replacing existing infrastructure prior to the end of its useful life can increase costs and slow the pace of deployment of charging infrastructure in California at a time when increased deployment is necessary to meet the state's ZEV goals.

Currently, the proposed regulation states that "Level 2 EVSE installed prior to July 1, 2023, shall comply with the requirements of this section by five years from the date of installation, or July 1, 2023 (whichever is later)" and a "DCFC EVSE installed on or after July 1, 2020, shall comply with the requirements of this section by five years from the date of installation, or July 1,2020 (whichever is later)."[13] We believe that the 5-year compliance deadline is inconsistent with the average useful life of an EVSE and that extending the compliance deadline to 10 years is more consistent. Therefore, we support modifying section 2360.2(c) of the proposed regulation to state the following:

- *Level 2 EVSE installed prior to July 1, 2023, shall comply with the requirements of this section by ~~five~~ **ten** years from the date of installation, or July 1, 2023 (whichever is later)."*
- *DCFC EVSE installed on or after July 1, 2020, shall comply with the requirements of this section by ~~five~~ **ten** years from the date of installation, or July 1,2020 (whichever is later).*

III. Coordination with DMS' proposed regulation on pricing, metering and accuracy is important.

Section 2360.2(g) of the proposed regulation provides guidance on what information should be disclosed to the user of an EVSE at the point of sale including the price to charge in U.S. dollars per kilowatt-hour or megajoule. The CARB staff report highlights that "this proposed requirement will align with California Department of Food and Agriculture's Division of Measurement Standards proposed EVSE regulation as well as give customers confidence that all fees are displayed ahead of

[13] Proposed Regulation, Section 2360.2 Payment Method Requirements for Electric Vehicle Supply Equipment, pp. A-7 – A-8.

starting a charging session."[14] Tesla appreciates CARB's on-going coordination and engagement with DMS regarding its proposed pricing, metering and accuracy regulations. We support the flexibility maintained in the current language of CARB's proposed regulation on how this information is provided to EV drivers so long at it is displayed at the point of sale. Tesla supports continuing to maintain flexibility in the language provided in this section as DMS' regulatory efforts are on-going and have not been finalized.

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Tesla thanks CARB staff for its leadership in developing the proposed regulation and the many opportunities for public input provided throughout the process. As expressed in detail in the comments above, Tesla recognizes the importance of providing open access to public infrastructure yet urges continued careful evaluation of the proposed regulation prior to mandating credit card readers on all public charging stations in California and maintaining some level of future flexibility.

Tesla looks forward to continuing to work with staff on the implementation of the proposed regulation to ensure that consumer needs are met while charging infrastructure continues to be deployed at scale across California.

Sincerely,

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[14] CARB Staff Report, p.40.