

February 28, 2022

Ms. Stephanie Palmer
California Air Resources Board
1001 I St.
Sacramento, CA 95814

RE: Electric Vehicle Supply Equipment Standards Technology Review February 2022

Dear Ms. Palmer:

Tesla appreciates the opportunity to provide feedback on the Technology Review for the Electric Vehicle Supply Equipment (EVSE) Standards that was conducted by CARB staff in February of 2022. Staff's leadership in developing and refining the EVSE open access standards continues to be important. We appreciate the continued consideration of previous stakeholder comments regarding payment mechanism flexibility, equity in charging access, and continued evaluation of the technical aspects of the Standards on a regular basis as electric vehicle (EV) charging technology evolves.

In previous comments, Tesla expressed support for the periodic review of the specific payment technologies available to consumers broadly and how widely available they have become for EV charging use. To provide a more seamless charging experience over time, customer payment technology innovation continues to be necessary. In general, any point-of-sale payment method requirement should provide the flexibility for companies to meet the evolving needs of consumers, including providing mobile payment options and within the vehicle via plug-and-charge capabilities.

In the comments below, we address several findings from the Technology Review, including reliability and availability of multiple payment options. Based on the findings in the Technology Review, we provide the following recommendations:

- **Conduct on-going Technology Reviews** on a regular basis (at minimum every two years) with an emphasis on gathering additional data on availability of payment mechanisms and assessing use case differences between DC fast charging and Level 2 charging.
- **Evaluate opportunities for third-party assessments** to ensure that the Technology Reviews do not become overly burdensome and time consuming for staff and further clarity on issues are incorporated.
- **Gather additional cost impact data prior to 2023 to assess whether the EMV chip reader requirement** is necessary for public Level 2 charging.

EV Charging Network Reliability

Ensuring that EV charging infrastructure operated in California and elsewhere is available to drivers when needed and providing generally reliable access is of the utmost importance. In responding to the survey, Tesla provided information from its 2020 Impact Report which states that the "the chances of not being able to charge at any location at any given time are close to zero" and provides a chart regarding uptime of Supercharger sites.¹ As a network operator, we pride ourselves on providing reliable charging access in order to create the best possible customer experience with owning an EV. To have a viable product, reliable charging access must be provided. Therefore, we tend to agree with the Technology Review's conclusions that it is important to measure network reliability.

¹ Tesla 2020 Impact Report, p.36. Available at: https://www.tesla.com/ns_videos/2020-tesla-impact-report.pdf

Under Finding number one, the Technology Review highlights that the driver survey results “indicate that drivers are experiencing non-operable charging stations.”² At the same time, it notes that the EVSP survey also asked a question regarding operability of charging stations and that “four out of 11 service providers responded to this question, and they responded that they have a national uptime of 95-98 percent.”³ It goes on to suggest that there may be a disconnect between EVSP data reported and EV driver experience. We do not believe sufficient data was provided in the survey questions, and potentially in the responses, to indicate that there is necessarily a disconnect between the reliability reporting from EVSPs and drivers. Without knowing further details about how often these drivers experienced an issue, the location of the site, the type of charging provided at the site, among many other factors, it is hard to draw a direct conclusion from the surveys.

Finally, in the conclusions and recommendations section, staff provides a recommendation “to develop metrics and a process for tracking station up/down time.”⁴ We support more transparent, objective metrics for drivers on station availability, especially in the context of funding programs. However, we want to make sure expectations for reporting requirements and other data needs do not become unrealistic. Furthermore, we recommend additional coordination with other state agencies and stakeholders who may currently be evaluating similar efforts. At this time, it appears that it would be most beneficial to discuss broader reliability metrics and processes, outside the EVSE standards regulation on payment and open access. Nonfunctioning payment mechanisms may be one factor that is leading to reports of station inoperability and should be evaluated further.

Independent Third-Party Evaluation and Updated Cost Impact Data

In conducting the Technology Review, CARB staff indicates that it surveyed three major stakeholders: 1) drivers, 2) major credit card companies, and 3) EVSPs. In the Appendix, Staff provides copies of each of the surveys. These surveys are beneficial in providing an overview of the current EV charging landscape including the various payment options available to drivers, however, going forward, it would be useful to have any additional technology assessments incorporate a more independent third-party evaluation. This could have the benefit of alleviating workload for staff who has had to conduct the on-going Technology Review while at the same time working on implementing the existing standards. For instance, the driver survey questions focused on the charging experience and any issues initiating a charging session, however, the survey did not detail how often drivers experienced these issues and what type of charger a driver was using, such as L2 versus DCFC, among other items. Having this additional information expanded upon in any on-going assessments and working with a third-party evaluator may provide additional clarity on issues and potential solutions. Staff expertise in the regulation and research could then help inform and build on the third-party technology assessment.

The Technology Review notes that based on the December 2018 economic impact assessment for the regulation, there is an expected cumulative cost to EVSE operators of \$115 million over 10 years for the whole regulation, not just its payment technology component.⁵ Upfront cost estimates in the impact assessment include both values for EMV chip readers (\$371/unit) and ongoing operating and maintenance costs (\$270/unit).⁶ Upfront costs for NFC capabilities averaged to \$8 per EVSE and ongoing networking fees of \$1 per EVSE per year.⁷ Given Level 2 charging infrastructure can vary in price between several hundred to several thousand dollars, it is important continue to evaluate the potential impact of the added cost of incorporating EMV chip readers for different charger types, which may impact less costly charging products more acutely. Additionally, it would be helpful to analyze whether the economic impact assessment numbers for cumulative cost need to be revised given increased expected

² Technology Review, p.11.

³ *Id.*

⁴ Technology Review, p.20.

⁵ Technology Review, p.6.

⁶ *Id.*

⁷ Economic Impact Assessment, p.C-26.

needs for Level 2 charging access, from the numbers expected in 2018, to help meet the state's policy goals.⁸ It is also important to maintain the option for a kiosk with payment capabilities for charging stations where it may not be cost effective to integrate additional payment mechanisms on each device and evaluate how this additional cost impacts total site costs.⁹

Payment Options Clarification

Table 4, under Finding number three, provides the EVSP payment options available today based on the survey sent to the EVSPs. Tesla provides in-vehicle payment options via Plug-and-Charge which is not accurately reflected in Table 4. During the February 15, 2022 workshop, staff shared a modified Table 4 that clarifies the various payment options available today including for Tesla.¹⁰ Tesla appreciates the recognition and modification of this section to more accurately reflect the seamless charging experience Tesla can provide via its fully integrated payment and charging system. As indicated in the Technology Review, Tesla as a manufacturer of EVs that provides charging as a service to its drivers, is not subject to the regulation today.¹¹ However, Tesla has an interest in ensuring payment options provide a seamless customer experience, and provide flexibility to keep pace with customer preferences and technology evolution, given Tesla drivers may utilize other networks as EV drivers. Tesla has also indicated its intent to open the Supercharger network to non-Tesla drivers globally in the future¹² and is therefore committed to ensuring accessibility and a seamless customer experience, including in payment options without adding unreasonable costs for EV drivers to incur.

Early Technology Adoption vs. General Use Case

In a number of sections in the Technology Review, it indicates that the survey respondents who completed the driver survey are likely engaged early adopters and may not necessarily represent the broad future population of EV drivers. At the same time, the Technology Review provides some limited insight on the continued evolution of the payment industry, not specific to EV charging, including the proliferation of tap payment options and peer-to-peer payment companies. It also concludes that "tap payment technology can expand payment options for under and unbanked drivers because tap is available through both traditional and non-traditional banking methods, and it will be important for the EVSE Standards Regulation to continue requiring that EVSE be equipped to accept mobile payments."¹³ Separately, Table 6 of the Review provides information from the survey on drivers that own a smart phone with and without contactless payment. The survey indicates that 98.5% of drivers that responded have a smart phone. Without additional data on EV adoption trends across California, it may be difficult to draw a conclusion here that early adopters would necessarily have greater access to a variety of payment options including smart phones and tap payment than the potential broad future population of EV drivers. A future Technology Review should further evaluate the expected EV adoption timeline, public charging deployment expected to meet these needs, and how this correlates with payment industry technology evolution over the next five to 10 years.

Tesla appreciates Staff's diligence in undertaking this Technology Review as it is a time consuming and intensive, yet worthwhile endeavor. Overall, this Technology Review is a good first step in providing more insight into the payment technology available generally and more specifically for EV charging today. We also appreciate staff's continued effort to ensure that the regulation not only assess first adopters, but also

⁸ AB 2127 EV charging Infrastructure Assessment, May 2021, p.13; Projected need for additional 57,000 Level 2 chargers by 2025 and additional 972,000 Level 2 chargers by 2030.

⁹ EVSE Standards Regulation, p.A-2.

¹⁰ The slides from the February 15 workshop are not yet posted on the CARB website.

¹¹ Technology Review, p.9.

¹² <https://www.tesla.com/support/non-tesla-supercharging>

¹³ Technology Review, p.18.

all future EV drivers and provides equitable access for all Californians. All EV drivers need to have confidence that they will be able to use a charging station reliably.

Sincerely,

Francesca Wahl
Senior Charging Policy Manager
Business Development and Public Policy