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Division of Measurement Standards
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Submitted via email to: dms@cdfa.ca.gov

**Re: Comments on the 15-Day Modifications to the Electric Vehicle Fueling Systems
Proposed Rulemaking**

Dear Mr. Ferris and Mr. Schnepf,

The California Electric Transportation Coalition (CalEETC), the Electric Vehicle Charging Association (EVCA), BTCPower, and ABB respectfully submit the following comments regarding the Division of Measurement Standards (DMS) 15-day modifications to the proposed rulemaking for electric vehicle charging stations. We sincerely appreciate DMS' collaborative spirit over the last two years in discussing these proposed regulations with the electric-vehicle industry to both ensure proper consumer protections and address the challenges of charging station providers in complying with the regulation.

CalEETC is a non-profit association committed to the successful introduction and large-scale deployment of all forms of electric transportation. CalEETC supports and advocates for the transition to a zero-emission transportation future as a means to spur economic growth, fuel diversity and energy independence, ensure clean air, and combat climate change. CalEETC's board of directors includes: Los Angeles Department of Water and Power, Pacific Gas and Electric, Sacramento Municipal Utility District, San Diego Gas and Electric, Southern California Edison, and the Southern California Public Power Authority. Membership also includes manufacturers of zero-emission vehicles in all weight classes, electric vehicle charging providers, and other industry leaders supporting transportation electrification.

EVCA is a non-profit trade association representing nine electric vehicle service providers (EVSPs), software and equipment manufacturers, and installation and maintenance providers. EVCA's mission is to advance the goal of a clean transportation system in which the market forces of innovation, competition, and consumer choice drive the adoption of EVs and deployment of charging infrastructure.

Although California is leading the nation in zero-emission vehicle (ZEV) adoption, our state still has a long way to go to reach the goals in the Governor’s Executive Order B-48-18: 5 million ZEVs on California roads by 2030 and specified levels of zero-emission vehicle infrastructure by 2025 to support the transition to these vehicles. Increased adoption of zero-emission vehicles is necessary for California to meet its climate, air-quality, and public health targets.

We understand and appreciate the necessity for DMS to adopt standards for electric vehicle supply equipment (EVSE or charging stations) in order to protect consumers and ensure that purchasing electricity as a transportation fuel is straightforward and simple. We also recognize and support DMS’ goal to ensure EV drivers understand what they are paying for and receive the energy they expect to receive through a charging session for what they pay. To that effect, we encourage DMS to ensure that the regulations are straightforward and simple, and do not cause confusion in the marketplace, impose undue costs, or slow the progress of the ZEV market.

Other states are looking to California for a path forward on consumer protection and accuracy for electric vehicle charging stations. However, the National Institute of Standards and Technology (NIST) Handbook 44 is a “living document” that is “published in its entirety each year following the Annual Meeting of the National Conference on Weights and Measures (NCWM).”¹ We note that the Handbook was most recently modified in 2018, and feedback is still being accepted on the Handbook.² As was evident during the December 2018 workshop on these regulations,³ the Handbook may not represent a realistic picture of commercially-available technology. Even when the technology does become available, compliance with the Handbook could risk the livelihood of the state’s burgeoning EV charging industry, especially given the punitive requirements to subject existing operators to costly retrofits or replacements.

In this spirit, there are a few requirements that we continue to find infeasible, and respectfully ask the Division’s consideration of alternatives that maintain the integrity of the regulation, while not overburdening those investing in, deploying, and manufacturing charging stations to help the state meet its goals for decarbonization of the transportation system.

1. Existing Infrastructure

Regarding existing infrastructure, the proposed 15-day modifications to the regulatory proposal include an implementation date of January 1, 2020 for all commercial AC electric vehicle supply equipment (EVSE or charging stations). The proposed modifications include an implementation date of January 1, 2021 for all DC EVSE, but allow some flexibility in the acceptance and maintenance tolerances required for existing DC EVSE. We appreciate DMS’ recognition that the 2020 implementation date for DC EVSE was not appropriate for either new or existing EVSE.

¹ NIST Handbook 44, Foreword, p. iii, <https://www.nist.gov/pml/weights-and-measures/publications/nist-handbooks/handbook-44>.

² *Ibid.*

³ For example, multiple comments were made (in writing and at the December workshop) regarding the infeasibility of complying with metering requirements at the accuracy level specified for DC fast charging stations.

However, we suggest instead, for the following reasons, a different approach for existing infrastructure.

Because the regulations would essentially require the replacement or substantial retrofit of existing AC and DC infrastructure, the costs to implement these requirements are overly burdensome and will threaten the financial viability of many existing operators. Additionally, the California Air Resources Board (CARB) is also considering adopting regulations that would affect existing and new AC and DC charging stations. The costs to comply with the CARB regulations will be additive to the costs to comply with the DMS regulations; and differing timelines further complicate compliance, implementation, and cost.

For the last several years, EVSPs have been deploying charging stations, both DC and AC charging stations, across the state – many of which are operable today and well within their expected useful life. In many cases, early movers deployed charging stations well before the market for electric vehicles began to ramp up, thereby helping to make early adopters of these vehicles more comfortable with their purchase by installing widespread infrastructure. The retroactive nature of these regulations punishes these early adopters at a time when our state has lofty goals for transportation electrification.

EVSPs continually improve their product lines and release new and improved station models to better serve customers. In many cases this means newer models use newer technology, while technology integrated with older models is phased out. Many older models of charging stations are still being used by customers, even though hardware manufacturers are no longer producing parts and components to make those stations. As a result of the proposed regulations, EVSPs will need to remove older, still-working chargers and replace them with new ones that meet these requirements.

Moreover, the majority of California's charging stations were purchased using federal, state, utility, or other public funds, and the budgets for these funding programs – including many of which encouraged EVSPs to deploy infrastructure in areas before the electric car market took off - did not account for these retrofits. This burden will fall heavily on owner-operators of charging stations who will retroactively implement these changes at great costs. These burdensome costs will further limit capital available to deploy new charging stations at a time when the state has made ambitious goals toward transportation electrification. While former Governor Brown has called for 10,000 DC fast chargers by 2025, if this requirement moves forward as is, EVSPs may have to shut down their older stations, or stations in areas of lower utilization with lower EV penetration,⁴ for being out of compliance. Similarly, in the case where a site host is an owner-operator, they would be more likely to turn off a system than seek to understand – let alone pay for – such expensive retrofits. This can result in the stranding of public, ratepayer, or other funds

⁴ Areas of lower utilization and lower EV adoption are often areas the state and stakeholders have identified as critical zones for investment, to spur and support EV adoption, including transit corridors, disadvantaged communities, and rural parts of the state. If there is currently lower utilization in these areas, then it is less likely that a site host or EVSE operator could afford to retrofit or replace the station to bring it into compliance.

and drastically slow or potentially halt the significant progress that the EVSE market has made over the past few years in California. Additionally, ripping these charging stations out of the ground or expending significant additional money to bring the state's EVSEs into compliance for minimal public benefit is unreasonable and rolls back the state's progress to achieving our zero-emission vehicle, climate, and air quality targets.

Alternatively, if a site host or charging station operator instead chooses not to charge a fee for energy delivered to the customer, for existing EVSEs, the state will lose out on the opportunity to better integrate electric vehicles with grid conditions and encourage charging during times of peak renewable-energy generation through pricing signals.

We respectfully request that existing EVSEs be grandfathered, i.e., exempted from the accuracy provisions of the regulations. DMS could instead require existing EVSE, for the duration of an EVSE's useful life, to be labeled with an identifier (e.g., label) disclosing that the accuracy of the charging station may not meet state regulations. Once an EVSE has lived out its useful life, DMS could require it to be replaced with a compliant EVSE.

2. Accuracy Classes and Tolerances for DC EVSE

The proposed 15-day modifications to the regulatory proposal require DC EVSE installed on or after January 1, 2021 to meet specified accuracy requirements and tolerances (1.0% acceptance tolerance and 2.0% maintenance tolerance). Existing DC EVSE are required, by January 1, 2021, to meet slightly less stringent accuracy requirements and tolerances (2.5% acceptance tolerance and 5.0% maintenance tolerance). We appreciate and agree with DMS' recognition in the 15-day proposal that the prior implementation dates for DC EVSE were inappropriate.

However, there is no EVSE manufacturer that has working, field-tested and verified measurement technology for DC EVSE that has an accuracy of $\pm 1\%$ (at the tip of the EVSE connector where it connects to the car) for type approval and $\pm 2\%$ for field deployed devices. As such, we oppose the measurement technology requirements becoming effective January 1, 2021 because we do not know if such technology will be commercially available. Moreover, because many EVSPs rely on a supplier network to procure such technologies, the EVSPs are beholden to the hardware suppliers to comply with this requirement.

Furthermore, accuracy classes and tolerances must be considered hand-in-hand with test and verification procedures. The currently proposed procedure tests the accuracy at $>85\%$ of the "maximum deliverable amperes current" and $<10\%$ of the "maximum deliverable amperes current." Meeting the required tolerance at the $<10\%$ accuracy test is 10 times more challenging than at $>85\%$ accuracy test, and the test point will rarely, if ever, be used for actual charging. Electric vehicle manufacturers recommend charging EVs between 20% and 80% state-of-charge to ensure battery longevity, during which the vehicles charge within $\pm 20\%$ of their maximum rate. At less than 10% of maximum delivered amperes current a DCFC EVSE would be providing a charge rate of a Level 1 AC charger or lower, which is not its intended consumer use.

Because these technologies are not yet commercially available, we respectfully request that DMS update the compliance date for new DC EVSE to be January 1, 2023, two years later than what is currently proposed. To ensure this requirement appropriately reflects the state of commercialization of the required technology, we suggest DMS continue to monitor the market and amend the regulations if the 2023 date is not feasible.⁵

3. EVSE Indications

The proposed 15-day language includes amendments to sections S.2.4.2. and S.2.7. which would now require both an existing and a new EVSE to be able to display specified information *on its face*. This is contrary to our prior understanding of the intent of these provisions.

As indicated in our prior letter on the 45-day language, we support flexibility with providing information to customers. For example, the requirements in these provisions could be provided to the customer via cell-phone application or in-vehicle display, instead of only via a digital display on the EVSE.

EVSE providers and vehicle manufacturers offer cell-phone applications that allow for the continuous monitoring of the charging process so that the vehicle owner can see the vehicle's state of charge and associated cost for the energy consumed in real time. For many charging use cases, the driver leaves their vehicle to charge while they do other activities, like working, shopping, or having a meal. It is more useful and convenient for the driver to be able to monitor their charging session via mobile app, as opposed to having to leave their work or activity and check a screen on the charging station. The EVSE could be labeled with all pertinent pricing and other information but does not need to have a digital display or receipt printer because all necessary information will be communicated to the consumer in real time. The cost to retrofit or replace existing infrastructure to be compliant with this requirement is especially burdensome and hampers the state's ability to meet its zero-emission vehicle and infrastructure targets.

We respectfully request that DMS specify the information to be provided to the consumer, require that EVSE operators provide it, and allow for flexibility with how the information must be provided. The 15-day language dictates a single method of display, which we believe inhibits innovation and could negatively impact the customer experience. The EVSE-display requirement is particularly burdensome and unnecessary for existing EVSEs that do not already have displays.

⁵ For example, see *ABB comments to proposed amendment to Code of the National Institute of Standards and Technology (NIST) Handbook 44, "Specifications, Tolerances, and other Technical Requirements for Weighing and Measuring Devices"* submitted during the 45-day comment period on December 17, 2018. Particularly, ABB's comments on p. 2 regarding commercial availability challenges and expected risks. ABB estimates, in a best-case scenario, that "DC metering systems could be commercially available in sufficient quantity to meet California market demand by the end of 2020." However, this does not include time to procure at scale and retrofit thousands of existing or soon-to-be-deployed DC EVSE in California. In addition, ABB stated that they "do not know whether a new cable with DC voltage sensors at the connector will need to be included in compliant chargers." If needed, additional development activities will be necessary, resulting in additional delays of many more months. Therefore, implementation starting in 2022 could still represent an aggressive scenario.

4. Concerns Not Addressed in the 15-Day Proposal

As described in our comments during the 45-day comment period, we continue to recommend:

- Testing by Payment Method: We respectfully request that measurement testing be limited to the generation of correct billing determinants (e.g. total kWh x kWh rate + time), and that payment method testing be limited to the correct inclusion of these billing determinants in the generation of a bill.
- Certified Installers: Given that we are not aware of a Registered Service Agency (RSA) for EVSE, we respectfully request that this requirement be delayed until further notice and be taken up as part of stakeholder discussions – and until that time, continue to require that EVSE installers comply with current law.⁶
- Temperature Range for System Components: Given the flexibility to label and operate the charging station at a lower temperature, which we support, we respectfully request the Division add a sentence to this provision stating that the EVSE will not be tested for a higher temperature range if it has been labeled as not being able to meet that requirement.

5. Conclusion

The California Air Resources Board (CARB) is currently considering regulatory action regarding payment access and other measures for charging stations through its SB 454 Open Access proceeding. The proposed compliance deadlines for that rulemaking differ from the proposed compliance deadlines for DMS' proposal. Both rulemakings will impact existing and new charging stations; other states are watching to see how California handles both accuracy and access, so we believe it is important to set the right precedent. If compliance timelines are not the same under both proceedings, owner-operators will have to pay to bring an individual station into compliance twice, again driving up costs.

We respectfully urge the Division to coordinate with CARB to ensure certainty and clarity with compliance deadlines for the two rulemakings so that charging station providers can update charging stations as few times as possible to comply with all requirements.

⁶ We encourage DMS to learn about existing practices and options. Many utilities, for example, require the EVSE installers/electricians they contract with to obtain training via the Electric Vehicle Infrastructure Training Program (EVITP).

We appreciate and are thankful for many of the changes DMS proposed in the 45-day and 15-day proposals. However, we believe the current proposal is still harmful to the state's air quality, public health, climate, and zero-emission vehicle goals. At a time when we need to be drastically increasing the amount of charging infrastructure in the state, these regulations would require EVSE owner-operators to focus their capital on retrofitting or replacing existing infrastructure. Thank you for your consideration of our comments. Please do not hesitate to contact us if you have any questions or would like to discuss further.

Sincerely,

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