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EV Infrastructure Reliability Workshop

Additional submitted attachment is included below.

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April 1, 2022

California Energy Commission
Docket Unit, MS-4
Re: Docket No. 21-TRAN-03
715 P Street
Sacramento, CA 95814

Re: Docket No. 21-TRAN-03– Comments of the Center for Sustainable Energy® regarding the California Energy Commission's Workshop on Electric Vehicle Charging Infrastructure Reliability

The Center for Sustainable Energy® (CSE) appreciates the opportunity to provide comments in response the to the California Energy Commission's (Energy Commission) workshop on Electric Vehicle (EV) Charging Infrastructure Reliability. CSE is a 25-year-old national nonprofit driven by one simple mission – decarbonize. We provide program administration, technical assistance, and policy advisement, and serve as a trusted resource helping government agencies implement successful clean energy and transportation programs.

CSE commends the Energy Commission's efforts to better understand and address EV infrastructure reliability issues, particularly those that prevent EV drivers from predictably accessing charging services. CSE encourages the Energy Commission to institute more robust data collection and evaluation measures and to report analytical findings in a transparent manner. CSE offers responses to the following questions raised during the workshop:

1. Should the CEC seek to collect, aggregate, and publish reliability metrics?
2. Should CEC only focus on CEC funded chargers, or the full network of public chargers in California? If the latter, how could this be done?
3. What are feasible metrics for evaluating reliability?
4. How long should the reporting period and reliability standards be set for?
5. Who should be responsible for reporting? For example, grant recipients, site host, network providers, etc.
6. How should data be reported? For example, periodic reports, application programming interfaces (APIs), etc.
7. What are viable data collection methods? For example, owner/operator remote monitoring (through the charger, grid, payment systems), third-party remote monitoring (through OEM in-vehicle telematics), manual inspection (through crowdsourcing via apps, inspection), etc.

8. Should there be different reliability standards/metrics/reporting requirements for Level 2 and DCFC?

CSE's responses to these questions are discussed in detail below.

1. Should the CEC seek to collect, aggregate, and publish reliability metrics?

CSE supports the Energy Commission's proposal to collect, aggregate, and publish reliability metrics. The collection and evaluation of reliability data will help understand and overcome EV drivers' challenges in accessing Electric Vehicle Supply Equipment (EVSE), thereby facilitating the widespread EV adoption necessary to achieve California's transportation electrification goals. CSE notes that reliable access to EV infrastructure is a key concern for EV drivers. As indicated in the California Air Resources Board's (CARB's) EVSE Standards Technology Review, 40 percent of survey respondents indicated that they had contacted customer service while attempting to charge their vehicle, with the key reasons being that the EVSE unit was not working or that the connector on the EVSE was broken.[1] This is in contrast to the Electric Vehicle Service Providers' (EVSPs') reported average uptime of 95 – 98 percent. As indicated by CARB in the Review, there seems to be a disconnect between how accessibility is reported by EVSPs and EV drivers, further reinforcing the need for robust data collection and evaluation. Lastly, CSE notes that the guidance for the Federal Highway Administration's (FHWA's) National Electric Vehicle Infrastructure Program (NEVI) states that EV infrastructure should be reliably accessible above 97 percent of the time, at the individual station level.[2] CSE suggests that the Energy Commission incorporate this requirement for future EV infrastructure projects to maintain consistency across State and Federal projects.

CSE highlights that data collection requirements have already been instituted through grant projects funded by the Energy Commission, including the California Electric Vehicle Infrastructure Project (CALeVIP), which is implemented by CSE on behalf of the Energy Commission. The data collection requirements under CALeVIP stipulate that grant recipients must: (1) Submit two to five years of usage data for Level 2 (L2) chargers and Direct Current Fast Chargers (DCFC), respectively; (2) Submit data in increments of not less than one month and not more than one year; and (3) Enable the Energy Commission and project implementers to directly acquire session data from the EVSP.[3] In order to provide consistent data evaluation

[1] California Air Resources Board, Electric Vehicle Supply Equipment Standards Technology Review. https://ww2.arb.ca.gov/sites/default/files/2022-02/EVSE%20Standards%20Technology%20Review%204Feb22.pdf

[2] Federal Highway Administration, Information: The National Electric Vehicle Infrastructure (NEVI) Formula Program Guidance. https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/nominations/90d_nevi_formula_program_guidance.pdf

[3] CALeVIP, Building EV Infrastructure. https://calevip.org/

across projects, CSE recommends that the Energy Commission adopt similar requirements for future projects.

2. Should CEC only focus on CEC funded chargers, or the full network of public chargers in California? If the latter, how could this be done?

CSE encourages the Energy Commission to coordinate with other agencies in order to collect, aggregate, and publish reliability data on the full network of public chargers in California. This will enable better analysis of the full range of reliability issues experienced by EV chargers across the State. While CSE recognizes that the Energy Commission may not currently have the authority to do this for chargers that are not funded by the CEC, CSE notes that there may be alternative ways to obtain this information. For example, CARB is already collecting annual payment and inventory data from EVSPs pursuant to the EVSE Standards Regulation.[4] This information may provide insights into how often EVSE is being utilized and whether reliability issues are occurring. Accordingly, CSE encourages the Energy Commission to coordinate with CARB and build upon the annual reports that are being submitted to CARB. Similarly, CSE highlights that the recently-introduced Assembly Bill (AB) 2061 includes language that would require the Energy Commission to coordinate with the California Public Utilities Commission (CPUC) on developing a formula to calculate uptime in a standardized format and adopt measures (such as requirements or incentives) to increase uptime.[5] CSE is supportive of these requirements and encourages the Energy Commission to coordinate with CPUC and CARB in developing standardized reliability metrics and reporting requirements. Lastly, CSE recommends that, once data has been collected, the Energy Commission sort this data by the cause of downtime to better assess and overcome reliability challenges. CSE also recommends segregating data based on the age of the EVSE (whether it was installed in the last three years, five years, or beyond). Lastly, CSE recommends that the Energy Commission coordinate with CARB and the CPUC to publish reliability data on publicly-viewable dashboards in order to clearly visualize progress in achieving State transportation electrification goals.

3. What are feasible metrics for evaluating reliability?

CSE recommends that, prior to identifying and adopting metrics needed to address reliability, the Energy Commission develop a standardized definition for uptime. CSE supports the definition outlined in recently-introduced AB 2061, which would define uptime as, "the time a charging station's hardware and software are both operational and available for use, or in use, and the charging station dispenses electricity at the intended power level."[6] CSE also

[4] California Air Resources Board, EVSE Standards Regulation Background and FAQs. https://ww2.arb.ca.gov/resources/documents/evse-standards-regulation-background-and-faqs

[5] California Legislative Information, AB-2061, Transportation electrification: electric vehicle charging infrastructure. https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202120220AB2061#98AMD

[6] *Id.*

recommends that the Energy Commission clarify whether uptime is associated with an individual EVSE unit or the entire station at which the EVSE is located. CSE notes that different definitions were used by the presenters during the workshop. Lastly, CSE suggests that the Energy Commission seek to incorporate reliability challenges from the perspectives of both the EVSP and the EV driver. As discussed above, an EVSE that is fully functional according to an EVSP may not be accessible by a driver. Understanding these discrepancies will inform the development of solutions.

With respect to specific reliability metrics, CSE encourages the Energy Commission to consider adopting the following metrics: (1) The percentage of time the EVSE is operational; (2) Number of EV infrastructure downtime events; (3) Whether the downtime event was caused by hardware, software, or payment issues; (4) What caused the downtime event (network problem, power failure, vandalism, etc.); (5) The time needed to resolve the downtime event and resume full functionality; (6) Whether the downtime event could be resolved remotely or required on-site repair (and if the latter, how long it took for the repair to occur); and (7) Any additional communication between the EV driver, customer service, and individuals involved in the repair of the EVSE unit. Lastly, CSE recommends that the Energy Commission conduct surveys to better understand downtime events from the perspective of EV drivers and assess discrepancies between how downtime events are reported by drivers and EVSPs.

CSE recommends that, in addition to the specific reliability metrics listed above, the Energy Commission institute requirements for general data collection to assess EVSE performance and utilization. For example, under the Charge Ready NY program, which is administered by CSE on behalf of the New York State Energy Research and Development Authority (NYSERDA), equipment owners are required to provide information including: (1) EVSE installation date; (2) Number of charging events; (3) Duration of each charging event; (4) Total kWh provided; and (5) Percent usage.[7]

4. How long should the reporting period and reliability standards be set for?

CSE supports the reliability standards adopted by the Energy Commission for the Rural Electric Vehicle (REV) and Reliable, Equitable, and Accessible Charging for Multi-Family Housing (REACH) solicitations, which require EVSE to be operational for at least 97 percent of time for the initial five years of operation.[8] This is consistent with the requirement in the FHWA's guidance for the NEVI Program, which requires EVSE stations to be reliable at least 97 percent

[7] Charge Ready NY Program, Implementation Manual. https://portal.nyserda.ny.gov/servlet/servlet.FileDownload?file=00Pt000000RDsZXEA1

[8] California Energy Commission, Presentation – Electric Vehicle Charging Infrastructure Reliability Workshop. https://efiling.energy.ca.gov/getdocument.aspx?tn=242337

of the time. CSE recommends that the Energy Commission maintain this requirement in order to provide consistency across State and Federal EV infrastructure projects.

CSE also supports the requirement for grant recipients to institute operations, maintenance, and servicing agreements for up to five years. This is consistent with the Charge Ready NY program, which requires incentive recipients to own and operate the EVSE for at least five years from the date of installation,[9] as well as the FHWA guidance for the NEVI Program. CSE also recommends instituting reporting requirements for a minimum of five years for both L2 chargers and DCFC.

5. Who should be responsible for reporting? For example, grant recipients, site host, network providers, etc.

CSE recommends that the EVSPs be responsible for reporting reliability data since these entities already collect data on downtime events and are best equipped to understand reliability issues. While the Energy Commission may have more authority over grant recipients or site hosts, these entities generally do not have the capacity to monitor and report on EVSE reliability issues.

6. How should data be reported? For example, periodic reports, application programming interfaces (APIs), etc.

CSE recommends that EVSPs be required to report reliability data through either periodic reports or APIs. Specifically, CSE recommends that periodic reports be submitted in increments of not less than one month and not more than one year, as is the case for CALeVIP. CSE suggests that a quarterly reporting cadence may be appropriate. Whenever feasible, CSE also recommends that the Energy Commission seek to standardize data reporting templates and reporting timelines with those used by CARB for implementation of the EVSE Standards Regulation,[10] or those used by the CPUC for evaluation of the investor-owned utilities' transportation electrification projects.[11] CSE notes that APIs may also be a suitable solution since many EVSPs already utilize this format. CSE also recommends requiring grant recipients to authorize the Energy Commission or project implementers to directly acquire utilization and network data from the EVSP, as is the case for CALeVIP and the Charge Ready NY program. This will streamline data collection and evaluation.

[9] Charge Ready NY Program, Equipment Owner Agreement. https://portal.nyserda.ny.gov/servlet/servlet.FileDownload?file=00Pt000000NIOkpEAH

[10] California Air Resources Board, EVSE Standards Regulation Forms. https://ww2.arb.ca.gov/resource/documents/evse-standards-regulation-forms

[11] California Public Utilities Commission, Transportation Electrification Activities Pursuant to Senate Bill 350. https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/infrastructure/transportation-electrification/transportation-electrification-activities-pursuant-to-senate-bill-350

7. What are viable data collection methods? For example, owner/operator remote monitoring (through the charger, grid, payment systems), third-party remote monitoring (through OEM in-vehicle telematics), manual inspection (through crowdsourcing via apps, inspection), etc.

CSE recommends that Energy Commission implement measures to collect data from both owner/operator remote monitoring as well as crowdsourcing through apps. CSE also recommends that the Energy Commission overlap these two data sources to identify discrepancies in the way reliability issues are reported. As mentioned above, CSE recommends that the Energy Commission conduct surveys to better understand the perspective and concerns of EV drivers. Collecting data from both the EVSPs and EV drivers will enable a more holistic assessment of reliability issues and will help avoid negative bias associated with customers' self-reporting issues.

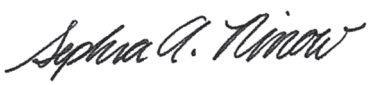
8. Should there be different reliability standards/metrics/reporting requirements for Level 2 and DCFC?

CSE recommends that the Energy Commission institute consistent reliability metrics and reporting requirements for L2 chargers and DCFC. This standardized timeline will enable better understanding of the life cycles of both charger types, particularly with respect to how the age of the charger impacts reliability. CSE also recommends that, whenever possible, the Energy Commission seek to collect information from EVSPs on when EVSE units should be replaced. While individual EVSPs may collect this data internally, it is not currently being reported to the Energy Commission or other State agencies. As mentioned above, CSE also encourages the Energy Commission to segregate reliability data based on the age of the EVSE, for both L2 chargers and DCFC.

Conclusion

CSE appreciates the opportunity to provide comments in response to the Energy Commission's Workshop on EV Charging Infrastructure Reliability. CSE looks forward to continued collaboration with the Energy Commission and stakeholders in addressing challenges to deploying reliable and accessible EV infrastructure in California.

Sincerely,



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