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**Comments regarding the California Energy Commission's
Workshop on Electric Vehicle Infrastructure Reliability Standards**

Additional submitted attachment is included below.

November 10, 2022

California Energy Commission
Docket Unit, MS-4
Re: Docket No. 22-EVI-04
715 P Street
Sacramento, CA 95814

Re: Docket No. 22-EVI-04 – Comments of the Center for Sustainable Energy® regarding the California Energy Commission’s Workshop on Electric Vehicle Infrastructure Reliability Standards

The Center for Sustainable Energy® (CSE) appreciates the opportunity to provide comments to the California Energy Commission (Energy Commission) regarding the Workshop on Electric Vehicle (EV) Infrastructure Reliability Standards. CSE supports the Energy Commission’s proposed reliability standards to comply with Assembly Bill (AB) 2061 (Stats. 2022, Ch. 345) and offers recommendations to enhance the collection and evaluation of EV infrastructure data.

CSE is a national nonprofit that is transforming markets for clean transportation and distributed energy resources (DERs) through software-enabled, data driven incentive program administration, forecasting and planning software, and unique data offerings derived from project data sets. CSE administers cutting-edge incentive programs valued at over \$4 billion for governments, utilities, and the private sector across the United States. In California, CSE is pleased to implement the California Electric Vehicle Infrastructure Project (CALeVIP) on behalf of the Energy Commission.

CSE highlights the importance of establishing robust data collection and evaluation standards to ensure a reliable charging experience for consumers, enhance program evaluation, and utilize public funds effectively. Accordingly, CSE offers the following recommendations:

1. Adopt standardized and harmonized reliability standards.
2. Enhance reliability standards by specifying data fields, transfer methods, and enforcement measures.
3. Employ a scalable data warehouse to store, aggregate, and analyze reliability data.

CSE’s responses are discussed in detail below.

1. Adopt standardized and harmonized reliability standards.

CSE emphasizes the importance of adopting standardized and harmonized data collection protocols, which will enable consistent program evaluation, prevent duplicative or inconsistent datasets, and leverage protocols that have already been adopted by industry stakeholders. As an example, CSE highlights the existing data collection protocol for CALeVIP, which was developed by CSE in coordination with the CEC. CSE notes that the CALeVIP data collection requirements have been agreed upon by the major electric vehicle service providers (EVSPs), several of which have already begun to submit data to CSE. CSE recommends the Energy Commission utilize this data collection protocol as a baseline for future reliability standards. CSE also recommends the Energy Commission standardize these data collection protocols across all current and future Clean Transportation Program projects and apply these unified protocols to collect data on key program parameters beyond just reliability, to include utilization and accessibility.

In addition to standardizing data collection across Clean Transportation Program projects, CSE recommends the Energy Commission seek to harmonize data collection requirements across other state and federal agencies. CSE supports the Energy Commission's proposal to align the state uptime requirement with the requirement proposed by the Federal Highway Administration (FHWA) for the National Electric Vehicle Infrastructure (NEVI) Formula Program. CSE recommends additional alignment with the data collection requirements to be proposed for the forthcoming federal discretionary grant programs for EV infrastructure. CSE also recommends the Energy Commission align reliability standards with the data collection requirements for the EV infrastructure programs administered by the investor-owned utilities (IOUs) and overseen by the California Public Utilities Commission (CPUC). CSE notes that, while coordination with the CPUC was called for in AB 2061, there has been limited discussion regarding how a unified set of standards will be applied consistently across CPUC and Energy Commission programs and how this information will be aggregated. It is also unclear how the forthcoming reliability standards will be applied to the existing or pending IOU programs, many of which have their own reporting requirements and data collection templates.¹ CSE encourages the Energy Commission to work with CPUC in aligning requirements, aggregating

¹ 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>

data, and ensuring that all data is collected in a standardized format that facilitates future analyses.

2. Enhance reliability standards by specifying data fields, transfer methods, and enforcement measures.

CSE generally supports the Energy Commission's proposed reliability standards, including the requirements regarding uptime, payment success, recordkeeping, reporting, and equipment maintenance. CSE highlights the need for detailed data collection protocols that specify the data fields, categories, and desired data types (i.e., decimals, integers, hash keys, etc.) to be collected, as well as detailed data transfer methods and enforcement measures to ensure compliance. CSE offers recommendations on these issues below.

CSE supports the Energy Commission's proposal to adopt performance standards requiring a minimum uptime of 97 percent. CSE is pleased to see the Energy Commission align with the uptime requirement proposed by FHWA for the NEVI Formula Program. While CSE also supports the proposed requirement for a minimum payment success rate of 97 percent, CSE notes that some factors affecting payment success may not be within the control of the EVSP. Accordingly, CSE encourages the Energy Commission to provide a list of all factors that may affect payment success, such as failures by consumers to access their own credit or debit accounts to finalize payment, and clarify which factors can be controlled by the EVSP, as opposed to those attributable to the individual consumer's ability to access the charger.

In addition, CSE supports the proposed recordkeeping and reporting standards. As mentioned above, CSE encourages the Energy Commission to adopt a standardized set of data collection requirements based on those requirements adopted for CALeVIP and agreed upon by many EVSPs. Additionally, CSE notes that the proposed recordkeeping and reporting standards only require information on charger operative status for 15-minute intervals, whereas CALeVIP requires the collection of both interval and session data. CSE recommends the Energy Commission's final standards require collection of both interval and session data, as this will provide a more holistic understanding of charger reliability and charger demand. CSE also notes that the proposed standards include a requirement for EVSPs to provide records to the Energy Commission within 10 business days. While CSE supports this proposal, CSE notes that a simpler solution may be to require secure portal access to the data repository operated by the EVSP, as is required under CALeVIP.

Furthermore, CSE supports the proposed equipment maintenance requirements, including the proposal to require chargers to include unique survey links that enable customers to provide feedback. The use of consumer surveys can validate EVSP-provided data, describe consumer perspectives on charger reliability, and identify areas that require additional research or future standards. CSE notes that similar surveys have been used in the IOUs' transportation electrification programs authorized under Senate Bill (SB) 350.² CSE also highlights the consumer surveys used for programs like CVRP,³ which can also be helpful in assessing consumers' charging needs and preferences.

In addition to establishing reliability and data collection standards, CSE recommends the Energy Commission adopt detailed and standardized data transfer protocols, data request documents, and template data sharing agreements. Data transfer protocols can specify which data transfer methods can be utilized, including application programming interfaces (APIs), secure file transfer protocols (SFTPs), or secure portal access to the EVSPs' data repository. Data request documents can specify data fields, categories, and types to be collected, which will ensure consistently formatted data across a wide pool of grant recipients. Template data sharing agreements can be helpful in articulating the roles and responsibilities of each entity involved in data transfers and accelerate the finalization of agreements by reducing the need for revisions. These agreements can include information on efforts to ensure that proprietary information is protected by aggregating and anonymizing data and employing security protocols such as data encryption. CSE suggests these agreements be developed in conjunction with public and private entities and circulated prior to issuing funding, to ensure coordination on requirements and facilitate the timely distribution of funds.

Lastly, CSE encourages the Energy Commission to propose enforcement mechanisms to ensure compliance with reliability standards. CSE suggests that the Energy Commission consider mechanisms such as making EVSPs who fail to meet standards ineligible to receive future grant funding under Clean Transportation Program projects, conceivably after a grace period to allow EVSPs time to become familiar with the requirements. While CSE acknowledges that private entities are often reluctant to share data, CSE contends that the reporting of operational data is

² Energetics Incorporated, Final Evaluation Report: California Investor-Owned Utility Transportation Electrification Priority Review Projects, page 30.

<https://cadmusgroup.com/wp-content/uploads/2021/06/CA-TE-Priority-Review-Project-Evaluation-Report-Public-Version.pdf>

³ Center for Sustainable Energy, California Plug-in Electric Vehicle Owner Survey.
https://cleanvehiclerebate.org/sites/default/files/docs/nav/transportation/cvrp/survey-results/California_PEV_Owner_Survey_Report.pdf

currently a key condition of receiving grant funding for many state and federal programs. Additionally, protocols exist to aggregate and anonymize private data, which alleviates concerns regarding the divulgence of proprietary information.

3. Employ a scalable data warehouse to store, aggregate, and analyze reliability data.

CSE recommends the Energy Commission employ a secure and scalable data warehouse to facilitate the long-term storage, aggregation, and analysis of data from all EV infrastructure incentive projects under the Clean Transportation Program and coordinate with the CPUC to include data from the IOUs' transportation electrification programs. A data warehouse can function as a centralized repository for ingesting significant amounts (i.e., gigabytes) of data, from billions of dollars' worth of state programs, and storing this information over the course of a program and beyond. Storing data in a centralized location can also facilitate program evaluation, by enabling targeted evaluations of charger reliability at the individual site level, while also comparing charging behavior across location types, charger types, and use cases. This information can then be used to develop charging usage profiles and accompanying load curves, as well as other useful insights. These resources can in turn enhance future program design and inform grid planning.

CSE recommends that the data warehouse have the capacity to clean, standardize, and validate incoming data. Specifically, CSE suggests the warehouse be designed with automated protocols to clean data by identifying and sorting outliers, standardize data by converting it into a consistent format, and validate data by assessing whether the data conforms to the specified requirements. These protocols will ensure that all data, regardless of the source, transfer method, or individual site characteristics, can be stored, analyzed, and visualized consistently and without additional preparation. CSE also recommends the warehouse include a data access portal to allow state agencies to easily access the data to ensure adherence with reliability standards or other requirements.

For example, as part of CSE's implementation of CALeVIP, CSE has developed a data warehouse to facilitate data collection, storage, and analysis. CSE's data warehouse includes the following capabilities:

- Automated ETL (extract, transform and load) process for data ingestion, validation, and storage;
- Standardized relational data structure optimized for storing charger equipment, interval, session, and reliability data;

- Data protection protocols using Amazon’s Cloud Security Services; and
- Live data connection to an interactive data visualization dashboard that tracks charger reliability and utilization.

Lastly, CSE recommends the data warehouse be designed with the capacity to automatically generate periodic reports and produce both internal- and external-facing dashboards, as required by the Commission. This will enhance transparency by enabling state agencies, grant recipients, and the general public to continually track key factors like charger reliability. Specifically, dashboards can verify that reliability standards are being met on an ongoing basis by tracking uptime information from the data warehouse so that parties responsible for charger operations and maintenance can be alerted and take corrective measures to comply with program performance requirements. Dashboards can also incorporate geographic information system (GIS) overlays to develop maps that visualize charger reliability across the state and identify regional barriers to equitable charger access.

Conclusion

CSE appreciates the opportunity to provide comments in support of the Energy Commission’s EV infrastructure reliability standards. The collection and analysis of reliability data will help ensure a seamless charging experience for consumers. CSE looks forward to continuing to inform the development of these standards.

Sincerely,



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