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Comments Regarding the Proposed Regulations for EV Charger Inventory, Utilization, and Reliability Reporting

Additional submitted attachment is included below.

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October 25, 2023

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 Center for Sustainable Energy® regarding the California Energy Commission's Workshop on Proposed Regulations for EV Charger Inventory, Utilization, and Reliability Reporting

Center for Sustainable Energy® (CSE) appreciates the opportunity to provide comments to the California Energy Commission (Energy Commission) regarding the proposed regulations on EV charger inventory, utilization, and reliability reporting. CSE supports the proposed regulations and offers the following recommendations to improve EV infrastructure reliability.

CSE is a national nonprofit that accelerates adoption of clean transportation and distributed energy through effective and equitable program design and administration. Governments, utilities and the private sector trust CSE for its data-driven and software-enabled approach, deep domain expertise and customer-focused team. CSE's fee-for-service business model frees it from the influence of shareholders, members and donors, and ensures its independence. In California, CSE is pleased to implement the California Electric Vehicle Infrastructure Project (CALeVIP) on behalf of the Energy Commission.

CSE highlights the need to adopt robust reliability and reporting standards in order to ensure a seamless charging experience for EV drivers and enhance the collection and evaluation of reliability data. Accordingly, CSE offers the following recommendations:

1. Establish a minimum 97 percent uptime requirement to ensure reliability.
2. Adopt harmonized reporting requirements that align with existing programs.
3. Develop enforcement measures to ensure compliance with reporting requirements.
4. Employ a scalable data warehouse to store, aggregate, and analyze data.
5. Utilize dashboards to visualize insights and comply with AB 126 requirements.

CSE's recommendations are discussed in detail below.

1. Establish a minimum 97 percent uptime requirement to ensure reliability.

CSE strongly recommends the Energy Commission establish a minimum 97 percent uptime requirement, which would be consistent with the requirements under the National Electric Vehicle Infrastructure (NEVI) Program. CSE acknowledges the Energy Commission's concern that an uptime requirement alone may not result in a charging network that is reliable and dependable, since other issues like interoperability and payment failures may impair overall reliability; however, CSE contends that there is sufficient data to demonstrate that charger reliability is a significant concern among EV drivers, as has been discussed in the Energy Commission's previous workshops and documented in reports from Cool the Earth[1] and Electrify America.[2] Furthermore, establishing a baseline level of reliability can only improve EV drivers' charging experiences. Establishing an uptime requirement would also comply with the requirements of Assembly Bill (AB) 126 (Ch. 319, Stats. 2023), which directs the Energy Commission to adopt tools to increase uptime, including establishing uptime requirements.[3]

2. Adopt harmonized reporting requirements that align with existing programs.

CSE supports the Energy Commission's proposed regulations regarding EV charger inventory, utilization, and reliability reporting, as required under AB 2061 (Ch. 345, Stats. 2022). Nevertheless, CSE sees the benefits in and recommends the Energy Commission revise the proposed regulations to more closely align with existing programs like NEVI and CALeVIP. Harmonizing standards with existing programs will enable consistent program evaluation, prevent inconsistent datasets, and leverage accepted protocols.

CSE recommends the Energy Commission collect additional data fields to better characterize charger downtime events, charging sessions, and charging intervals, as detailed in Table 1 below. These recommended data fields are derived from the data collection protocol for CALeVIP, which was developed by CSE in coordination with the Energy Commission. CSE notes that the CALeVIP data collection requirements have been agreed upon by the major electric vehicle service providers (EVSPs), who have already begun to submit data to CSE. The collection and subsequent evaluation of this data will yield a greater understanding of charger reliability, charging behavior, and energy impacts on the grid.

[1] Rempel, et al. (2022), Reliability of Open Public Electric Vehicle Direct Current Fast Chargers.
[2] Electrify America (2022), Drivers of DCFC Charging Unreliability and How To Measure.
[3] Assembly Bill 126, Chapter 319, Statutes of 2023, Section 25231.5(d).

Table 1: Recommended Data Fields to Include in Reliability Reporting Requirements

Data Category	**Data Field**
Downtime Event Identifier	Site ID
	EVSE ID
	Port ID
	Downtime Reason
	Event Start/End Date
	Event Start/End Time
Session Identifier	Session ID
	Site ID
	EVSE ID
	Port ID
	Connector Type
	Charge Duration
	Charge Session Start/End Date
	Charge Session Start/End Time
	Disconnect Reason
	Connection Duration
	Idle Duration
	Energy Consumed
	Charge Peak Demand
	Charge Average Demand
	Total Transacted Amount (Driver)
	Payment method
	Vehicle Make
	Vehicle Model
	Vehicle Year
	Vehicle Type
Interval Identifier	Interval ID
	Session ID
	Port ID
	Interval Start/End Date
	Interval Start/End Time
	Interval Energy Consumed
	Interval Peak Demand
	Interval Average Demand
	Interval Duration

CSE also recommends the Energy Commission adopt a quarterly reporting timeline, rather than a semiannual timeline, as presently included in the proposed regulations. A quarterly reporting timeline will better align with the data collection requirements for the NEVI Program and will yield more granular information on charger reliability.

Lastly, CSE recommends that, where possible, the Energy Commission align reporting requirements with the requirements for the EV infrastructure programs administered by the investor-owned utilities (IOUs) and overseen by the California Public Utilities Commission (CPUC). While AB 2061 directed the Energy Commission to coordinate with the CPUC in the development of uptime reporting requirements, it is unclear how these requirements will be applied uniformly across Energy Commission and CPUC programs, especially when many of the IOU programs have distinct data collection requirements.[4] Accordingly, CSE encourages the Energy Commission to coordinate with the CPUC in aligning requirements, aggregating data, and ensuring that all data is collected in a standardized format that facilitates future evaluation.

3. Develop enforcement measures to ensure compliance with reporting requirements.

As part of CSE's implementation of CALeVIP, CSE has begun to collect EV charger data from several EVSPs. However, CSE has experienced challenges in receiving data in a timely and consistent manner. In several instances, CSE has had to reach out to an EVSP multiple times over the course of several months in order to schedule technical meetings, receive data reports, and receive corrections to previously-submitted data reports. The submission of these reports has also been complicated by disparate reporting timelines and inconsistent charger identification numbers, thus reinforcing the need for harmonized reporting requirements as discussed above.

To ensure compliance with data reporting requirements, CSE recommends the Energy Commission develop robust enforcement measures. Specifically, CSE recommends the Energy Commission establish deadlines for EVSPs to provide data as well as limitations on how many times they can defer or ignore requests to provide data. CSE also suggests that EVSPs who repeatedly fail to comply with reporting requirements in a timely manner be excluded from

[4] 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

being an eligible vendor for future grant applications. Conceivably, this exclusion would be applied after a grace period to allow EVSPs time to become familiar with the requirements.

CSE acknowledges that, as discussed by Energy Commission Staff during the public workshop held on October 9, 2023, there are unresolved questions regarding the Energy Commission's authority to implement enforcement measures. To address this issue, CSE recommends the Energy Commission include enforcement measures in the grant agreements that are signed with funding recipients. CSE also suggests that the Energy Commission enhance clarity around reporting requirements by developing standardized data request documents, data transfer protocols, and template data sharing agreements.

While CSE acknowledges that private entities are often reluctant to share data, CSE highlights that the reporting of operational data is already a key condition of receiving public funding through several state and federal programs, including CALeVIP and NEVI. Additionally, protocols exist to aggregate and anonymize private data, thereby alleviating concerns regarding the divulgence of proprietary information.

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

CSE recommends the Energy Commission employ a secure and scalable data warehouse to facilitate the long-term storage, aggregation, and analysis of EV charger data. A data warehouse can function as a centralized repository for ingesting significant amounts 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 subsequently be used to develop charging usage profiles and accompanying load curves, which will 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 without additional preparation.

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.

CSE suggests that a data warehouse could be used to facilitate data collection across all of the Energy Commission's projects under the Clean Transportation Program. Employing a centralized data repository will help store, aggregate, and analyze the significant level of data the Energy Commission is expected to collect over the next several years, while ensuring that this data can be easily accessed to evaluate key parameters like reliability and utilization.

5. Utilize dashboards to visualize insights and comply with AB 126 requirements.

CSE recommends the Energy Commission leverage publicly-available dashboards to visualize key insights on charger inventory, utilization, and reliability. These dashboards can enhance transparency by highlighting progress towards California's EV infrastructure deployment goals. CSE notes that the use of such dashboards was discussed during the public workshop held on October 9, 2023, and that similar dashboards have been used for Energy Commission programs.

Dashboards can also help comply with the requirements of AB 126, which directed the Energy Commission to adopt tools to increase charger uptime and set standards to notify customers about charger availability and accessibility.[5] For example, dashboards can be designed to track chargers' operative statuses (using information from the data warehouse) and send notifications to the entities responsible for charger operations and maintenance. These dashboards could be used for operations and maintenance incentive programs, which were also proposed in AB 126. Additionally, both dashboards and notification systems could be used to provide customers with information on charger availability (including where chargers are located) and real-time status (including whether chargers are operational).

[5] Assembly Bill 126, Chapter 319, Statutes of 2023, Section 25231.5(d).

Conclusion

CSE appreciates the opportunity to provide comments in support of the Energy Commission's proposed regulations for EV charger inventory, utilization, and reliability reporting. These reporting requirements, coupled with collection and evaluation of key charger data, will enhance the charging experience for all EV drivers. CSE looks forward to supporting the development of these regulations.

Sincerely,

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