

DOCKETED

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ABB E-mobility Comments on Proposed Inventory, Utilization and Reliability Reporting Regulation

Additional submitted attachment is included below.

October 25, 2023

California Energy Commission
Fuels & Transportation Division
715 P Street
Sacramento, CA 95814

Re: 22-EVI-04 Electric Vehicle Infrastructure Reliability – Draft Staff Report, Tracking California’s Electric Vehicle Chargers: Regulations for Improved Inventory, Utilization, and Reliability Reporting

Dear California Energy Commission staff,

ABB E-mobility is pleased to provide the following submission to the California Energy Commission (CEC) in response to Docket No. 22-EVI-04 relating to the Draft Staff Report, Tracking California’s Electric Vehicle Chargers: Regulations for Improved Inventory, Utilization, and Reliability Reporting. ABB E-mobility shares the CEC’s commitment to providing drivers with a reliable charging experience throughout the state of California and appreciates the significant effort that went into developing this draft staff report and regulation.

ABB E-mobility has been manufacturing EV chargers for the US market for over a decade and is the leading manufacturer of electric vehicle chargers globally, having sold more than 1 million electric vehicle chargers, including 50,000+ direct current fast chargers (DCFC). ABB E-mobility recently expanded US manufacturing operations, in part, to meet Build America, Buy America Act requirements. The new facility which began production in January 2023 has already delivered chargers to customers and can produce up to 10,000 chargers per year, ranging from 20kW to 180kW in power, which are ideally suited for public charging, school buses, and fleets.

ABB E-mobility provides charging technology to owners and operators of charging equipment across the transportation sector including public charging networks, transit bus operators, electric utilities, auto dealerships, auto manufacturers, shipping and logistics fleets, commercial fleets, and more. As a long-time member of the e-mobility industry, ABB E-mobility is actively involved in developing not only charging technology, but also industry-wide standards for both hardware and software interoperability.



Figure 1. ABB E-mobility public charging references



ABB E-mobility has a robust service and maintenance operation providing 24/7/365 monitoring, troubleshooting, and repair services for chargers in the field. With our focus on developing, manufacturing, and delivering innovative and reliable charging technologies to the market, ABB E-mobility primarily provides charging owners and operators with the technology needed to deliver seamless and high-quality charging experiences.

Definition of Charge Attempt

§ 3121 (b) (3) “Charge attempt” means any instance of an EV driver taking action to initiate a charging session by taking one or all of the following steps in any order: 1) attaching the connector to the EV appropriately or 2) attempting to authorize a charging session by use of radio frequency identification (RFID) technology, credit card, charging network provider smartphone application (app), screen input, or calling the charging network provider’s customer service number.

ABB E-mobility cautions the CEC that the proposed definition of charge attempt leaves significant opportunities to count operator errors as legitimate charging attempts thereby artificially inflating the number of attempts. For example, the current definition does not take into account a variety of common failure points like, a driver not plugging the vehicle in before attempting to start a session, or failing to plug in within the 60 seconds following session authorization, causing a session timeout; or the driver attempting to authorize a charging session using a credit card, but tapping the credit card on the RFID reader instead of the credit card reader. These are challenges in consumer education that need to be addressed, but are not reflective of a charger infrastructure failure.

ABB E-mobility suggests that the CEC consider requiring charging operators to either digitally or physically post the appropriate order of operations to successfully initiate a charge session. We also encourage the CEC to request from charging operators the recommended order of operations to initiate a charge session and modify the definition of “charge attempt” to reflect the feedback provided.

Definition of Successful Charging Session

§ 3121 (b) (43) “Successful charging session” means, following a charge attempt, a customer’s EV battery is charged to the state of charge the customer desires and is disconnected manually by the customer or by the EV’s onboard software system terminating the charging session, without an additional charge attempt.

ABB E-mobility recommends that the CEC consider modifying the definition of a successful charging session to the following:

““Successful charging session” means, following a charge attempt, a customer’s EV battery is charged to the state of charge as requested by the vehicle and is disconnected manually by the customer or by the EV’s onboard software system terminating the charging session, without an additional charge attempt.”

The state of charge requested by the vehicle is a more reliable and objective metric than trying to infer a customer’s “desire” and will reflect any limits established by the vehicle. This update is also in alignment with the portion of the definition that acknowledges that



the EV's onboard software system may terminate the charging session once a certain state of charge is achieved.

Scope - Limit Public and/or Ratepayer Funded Charger Uptime Report Requirements to “Publicly-Available” Chargers

§ 3123 (3) (A) For each charging port of a public and / or ratepayer funded charger, for the first six years after a charger is installed, the uptime data required by section 3124 of this Article.

ABB E-mobility has significant concerns regarding the uptime reporting requirements for fleet operators using only “behind-the-fence,” non-publicly available chargers. While ABB is in agreement with the CEC that these chargers, whether they receive public funding or not, should achieve high uptime, the proposed reporting requirements would cause significant administrative burden on both small and large fleets. Further, these operators are well-motivated to achieve high-uptime and may employ different methods to achieve high uptime than what public operators may use.

We welcome the opportunity for further conversation on this, and recommend that where possible, within the constraints of AB 2061, the CEC consider only requiring reliability reporting for publicly funded charging stations that meet CARB's definition of “publicly available”:

“Publicly available Electric Vehicle Supply Equipment (publicly available EVSE, publicly available DCFC EVSE, or publicly available Level 2 EVSE)” means an EVSE and associated parking space or spaces designated by a property owner or lessee to be available to, and accessible by, the public for any period of time. An EVSE designated by a lessee or a property owner to be available only to customers or visitors of the business is a publicly available EVSE for purposes of this chapter. EVSE and associated parking spaces located in parking garages or gated facilities are considered publicly available for purposes of this chapter if any member of the public can obtain vehicular access to the facility for free or through payment of a fee.¹

Downtime Event Duration – OCPP 2.0.1 Messages, BootNotificationResponse and HeartbeatResponse

§ 3124 (c) (1) (C) If using OCPP Version 2.0.1 or a subsequent version of OCPP, the time between a BootNotificationResponse transmitted by the Central Management System and the last HeartbeatResponse transmitted by the Central Management System prior to the BootNotificationResponse. The timestamps in the relevant BootNotificationResponse and HeartbeatResponse shall be used to quantify downtime.

ABB E-mobility recommends that the CEC consider updating the language in §3124 (c) (1) (C) to the following:

¹ California Air Resources Board. Chapter 8.3. Electric Vehicle Supply Equipment Standards § 2360. Applicability. (b) A-2



“If using OCPP Version 2.0.1 or a subsequent version of OCPP, the time between a BootNotificationResponse transmitted by the Central Management System and the last OCPP message transmitted by the Central Management System prior to the BootNotificationResponse. The timestamps in the relevant BootNotificationResponse and the last OCPP message transmitted shall be used to quantify downtime.”

We recommend this change because there are a variety of situations where the last HeartbeatResponse is not an accurate representation of when the charger may have entered into a downtime state. For example, if a car is actively charging and the network goes down, the last HeartbeatResponse may have been sent before the charge session was initiated. Yet, many OCPP messages were transmitted following the HeartbeatResponse. ABB E-mobility recommends that the CEC look at the last OCPP message sent before the network goes down or the charger enters into a faulted state to determine a more accurate duration of downtime.

Excluded Downtime – Outage for Preventative Maintenance or Upgrade

§ 3124 (d) (4) Outage for Preventative Maintenance or Upgrade: *Downtime caused by any preventative maintenance or upgrade work that takes the charging port offline. This must be scheduled at least two weeks in advance of the charger being placed in an inoperative state. The maximum downtime that can be excluded for preventative maintenance or upgrade work is 24 hours for any 12-month period.*

ABB E-mobility conducts preventative maintenance and upgrade activities to enhance charger reliability and improve the driver experience. For example, preventative maintenance visits can include replacing air filters and inspecting the fan cabinet, power modules, DC fuse(s), CPI board, connectors and more. These inspections require close visual examination, and when necessary, based on inspection, can include part replacement to avoid unplanned downtime in the future. Additionally, regular preventative maintenance activities are conducted by ABB E-mobility’s network provider. These activities are directly correlated to improved charger uptime and can require more than 24 hours of work in a 12-month period. Beyond the preventative work already mentioned, “upgrades” could also include additional in-field work like adding a NACS connector. With these activities in mind, ABB E-mobility recommends that the CEC increase the maximum allowable downtime exclusion to at least 72 hours in a 12-month period.

Additionally, ABB E-mobility is concerned with the requirement for companies to provide a notification to the CEC two weeks ahead of planned preventative maintenance or upgrade activities. Providing a two-week notification for preventative maintenance adds significant administrative burden and it is unclear what value that would provide to CEC. ABB E-mobility acknowledges the need for detailed reporting of what work was conducted within the claimed hours, but recommends that the CEC consider removing the requirement to notify the CEC prior to preventative maintenance or upgrades.



Thank you for the opportunity to provide comments on the CEC's draft staff report on tracking California EV chargers. ABB E-mobility shares California's commitment to electrifying the transportation sector and creating US jobs and economic growth in the process.

If you have any questions or want to discuss any of these topics further, please do not hesitate to reach out to Alex Ehrett, Public Policy & Market Development Manager, at alex.ehrett@us.abb.com.

Respectfully submitted,

A handwritten signature in black ink that reads "Alex Ehrett". The signature is written in a cursive, flowing style.

Alex Ehrett
Public Policy & Market Development Manager, West Region
ABB E-Mobility