DOCKETED	
Docket Number:	22-EVI-04
Project Title:	Electric Vehicle Charging Infrastructure Reliability
TN #:	247430
Document Title:	ChargePoint, Inc Comments - Post Workshop
Description:	N/A
Filer:	System
Organization:	ChargePoint, Inc.
Submitter Role:	Public
Submission Date:	11/11/2022 4:30:00 PM
Docketed Date:	11/14/2022

Comment Received From: ChargePoint, Inc.
Submitted On: 11/11/2022
Docket Number: 22-EVI-04

Post Workshop Comments of ChargePoint, Inc

Additional submitted attachment is included below.

ChargePoint, Inc.
254 East Hacienda Avenue | Campbell, CA 95008 USA
+1.408.841.4500 or US toll-free +1.877.370.3802

November 11, 2022

Mr. Dustin Schell
Air Resource Engineer
California Energy Commission
715 P Street
Sacramento, CA 95814

Re: Docket No. 22-EVI-04 – Comments of ChargePoint regarding the California Energy Commission's Workshop on Electric Vehicle Infrastructure Reliability Standards

Dear Mr. Schell

ChargePoint thanks the Commission and Staff for their attention to the important issue of reliability of EV Charging Infrastructure and the opportunity to file these comments in response to the workshop held on October 21, 2022. ChargePoint's comments below will respond to proposed reliability standards being considered by the Commission for near term funding opportunity. ChargePoint's comments focus on both process and specific responses to the proposed standards.

Sincerely,

Justin Wilson
Director, Utility Partnerships and Regulatory Affairs
ChargePoint, Inc.

Process

Additional specificity is necessary on several key terms used in the October 21, 2022 presentation. ChargePoint recommends that the CEC develop a list of terms and definitions and allow an opportunity to provide additional comment once proposed definitions are provided. ChargePoint recognizes that CEC has provided language used in the REV and REACH agreements, however, it is unclear if CEC is proposing to use that template language or new languages for the purposes of terms provided at the workshop. ChargePoint recommends that the Commission develop language specific to the near term funding opportunities at issue in this docket, similar in detail to the language provided in TN 246620, and allow for additional public comment.[1] It is critical to ensuring the workability of CEC's proposed reliability requirements that parties are aligned on the terms before reliability requirements are incorporated into the near-term funding opportunities identified by CEC.

ChargePoint seeks clarification on the following terms at minimum and requests that CEC provide a specific definitions and allow for public comment.

- "Attempts to initiate a charge": ChargePoint seeks to clarify if an "attempt" is from the perspective of the EV driver (customer) or the EV charging network software and when the attempt begins, for example at the point of authentication (presentation of an RFID card, initiation through mobile app or vehicle, or other form of payment). An attempt can look different to a customer and a charging network, a customer may attempt to initiate a charging session a single time, but the software may make multiple "attempts" to initiate a charge in the background unknown to the EV driver. This could provide the customer with a superior experience and does not impact overall reliability from the customers experience so long as all relevant charging protocols are followed between the EVSE and the vehicle. Additionally, there are several steps which may vary by hardware and network that may be necessary to accomplish a successful attempt. ChargePoint recommends that an attempt be defined to begin at the point of authentication which is inclusive of 1) authorization at the point of sale, 2) removal of the charging port from the holster, and 3) successful connection with the vehicle.
- "Annual preventative maintenance": ChargePoint seeks clarity on the "preventative maintenance" that CEC is proposing.
- "Corrective maintenance": ChargePoint seeks clarity on what CEC constitutes corrective maintenance and when corrective maintenance must be performed. Is corrective maintenance only required for issues that make a charging station inoperable? How does the "corrective maintenance" timelines interact with the broader Performance Standards for uptime and payment success rate proposed by CEC?
- "Recordkeeping": ChargePoint seeks clarification on how long records must be maintained? We note that the volume of data, in particular 15-minute interval data, needing to be retained could be a burden to some grant recipients and/or network providers.
- "Uptime": ChargePoint seeks clarification on the specific formula CEC is proposing for uptime and definitions of all component parts of that formula.

[1] https://efiling.energy.ca.gov/GetDocument.aspx?tn=246620&DocumentContentId=80877

Comments on Reliability Requirements to be Incorporated into Near-term Funding Opportunities

In this Docket, CEC has proposed Reliability Requirements for three near-term funding opportunities: NEVI, CALeVIP 2.0, and CHILL-2. The requirements include reporting, maintenance, participation in a consumer reporting survey, equipment requirements, and performance standards. ChargePoint provides comments on each of these requirements below and provides recommendations for the Commission's consideration.

Recordkeeping

In the October 21, 2022 presentation, CEC staff propose that grant recipients agree to make available certain records to CEC within 10 days of request. The records that need to be preserved and made available to CEC upon request include:

- Charger port operative status and error codes on 15-minute interval via StatusNotification.req
- Total number of attempts to initiate charge
- Failed attempts to initiate charge by category:
    - Charger / network outage
    - Payment system failures by category
        - Internal Network Error
        - Roaming / OCPI communication failure
        - External (.g. Credit Card)
    - Interoperability failures, including vehicle make and model when know.
- Maintenance events (including type, date/time, duration)
- Records made available to CEC within 10 days of request

Recommendations:

ChargePoint appreciates CEC's efforts to establish a uniform set of recordkeeping requirements. However, ChargePoint seeks clarity on several elements of CEC's proposal and modifications.

ChargePoint seeks clarity on the temporal expectation for records retention. It is unclear from the October 21, 2022 presentation for what period of time CEC expects funding recipients to retain the information in its proposed recordkeeping requirements. ChargePoint notes that the volume of data in CEC's proposal is extensive in size and scope and exceeds any other document retention requirements placed on the industry today. ChargePoint recommends that the recordkeeping requirements be incorporated into the quarterly reporting requirements. This will enable CEC to see the data while reducing the strain on funding recipients and the industry to retain an extensive amount of data.

ChargePoint supports CEC's efforts to use networked charging equipment's software capabilities to record and report on the operative status of charging ports. ChargePoint is however concerned about the volume of data necessary to record 15-minute interval data. ChargePoint recommends that CEC allow the recordkeeping and reporting of hourly data on the operative status of charging stations, so long as the reported information is based on underlying 15-minute interval level data. Further, ChargePoint recommends that CEC allow flexibility in the data response (StatusNotification.req) used to

collect underlying data. Charging networks may use different communication protocols for the collection of operative status and error codes. ChargePoint suggests that CEC allow for alternative communication protocols as it has in the REACH and REV agreement language.

ChargePoint supports CEC's effort to record and report on payment system failures by category, however, accurate data is not available to determine the payment system failure by category currently. There are many points of failure outside of the EVSP's control that may lead to a failure in payment processing for the user, including dirty or scratched cards, insufficient account funds, user error, and payment processor outage. ChargePoint notes that it is a common experience for credit card users to attempt to tap, dip, or swipe their card multiple times at payment terminals for retail transactions. The most common payment failures are often outside the providers' control and could be outside the visibility of the charging provider. ChargePoint recommends that the category component of payment system failures remain optional at this time.

ChargePoint supports the goal of determining when a failed attempt to charge is used by an interoperability failure, however, ChargePoint does not believe that accurate information on this data point currently exist today and is not available to the charging networks. ChargePoint recommends that the CEC monitor the *SAE Framework for EV Charging Infrastructure: Charging System Performance Reporting Best Practice* effort that was presented at the October 21, 2022 workshop and consider incorporating the findings, once they are validated, into future iterations of reliability recordkeeping and reporting.

Quarterly Reporting

In the October 21, 2022 presentation, CEC staff propose that grant recipients report quarterly to the CEC the following items:

- Annual average charger port uptime as defined as Operative Status and Error Codes indicating a charger was operative for the 15-minute interval
- Total number of attempts to initiate a charge
- Total number of failed attempts to initiate a charge by category
- Maintenance Logs:
    - Total number of dispatch events
    - Description of significant maintenance challenges

Recommendation:

ChargePoint is supportive of CEC's quarterly reporting requirements. ChargePoint does, however, ask CEC to clarify the annual uptime calculation formula including specific definitions for all components used in the formula. ChargePoint is supportive generally of aligning with the draft federal guidance for the NEVI program, but also believes the draft NEVI guidance can be improved.

While the draft NEVI guidance and CEC's proposal both require uptime be measured per port, ChargePoint has concerns surrounding a lack of consideration for redundancy, which is a common strategy for ensuring system-level reliability in critical infrastructure. Redundancy can operate at both the site level and within an individual charger. At the site level, a driver is impacted by station downtime to the extent none of the otherwise available ports at the site is available to dispense energy. Counting only those downtime events that rendered the last unoccupied port at a site inoperable would address the ability of a newly arriving driver to find a useable port while also incentivizing station owners to plan

additional capacity. Additional ports reduce driver wait times and make sites more resilient to point failures (especially catastrophic ones, such as vehicle-station collisions that may require construction work and therefore be slow to resolve despite best efforts by all involved). Such a site level uptime computation could be an alternative to port level uptime standards.

At the charger level, reliability engineering principles would encourage building in redundancy for portions of the charger that are critical to drivers receiving energy on demand, including power modules that contribute to the rated or peak power of a charger. Chargers that can "fall back" on modular or reserve power electronics should be encouraged as a key reliability strategy, and therefore uptime definitions should not strictly tie to peak power ratings. We recommend that a charger be considered "up" when a charging port is able to successfully dispense electricity as designed by the manufacturer, configured by the station owner, and as requested by the electric vehicle being charged. To encourage modular design that supports resiliency, ChargePoint recommends that the CEC develop a uptime formula to provide uptime credit on a proportional basis in the event of a failure of a single modular component so long as the ability to receive a charge still exist.

Maintenance Requirements

In the October 21, 2022 presentation, CEC staff propose that grant recipients be required to provide:

- Annual preventative maintenance
- Corrective maintenance completed within 5 business days
- All maintenance conducted by technician(s) certified by manufacturer

Recommendation:

As noted above, ChargePoint seeks additional clarity on the "preventative maintenance" CEC is proposing. Preventative maintenance can take many forms, some more costly to preform than others. ChargePoint encourages the CEC to balance the cost of preventative maintenance with the positive impacts that preventative maintenance can achieve.

ChargePoint is supportive of identifying a time frame for corrective maintenance, however, ChargePoint notes that we are currently in a very challenging environment related to supply chain for both new and replacement parts for charging stations. While corrective maintenance completed within 5 days should be a goal, there are instances where replacement parts cannot be produced, procured, shipped, and installed within 5 days. ChargePoint believes the CEC should remain pragmatic and flexible until the global supply chain has stabilized.

Required Participation in Consumer Reporting Survey

In the October 21, 2022 presentation, CEC staff propose that all CEC funded chargers must bear sticker with unique identifier and link to a survey.

Recommendation:

ChargePoint recommends that the CEC remove this requirement, which is unnecessary due to other regulations, will be confusing to consumers, delay any necessary maintenance, and could put consumers at risk of malicious activity.

CARB's EVSE standards regulations already require publicly available charging stations in California that require payment to provide and display a toll-free number on each EVSE or kiosk used to service that EVSE that provides the user with the option to initiate a charging session and submit payment at any time that the EVSE is operational and publicly available." While these regulations are designed around payment standards, they already require the display of a toll-free number a consumer can call to report any charging issues. If there were a maintenance issue needed these charging issues would be required to be recorded and reported to CEC through the record keeping and reporting requirements proposed by CEC.[2]

ChargePoint is concerned that the proposed consumer reporting survey sticker could lead to confusion among drivers on where to report information related to reliability. For charging stations that are often unmanned, information from consumers is critical to dispatching repair technicians to resolve issues. If an EV driver were to encounter a charger experiencing downtime, the most expeditious path to resolving the issue will be to follow the instructions specified by the owner and operator or network service provider. By requiring a sticker to be placed on the charging station, an EV driver could be drawn to the QR code and report an issue to the CEC rather than the charging provider, leading to delays in the deployment of repair technicians.

Requiring a static QR code in the form of a sticker on a station also puts consumers at risk. Phishing attacks common with swipe or dip credit card transactions are also possible with QR codes. Phishing attacks can be easily implemented by fraudsters, especially with the QR code on a static display such as a sticker. In this instance a seemingly harmless sticker with a QR code can be easily covered with a nefarious one directing users to a malicious website. This makes QR codes an easy target for confusion and malicious activity.[3, 4]

[2] See slides 25 and 26 of October 21, 2022 CEC Workshop Presentation.
[3] https://www.securitymagazine.com/articles/97949-qr-code-phishing-scams-target-users-and-enterprise-organizations
[4] https://www.cnet.com/tech/services-and-software/qr-code-scams-are-on-the-rise-heres-how-to-avoid-getting-duped/

Equipment Requirements

In the October 21, 2022 presentation, CEC staff propose that grant recipients be required to use chargers that are ISO 15118 ready and OCPP ready.

Recommendation:

ChargePoint believes it is premature to require equipment to be ISO 15118 ready and OCPP ready at this time and that announcing these requirements in close proximity to the funding opportunities will reduce the number of available equipment solutions. ChargePoint recognizes the CEC's continued interest in these issues, however, at this time ChargePoint believes these requirements to be premature.[5] In TN241955 the CEC provides a discussion of market readiness for the application of ISO ready chargers. In that document the CEC states:

> *"CEC staff plans to monitor the number of commercially available ISO 15118-ready charger models and brands to gauge market readiness for widespread deployment. Discussions with stakeholders indicate that, for the DC charger market, the availability of five or more ISO 15118-ready DC charger brands (not models) is reasonably indicative of a market prepared for widespread deployment of ISO 15118-ready DC chargers. For the AC charger market, the availability of eight or more ISO 151118-ready AC charger brands (not models) is reasonably indicative of a market prepared for widespread deployment of ISO 15118-ready AC chargers. CEC staff also plans to monitor related market indicators, such as PLC transceiver lead times.*

ChargePoint is not aware of any document superseding TN241955. For the application of standards to be workable for businesses, CEC must first communicate any market assessments it has done and allow providers enough time to react to new requirements. Even if CEC has performed the market analysis it discusses in TN241955, it is only appropriate to apply these requirements after CEC publishes the results of its market analysis, allows for comment, and provides sufficient time for all of the industry to incorporate any new requirements.

Outside of the CEC analysis, there is evidence that the market is not ready for the ISO 15118 ready requirement. Recently, Southern California Edison attempted to implement an requirement from the California Public Utility Commission requiring ISO 15118 ready hardware chargers in the Charge Ready Program. As SCE attempted to implement this requirement across both DCFC and L2 hardware, their approved product list was reduced from 75 EVSE models to 14. The public utility commission ultimately delayed this requirement until July 2, 2023 due to concerns about the "slowdown on charging infrastructure deployment." ChargePoint agrees with the PUC decision to delay this requirement. ChargePoint recommends that CEC either remove this requirement from the near-term funding opportunities or modify it to state that the ISO 15118 hardware requirement will only be required for equipment purchased after July 1, 2023.

[5] See TN 241955 and TN 240210 in Docket 19-AB-2127.

Performance Standards

In the October 21, 2022 presentation, CEC staff propose that grant recipients meet a minimum uptime of 97% and a minimum payment success rate of 97%.

Recommendation:

ChargePoint is generally supportive of CEC's proposed minimum uptime of 97% for chargers, however ChargePoint notes its suggested modifications to any uptime formula used for reporting or compliance (see Quarterly Reporting section above).

ChargePoint believes it is premature to require a minimum payment success requirement at this time. ChargePoint is not aware of any data to support a 97% payment success metric across various payment methods used at charging stations. Further, the role of the charging station in payment processing is to provide a valid signal to a payment provider to process payment. Charging stations have limited insights into the payment processing and little control after a valid signal is provided to a payment provider. Due to the lack of data supporting this requirement and the limited ability that funding recipients have to control this, ChargePoint recommends CEC remove the minimum payment success performance standard.

Field Monitoring

CEC staff are considering a program to evaluate the usability and reliability of chargers deployed throughout California.

Recommendation:

ChargePoint is generally supportive of CEC's efforts to develop a program to evaluate the usability and reliability of chargers deployed in California. ChargePoint recommends that the CEC staff develop any program in consultation with the EV charging industry and focus the program on reliability metrics that have been fleshed out through CEC's workshops focusing on reliability to date. In developing the program, ChargePoint believes it is important for CEC to distinguish between different vintages of charging equipment in addition to power levels and location. ChargePoint also recommends the study should be designed to provide data at an anonymized and aggregate level to inform policies and solutions to encourage greater reliability over time.