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Cool the Earth Comments - NEVI Deployment Plan Development

Please find comments on attached document.

Additional submitted attachment is included below.

Cool the Earth Comments on California Draft Deployment Plan for the NEVI Program
July 27, 2022

Cool the Earth appreciates the opportunity to provide comments on the California State Electric Vehicle Infrastructure Deployment Plan.

Cool the Earth, a nonprofit organization, has worked for over 8 years to educate consumers about clean electric driving and currently leads a national non-profit collaborative effort, Ride and Drive Clean. Cool the Earth has extensive user-focused experience with public charging including DC Fast (DCFC), working with thousands of members of the public as well as with cities, agencies, NGOs, utilities and CCAs. Unfortunately, our constituents frequently have encountered inoperable kiosks, charging cords that cannot reach vehicle charging inlets, payment systems that do not work and other issues that prevent successful charging.

Plan Vision and Goals
We support California's Plan to deploy EV charging stations to at least the minimum standards outlined in the NEVI Program guidance. For consistency, we encourage CA to align language, definitions and terminology with that in the NEVI Formula Program (Federal Register, June 22, 2022).

Uptime, Outage Time, and Excluded Time
We support CA's adoption of the uptime formula included in the NEVI Formula Program with the modification to more precisely define and limit excluded time and include additional detail for outage time.

Uptime guarantees must be measured and enforced through a standardized uptime data reporting framework. Collecting reliability data is the only way to understand the performance of publicly funded charging stations, whether reliability is a problem, and to what extent it is a problem.

In developing reliability reporting requirements, excluded time should be minimized. Excluded time hides operational issues that are very significant problems for EV drivers. These issues need to be acknowledged, not ignored, and solutions need to be implemented rapidly.

The ability to report uptime accurately requires that data is available and collected continuously for each EVSE by the EVSP. As such, each government entity funding an EVSE installation should require 24/7/365 connectivity and monitoring of the operations of each charger, with a penalty for non-compliance. Reliability data should be reported quarterly to the funding agency for a minimum period of 5 years. All reliability analysis should be published in a timely manner for public stakeholder review and assessment.

Definition of Outage Time: the total time an EVSE is not operational, e.g., unable to initiate and sustain a charge at the expected level for the expected charging duration.

We encourage CA to include requirements for when and how EVSPs should record Outage Time. Recording of Outage Time shall be initiated by any of the following:

- The detection of a system fault through the EVSP network where the fault results in the inability to charge.
- A customer call to the service number to report a non-functional EVSE.
- On-site maintenance and servicing reports a non-functioning EVSE.
- Third-party testing at the charging station reports a non-functioning EVSE or that the EVSE is not delivering power at the intended rate.
- In the case of vandalism or theft, recording of downtime shall start 24 hrs after the EVSP identifies or is notified of the issue.
- Any of the failures listed under Excluded Time occurs.

Definition of Excluded Time: the total time an EVSE is not operational outside the control of the EVSP. We encourage CA to specify a limited list of allowable events as Excluded Time in order to achieve the most accurate reporting of uptime. Excluded Time should be limited to the following:

- Upstream power loss
- Upstream internet and/or cloud services failure (does not include connection issues)
- Upstream cellular failure (does not include spotty cell reception)
- Force majeure, i.e. catastrophic unforeseen weather events

Site access restrictions outside the control of the EVSP and permitted under the terms of the incentive agreement (e.g. closing a parking garage 12-6 am, planned maintenance, etc.)

EVSPs should be required to separately report details of both Outage Time and Excluded Time. These reports should provide information including but not limited to type, frequency, number of and length of incidents and occurrences. Separate reports of Outage Time and Excluded Time would provide a robust understanding of reliability issues, and the opportunity to develop solutions.

EVSE Operations and Maintenance

We support CA's intention to establish robust maintenance, recordkeeping, and reporting requirements and to allow operations and maintenance costs as eligible expenses for funding agreements with NEVI funds.

The following are recommended minimum service and maintenance conditions:

- The site owner or EVSP will maintain an ongoing service contract with a requirement for service within 24 hours of notification for a minimum of 5 years from commisioning.
- Maintenance records are reported to the funding agency on a quarterly basis.
- Monthly maintenance and cleaning of all kiosks and the related parking space
- 24/7/365 customer call center to receive service calls and provide timely response
- 24/7/365 connectivity and monitoring of the operations of each charger

Third-party Verification

We strongly recommend that California include independent Third-party verification of EVSP performance.

Third-party Uptime Verification

Third-party verification of EVSP-reported uptime should involve the review and verification of the raw data and calculations provided by the EVSP, including reported uptime, outage time, and excluded time.

Third-party Field Testing

Not all system failures are included in uptime/downtime calculations because not all system failures are currently detectable by the EVSP network. Some examples of possible undetected failures are severed charging cord, payment system problems, broken screen, etc. Therefore, field-based testing is essential to complement uptime reporting.

Field testing of each EVSE, to confirm charging at the intended rate, should be a standardized and validated process, performed by a Third-party. This testing should be required at the time of initial operation and at periodic intervals thereafter with results reported to the EVSP and the funding agency.

Payment Systems and Charging Pricing

The UC Berkeley test method (Rempel et al. 2022) used different payment methods: two credit cards, and an EVSP app or membership card. A well-functioning system should work with just one payment method. However, if the test methodology had required successful charging with just one credit card (chip and swipe), the percent of functional EVSEs would have dropped to approximately 50%. Note the study design did not test credit/debit card tap nor Plug and Charge.

Unreliability of POS credit/debit card payment systems presents significant consumer usability and equity issues. If an EVSE includes a POS credit/debit reader, drivers will expect it to work and will be frustrated if it fails and they must call customer service or download an app to initiate a charge. Drivers in our equity communities, who often rely on prepaid debit cards, could be disproportionately impacted.

Additionally, when the POS credit/debit card system fails, that event is not always captured by the EVSP. Therefore, an EVSE may be classified as “up” if the credit card reader fails because that failure cannot be detected. This would lead to inaccurate uptime calculations.

Given the significant problems with chip/swipe payment cards, mandates for POS credit/debit chip/swipe payment systems should be carefully considered. In light of new reliability data, we recommend:

- roaming agreements for all new publicly-funded EVSE
- offer of a smartphone with3-year coverage plan as part of Clean Cars for All (limited time until the universal payment system is available)
- rapid development of a universal payment card that has tap NFC capabilities

Lastly, the pricing of electricity for charging must be considered from an equity perspective. We recommend that new funding contracts consider stations offering discounted rates for drivers who receive home electricity through CARE and FERRA when scoring grants.

Site Design

As part of the grant solicitation, we encourage CA to include a robust set of site design criteria to provide reliable, safe, and comfortable user experiences. Possible criteria include:

- The station shall be monitored and/or provide surveillance 24 hours per day and include adequate lighting to
    - provide a safe experience
    - deter vandalism of stations and theft of cables that have valuable components
    - more immediately identify issues of broken plugs or cables, broken or unresponsive screens, and other issues with the physical equipment
- The kiosk should have built-in technology to rapidly identify physical equipment issues
- The station should have amenities including restrooms
- The kiosk and parking spot shall be covered to protect EV drivers and the kiosks from the elements.
- At least one kiosk at each station shall be accessible according to relevant ADA requirements
- The charging cable shall have a retraction line to support the weight of the cable
- The screen legibility and touch input shall follow similar product usability guidelines (e.g., bank ATM Design Guidelines).
- Parking shall be designed per local code requirements and shall accommodate a full-size EV without the vehicle intruding into the drive lane, with adequate space on both sides for easy access.
- The cable shall be long enough to reach the charging inlet ports of all EVs
- For stations along designated Alternative Fuel Corridors, at least one kiosk must be drive-through to allow charging of long vehicles or EVs towing trailers.

We recommend that new funding contracts consider site design of stations, as well as innovative solutions when scoring grants.

Thank you,

Carleen Cullen
Founder and Executive Director

References

Federal Highway Administration, June 22, 2022. National Electric Vehicle Infrastructure Formula Program. Docket No. FHWA-2022-0008]. Federal Register Vol 8, No. 119, p37262.

Rempel D, Cullen C, Bryan MM, Cezar GV. Reliability of open public electric vehicle direct current fast chargers. arXiv preprint 2203.16372.pdf.