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EVgo Comments on CEC Draft Reliability Field Testing Protocol

Additional submitted attachment is included below.

December 13, 2023

California Energy Commission
715 P Street
Sacramento, CA 95814

Re: Docket No. 22-EVI-04 – Comments In Response to UC Davis EV Charger Field Testing Protocol Workshop

EVgo appreciates the opportunity to submit comments on UC Davis' (UCD) EV Charger Field Testing Protocol Workshop (Workshop) held on November 30. 2023. As one of the nation's largest public fast charging providers[1], EVgo recognizes that a convenient, seamless EV charging experience is crucial for mass scale EV adoption needed to help achieve California's energy, decarbonization, and air quality goals. We commend the California Energy Commission's (CEC) efforts to commission a study evaluating the EV charging experience in the state.

A safe, reliable, and positive charging experience is mission critical for EVgo. We have taken proactive steps to ensure an enhanced customer experience, including but not limited to, continued progress on EVgo ReNew™[2], the release of several best practice guides[3] to promote codes and standards improvements related to charger reliability and vehicle interoperability, and participation in forums such as the national labs' ChargeX consortium[4] and CharIn[5] to address root causes of charging experience issues across the EV charging ecosystem. Based on our efforts, EVgo urges the CEC to continue coordinating with other stakeholders including automakers, electric vehicle supply equipment (EVSE) manufacturers and suppliers, utilities, and government agencies for continued improvement on the charging experience in California.

To ensure that UCD's field study provides an accurate representation of EV charging experiences in California and consistent field testing protocol implementation, EVgo recommends the following:

1. Release a final written draft of the field-testing protocol and study approach for public comment;
2. Ensure that volunteer drivers are adequately trained with publicly available resources;
3. Encourage testing Autocharge+ and Plug & Charge (PnC) capabilities where available;
4. Only use adapters that have been approved by automakers for use; and
5. Aim for objectivity in all field testing protocol questions.

[1] EVgo has over 950 fast charging locations across more than 35 states, including stations built through EVgo eXtend™, its white label service offering.
[2] https://www.evgo.com/press-release/evgo-advances-network-enhancements-through-evgo-renewtm-program-releases-best-practices-to-promote-greater-industry-wide-charger-reliability/
[3] https://www.evgo.com/connect-the-watts/
[4] https://driveelectric.gov/chargex-consortium
[5] https://www.charin.global/

1. **Release a final written draft of the field-testing protocol and study approach for public comment**

EVgo appreciates UCD facilitating the November 30 Workshop and presenting a high-level overview of its approach to the field study. To increase transparency and to better inform stakeholders about how UCD will be conducting its analysis, EVgo recommends that UCD share a final written draft of the field-testing protocol and study approach via docket 22-EVI-04 for public comment before formally beginning the testing phase of the study.

2. **Ensure that volunteer drivers are adequately trained with publicly available resources**

To successfully carry out the field study, volunteer drivers must be reasonably familiar with the EVs and EVSE they plan to test. Adequate training will help avoid charging session failures that result from user error or other issues. For example, one common type of charging session failure stems from vehicle "timeouts" that occur when an attempt to initiate a charge takes place too long after an EV is initially plugged in. Codes and standards dictate that charging attempts "timeout" after 60 seconds as prescribed by DIN or ISO protocols.[6] Ensuring drivers promptly initiate a charge after plugging in their vehicles will reduce the risk of failed charging sessions when the vehicle and the charger are in otherwise good working condition. EVSPs like EVgo have made training materials on this publicly available.[7]

The proposal for drivers to test multiple charging options can also lead to issues. For example, if volunteer drivers plan to test multiple payment methods at a single charger, drivers should unplug and re-plug in their EVs in between each charging initiation attempt and wait until the charger returns to the home screen before attempting to initiate a new charging session. Doing so will increase the likelihood of a successful charge and reduce the risk of a failed charging session caused by use of multiple payment methods in rapid succession – a scenario that may occur more frequently with the current study protocol. A clearly defined, replicable method for testing multiple payment options at an individual charger should be included in the final study approach.

EVgo also recommends that for any fast-charging attempt in the field study, the EV battery's initial state of charge (SoC) should be less than 80%. Many EVs' default settings preclude the ability to initiate a fast charge when the battery is above 80-90% SoC, which would nominally result in a failed charging session despite the EVSE being able to deliver a charge to the vehicle.

Additionally, volunteer drivers should be trained on which parking orientation enables the vehicle's charging port to reach the EVSE connector to avoid scenarios where the two do not reach.[8] EV charging port location is not standardized across automakers which results in the need for longer EVSE cables. In

[6] https://site-assets.evgo.com/f/78437/x/a8eff12c5f/connect-the-watts-vehicle-interoperability-best-practices.pdf?cv=1700020647715
[7] https://helpcenter.evgo.com/hc/en-us
[8] See question 24 in the EV Charger Field Testing Protocol. https://efiling.energy.ca.gov/GetDocument.aspx?tn=253258&DocumentContentId=88462

the case where an EVSE connector cannot reach an EV in any parking orientation, the volunteer driver should then document the results with a photo.

EVgo maintains a repository of publicly accessible guides[9], blogs[10], and videos[11] on its website to help drivers initiate a charge and address questions about the charging experience. CEC and UCD should require all volunteer drivers to review publicly available resources from all relevant EV charging providers as part of any training prior to the launch of the field study and should document the full list of resources that drivers were required to review prior to field testing in the study approach.

3. Encourage testing Autocharge+ and Plug & Charge (PnC) capabilities where available

CEC and UCD should encourage the testing of Autocharge+ and PnC on compatible EVs and EVSE.[12] Autocharge+, which was launched in September 2022 and is available on over 30 EV models, enables drivers with an EVgo account to initiate a charge session at EVgo charging stations simply by plugging in their vehicle.[13] EVgo has seen successful uptake of this payment method on its network because it offers drivers a seamless, easy way to charge. Autocharge+ also aligns with CEC's interoperability statement, which seeks to support an "easier-than-gas charging experience" for drivers.[14] For these reasons, EVgo encourages UCD to test Autocharge+ when evaluating EVgo charging stations and versions of AutoCharge and/or PnC in evaluating other charging providers – when available.

To support a convenient experience, EVgo recommends that all eligible vehicles be enrolled in Autocharge+ prior to arriving at a site. Signing up ahead of time ensures that the vehicle is successfully enrolled and is akin to verifying an email address when signing up for a new online account.

For Autocharge+ and PnC-compatible vehicles, it is important to note that the EV will default to using these payment methods upon plugging in. In other words, it may be challenging to initiate a charging session using other "hands on" payment methods if the vehicle is enrolled in Autocharge+/PnC, which will automatically start a charge when the vehicle is plugged in. This will cause the driver to need to un-enroll in Autocharge+/PnC in order to test all payment methods, which is antithetical to the seamless charging experience that companies seek to provide when offering that feature to its drivers. The frequent enrollment and un-enrollment will negatively affect the driver's charging experience.

To get around this cumbersome process of enrolling and un-enrolling, when testing Autocharge+/PnC, testers can have multiple vehicles – ideally the same model – on site. One should be enrolled with Autocharge+/PnC, and the other should test with multiple payment methods.

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[9] https://www.evgo.com/ev-drivers/how-to-charge-your-ev/
[10] https://www.evgo.com/blog/which-charger-is-right-for-me/
[11] https://www.evgo.com/evgo-charge-talk/
[12] Although Autocharge+ and PnC result in the same end user experience, Autocharge+ relies on an EV's unique MAC address to enable plug and charge functionality while PnC relies on certificates associated with an EV and EVSE.
[13] https://www.evgo.com/autocharge/
[14] https://efiling.energy.ca.gov/GetDocument.aspx?tn=253102&DocumentContentId=88306

To the extent that UCD seeks to test multiple payment methods to initiate a charge on a vehicle that is enrolled in Autocharge+ or PnC, EVgo recommends that UCD coordinate with relevant EV charging companies prior to initiating the test phase of the study to further understand how multiple payment options can be assessed. For example, EVgo publishes a number of "how to" tutorials on its website to ensure seamless enrollment.[15]

4. Only use adapters that have been approved by automakers for use

Adapters will become increasingly common as automakers and EV charging providers transition to the North American Charging Standard (NACS).[16] Moreover, many Tesla vehicles today charge at charging stations with CCS connectors via CCS-to-NACS adapters.[17] For these reasons, it is valuable for UCD to evaluate the EV charging experience using adapters at different stations. To ensure a reliable charging experience, volunteer drivers should only use adapters that have been approved by automakers for the specific vehicle they intend to test. As the CEC notes in its NACS statement, Underwriter Laboratories (UL) is in the process of developing a safety standard for adapters and UCD should regularly monitor standards development in an effort to use UL-compliant adapters as the study progresses.[18] The adapters used should also be clearly documented in the study approach and field-testing protocol.

5. Aim for objectivity in all field testing protocol questions

The usefulness of the field study's results is premised on the objective collection of charging experience data. While many of the proposed questions in the EV Charger Field Testing Protocol seek to collect objective data, several questions related to navigation, safety, lighting, and the overall charging experience are subjective as written and primarily depend on individual volunteers' judgment.[19] Care must be taken to ensure that dozens or hundreds of drivers are fairly and consistently evaluating charging experiences at thousands of locations. Moreover, because EV charging providers deploy EV charging stations in many communities across the state, UCD should ensure that all questions are structured in a way that does not introduce location-based, unconscious biases in the results.

6. Conclusion

EVgo appreciates the opportunity to comment on this important study. Charging experience remains a crucial element of EV adoption and EVgo looks forward to continued coordination with CEC and UCD in support of a seamless, convenient charging experience for all EV drivers.

[15] To learn more, visit https://www.evgo.com/autocharge/.
[16] https://efiling.energy.ca.gov/GetDocument.aspx?tn=252421&DocumentContentId=87420
[17] UCD should verify that any Tesla vehicles used in the study are CCS-capable, as some earlier model year Teslas do not have this capability. CCS capability can be confirmed by reviewing the settings of specific vehicles.
[18] https://efiling.energy.ca.gov/GetDocument.aspx?tn=252421&DocumentContentId=87420
[19] https://efiling.energy.ca.gov/GetDocument.aspx?tn=253258&DocumentContentId=88462

Respectfully submitted this 13th Day of December,

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