

DOCKETED

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December 21, 2023

California Energy Commission
Re: Docket No. 22-EVI-06
715 P Street
Sacramento, CA 95814

Re: Staff Workshop on EV Charging Interoperability

Siemens and Zemetric (the “Joint Technology Providers”, or “Providers”) file these comments on the Staff Workshop on EV Charging Interoperability (“Staff Workshop”) that the California Energy Commission Staff (“Staff”) held on December 1, 2023.

In California, Siemens’s 5,500 employees and 40 locations are advancing mobility with electrified transportation networks, modernizing grid infrastructure for renewables integration, and implementing energy efficiency in buildings. Siemens is also investing over \$94 million on a new greenfield manufacturing site in Pomona, California with IBEW Local 1710. The new Pomona facility will serve as a key U.S. manufacturing hub for electrical products that support critical infrastructure markets including data centers, electric vehicle charging, semiconductors, and more.

Siemens is committed to developing the industry’s most technologically advanced, open, accessible AC/DC EV chargers with a focus on our new Buy American compliant chargers. We are investing in domestic supply chains and manufacturers, collaborating with communities who utilizing electrification to meet their climate goals, and working with our peers to ensure the U.S. becomes a global leader in electrification.

Founded by industry veterans and headquartered in California, Zemetric simplifies transport electrification with pioneering infrastructure that is clean-sheeted with reliability and interoperability at the core. Zemetric innovates to delight the customer with a charging platform that disrupts the technological and commercial barriers in the transition to electron-fuel, and supports Buy America requirements.

For the stated electrification goals to be met it will be critical that manufacturers like the Providers have consistency across states when developing and deploying EV charging technologies.

The Providers appreciate the opportunity to answer questions and provide comments in response to the materials presented by Staff in the Staff Workshop.

General

The Providers agree that EV drivers currently face numerous reliability challenges at public charging stations, many of which result from inadequate interoperability among the various elements required to charge successfully. These include the driver, the payment processor, the charge management software, the charger, and the EV itself. Accordingly, we strongly support the Commission's efforts to promote the goal of "Seamless charging with any car, any charger, any network."

California has been a national leader in considering, promoting, and adopting interoperability requirements. Key examples include requirements in grant programs for EV chargers for use of the Open Charge Point Protocol (OCPP) and hardware that enables Plug and Charge (ISO 15118). Following California's lead, the Federal Highway Administration (FHWA) adopted the same requirements for federally-funded chargers. The Providers commend California for this leadership and are encouraged to see the continuing efforts in this direction as exemplified in the ideas presented in the Staff Workshop.

ISO 15118 Certification Requirement

The Commission is proposing requiring a third-party certification demonstrating conformance with ISO 15118 (specifically, CharIN CCS Extended). In principle, the Providers are supportive of requiring certification that EV chargers are able to meet the standards required for Commission- or other publicly-funded incentive programs. The challenge here is that this standard is in the early stages of implementation. Some OEMs have stated that they support ISO 15118-2, and at least one network provider supports this standard as well, offering Plug and Charge to the public. The majority of the cases implemented to date actually support Autocharge, which is used for the very basic "sending a MAC address or VIN number to identify a vehicle." In addition, we are not aware of any vehicles supporting ISO 15118-20 today.

With this in mind and before talking about conformance with a specific standard being required, the Commission should determine which specific use cases it is targeting:

1. The most basic vehicle identification use case can be achieved with Autocharge.
2. ISO15118-2 adds certificates and a higher level of security. SAE PKI closes security gaps found in ISO15118-2 (which is not entirely secure, so some say, "Why even bother?"), and receives energy requests from the vehicle (though not SoC for AC chargers).
3. ISO15118-20 adds a framework for DC V2G but is incomplete for AC V2G. It does add supporting SoC in AC chargers.

If we understand what specific use cases the Commission wants to achieve, we can recommend what is the most basic variant of PLC-based communication. Regulating the adoption of a specific variant of a PLC-based charger to EV communication standard would be complicated, exclude players, and reduce competition, especially without clarity on what is the use case that is being pushed for.

Regarding certification, we would propose two phases. In the first phase, companies should be permitted to self-certify according to the specific use cases the Commission would provide. This phase will allow for the standards to mature, the implementation of the standards to proceed flexibly according to individual manufacturers' capabilities, and the gaining of experience by the industry in performing compliance testing. In the second phase, third parties would conduct the testing and provide the certification.

Streamlining Testing and Certification

The current testing and certification requirements for EVSEs are numerous and varied, from safety (UL) to metering/measurement accuracy (CTEP) to energy efficiency (Energy Star), to name a few. While the Providers support the need for such compliance requirements, we would like to highlight that the existing processes have become onerous, time consuming, and very expensive.

The key to streamlining testing and certification is for the Commission to first undertake a review of the existing requirements and identifying the bottlenecks and hurdles that currently hamper "time to market" charging solutions (both AC/DC). This will also allow the Commission to understand the costs associated with these tests, which is increasingly prohibitive, and in some cases unnecessary.

While having clear testing requirements well in advance, such as the use cases mentioned above, eliminates inefficiencies in the process, the specific elements of the required standards must also be specified – and kept to the minimum needed to achieve the specified use cases. It is also important that these requirements are stable and do not change over time, or only infrequently. By knowing what tests their products will have to pass, manufacturers can develop their products with confidence. For example, there are three levels of certification for OCPP 1.6: Full Certificate, Subset Certificate, and Security Certificate. The Commission should require only the minimum certificate(s) needed to implement the Commission-specified use cases. Additional certificates should be optional.

ISO 15118-20 and OCPP Implementation Costs (including Certification)

The implementation and certification costs of ISO 15118-20 and OCPP should be eligible for Commission funding, especially in the case of certification costs that may force the implementation of corner cases in the standards that do not serve specific customer needs. The Commission should also consider providing funding to provide consulting expertise to firms developing new chargers and firmware to meet ISO 15118-20 and OCPP requirements and to sponsor interoperability testing events. The best way to make interoperability a reality is to verify proper operation in the field in these events, where multiple charger manufacturers, charge management software providers, and OEMs test and validate successful charging utilizing the multiple different technologies. Our experience is that numerous issues crop up in these test events, most of which can be solved easily and quickly – even during the event – but which otherwise were not known to the technology providers or OEMs.

Network Roaming

Network roaming in the US as it stands currently is one of the biggest hurdles for EV adoption. Bi-lateral agreements are possible when there are limited number of players in the space; however, this pathway favors the incumbents, provides for a poor customer experience, and deters competition. What the Commission should target is to achieve the level of interoperability that is in effect in the cell phone industry or the banking industry. To some extent, Hubject has provided that level of interoperability in Europe, due to the large number of operators, which allows for a hub model.

The Providers are of the opinion that there exists a strong case for establishing an open standards-based Roaming Alliance that can promote and assist in expanding charging roaming operations in the US. The Commission should explore this option by initiating a stakeholder working group which would consider technical and operational matters that would enable the creation and underpin the management of an open roaming platform. The end goal is to remove access barriers for EV drivers to propel the adoption curve.

In the immediate short term, the Commission should signal its support of roaming agreements in the market by granting additional points in grant solicitations to providers that have more roaming agreements.

Is OCPI the preferred protocol to enable roaming agreements? Are there limitations within OCPI that should be addressed?

OCPI is used today widely and effectively in roaming agreements. The Providers are not aware of any significant issues in the implementation and operation of data exchanges between parties using OCPI.

Interoperability Rulemaking

To date, the Commission has successfully made significant strides toward interoperability without a rulemaking. The approach has been less formal – and has moved more quickly – than a rulemaking, while allowing for both formal and informal input from a wide variety of industry stakeholders. One reason to continue the current approach is that the standards and their implementation are occurring rapidly, with many details still being worked out in real time. The Commission should remain dedicated to its evolutionary approach, taking into account the time needed for industry to finalize implementation details, as well as develop and deploy hardware and software supporting the new or evolved standards.

Standards requirements in grant solicitations are sufficient and ensure that the industry follows the right direction and implements open standards and achieves actual interoperability. Where mandated by the Commission, OCPP is de facto a success: backends and chargers from different companies work together well already. (Further effort is needed in regard to OCPP to ensure that any customer with a publicly-funded charger can switch network providers, which is not the case today in spite of their chargers supporting or able to support OCPP.)

The Joint Technology Providers appreciate the opportunity to submit these comments.

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