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Siemens Comments CALeVIP Future Equipment Workshop

Additional submitted attachment is included below.

VIA ELECTRONIC FILING

December 13, 2019

California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Re: Comments on Future Equipment Requirement for CALeVIP

Siemens appreciates the opportunity to file these comments post the Staff technical workshop held on November 18, 2019.

Summary

The CEC has a goal of interoperability of chargers for CALeVIP, meaning that chargers from one vendor can be connected to the network of another vendor. This *charger-to-network* interoperability – achieved via utilization of Open ChargePoint Protocol (OCPP) – would be highly beneficial in that it would protect the ability of customers to choose their network provider separately from their charger vendor, prevent vendor lock-in by enabling customer switching, promote competition, and reduce the likelihood of chargers becoming stranded assets. For these reasons, the California Public Utilities Commission has found that chargers (EVSE) "should actively utilize open access standards for communication of data between the EVSE and the back-end network."[1]

While Siemens is appreciative of the CEC staff's ("Staff") recognition of the importance of charger-to-network interoperability, the CEC has thus far failed to require such interoperability in the CALeVIP program (and all other programs), thus enabling the use of public funds to purchase proprietary chargers that are not interoperable. Therefore, Siemens strongly supports Staff's proposal to require OCPP in order to achieve the public benefits of charger-to-network interoperability.

Another requirement proposed by Staff is that all chargers be required to support a standard for communicating data between chargers and EVs, namely ISO/IEC 15118. In contrast to the case for OCPP, most manufacturers do not support ISO/IEC 15118 in their AC chargers today – and, on the other side, very few vehicle models support the standard. However, there are clear benefits expected from utilizing the EV-to-charger standard, and adoption of the standard is accelerating. Therefore, Siemens believes mandating ISO/IEC 15118 is a good idea.

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[1] - Decision 19-11-017, Conclusion of Law 21, November 13, 2019.

The comments below further address these topics, as well as the proposed implementation timeline. For other topics in Staff's proposal, Siemens reserves the right to comment separately.

Siemens Supports Staff's Proposal that CALeVIP 2021+ Chargers Utilize OCPP

The open standard widely used by the industry today to enable charger to network interoperability is OCPP. Utilizing this standard, there are already numerous charger vendors whose chargers are being used with other vendors' networks, and vice versa. The Smart Electric Power Alliance identifies at least 29 manufacturers whose chargers support OCPP.[2] Siemens recommends that chargers funded by CALeVIP utilize OCPP 1.6 JSON, the most recent version supported by the largest number of manufacturers. OCPP 1.6 JSON would be the *minimum* version of OCPP required, so manufacturers could comply – immediately or in the future – by utilizing a more advanced version as well, such as OCPP 2.0.

Certification

Vendors can prove compliance with interoperability by providing evidence of certification. For OCPP, self-certification is already available, and third-party test labs are planned to be in place by the end of 2019 for independent certification. The Open Charge Alliance (OCA) – the transparent organization open to any stakeholder and that oversees the standard – is implementing the third-party certification program. With that program in place, charger manufacturers will be able to have their products tested and submit the resulting third-party certification to the CEC. Until then, self-certification is a reasonable means of ensuring compliance, with vendors filing affidavits that they have implemented and passed the self-certification tests.

To ensure charger self-certification proves charger-to-network interoperability, Siemens strongly recommends that charger manufacturers also be required to provide evidence of successful communications between an OCPP server and their charger – for a minimum of two different network vendors. The requirement for two vendors may include the charger manufacturer's own network and one additional. There should be flexibility in testing so that vendors can work bilaterally or involve a third party at their option. Finally, "successful communications" should mean execution of a very small number of minimum use cases to verify compliance but without imposing an unnecessary burden. The minimum use cases should be the Core Functionality and Security Profile 2.[3]

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[2] - Smart Electric Power Alliance, *A Comprehensive Guide to Electric Vehicle Managed Charging,* at pp. 52-56. Available at https://sepapower.org/resource/a-comprehensive-guide-to-electric-vehicle-managed-charging/
[3] - See test requirements at https://www.openchargealliance.org/uploads/files/01.Certification-Procedure_v10.pdf

Evolution of OCPP to an IEC Standard

The OCA developed OCPP to meet the charging industry's immediate need for a charger-to-network communications standard. OCPP is a widely accepted de facto standard, meaning that it has gained a dominant position in the market, even though it's not an "official" international standard.[4] Its widespread adoption to date proves it is effective, cost-efficient, and easily available. OCA created OCPP, because its members could not wait the up to 10 years that long-standing international standards development organizations require to develop and adopt standards.

OCA has led the development of OCPP through to Version 2.0. Recognizing the beneficial role of the traditional standards organizations, in parallel OCA is supporting the work of the International Electrotechnical Commission (IEC) to develop an IEC version (IEC 63110). This is illustrated in the figure below. From Siemens perspective as a member of the official ISO working group developing IEC 63110[5], Siemens believes Staff's proposal for OCPP not only meets the short-term requirement for charger-to-network interoperability, but also ensures an effective long-term migration strategy (that will not require hardware replacement) to a standard adopted by one of the traditional standards development organizations.

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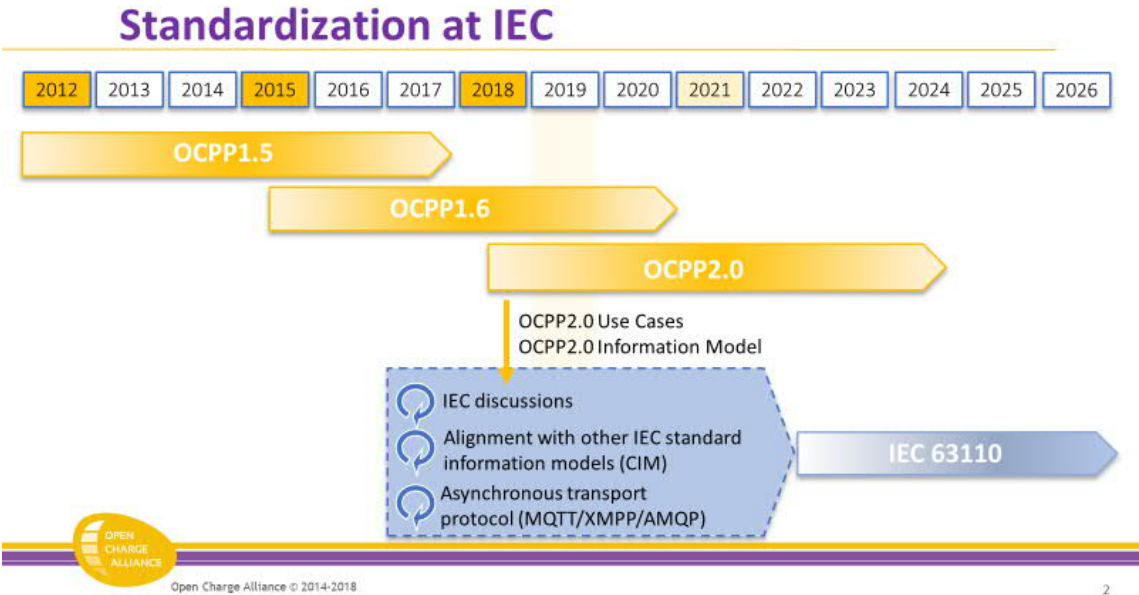
[4] - While there is a consensus that standards blessed by long-standing standards organizations such as ISO and IEC are "official", there is no body of national or international law that confers any special legal status on standards adopted by these standards organizations.

[5] Siemens is a voting member of the Joint Working Group, TC 69 JWG 11 for IEC 63110

Timing

Siemens supports Staff's proposal to require OCPP for CALeVIP 2021+, including the schedule for different types of certification. One reason is that it will be several years (at least 3 years) before IEC 63110 is formally adopted, and the need for charger-to-network interoperability is immediate. Moreover, most charger manufacturers already support OCPP. Therefore, it is good public policy to require that CALeVIP-funded chargers be required to utilize OCPP now.

On the certification side, Siemens supports Staff's proposal to adopt self-certification now and third-party certification in Q2 of 2021 (*i.e.,* by April 1, 2021). While OCA plans to have third-party certification in place by the end of 2019, we expect it to take a few months for the program to become fully operational. Also, charger manufacturers will need a few months to submit their chargers for testing, for the testing to occur, and for the test reports to be submitted to the CEC. All these factors support Staff's proposed timeline for OCPP.

Siemens Supports Staff's Proposal to Require ISO/IEC 15118

Another requirement proposed by Staff is that all chargers be required to support a standard for communicating data between chargers and EVs, namely ISO/IEC 15118. Level 2 AC chargers typically use SAE J1772 and can charge without the more complex communications capabilities of ISO/IEC 15118. DC fast chargers already utilize this standard.

While TOU pricing and response to demand response signals is done in AC chargers without ISO/IEC 15118, use of the standard enables more precise smart charging, as well as the use cases of V2G and Plug-and-Charge (where vehicle ID and payment data is communicated from the vehicle directly to the charger for a simple plug and charge scenario). These benefits will improve charging and system economics, along with the consumer experience. As a result, ISO/IEC 15118 is being adopted by an increasing number of AC charger manufacturers and vehicle OEMs.

Based on the foregoing arguments, Siemens supports Staff's recommended requirement that AC chargers have the capability to use ISO/IEC 15118. By the Q2 2021 (April 1, 2021) deadline proposed by Staff, we recommend a requirement already in place in Europe, as follows:
- For AC chargers, the mandate should be that the chargers must have the physical communications layer (hardware) in place to support the standard and have the capability of being upgraded to the ISO/IEC 15118 protocol over the air.
- For DC chargers, the mandate should be that the chargers can utilize the State-of-Charge and Plug-and-Charge functionality by the same Q2 2021 date.

Siemens Supports Staff's Position that SEP Should NOT Be Required

In its presentation at the technical workshop, Staff highlighted that ISO/IEC 15118 provides the greatest benefits for EV-to-charger interoperability. Staff noted that Smart Energy Profile (SEP) 2.0 is another option for EV-to-charger communications but likely to deliver more limited benefits, including less capability to minimize demand charges and overall electricity costs.[6] Accordingly, Siemens agrees with Staff's proposal that SEP 2.0 *not* be required.

Conclusion

For the reasons given above, we respectfully suggest that:

1. The CEC adopt Staff's proposal that all CALeVIP 2021+ chargers utilize OCPP 1.6 JSON, or a more recent version, for charger-to-network communications.

2. The CEC adopt Staff's proposed OCPP certification procedures and timelines as presented in the technical workshop and amended by Siemens above.

3. The CEC adopt Staff's proposed mandate that all CALeVIP 2021+ AC chargers be capable of supporting ISO/IEC 15118 for charger-to-EV communications and DC chargers be capable of utilizing it for State-of-Charge and Plug-and-Charge functionality.

4. The CEC adopt Staff's recommendation that SEP 2.0 *not* be required for charger-to-EV communications.

5. The CEC ensure that the CALeVIP 2021+ chargers fully comply with the EVSE payment regulations adopted by the California Air Resources Board, including the timeline required by CARB.

Siemens appreciates the opportunity to comment.

Chris King
SVP – Siemens eMobility Policy

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[6] - Slide 51 of Staff's presentation at the technical conference.