

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

ENERGY DIVISION

**AGENDA ID: 19967
RESOLUTION E-5175
November 18, 2021**

R E S O L U T I O N

Resolution E-5175 Southern California Edison requests approval to authorize the processes for qualifying Electric Vehicle Supply Equipment (EVSE) under the Charge Ready 2 program's site-host and utility-ownership models.

PROPOSED OUTCOME:

- This Resolution finds that the proposal from Southern California Edison Company (SCE) to authorize the processes for qualifying Electric Vehicle Supply Equipment (EVSE) as eligible for the Charge Ready 2 program's site-host and utility-ownership models is, with modifications, reasonable and in compliance with Decision (D.) 20-08-045.

SAFETY CONSIDERATIONS:

- There is no direct impact on safety. SCE must comply with the Safety Requirements Checklist for Transportation Electrification programs the California Public Utilities Commission adopted in D.18-05-040.

ESTIMATED COST:

- This Resolution has no direct cost impact. The California Public Utilities Commission authorized Southern California Edison Company's Charge Ready 2 program via D. 20-08-045, and this Resolution does not modify that budget.

By Advice Letter 4322-E filed on October 23, 2020.

SUMMARY

This Resolution approves, with modifications, the request from Southern California Edison Company (SCE) to authorize the qualification processes to certify Electric Vehicle Supply Equipment (EVSE) as eligible under the Charge Ready 2 program's site-host and utility-ownership models.

On October 23, 2020, SCE filed Advice Letter (AL) 4322-E, requesting approval of the process to qualify Electric Vehicle Supply Equipment (EVSE) for the Charge Ready 2 Infrastructure and Market Education program (Charge Ready 2). SCE proposes two processes—one to continually approve EVSE that meet technical qualifications on a rolling basis for customers within Charge Ready 2 who will own the EVSE, and one in which SCE will issue a Request for Qualification (RFQ) for purchasing EVSE that SCE will own through the program. As proposed, the EVSE that are either purchased or qualified through these pathways must conform to the applicable eligibility requirements within SCE's Standard Equipment EVSE Qualification Package (Qualification Package).

This Resolution authorizes, with modifications, SCE's qualification processes. While we find SCE's proposed qualification processes to be reasonable, the Resolution requires modifications to the EVSE and vendor requirements within SCE's Qualification Package. Specifically, this Resolution directs SCE to update its Qualification Package to require that all EVSE support interoperability via open standards and to ensure that qualified vendors share data confidentially with SCE, the CPUC, and the Charge Ready 2 program evaluator on networking and service costs, per the Charge Ready 2 Decision.¹

BACKGROUND

Southern California Edison Company (SCE) filed Advice Letter (AL) 4322-E on October 23, 2020, requesting approval of the process to qualify EVSE for Charge Ready 2, pursuant to Order Paragraph (OP) 19 of Decision (D.) 20-08-045. The Charge Ready 2 program will deploy approximately 38,000 new EV chargers for passenger (light-duty) vehicles at workplaces, multi-unit dwellings (MUDs), and public destination centers. SCE will deploy mostly Level 2 chargers (120 volts), with the option for Level 1 (240

¹ D.20-08-045.

volts), and a minimum of 205 direct current fast charger (DCFC) ports. The program is divided up into several sub-programs, as described in Table 1 below.

Table 1: Summary of Charge Ready 2 Programs

Program	Budget	Description
Make-Ready Expansion (Level 2 and Level 1)	\$333,000,000	This is an expansion of SCE’s Charge Ready Pilot program and will allow SCE to build the make-ready infrastructure to support a total of 22,000 ports ² of mostly Level 2 and some Level 1 chargers. In most cases, site hosts will own the EVSE. SCE will site these chargers at MUDs, workplaces, and public destination centers. While SCE will build the make-ready, customers participating in this program will receive a rebate for purchasing and owning the EVSE. All site hosts installing Level 1 or Level 2 charging through the Make-Ready Expansion program must participate in the Charge Ready DR program.
Make-Ready Expansion (DCFC)	\$13,975,206	A subset of the Make-Ready Expansion, SCE will offer rebates to a limited number of sites to install DCFCs. At minimum, this program will support the installation of 205 DCFC ports. Site prioritization for DCFCs is addressed through a separate Tier 3 AL filing, and criteria for siting and rebates, among other programmatic details, will be determined based on proximity to

² D.20-08-045, page 56: “In sum, we determine that 22,000 ports, comprised of 10,200 MUD and 12,000 workplace/destination center is a reasonable size and investment for the Make-Ready Expansion program.

		customers needing charging, proximity to MUDs, and proximity to Disadvantaged Communities (DACs) and low-income customers.
Make-Ready Expansion (Own and Operate)	\$16,548,463	A subset of the Make-Ready Expansion, customers at MUDs in DACs can choose between having SCE own and operate the EVSE and make-ready or can own the infrastructure themselves and receive a rebate to cover the cost of maintenance and operation of the EVSE. This program is capped at 2,500 ports within the Make-Ready Expansion program.
New Construction Rebate	\$54,000,000	SCE will provide rebates to developers of new MUD buildings to encourage MUD developers to install operational charging stations during construction. The rebate will only cover an installation that is beyond the local and state building code requirements. The rebate program will target up to approximately 15,400 of ports and will provide a rebate of up to \$3,500 per port.
Marketing, Education, and Outreach	\$15,500,000	The Charge Ready 2 ME&O program includes \$4.8 million to expand SCE’s TE Advisory Services program and \$9.7 million for program specific marketing to drive participation in the infrastructure programs.
Evaluation	\$4,320,000	This budget will go to a third-party evaluator.

The majority of the Make-Ready Expansion sites will use the “site-host EVSE ownership model,” which will have the site-host (or customer) own the EVSE and receive a rebate from SCE to cover all or a portion of the cost of the EVSE. Customers at MUDs located

in DACs participating in the Own and Operate program have a choice between the site-host ownership model and a “utility-ownership model,” in which the IOU will own and operate the EVSE on the customer’s behalf.

For both ownership models, SCE must first qualify the EVSE technology eligible for installation through the program. D. 20-08-045 also directs SCE to include a streamlined process for pre-qualifying or deeming qualified the vendors and equipment that were qualified for the prior Charge Ready Pilot if they meet the technical requirements for Charge Ready 2.

OP 19 of D.20-08-045 directs SCE, within 60 days of the adoption of the Decision, to file a Tier 1 AL outlining the RFQ Processes for EVSE under both the site-host and utility-ownership models, consistent with Section 4.5.12 of the Decision. On October 23, 2020, SCE filed AL 4322-E to establish the RFQ processes for EVSE for both the Charge Ready 2 site-host and utility-ownership models.

Site-host EVSE ownership

SCE proposes that site hosts under the site-host ownership model will select EVSE from SCE’s Approved Product List (APL), which identifies specific EV charging equipment whose suppliers attest to comply with technical, safety, and other requirements when they submit their application to SCE to receive approval.

SCE compiled the APL over several years, and SCE continues to maintain and expand it over time to allow customers to select from an array of EVSE vendors that SCE has approved for one or more of SCE’s TE programs. SCE has a continuously open equipment qualification approach in which it conducts a quarterly verification process to routinely update the APL with any changes to the listed EVSE information. As new suppliers offer EVSE products to the market, or when existing suppliers can offer new commercially available EVSE products not yet listed, they can immediately request and receive an EVSE Qualification Package from SCE. In a technology provider’s application to be included on the APL, the technology provider must attest to meeting the Qualification Package requirements. This is different than an RFQ as it will not occur all at once but on a rolling basis. SCE notes that using this continuously open equipment qualification approach prevents suppliers from having to wait for a formal RFQ, ensures that customers have a growing range of EVSE products to select from, and facilitates the introduction of new EVSE solutions over the life cycle of the Charge Ready 2 program.

Utility EVSE ownership

SCE proposes to issue an RFQ to identify the suppliers and EVSE vendors that it will use for the Own and Operate option. SCE will use the RFQ to obtain competitive equipment and services pricing, and to identify those suppliers that may be interested in operating and maintaining the equipment for a 10-year duration, pursuant to the requirement within D.20-08-045 for the infrastructure to remain operational for a minimum of 10-years.

The specific EVSE that SCE selects for use under the utility-ownership option will be based on the results of the pricing and commercial terms reached through the competitive bid process for that equipment currently listed or qualified to be listed on SCE's APL, so long as they meet the technical specifications that the Charge Ready 2 Decision requires.

Technical requirements

AL 4322-E also includes the technical, data collection, and warranty requirements for participating vendors. SCE's process to qualify EVSE for the APL ensures that any equipment SCE uses in its programs conforms to the applicable eligibility requirements. SCE refers to the eligibility requirements as its Standard Equipment EVSE Qualification Package (Qualification Package). SCE has developed these qualification requirements for both standards-based (on-road) EVSE, and for "non-standards" based EVSE (off-road vehicle applications).

Technical and data collection requirements

For on-road EVSE (i.e., for EVSE that serve EVs that drive on the road and not off-road equipment), the Qualification Package contains the following categories of EVSE eligibility requirements:

1. Equipment Eligibility Requirements
2. Technical Requirements
3. Communication and Control Requirements
4. Information and Security Requirements
5. Payment and Processing Capabilities
6. EVSE Pricing
7. Data Collection and Reporting Requirements

SCE also verifies the equipment's certification by a Nationally Recognized Testing Laboratory and other certifications as may apply.

Warranty Requirements

For site-host ownership, the site host must ensure the EVSE remains operational for a 10-year duration. SCE, however, does not plan to impose any specific warranty requirements, and will allow site-hosts to select and negotiate directly with suppliers. For utility-owned equipment, SCE will require a 10-year warranty coverage.

NOTICE

Notice of SCE's AL 4322-E was made by publication in the CPUC's Daily Calendar. SCE states that a copy of the AL was mailed and distributed in accordance with Section 4 of General Order 96-B.

PROTESTS

SCE's AL 4322-E received one protest. On November 12, 2020, ChargePoint, Inc. (ChargePoint) submitted a protest. ChargePoint states that the protest is for the sole purpose of seeking clarification that the "[s]teamlined process for pre-qualifying or deeming qualified vendors and equipment already on SCE's APL" will apply to both Level 2 and DCFC equipment. ChargePoint supports SCE's proposed use of its Approved Product List, as it helps to efficiently coordinate qualification processes between SCE TE programs. ChargePoint cites that one of the benefits of allowing a streamlined process for pre-qualifying equipment already on SCE's APL is saving significant time and resources that SCE and market participants would otherwise spend repeatedly qualifying the same equipment. ChargePoint asks that SCE clarify whether the APL will apply to both Level 2 and DCFC equipment.

Beyond this clarification, ChargePoint does not express any issue with AL 4322-E.

On November 19, 2020, SCE issued a reply to ChargePoint's protest. SCE states that it is uncertain why ChargePoint believes that SCE's current APL does not include DCFC equipment. SCE says that it provides a link to the current APL in AL 4322-E, which includes approved DCFC equipment. SCE does not believe the CPUC needs to address ChargePoint's concern through a disposition of AL 4322-E, as ChargePoint argues.

DISCUSSION

This section of the Resolution identifies how the CPUC disposes of the issues associated with the establishment of the SCE Charge Ready 2 EVSE qualification processes. We find SCE's process for continually approving EVSE on its APL for the site-host owned equipment, and the proposed process for issuing an RFQ for the Own and Operate program, to be reasonable. The process for site-host owned EVSE leverages the work that SCE and vendors already undertook within the Charge Ready Pilot and ensures that customers will have choice in the EVSE they purchase. Further, this process ensures that as new technology becomes available throughout the program implementation period, the APL will reflect those technological advances. For the Own and Operate RFQ, SCE leverages the work of the APL development, while ensuring additional cost and warranty protections via an official RFQ process.

That said, this section addresses some issues with the EVSE and vendor requirements within the Qualification Package. We evaluated these issues based on consistency with D.20-08-045. The qualification processes are authorized, with modifications, as discussed in this section.

1. ChargePoint's Protest

Pre-qualification applies to Level 2 and DCFC EVSE.

ChargePoint seeks a clarification that the process for pre-qualifying vendors and equipment will apply to both Level 2 and DCFC equipment. As SCE has clarified in its reply to ChargePoint, the process applies to both Level 2 and DCFC equipment.

2. Application of Technical Requirements from D.20-08-045

The Technical Requirements within D.20-08-045 Section 4.5.12 aim to ensure interoperability and open standards.

In OP 19 of D.20-08-045, the CPUC directed SCE, within 60 days of the adoption of the Decision, to file a Tier 1 AL outlining the RFQ Processes for EVSE under both the site-host and utility-ownership models, consistent with Section 4.5.12 of the Decision.

Also within this Section,³ the Decision discusses the EVSE requirement related to interoperability:

“...the Commission seeks to support interoperability. All EVSEs deployed through [Charge Ready 2]—either site host owned or utility owned—must support open standards, and should, if practical, be capable of high-level communications, as defined in the final report from the 2017 VGI Working Group.”⁴

This section of the Decision goes on to describe the requirements for all Level 1 or Level 2 EVSE within the Make-Ready Expansion portion of the program to participate in the Charge Ready 2 DR program. The Decision directs SCE to file a Tier 2 AL to describe its implementation plan for the Charge Ready DR program,⁵ and one of the minimum components of this AL requirement is a description of the communication capabilities and technology requirements.⁶ This means that each EVSE must be capable of communication and technical capabilities to support DR and to support high-level communications and open standards.

³ “TOU Rates, Demand Response, and Technical Requirements”

⁴ D.20-08-045 at page 94.

⁵ SCE filed AL 4363-E on December 2, 2020, describing the implementation plan for the Charge Ready Demand Response Program. Energy Division suspended this AL on December 24, 2020. Energy Division is still reviewing AL 4363-E as of the release of this Resolution.

⁶ The Decision’s requirements for the Tier 2 AL on the DR program includes the following: “a. SCE should describe the communication capabilities participating EVSEs will need to meet in order to effectively participate in the CR2 DR program, and how to the best of SCE’s ability this accounts for any anticipated communications developments; b. SCE should outline how the participating EVSE/EVSP technology and communications requirements will incorporate Vehicle Grid Integration (VGI) Working Group guidance; c. SCE should describe how it will ensure consistency with communication capabilities across EVSPs. And qualified technology (e.g. ability to receive communication signals, ability to directly communicate with the driver, and the ability to throttle charging); ci. If SCE chooses to continue to allow the EVSPs to manage the driver relationship, then SCE should develop a plan for how signals can be passed through to drivers consistently across the CR2 DR program; cii. SCE should describe how it will ensure a consistent protocol on timing and method by which EVSPs notify customers of a DR event; d. SCE should describe how each participating EVSP will be capable of allowing drivers themselves to opt-out of DR events; e. SCE should identify any potential communication challenges that may create barriers or hurdles for implementing VGI-related communication strategies identified through the VGI Working Group and Commission guidance to implement Pub. Util. Code § 740.16, and propose strategies or methods for overcoming any identified communication related barriers [where] feasible.”

The Decision further cites the 2017 Vehicle-Grid Integration (VGI) Working Group's final report, which states that "high-level communication" refers to driver authentication, communication of transaction details, and smart charging coordination information parameters.⁷ This report specifically recommends that alternating current (AC) Level 2 conductive EVSE have hardware to allow for high-level communication between the EVSE and the EV. The Working Group final report also recommends the capability of the EVSE to communicate with a "Power Flow Entity" which refers to an offsite entity that is requesting or mandating VGI activities from other actors.⁸

The language within D.20-08-045 thus means that for Level 2 and direct current fast chargers (DCFC) the EVSE that SCE supports through Charge Ready 2 should be capable of communicating with the power flow entity. We want to ensure that the EVSEs are cross-compatible with multiple vendors and that we are additionally maintaining security. Thus, the hardware must be securely updateable and able to be switched to another service provider, regardless of what software or standards are initially included. This is the essence of interoperability to which the Decision cites.

As described in more detail within this discussion section, SCE AL 4322-E and its attached Qualification Package fail to include necessary technology requirements to support interoperability as the Decision requires.

There are three critical open standards for EV charging deployment, as the CPUC determined in D.21-04-014, which SCE must include as technical requirements in the Charge Ready 2 program in order to comply with D.20-08-045.

The CPUC also addressed EVSE interoperability within the Decision authorizing San Diego Gas & Electric (SDG&E) to implement Power Your Drive Extension (PYD2).⁹ In the section of D.21-04-014 titled "EVSE Qualification," the CPUC directed SDG&E to ensure EVSE, at minimum, meet certain requirements to support interoperability. The Decision states that "[t]o ensure the future-proofing of infrastructure installed in PYD2, SDG&E should require the qualification of equipment that is equipped with a [Society of Automotive Engineers (SAE)] J1772 connector, is compliant with [Open Charge Alliance's Open Charge Point Protocol (OCPP)], and has hardware that is remotely

⁷ 2018 VGI Working Group Report at page 20.

⁸ 2018 VGI Working Group Report at page 9.

⁹ D.21-04-014.

upgradable to offer various AC charging features using ISO 15118 high-level communications including, but not limited to, smart charging.” The Decision goes on to say that consistent with those requirements, EVSE should have:

- A connection with a network service provider that is capable of receiving utility Open ADR (IEC 62746-10-01) messages as a Virtual End Node;
- The capability of being controlled remotely;
- Managed charging capabilities;
- A warranty;
- A maintenance and service plan; and
- Ability to collect, locally store, and communicate data within the EVSE remotely.

The CPUC based this portion of the PYD2 Decision on the CEC’s AB 2127 staff report. As the PYD2 Decision cites, the CEC’s AB 2127 staff report recommends that “where possible, state agencies should leverage procurement requirements to accelerate market unification around interoperable communication protocols.”¹⁰ CEC recommends that all AC EVSEs be equipped with a SAE J1772 connector, be capable of high-level communications using the ISO 15118 protocol, and be compliant with Open Charge Alliance’s OCPP. The report states that the latter two are key protocols that fill two communication gaps critical to achieving convenient, grid-integrated charging.¹¹ At the time of the PYD2 Decision the CEC had not yet adopted the staff report, but did adopt a version of this report on July 14, 2021, adding that, “market unification would foster a more efficient and understandable charging network and could deliver value and convenience to drivers and site hosts.”¹²

While the CPUC has not adopted the draft Transportation Electrification Framework (TEF) staff proposal, these recommendations in the CEC AB 2127 final report¹³ and the directives in the PYD2 Decision are consistent with the draft TEF’s proposal. In the draft TEF, staff propose that the CPUC require that all EVSE funded through the IOU Transportation Electrification (TE) programs be capable of accepting updates via a network “over-the-air” and “meet the hardware and software requirements consistent

¹⁰ CEC AB 2127 staff report at 53.

¹¹ CEC AB 2127 staff report at 59.

¹² CEC AB 2127 final report at 62.

¹³ CEC AB 2127 final report at 68.

with CEC planned requirements,” including using “ISO 15118 as a solution for VGI communication.”¹⁴

As discussed in more detail in the next portion of this discussion section, SCE AL 4322-E and its attached Qualification Package do not include all of the three open standards that the CPUC adopted in the PYD2 Decision and which the TEF and CEC AB 2127 report recommend. As such, AL 4322-E does not comply with D.20-08-045’s directive on including open standards.

SCE must amend the Qualification Package’s “Technical Requirements” to align with D.20-08-045 (Section 4.5.12) to ensure Charge Ready 2 supports interoperability and open standards.

SCE states that the Technical Requirements section of the Qualification Package “relates to equipment typically used for on-road [EVs] where charging equipment interoperability standards exist.” Each qualified vendor must complete the table of the technical requirements checklist to confirm that the EVSE they submit for qualification meets the stated requirements or capabilities.

Within the Technical Requirements, SCE’s proposed standards language differs from that of the SDG&E Decision and from the technical requirements necessary to support interoperability, as directed in D.20-08-045.

SAE J1772

The J1772 connector standard for AC charging allows for rudimentary communications between the vehicle and EVSE, but not high-level communications between the vehicle and EVSE (e.g., the driver’s mobility needs, scheduling, electricity pricing, vehicle discharge commands, authentication, and billing) that the VGI Working Group Report and CEC final report recommend.¹⁵

Within the Standard Equipment Technical Requirements section, there is a requirement that states “FORM AND FUNCTION STANDARDS: EVSEs SHALL comply with Society of Automotive Engineers (SAE) J1772, CCS, SAE J3068, SAE J3105, or IEEE 2030.1.1 (CHAdeMO) requirements.”¹⁶ Although this requirement does not mandate

¹⁴ CPUC Energy Division Draft TEF at 82.

¹⁵ CEC AB 2127 final report at page 66.

¹⁶ SCE’s EV Charging Equipment Qualification Package at page 8.

SAE J1772, we understand that since the APL and Qualification Package also serve the Charge Ready Transport program, that some of these standards may apply to medium- or heavy-duty charging equipment or off-road charging equipment. We expect that for the light-duty EVSE deployed through Charge Ready 2 that all AC conductive EVSE would be compliant with SAE J1772 and direct current (DC) conductive EVSE would be compliant with the Combined Charging Standard (CCS).

OCPP

OCPP allows for communication specifically between the EVSE and the Power Flow Entity, or in this case, and as the CPUC directed in PYD2, a network services provider. Any EVSE that is OCPP-compliant will work with any back-end network that is also OCPP compliant. This gives charger operators and site hosts greater flexibility and control over their chargers (e.g., monitoring charger status, connecting chargers to signals for local electricity pricing and DR).¹⁷ OCPP also ensures the EVSEs do not become stranded assets if an Electric Vehicle Service Provider (EVSP) goes out of business, as was the case at a few sites within the Charge Ready Pilot.

Under the Communication and Control Requirements section for EVSE supporting on-road vehicles, SCE includes a requirement that states: “Communications and controls with charger/EVSE SHOULD be OCPP 1.6 or later or similar (provide detail).”¹⁸ SCE did not provide a reasonable rationale for why this requirement is stated as “should” rather than “shall.”

Requiring OCPP is not premature given this is already the de facto standard for charger network companies¹⁹ and since the CPUC has already enforced this standard for the PYD2 program. As of September 2021, at least 20 EVSE manufacturers and 32 network providers state that they offer equipment with or are capable of communicating via

¹⁷ CEC AB 2127 final report at 67.

¹⁸ SCE’s EV Charging Equipment Qualification Package at page 9.

¹⁹ U.S. EPA’s ENERGY STAR Program Requirements for EVSE state that OCPP “is widely used and in the process of being established as an open standard” within the International Electrotechnical Commission framework. Moreover, EPA states that EVSE with connected Functionality that use an OCPP communication link comply with the requirement for grid communications.

<https://www.energystar.gov/sites/default/files/ENERGY%20STAR%20V1.1%20DC%20EVSE%20Final%20Specification.pdf> at page 15.

OCPP.²⁰ Requiring OCPP supports the Decision’s goal of interoperability and utilization of open standards. Further, SCE’s own Qualification Package states that “[t]he Standard Equipment Technical Requirements Checklist relates to equipment typically used for on-road vehicles where charging equipment interoperability standards exist.”²¹ As OCPP exists today, we do not find it reasonable to further delay requiring this protocol as a criterion for EVSE to qualify for the program. To the extent that additional EVSE management features are useful beyond the capabilities of OCPP, alternative EVSE to network service provider communication standards may be implemented *in addition* to OCPP. Thus, we direct SCE to update its Qualification Package to change the directive on OCPP to read:

“Communications and controls between a network services provider with charger/EVSE SHALL be OCPP 1.6 or later. Similar communication standards may be implemented in addition to OCPP.”

ISO 15118

SCE’s Qualification Package does not include any mention of standards in the domain of communication between the EV and EVSE. One such standard, ISO 15118, provides a standardized method for EVs and EVSE to communicate the information needed to enable authentication, automatic billing, smart charging, and bidirectional charging. The existing version of ISO 15118 is already in use for CCS DC charging,²² and some EVs also use it for automatic authentication and billing. It is also in use in medium- and heavy-duty vehicle applications for automatic connections including J3105. A second version that will update the standard, ISO 15118-20, is pending final approval from the ISO/IEC. The AB 2127 final report finds that use of ISO 15118 is growing among automakers and charging providers for various applications including AC charging, DC charging, and other advanced features.²³ Thus, it is essential to ensure that Level 2 and

²⁰ Per the California Electric Vehicle Infrastructure Project (CALeVIP), Equipment Manufacturers and Network Providers have noted “OCPP” in the “typical equipment standards that they offer.

<https://calevip.org/calevip-connects?category=79&county=All&op=%EF%80%82&keys=OCPP>.

²¹ SCE’s EV Charging Equipment Qualification Package at page 7.

²² See the New York State Energy Research and Development Authority (NYSERDA) equipment eligibility requirements and recommendations for EVSE and Infrastructure Deployment:

<https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7B42265401-0391-42A0-B5BA-8F5D517BA52B%7D>.

²³ CEC AB 2127 final report at 72.

DCFC EVSE installed with ratepayer funds as part of the Charge Ready 2 program are capable of over-the-air upgrades that support communication using ISO 15118.

The omission of ISO 15118 from the technical requirements does not support the Decision's language around high-level communications, open standards, nor support for interoperability. We do not find that enforcing hardware that is remotely upgradable to offer various AC charging features based on ISO 15118 is premature. The CEC identifies at least ten automakers with EVs already introduced or forthcoming to the U.S. market designed for ISO 15118 communications²⁴ and a growing number of EVSE manufacturers commensurate with that market demand.²⁵

It is in the ratepayers' interest to ensure that the ratepayer funded EVSE SCE deploys through Charge Ready 2 are capable of accommodating the growing number of EVs that support ISO 15118 charging features. To illustrate the market coalescing around this standard, EVSE with Connected Functionality as the U.S. EPA's Energy Star Program defines are required "to report whether the EVSE has the transceiver and/or necessary hardware to support smart charging for energy management (i.e., beyond simple managed charging with pulse width modulation or CAN bus)" specifically referencing "ISO 15118-2 or later" as the high-level communication protocol with EVs using J1772. We highlight and emphasize the need for a competitive TE market, and ensuring interoperability as ISO 15118 provides and as the Decision directs, will ensure market certainty for EVSPs and OEMs in developing their own products.

While the Decision does not explicitly mention ISO 15118, the directive for the EVSE to be interoperable is in the spirit of the legislature's longstanding directive for the CPUC to leverage "the technological advances that are needed to ensure the widespread use of plug-in hybrid and electric vehicles" and "to ensure that technologies employed in plug-in hybrid and electric vehicles work in a harmonious manner and across service territories."²⁶ Interoperability in this context means that EVs and charging equipment should be capable of various charging features needed for widespread adoption and harmonious operation across California.

²⁴ CEC AB 2127 final report at 69 cites Audi, Daimler, Porsche, Volkswagen, Lucid Motors, Ford, Hyundai, Rivian, Volvo and other automakers.

²⁵ CEC AB 2127 final report at 69 and 71.

²⁶ P.U. Code Section 740.2 (c) and (e).

ISO 15118 is the most widespread standard that meets the Decision’s requirements. At this time, a majority of EVSE manufacturers and automotive OEMs in various on-road vehicle segments are developing products that will communicate grid integration functions using ISO 15118 in the U.S. We view this as the market demonstrating a consensus around the use of this standard for EV to EVSE communications, especially in the context of the numerous global EV markets implementing ISO 15118. Further, use of ISO 15118 vehicle-EVSE communications would be backward compatible with EVs from the minority of automotive OEMs that may not have yet implemented ISO 15118 or continue to rely upon rudimentary charging communications IEC 61851.²⁷ Implementation of ISO 15118, in alignment with D.20-08-045 will help to future-proof EVSE and ensure that all EV drivers have the opportunity to benefit from smart and bidirectional charging. Thus, we find it reasonable to direct SCE to update its Qualification Package to reflect that:

“EVSE qualified for the Charge Ready 2 program using SAE J1772 and Combined Charging Standard SHALL be capable of enabling high-level communications using the ISO 15118 protocol to communicate with the vehicle.”

3. Networking Costs

SCE should clarify that vendors must agree to confidentially share their networking fee information.

Within the details of the procurement process, SCE does not mention any requirements for qualified vendors to share data. However, D.20-08-045 states that “SCE must also include a provision within the customer agreement and within its agreement with qualified participating vendors for the Make Ready Expansion, New Construction, and Own and Operate programs, including EVSPs, regarding giving SCE and its contracted evaluator access to data.”²⁸

The IOUs received sparse data from the EVSPs through the light-duty pilots, including the Charge Ready pilot. The IOUs and the CPUC have little insight from those pilots into the soft costs, like networking and other service fees, that customers must pay to operate their chargers. Through Program Advisory Council (PAC) meetings, SCE has

²⁷ CEC AB2127 final report at page 72, footnote 135.

²⁸ D.20-08-045 at page 125.

shared how these soft costs can amount to sums that are challenging for customers to pay. As a result, D.20-08-045 directed SCE to ensure that vendors provide SCE and the evaluator access to data.

Accordingly, SCE should update the qualification process to make clear that EVSPs must share data on charging usage and data on cost to customers, including the cost of networking fees and other packages for which customers pay. We understand that EVSPs may have concerns about sharing networking fee data, and so SCE may obtain this data confidentially and notify vendors that SCE will securely provide this data only to the CPUC and the program evaluator. This agreement should be contingent upon SCE qualifying the vendors for the Charge Ready 2 program.

Safety Considerations

This Resolution approves, with modifications, SCE's proposed EVSE qualification processes for its Charge Ready 2 program. There are no incremental safety considerations associated with this Resolution that the CPUC has not already addressed via D.20-08-045.

COMMENTS

Public Utilities Code section 311(g)(1) provides that this Resolution must be served on all parties and subject to at least 30 days public review. Please note that comments are due 20 days from the mailing date of this Resolution. Section 311(g)(2) provides that this 30-day review period and 20-day comment period may be reduced or waived upon the stipulation of all parties in the proceeding.

The 30-day review and 20-day comment period for the draft of this Resolution was neither waived nor reduced. Accordingly, this draft Resolution was mailed to parties for comments, and will be placed on the CPUC's agenda no earlier than 30 days from today.

FINDINGS

1. Decision (D.) 20-08-045 Ordering Paragraph (OP) 19 directs SCE, within 60 days of the adoption of the Decision, to file a Tier 1 advice letter outlining the qualification

- processes for electric vehicle supply equipment (EVSE) under both the site-host and utility-ownership models, consistent with Section 4.5.12 of the Decision.
2. On October 23, 2020, SCE filed advice letter 4322-E to establish the qualification processes for EVSE for both the Charge Ready 2 site-host and utility-ownership models, and to outline the technical, data collection, and warranty requirements for participating vendors.
 3. On November 12, 2020, ChargePoint, Inc. submitted a protest seeking clarification that the streamlined process for pre-qualifying vendors and equipment on SCE's Approved Product List (APL) will apply to both Level 2 and direct current fast charger (DCFC) equipment.
 4. On November 19, 2020, SCE issued a reply to ChargePoint, Inc.'s protest stating that its current APL includes approved DCFC equipment.
 5. As proposed in advice letter 4322-E, site hosts under the site-hose ownership model will select EVSE from SCE's APL, which identifies specific electric vehicle (EV) charging equipment whose suppliers attest to comply with technical, safety, and other requirements when they submit their application to SCE to receive approval.
 6. Any EVSE SCE uses in its Charge Ready 2 program must conform to the applicable eligibility requirements, which SCE collectively refers to as its Standard Equipment EVSE Qualification Package.
 7. As SCE clarified in its reply to ChargePoint, Inc., the process for pre-qualifying vendors and equipment should apply to both Level 2 and DCFC EVSE.
 8. SCE's proposed processes for continually approving EVSE on its APL for the site-host owned EVSE and the proposed process for issuing an RFQ for the SCE-owned EVSE is reasonable.
 9. Section 4.5.12 of D.20-08-045, "TOU Rates, Demand Response, and Technical Requirements," states that "...the Commission seeks to support interoperability. All EVSEs deployed through [Charge Ready 2]—either site host owned or utility owned—must support open standards, and should, if practical, be capable of high-level communications, as defined in the final report from the 2017 VGI Working Group."
 10. Each EVSE deployed through Charge Ready 2 must be capable of communication and technical capabilities to support demand response (DR) and to support high-level communications and open standards.
 11. The hardware within the EVSEs that SCE deploys through Charge Ready 2 should not be isolated to one service provider and should be securely updateable and able

to be switched to another service provider regardless of what software is initially included.

12. The CPUC determined in D.21-04-014, which authorized San Diego Gas & Electric (SDG&E) to implement the Power Your Drive Extension, that there are three critical open standards for EVSE deployment to support interoperability – EVSE that is equipped with a Society of Automotive Engineers (SAE) J1772 connector, is compliant with Open Charge Alliance’s Open Charge Point Protocols (OCPP), and has hardware that is remotely upgradable to offer various AC charging features using ISO 15118 high level communications.
13. The CPUC based the directives on standards within D.21-04-14 on the California Energy Commission’s (CEC) Assembly Bill (AB) 2127 staff report, which recommends that where possible, state agencies should leverage procurement requirements to accelerate market unification around interoperable communication protocols. CEC recommends that all alternative current (AC) EVSEs be equipped with a SAE J-1772 connector, be capable of high-level communications using the ISO 15118 protocol, and be compliant with Open Charge Alliance’s OCPP.
14. SCE’s Standard Equipment EVSE Qualification Package must be amended to align with D.20-08-045 Section 4.5.12 to ensure Charge Ready 2 supports interoperability and open standards, as currently the language on standards differs from that of D.21-04-014 and from the technical requirements necessary to support interoperability.
15. For light-duty EVSE deployed through Charge Ready 2, all alternating current (AC) conductive EVSE must be compliant with SAE J1772 and direct current (AC) conductive EVSE should be compliant with the Combined charging Standard (CCS).
16. SAE J1772 is a connector standard for AC charging that allows for rudimentary communications between the vehicle and EVSE, but not high-level communications.
17. OCPP allows for communication between the EVSE and the network, ensures the EVSEs do not become stranded assets if the vendor goes out of business, as was the case at a few sites within the Charge Ready Pilot, and is already the de facto standard for charger network companies.
18. Requiring OCPP supports D.20-08-045’s goal of interoperability and utilization of open standards, and as it exists today, it is not reasonable to further delay requiring this protocol as a criteria for EVSE to qualify for the Charge Ready 2 program.

19. SCE's Standard Equipment EVSE Qualification Package states that "[t]he Standard Equipment Technical Requirements Checklist relates to equipment typically used for on-road vehicles where charging equipment interoperability standards exist."
20. Within advice letter 4322-E, SCE's Standard Equipment EVSE Qualification Package does not include any mention of standards for communication between the vehicle and the EVSE.
21. ISO 15118 provides a standardized method for the vehicle and EVSE to communicate the information needed to enable authentication, automatic billing, smart charging, and bidirectional charging.
22. The existing version of ISO 15118 is already in use for CCS DC charging, some EVs also use it for automatic authentication and billing, and a second version of ISO 15118 is pending final approval.
23. The omission of ISO 15118 from the technical requirements does not support D.20-08-045's directives on high-level communications, open standards, nor support for interoperability.
24. At this time, a majority of EVSPs and OEMs are developing equipment that is compatible with ISO 15118 and the CEC identifies at least ten automakers with EVs already introduced or forthcoming to the U.S. market designed for ISO 15118 communications. We view this as the market demonstrating a consensus around the use of this standard.
25. While the Decision does not explicitly mention ISO 15118, the directive for the EVSE to be interoperable is in the spirit of the directives in Public Utilities Code Section 740.2 (c) and (e). Interoperability in the context of Public Utilities Code Section 740.2 (c) and (e) means that EVs and charging equipment should be capable of various charging features needed for widespread adoption and harmonious operation across California.
26. Within advice letter 4322-E, SCE does not mention any requirements for qualified vendors to share data.
27. D.20-08-045 states that "SCE must also include a provision within the customer agreement and within its agreement with qualified participating vendors for the Make Ready Expansion, New Construction, and Own and Operate programs, including EVSPs, regarding giving SCE and its contracted evaluator access to data."
28. Collecting networking fee cost data from vendors is important to the success of the Charge Ready 2 program and will help the CPUC ensure ratepayers are receiving a competitive price for the soft costs associated with installing EVSEs.

29. It is appropriate to keep networking fee cost data confidential between the vendor, SCE, the CPUC, and the evaluator.

THEREFORE IT IS ORDERED THAT:

1. This Resolution approves, with modifications, Southern California Edison Company's Advice Letter 4322-E.
2. This Resolution directs Southern California Edison Company to ensure that the process for pre-qualifying vendors and charging equipment for the Charge Ready 2 program applies to both Level 2 electric vehicle supply equipment and direct current fast charger electric vehicle supply equipment, where the electric vehicle supply equipment meets the applicable technical requirements defined in Decision (D.)20-08-045 and clarified in this Resolution.
3. Southern California Edison Company must revise its Standard Equipment EVSE Qualification Package for equipment and services deployed through the Charge Ready 2 program to include the following modifications:
 - a. All alternating current (AC) conductive electric vehicle supply equipment deployed through Charge Ready 2 must be compliant with Society of Automotive Engineers (SAE) J1772, and direct current (DC) conductive EVSE must be compliant with the Combined Charging Standard (CCS).
 - b. Communications and controls between a network service provider with charger/electric vehicle supply equipment shall be compliant with Open Charge Alliance's Open Charge Point Protocols (OCPP) 1.6 or later.
 - c. All electric vehicle supply equipment qualified for the Charge Ready 2 program using Society of Automotive Engineers (SAE) J1772 and Combined Charging Standard (CCS) shall be capable of enabling high level communications using the International Organization for Standardization (ISO) 15118 protocol to communicate with the vehicle.
4. Southern California Edison Company must update the Charge Ready 2 electric vehicle supply equipment qualification process to require that vendors, including electric vehicle service providers (EVSPs), must share data on charging usage and on the cost to customers of networking fees and other service packages for which customers must pay. SCE shall obtain this data confidentially and shall share it with the CPUC and the Charge Ready 2 program evaluator upon request.

This Resolution is effective today.

I certify that the foregoing Resolution was duly introduced, passed, and adopted at a conference of the Public Utilities Commission of the State of California held on **November 18, 2020** the following Commissioners voting favorably thereon:

Rachel Peterson
Executive Director