SOUTHERN CALIFORNIA EDISON®
Energy for What's Ahead®

CHARGE READY TRANSPORT

Technical Requirements for Standard Charging Equipment

To qualify for SCE's Charge Ready Transport program's charging equipment rebate, the Electric Vehicle Supply Equipment (EVSE) must be in compliance with the technical specifications described in this list and approved by SCE. If you have questions about any of these requirements, please contact your SCE Account Representative.

ID	Requirement	Meets Requirement (Y/N)	Comments
General EVSE/Charger Requirements			
1	Outdoor installed EVSE **SHALL** comply with NEMA 3R or NEMA 4 for indoor/outdoor use.		
2	EVSE, as installed, **SHALL** be California Code of Regulations (CCR) Title 20 and Title 24 compliant (including California Electric Code compliant).		
3	**FORM AND FUNCTION STANDARDS:** EVSE **SHALL** comply with SAE J1772, CCS, SAE J3068, SAE J3105, or IEEE 2030.1.1 (CHAdeMO) requirements.		
4	EVSE **SHALL** be fixed in place per governing code (i.e., attached to the floor/ground, ceiling, or a wall) and connected via fixed conductors.		
5	EVSE **SHALL** be listed and approved for the application by a Nationally Recognized Testing Laboratory (NRTL) (a list of OSHA approved NRTLs can be found at **https://www.osha.gov/dts/otpca/nrtl/**) and comply with all current EVSE standards for public use.		
6	Chargers/EVSE **SHALL** be capable of being installed on terminated electrical service, on either a new concrete pad or a wall mounted box, for garage structures or locations with the chargers placed adjacent to an existing wall.		
7	Chargers/EVSE **SHALL NOT** exceed electric load per California Electric code for installed, dedicated electric circuits for the following classes:		

ID	Requirement	Meets Requirement (Y/N)	Comments
General EVSE/Charger Requirements (continued)			
7a	Each charger/EVSE will be provided the following circuit characteristics: • 208 V, single phase or 480 V, 3 phases, ground, neutral • Conductors and CB sized for the load • Peak allowable load to be assessed by SCE per site according to local system capacity		
8	EVSE **SHALL** operate at nominal voltage and frequency for national electrical systems, ANSI C84.		
9	While not communicating, EVSE **SHALL** have a "no-battery" (no load, not connected to vehicle, or standby) power draw of no more than the lesser of 0.15% of nominal load, or 75W per simultaneously-active capable charging port.		
10	EVSE **SHALL** meet the power quality and reliability parameters as defined in SAE J2894/1. These parameters are tested following procedures defined in SAE J2894/2. Complete charging system efficiency (with vehicle), maintenance mode, and voltage surge tests will not be evaluated for this qualification.		
11	EVSE **SHALL** conform to all regulations and standards at the time of installation, including (but not limited to):		
11a	• California Code of Regulations (CCR), Title 4, Electric Vehicle Fueling Systems for collecting a fee. • California Department of Measurement Standards for sale of electric fuel or connected time.		
11b	• UL standards – applicable standards for safety and function – required for permitting by Authority Having Jurisdiction (AHJ).		
11c	• Federal and State efficiency regulations.		
11d	• Accessibility, Disability Regulations.		
12	EVSE **SHALL** have metering capability through an internal device and **SHALL** be able to measure power and usage parameters to enable reporting the metrics as specified in the Supplier and Reporting Requirement section.		

ID	Requirement	Meets Requirement (Y/N)	Comments
General EVSE/Charger Requirements (continued)			
13	After loss of power, the EVSE **SHALL** return to its post-configuration state (i.e. **SHALL** persist communication and registration configurations. This does not include continuing user sessions when authorization is required to start a session.		
14	EVSE **SHALL** provide a reset option, which returns the device to its pre-charge state (e.g. card or message – not user accessible).		
Communication and Control Requirements The following requirements are related to capabilities for communication with, and acting on, communications with charging system users or operators.			
15	The Supplier **SHALL** provide an OpenADR 2.0b VEN interface to SCE via internet/cloud, including:		
15a	• Support for the events profile services to allow user to respond to information, or for operator to engage connected function (i.e. energy storage) without controlling charger core behavior (power output).		
15b	• Support for all required sets of common signals as contained within the OpenADR 2.0b specifications.		
15c	• Support for all transport requirements as specified, including HTTP (pull), URI usage, header and behavior requirements, and error codes.		
15d	• Conformance to OpenADR Standard security requirements as specified, including RSA or ECC, and TLS 1.2 support.		
16	Supplier's OpenADR 2.0b VEN interface **SHALL** be certified and listed on the public OpenADR alliance website.		
17	The control software **SHALL** allow users to interact with the system in response to signals, and opt in or out prior to engaging controls.		
18	Communications and controls with charger/EVSE **SHOULD** be OCPP 1.6 or later or similar (provide detail).		

ID	Requirement	Meets Requirement (Y/N)	Comments
Communication and Control Requirements (continued)			
19	The system **SHALL** have the capability to respond to SCE-initiated OpenADR 2.0 events with the action of providing such event, price, and time information to users/owners/operators and collecting responses, as in the following cases:		
19a	Anticipated period of high demand – capable of providing information to user/owner/operator of high demand period, pricing, and alternative periods of lower demand, pricing.		
19b	Anticipated period of low demand – provide information to user/owner/operator of low demand period, pricing, and notification of periods of higher demand and pricing to assist with influencing choice.		
19c	Ability to control or engage auxiliary devices or energy storage when warranted, to maintain charging speed while mitigating grid impact.		
20	The system **SHALL** have the capability to provide pricing information to users, owners, and operators – upon receipt of SCE information or pursuant to established rates.		
21	The system **SHALL** be able to inform owners, operators and/or users of SCE-issued demand response information, such as pricing.		
22	The system **SHALL** be able to allow owners, operators, or users to interact with SCE events (e.g. opt out or choose to defer usage or limit grid power).		
23	The system **SHALL** support Network Time Protocol (NTP/UTC) time synchronization.		
24	The system **SHALL NOT** act on expired signals or messages (e.g. message validity duration or sequence) or create duplicate events, per the OpenADR 2.0b standard requirements.		
25	The system **SHALL** supply a field-programmable or remote software upgrade function (i.e. firmware upgrade).		
26	The system **SHALL** be able to support delivery of messages in near real-time.		
27	The system **SHALL NOT** modify priority of messages.		

ID	Requirement	Meets Requirement (Y/N)	Comments
Communication and Control Requirements (continued)			
28	The system **SHALL** provide explicit error messages for a range of device and communication failures (e.g. unrecognized message, out of range/low signal strength, low battery level, feature not supported, meter faults, EVSE faults).		
29	The VEN **SHALL** acknowledge receipt of control signals.		
30	The system **SHALL** acknowledge execution failure of request (i.e. exceptions).		
31	The Supplier **SHALL** ensure that all chargers/EVSE are able to receive communications with an uptime of at least 99% (it is possible that some will be located within underground parking structures, requiring external communication solutions).		
32	Supplier proposals **SHALL** include communication solutions that are independent of existing site communications (e.g. providing cellular communications rather than using customer internet).		
Information Security Requirements			
33	Any data stored or transmitted by EVSE, gateways, and Building Management Systems (BMS) **SHALL** be afforded an appropriate level of controls to protect its confidentiality and integrity. Supplier **SHALL** ensure the same level of controls wherever the data is subsequently stored and whenever it is transmitted. In particular, any personally-identifiable information **SHALL** be encrypted using secure industry standard techniques to protect confidentiality (please identify standards).		
34	Supplier **SHALL** have a secure product/software development lifecycle, incorporating secure development best practices.		
35	The EVSE **SHALL** provide the same level of protection and controls as is commensurate with its security profile, as governed by standards from the following standards bodies/organizations:		
35a	• NIST		
35b	• SAE		

ID	Requirement	Meets Requirement (Y/N)	Comments
Information Security Requirements (continued)			
35c	• Relevant Communication Standards Organization if applicable (e.g. OpenADR Alliance, Zigbee Alliance, NEMA, ANSI)		
35d	• UL Communications Standards		
36	EVSE **SHALL** have health checking functionality, reporting, logging, and bi-directional alerting capability.		

INFORMATION, REPORTING, AND OTHER REQUIREMENTS

ID	Requirement	Meets Requirement (Y/N)	Comments
Payment and Processing This list does not require systems have payment solutions; therefore, most of the following requirements are recommended practices for how EV charging payments can be applied, as well as how they can be combined with demand response services.			
37	If collecting a fee, the system **SHALL** comply with California Code of Regulations (CCR), Title 4, Electric Vehicle Fueling Systems, and California Department of Measurement Standards for sale of electric fuel or connected time.		
38	When selling customers fuel or services for charging, the system **SHOULD** adapt customer fees based on users' decisions to comply with demand response events (e.g. opt out, reduce charging, etc.).		
39	For customer choice, third-party payment mechanisms **SHOULD** be flexible enough to bill the user by time charging, time connected, session, kWh used per session, time of use pricing (i.e. parking space rental), or a combination of several of these, while remaining in compliance with California Title 4 regulations.		
40	Customer invoicing **SHOULD** be monthly, transactional, or a combination of both.		
41	EVSE **SHOULD** have user authentication capabilities (e.g. card, keypad, or smart phone app) to limit access to one or more specific users or for payment purposes.		
42	The system **SHOULD** allow users to operate EVSE free of charge with and without authorization at the station owner/operator's request (within contract stipulations).		
Supplier and Reporting Requirements			
43	Supplier **SHALL** provide SCE the following metrics in reports by aggregate, EVSE, and individual session on a monthly or as-specified basis (reporting format to be provided):		
43a	EVSE port unique identifier		

ID	Requirement	Meets Requirement (Y/N)	Comments
Supplier and Reporting Requirements (continued)			
43b	Charge session date, start, and end times. Charge session is defined by the time connected with power available to the vehicle. If the connected time exceeds the charging period by 15 minutes or more, or if the connected time is assessed separately from charging energy or time, also report connected time.		
43c	Energy (kWh) delivered, including amount per session, 15-minute energy interval per session (not cumulative), and daily unit/site aggregate.		
43d	Peak and average demand (kW) per session.		
43e	Rate and total fee, if any, charged to the end user & payment type.		
43f	All data elements prescribed in the Charge Ready Transport "Charging Equipment Usage Data Monthly Report".		
44	Supplier **SHALL** provide product support to customers to address problems and questions regarding billing and operations. EVSE **SHALL** be labeled with supplier contact information and EVSE identification. Supplier **SHALL** provide customer support service (telephone, web interface, or e-mail) during the normal business hours of 8:00 a.m. – 5:00 p.m., site local time. This information **SHALL** also be provided to SCE in the response.		
45	Supplier **SHALL** provide technical specifications, instruction manuals, electrical diagrams for connection, installation, commissioning procedures, and operator's manual in electronic format.		