Joint EV Charging Parties Comments

Submitted by	Company	Date Submitted
David Schlosberg (david@emotorwerks.com) Anthony Harrison Suresh Jayanthi Abdellah Cherkaoui Tim Kreukniet [New Participant]	eMotorWerks ChargePoint Chanje Energy Volta Charging EV Box	4/13/2018

The CAISO held a Technical Working Group on March 29, 2018. The presentation and all supporting documents can be found on the ESDER 3 webpage. The CAISO requests your comments to the two specific items that were presented in the working group meeting:

1. Measurement of EVSE Performance

In addition to the overall design elements of the EVSE measurement, please provide comments to the specific questions below:

- Does the current CAISO "Metering BPM Appendix G" requirements apply to EVSEs?
- Does the 10-in-10 customer baseline methodology capture an EVSE performance, or does the CAISO need to consider another baseline?
    - If the load point adjustment is not applied, is there another adjustment that should be considered?

The Joint EV Charging Parties appreciate the progress that CAISO Staff is making on this critical topic that will enable a much greater share of EVSEs deployed to become grid integrated in fact.

Regarding "Potential Metering Constructs" cited on Page 10[1], the Joint EV Charging Parties support flexibility on metering configurations, subject to such metering complying with the standards as defined in this stakeholder process. These configurations could include:

[1] http://www.caiso.com/Documents/Agenda-Presentation_EnergyStorage-DistributedEnergyResourcesPhase3-Mar292018.pdf

- One or numerous embedded EVSE meters per service account - *this is the default use case assumption*
- One or more separate sub-meter serving multiple EVSE per service account

Regarding "Metering Standards" cited on Page 11, Attachment G applies insofar as Section III references "the requirements of the Utility Distribution Company or applicable distribution company associated with single phase metering." The Joint EV Charging Parties supports EVSE submetering accuracy standards, as evidenced through a Settlement Quality Meter Data (SQMD) Plan process, set on par with single phase metering accuracy standards of the applicable Utility Distribution Companies. The Joint EV Charging Parties understand that the CPUC Accuracy Standards for Smart Meters and electromechanical meters is +/- 2.0%.[2] In addition, the accuracy standards utilized for the CPUC EVSE Submetering Pilot Phase 2[3] were similarly +/- 2.0% during the term of the pilot (see the applicable excerpt from "Standards for EV Submetering" in Appendix 1 to these comments).[4] The Joint EV Charging Parties proposes that the same accuracy standards apply to Direct Current Fast Charger (DCFC) EVSE that may seek to participate as part of a Proxy Demand Resource utilizing EVSE submetering, regardless of whether the DCFC utilizes three phase or single phase power.

Regarding "Performance Evaluation Methodology" cited on Page 12, the CAISO should seek to utilize previously approved performance evaluation methodologies, including those applicable developed in ESDER Phase 1 (for MGO) and Phase 2 (for alternate baselines). In the future, if stakeholders determine that another EVSE measurement methodology may be more appropriate, this could be considered and evaluated at such time.

- Customer Load Baselines (CLB)

  Day-matching CLB are applicable. For service accounts on commercial tariffs, the "10-in-10" CLB is applicable; however, for residential service accounts, the "5-in-10" CLB is applicable, as approved in ESDER 3. Residential EVSE participating as PDR and settled based on utility metering will be able to utilize the "5-in-10" CLB, thus submetered EVSE should have similar treatment.

- Load Point Adjustment (LPA)

[2] http://www.occeweb.com/pu/SMARTGRID/CPUC%20Advanced%20Metering%20Assesment%20Report.pdf, pg 19
[3] http://www.cpuc.ca.gov/general.aspx?id=5938
[4] Meter Data Management Agents (MDMA) were required to demonstrate +/- 1.0% accuracy of an eligible EVSE, while "maintain accuracy of +/- 2.0% during [Phase 2] of the pilot"

At this point in time, an LPA does not need to be applied for submetered EVSE. This could be reassessed in the future if EVSE-specific baselines need to be evaluated.

- Event Hour vs Day Exclusion

  Event hours should be excluded from CLB calculations rather than entire event days.

- Meter Data Granularity

  Resource IDs consisting of submetered EVSE will submit settlement data in 5-minute granularity. If submetered EVSE generate 5-minute interval data, the Scheduling Coordinator may submit such data granularity. If submetered EVSE generate 15-minute interval data, the Scheduling Coordinator may utilize three equivalent 5-minute interval kWh reading values based on the 15-minute native to the EVSE submetering.

In agreement with CAISO Staff statements in the workshop, a Resource ID which includes EVSE submetered and utility metered and/or virtual load (excluding EVSE) metered locations would utilize the performance evaluation methodologies applicable to the metering construct at the location, specifically LPA and Event Hour/Day exclusions.

2. Load Shift Product

In addition to providing comments on the overall design elements of the Load Shift Product, please provide comments to the specific topics/questions below:

- Please comment on the CAISO's proposal to establish two resource IDs and the bidding requirements for the load curtailment and consumption.
- Please provide comments on the Metered Energy Consumption (MEC) methodology
  - The CAISO presented an example that measured typical use with consideration of only the load consumption in "non-event hours" during the 10-in-10 baseline calculation and an example that considered both load curtailment and consumption; please comment on either calculation.
  - Are there other calculations that could measure typical use?

Comments:

The Joint EV Charging Parties requests that CAISO Staff and stakeholders continue developing the Load Shift market participation model in a manner that is adaptable to sources of consumption beyond stationary storage.

For example, if the performance evaluation methodology for Load Shift is solely applicable to stationary storage, then this aspect of the Load Shift framework may not be applicable to other consumption types. If feasible, the CAISO should maintain the option for stationary storage to utilize a "reverse" CLB as well as a newly development methodology for Load Shift settlement, thereby preserving an option with applicability to other sources of consumption.

Similarly, the workshop materials did not mention a requirement for symmetric energy generation under the Load Shift proposal. Because not all sources of consumption may exhibit symmetric "generation," CAISO should continue to develop the Load Shift product without such a requirement.

Appendix 1

1. STANDARDS FOR EV SUBMETERING

A. Physical Location

1. **Location.** The submeter must be located at any fixed point between the primary IOU electric meter and the electric vehicle supply equipment (EVSE) coupler. Any EVSE containing an embedded submeter must indicate that it contains a metering device.

2. **Identification.** Each submeter embedded in EVSE or standalone, must be labelled with or display a unique identifier associated with each EVSE coupler.

3. **Security.** A meter system shall be designed and constructed so that metrology components are adequately protected from environmental conditions likely to be detrimental to accuracy. Components shall be designed to prevent unauthorized access to adjustment mechanisms and terminal blocks by providing for application of a physical security seal or an Audit Trail.

4. **Security from Tampering and Diversion Resistance for Non-EV End-Uses.** During Phase 2 of the submetering pilot, no sealing requirements will be placed on the submeter, regardless of whether remote configuration is feasible. The Submeter Meter Data Management Agent and/or EVSPs should document how they physically prevent tampering of submeters No means shall be provided by which any measured electricity can be diverted from the submetering device for non-EV charging end-uses.

B. Accuracy and Measurement

1. **Accuracy.** The submeter must demonstrate meter acceptance accuracy of +/-1%, and must maintain accuracy of +/- 2% during the second Phase of the pilot. The term ‘accuracy’ is equivalent to the same term used in the ANSI C-12 standard or equivalent to ‘tolerance’ in NIST Handbook 44 Section 3.40 T.2. Submeter MDMA is responsible for describing how they comply with this accuracy requirement prior to pilot installation.

2. **Interval of Measurement.** The submeter shall have the capability to measure energy consumption in time intervals equal to the interval used by the IOU, but submeters are not be required to measure energy consumption in intervals smaller than 15 minutes. A Submeter MDMA has the option to measure in less than 15-minute time periods if they choose to do so. Regardless of the submeter’s measurement interval, the Submeter MDMA must report energy consumption data in time intervals consistent with those used by the IOU.

3. **Standard Time Synchronization.** The submeter’s time shall be synchronized to the Universal Time Coordinate (UTC) time standard as defined by the National Institute of Standards and Technology (NIST), and shall be within +/- two (2) minutes of UTC, while

the EVSE is in service. Submeter MDMA is responsible for describing how they comply with this accuracy requirement prior to pilot installation.

4. **Unit of Measurement.** The submeter must measure electricity data to the nearest Watt-hour (Wh) for each time interval and must be time-stamped to indicate the time/date of the energy consumption.

5. **Submeter and MDMA Storage of Data.** The device memory shall retain information on the quantity of electricity consumed in event of a loss of external power or EVSE service outage. Values indicated or stored in memory shall not be affected by electrical, mechanical or temperature variations, radio-frequency interference, power failure, or any other environmental influences to the extent that accuracy is impaired per UL 2594. Submeter shall keep accurate time and have local storage sufficient to retain interval data while the EVSE remains in service, and data stored in device memory shall be retrievable by MDMA.

6. **IOU Storage of Data.** Watt-hour data accumulated and indicated shall be retained by the IOU consistent with the same data storage requirements applicable to customer billing data.

C. Safety

1. **Devices Installed Prior To Phase 2 Pilot.** Any Electric Vehicle Supply Equipment (EVSE), EVSE with embedded submeter, and/or stand-alone submeter installed prior to the Pilot was certified by an Occupational Safety & Health Administration (OSHA)-approved Nationally Recognized Testing Laboratory (NRTL). Any EVSE, EVSE with embedded submeter, stand-alone submeter, except a plug-in EVSE or plug-in EVSE with embedded submeter, and related PEV charging circuits, were installed by a person or entity with a general electrical contractor's license issued by the California Contractors State License Board and obtained any required inspection and approval by the local Authority Having Jurisdiction (AHJ). The OSHA-approved list of NRTLs is maintained at: https://www.osha.gov/dts/otpca/nrtl/.

2. **Devices Installed As Part Of The Phase 2 Pilot.** Any EVSE, EVSE with embedded submeter, and/or stand-alone submeter installed as part of the Phase 2 Pilot is certified to Underwriters Laboratories (UL) standards by an Occupational Safety & Health Administration (OSHA)-approved Nationally Recognized Testing Laboratory (NRTL) or meets IOU safety standards. Any EVSE, EVSE with embedded submeter, stand-alone submeter, except a plug-in EVSE or plug-in EVSE with embedded submeter[1], and related PEV charging circuits were installed by a person or entity with a general electrical contractor's license issued by the California Contractors State License Board and obtained any required inspection and approval by the local AHJ.

D. Informing Customers about Submeter Data

1. **MDMA Responsibilities.** There is no requirement for the submeter device to visually display data. Customers should be informed of this condition by the EVSP or Submeter MDMA. MDMAs must make data available to customers through a web-based or mobile phone application and by request. If the submeter data that is made available to the