



Energy Storage and Distributed Energy Resources Phase 3 (ESDER 3)

Straw Proposal

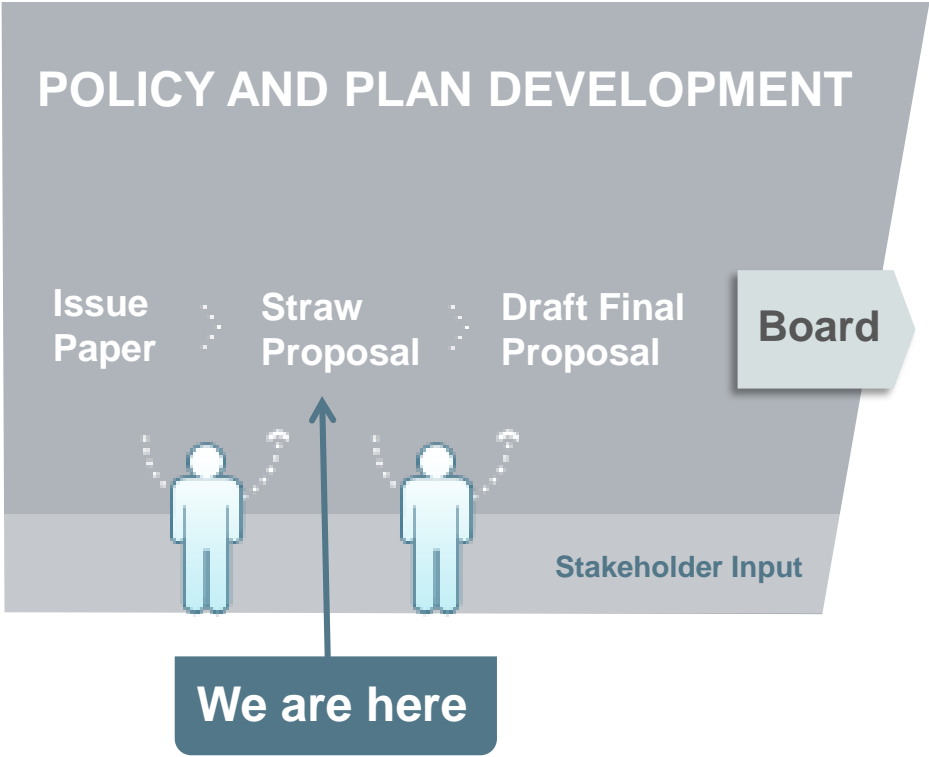
Technical Working Group
June 5, 2018
10 a.m. – 4 p.m. (PDT)

Agenda

Time	Item	Speaker
10:00 - 10:10	Stakeholder Process and Schedule	James Bishara
10:10 - 10:15	Introductions	Eric Kim
10:15 - 12:00	PDR-LSR	Jill Powers
12:00 – 1:00	<i>Lunch Break</i>	
1:00 - 3:30	EVSE	Eric Kim Jill Powers
3:50 - 4:00	Next Steps	James Bishara

STAKEHOLDER PROCESS

CAISO Policy Initiative Stakeholder Process



Scope/Objectives

Scope for ESDER 3

- New bidding and real-time dispatch options for demand response (DR)
- Removal of the single load serving entity (LSE) aggregation requirement and the need for application of a default load adjustment (DLA)
- Load shift product for behind the meter (BTM) storage
- Measurement of behind the meter electric vehicle supply equipment (EVSE) load curtailment
- Assessment of multiple-use application (MUA) tariff and market design changes
- Develop a process to qualify NGRs for use-limited status
- Identify policy developed for commitment costs that apply to NGRs

Objectives

The CAISO will be sharing design elements and do not reflect a final proposal

1. Review design elements
2. Discuss potential gaps or provide clarification
3. Suggest additional considerations

**If time permits, receive comments on other proposals outside of Load Shift and EVSE measurement*

PROXY DEMAND RESOURCE- LOAD SHIFT RESOURCE

Load Shift will be an option provided for a demand response resource participating under a Demand Response Provider Agreement

Demand Response Provider Agreement

Proxy Demand Resource (PDR)	Reliability Demand Response Resource (RDRR)	PDR Load Shift Resource (PDR-LSR)
Economic demand response that only provides load curtailment	Emergency response resource	Economic demand response that provides both load curtailment and consumption

This load shift option will initially be only available for PDRs utilizing sub-metered behind the meter energy storage

The PDR-Load Shift Resource (PDR-LSR) will allow for the provision of grid services for both the decrease or increase of load.

Key features

- Requires direct metering of BTM energy storage
- Resource pays full retail rate for all charging energy
- For load curtailment
 - Maintains RA capacity eligibility
 - Non-exporting rule applies
- For load consumption
 - Ineligible for RA capacity and ancillary services
 - Ability to bid a negative cost for energy services

PDR-LSR will be represented as a single resource ID

- Resource will register and bid as a single resource ID
- The CAISO will optimize the resource based on its full range (negative to positive)
- PDR-LSR performance evaluation methodology will not change
- RA Must Offer Obligation still applies to the resource and must submit bid to be available to provide curtailment

Resource parameters to be considered

PDR	
MAX_GEN	Max generation
MIN_GEN	Min generation
MIN_ON	Min on time
MIN_OFF	Min time off until resource can be dispatched
MAX_STRT	Max number of starts
MIN_LOAD_COST	Cost to start resource at MIN_GEN / hour

PDR – LSR*	
MAX_CHARGE	
MIN_CHARGE	
MAX_DISCHARGE	
MIN_DISCHARGE	
?	
?	

*Potential parameters

Bidding and Energy services

Bidding

- 15-minute or 5-minute dispatchable
- Will be eligible for bid cost recovery

Energy Services

- Energy
- Flexible Ramping Product
- Imbalance Reserve Product (DAM enhancements initiative)

PDR-LSR Performance Evaluation Methodology

- Will measure and net out “typical use” to define incremental value of load shift provided

- **LSR-curtailment**

- $LSR_{curt} = [|G(t)| - G_{LM}]$

- **LSR-consumption**

- $LSR_{cons} = [G(t) - G_{LM}]$

PDR-LSR “typical use” calculations

- Typical Use Curtailment (G_{LMcurt}) : 10-in-10 CLB, using 10 non-event hours including both consumption and curtailment but only accept a value that is at or above 0.

$$G_{LM} = \text{Max} \{(G_{LMcurt} + G_{LMcons}), 0\}$$

- Typical Use Consumption (G_{LMcons}) : 10-in-10 CLB, using 10 non-event hours including both consumption and curtailment but only accept a value that is at or below 0.

$$G_{LM} = \text{Min} \{(G_{LMcurt} + G_{LMcons}), 0\}$$

*Please refer to attachment
“PDR-Load Shift Resource Example”*

Key takeaways from performance evaluation methodology of PDR-LSR

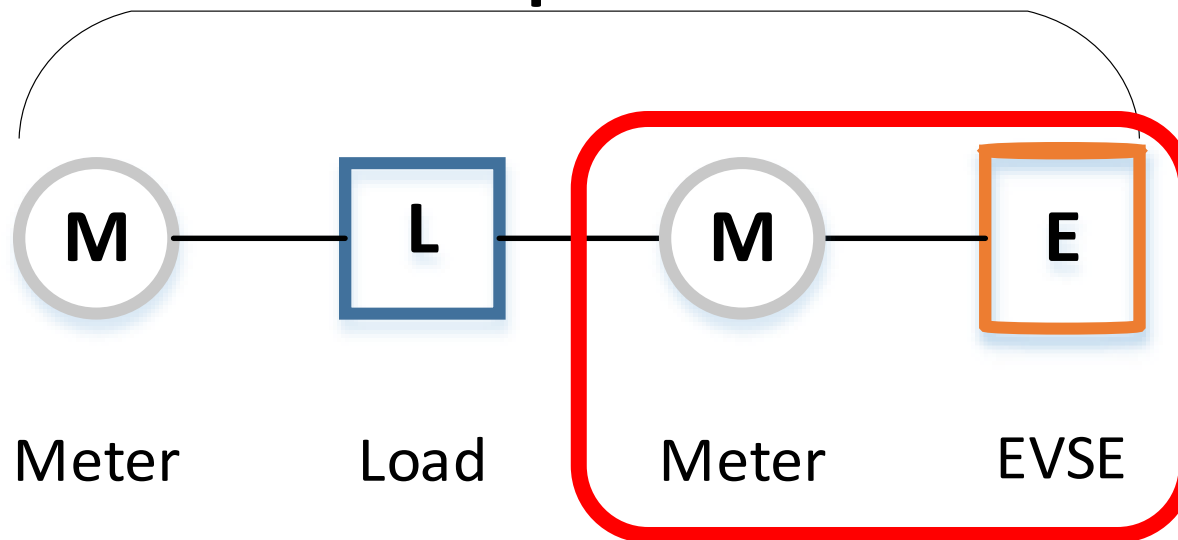
- Both methodologies will incorporate consumption/curtailment values when calculating “typical use”
- The net-export rule will only apply under the LSR-curtilment methodology
- When choosing non-event hours for both curtailment and consumption, events from either resource will be taken out.
 - An event from either resource creates “non-typical” behavior of those resources.

MEASUREMENT OF EVSE PERFORMANCE

CAISO is proposing to directly measure EVSE load curtailment

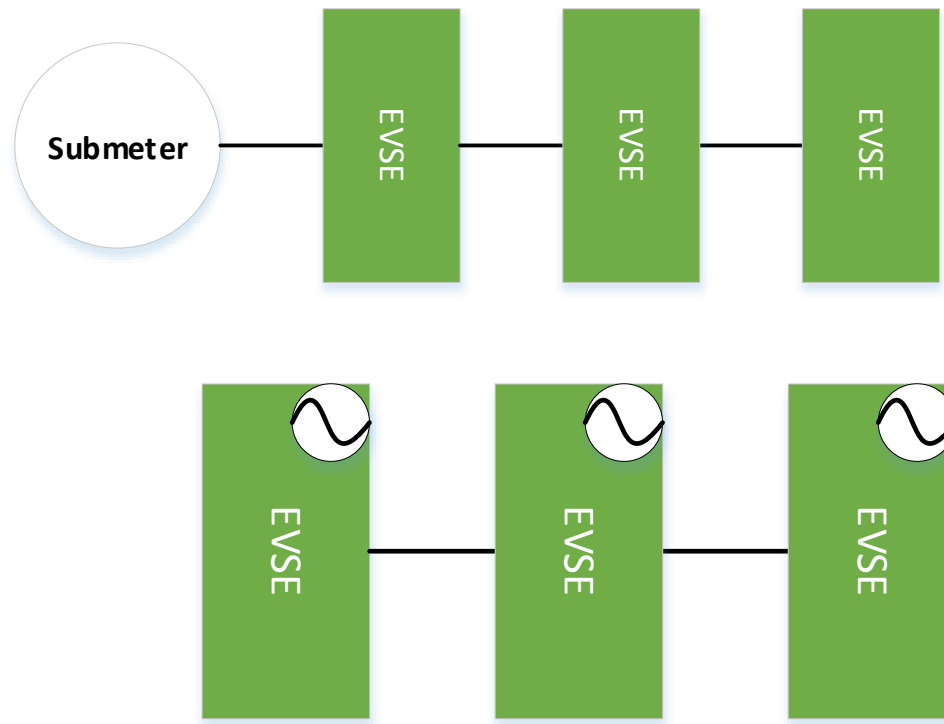
Currently, a DR resource with an electric vehicle supply equipment (EVSE) is measured without differentiating the performance of the EVSE, which can behave differently than normal load.

Demand Response Resource



Potential Metering Constructs

The CAISO needs to identify the meter that will provide the revenue quality meter data to measure the performance of the EVSE



Metering Standards

- All meters should follow the CAISO's Metering BPM – Appendix G and Settlement Quality Meter Data Plan requirements
 - Appendix G applies if relevant LRA has not set any standards
- SCs will submit a SQMD plan that will detail how it has met Appendix G and if it is a single phase then how it has met the respective utility's standards

Performance evaluation methodology

- EVSE performance will be measured using the 10 in 10 customer load baseline (CLB) methodology
 - The 10 in 10 will have a look back period of 45 days using 10 of the most recent non-event hours
 - Meter data derived from CLB will be 5-min granularity (ESDER 2)

- *Refer to attachment for examples*

NEXT STEPS

Next Steps

Written stakeholder comments on today's technical working group are due by COB June 15 to InitiativeComments@caiso.com.

Materials related to the ESDER Phase 3 initiative are available on the ISO website at http://www.caiso.com/informed/Pages/StakeholderProcesses/EnergyStorage_DistributedEnergyResources.aspx