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

Draft Final Proposal

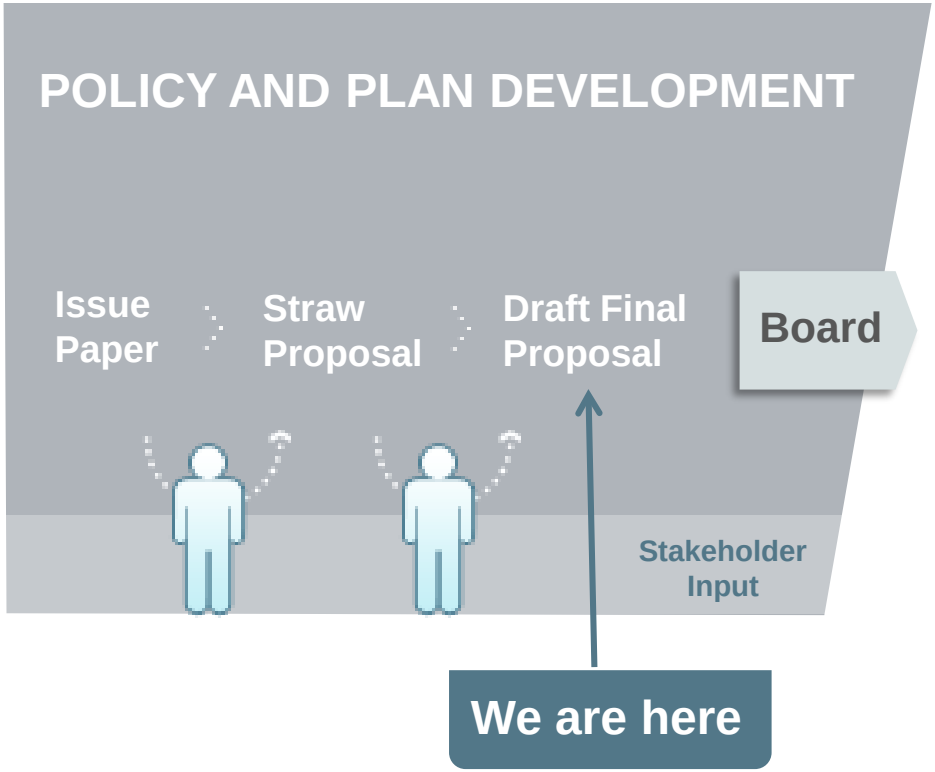
Stakeholder Web Conference
July 16, 2018
1 PM – 4 PM (PDT)

Agenda

Time	Item	Speaker
1:00 - 1:10	Stakeholder Process and Schedule	James Bishara
1:10 - 1:15	Introductions	Eric Kim Jill Powers
1:15 - 1:30	Background and Scope	
1:30 – 2:45	DR Modeling Limitations	
2:00 – 2:20	Removal of single LSE requirement and DLA	
2:20 – 3:00	PDR-Load Shift Resource	
3:00 – 3:30	Measurement of EVSE Performance	
3:30 – 3:40	Update on MUA	
3:40 – 3:50	Update on NGR	
3:50 - 4:00	Next Steps	James Bishara

STAKEHOLDER PROCESS

CAISO Policy Initiative Stakeholder Process



Scope/Objectives

Proposals Under ESDER 3

1. New bidding and real-time dispatch options for demand response (DR)

2. Removal of the single load serving entity (LSE) aggregation requirement and the need for application of a default load adjustment (DLA)

3. Load shift product for behind the meter (BTM) storage

4. Measurement of behind the meter electric vehicle supply equipment (EVSE) load curtailment

DEMAND RESPONSE MODELING LIMITATIONS

Stakeholder Comments and Responses

- In response to CLECA, the CAISO corrected the hourly bid option description to read that the resource will be a price taker for the full hour.

- HASP prices are advisory and are a forecast of LMPs for the upcoming FMM. Hourly block resources settle on the actual FMM LMP.

- The HASP schedules resources 45 minutes before the hour with FMM prices set at 22.5 minutes before the first binding interval.

New bidding and real-time dispatch options for DR

- Two new bidding options

  (1) Hourly block – Energy schedule is committed for the hour and is communicated 52.5 minutes before the flow of energy

  - Resource is a price taker for the full hour
  - No bid cost recovery
  - PDR will have the option in Master File to not be considered for RUC

  (2) 15 minute dispatchable – Bids submitted in FMM and dispatched at FMM price; dispatches communicated 22.5 minutes before flow of energy

  - Eligible for bid cost recovery

REMOVAL OF SINGLE LSE REQUIREMENT AND DLA

Proposing to remove the single LSE aggregation requirement and application of the DLA

- The CAISO proposes to
  - Remove the requirement of a PDR or RDRR resource aggregation to be limited to one LSE
  - Develop a SIBR rule to only accept bids at or above the Net Benefits Test price for these resources
    - Eliminates the need for the default load adjustment settlement mechanism tied to the resource's LSE

Pre-Market

- The DRRS requires a PDR/RDRR to register under a single LSE
- The CAISO will remove the single LSE requirement within the DRRS
- No other changes have been identified

Market - SIBR Bidding Requirement

- Ensures that PDR/RDRR resources are net beneficial to the system based on bids
- SIBR will use monthly NBT prices to validate bid submissions
  - SC will be able to resubmit bids until the market closes
- SIBR will continue to validate submission of the bids based on the current rule requiring bid prices be at or above 95% of the energy bid price ceiling.

PROXY DEMAND RESOURCE-LOAD SHIFT RESOURCE

Stakeholder Comments and Response

- SCE/Olivine commented on the use of granular event intervals in comparison to an event day consideration.
  - The CAISO was utilizing similar principles of the FERC approve metered generator output (MGO) methodology using event hours and not days.
  - To evaluate an energy storage's incremental value as a 15-minute or 5-minute dispatchable resource, a more granular calculation is needed.
  - A facility's load curtailment will still use the CAISO approved baseline methodologies

Stakeholder Comments and Response (Cont'd)

- DMM detailed (3) potential conflicting dispatch scenarios

  1. Infeasible ramping capability by curtailment resource in order to meet the dispatch for the consumption resource.

  The CAISO has included the requirement to enforce ramp rates for PDR-LSRs to ensure that dispatches can be met on 15 or 5-min basis.

Stakeholder Comments and Response (Cont'd)

2. Curtailment resource's minimum run time is honored and the consumption resource could be dispatched during the minimum run time hours.

– The curtailment resource will be required to have a Pmin of 0 MW, in order to allow for the consumption resource to respond during these intervals.
– The consumption resource will not have certain parameters such as minimum run time since it is isolated to just the behind the meter energy storage resource.

Stakeholder Comments and Response (Cont'd)

3. System needs change in which curtailment resource is dispatched to curtail and consumption resource is dispatched to stop consuming.

– The CAISO does not have ~~any~~ operational concerns dispatching both resources at the same time (one to ramp up curtailment and another to ramp down consumption).
– PDR-LSRs will need to understand the requirement to meet CAISO dispatches and bid accordingly.
– The CAISO will monitor for this scenario with the implementation of the PDR-LSR.

This load shift option is 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 and 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

Pre-market: Registration and Masterfile

- A PDR-LSR must create a registration for both curtailment and consumption; cannot register to only offer load consumption
  - Registrations for both resources will utilize the same service account(s)
  - Registrations must include locations with a sub-metered storage device.
  - The CAISO will enforce ramp rates to ensure that resource can be fully dispatchable from Pmin to Pmax in 15 or 5 min
  - The PDR-LSR will be registered as two separate resource IDs in the Masterfile
  - Resource ID for curtailment must register with a Pmin of 0 MW

Bidding and Energy services

Bidding

- Both PDR-LSR bidding options must be uniform
  - 15-minute or 5-minute dispatchable
- Will be eligible for bid cost recovery
- PDR-LSR_{curt} can bid from NBT price to Bid Cap
- PDR-LSR_{cons} can bid from Bid Floor to < $0

Energy Services

- Energy
- Flexible Ramping Product
- Day-ahead FRP (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.

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

- 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.

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

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 curtailment
- 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.

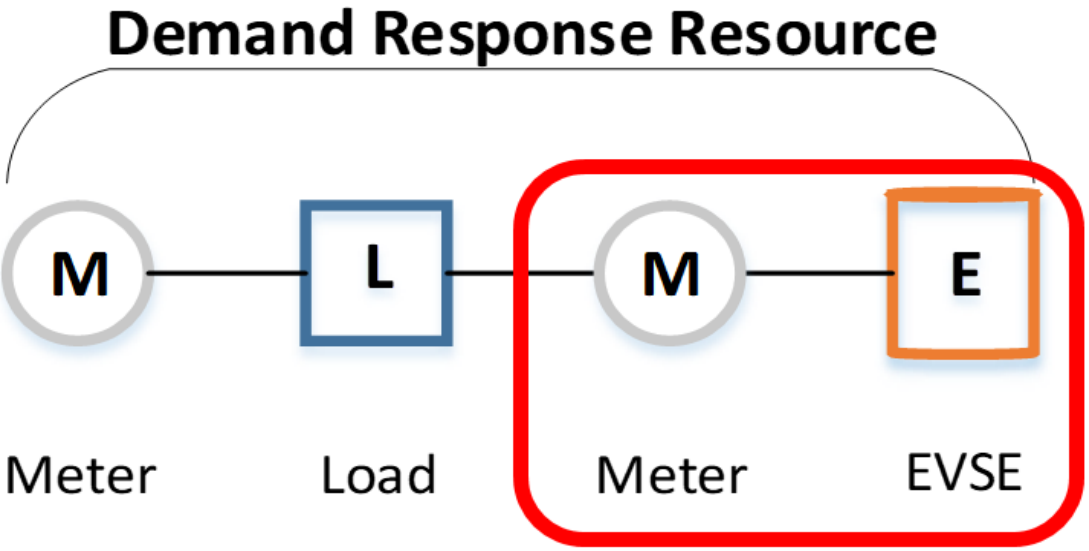
RECOGNITION OF BTM EVSE LOAD CURTAILMENT

Stakeholder Comments and Responses

- SCE has stated its concerns on the EVSE sub-metering lacking a dedicated meter for the resource.
- Joint EV charging parties does not agree with the likelihood of migrating load during DR events due to Auto-DR technology.
- The CAISO agrees with the viewpoint that the likelihood of load migration is low but will have evaluate provisions to deter this behavior in the form of agreements and/or audits.

Proposing to enable EVSE sub-metering and extend MGO performance method for EVSEs

- The proposal will allow for an EVSE's performance to be measured differently from the host facility



Registration and Metering Standards

- EVSEs will be able to calculate two types of customer load baselines
  1. EVSE residential – Will use a 5-in-10 customer load baseline
  2. EVSE non-residential – Will use a 10-in-10 customer load baseline
- All meters will 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

https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Metering

Performance evaluation methodology

- EVSE performance will be measured using either the 5 in 10 or the 10 in 10 customer load baseline methodology
  - Both methodologies will have a look back period of 45 days using either 5 or 10 of the most recent non-event hours
  - Meter data derived from CLB will be 5-min granularity
    - If an EVSE generates 15-minute interval data, the SC will transpose the data to three 5-minute intervals.
- Load point adjust will not apply to the EVSE baselines

UPDATE ON MULTIPLE-USE APPLICATIONS

The CPUC has held multiple working group meetings

- The CAISO has been actively engaged in the working group meetings
- Assisting in the draft of a report to the commission due by August 9, 2018
- The CAISO has yet to identify and develop a proposal within ESDER 3 that is needed to facilitate the implementation of the MUA framework
  - Recommendations from the report will be taken into consideration for a future initiative

UPDATE ON NON-GENERATOR RESOURCE

The CAISO will not be proposing any changes to the NGR participation model

- The CAISO welcomes continued discussion with stakeholders on use-limited qualifications
- Additional operating concerns should be directed to CAISO customer account representative
- Pending FERC Order 841 changes

NEXT STEPS

Next Steps

Milestone	Date
Draft Final Proposal Posted	July 11, 2018
Stakeholder call	July 16, 2018
Stakeholder comments due	July 27, 2018

Written stakeholder comments on the issue paper are due by COB July 27 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