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

Revised Straw Proposal

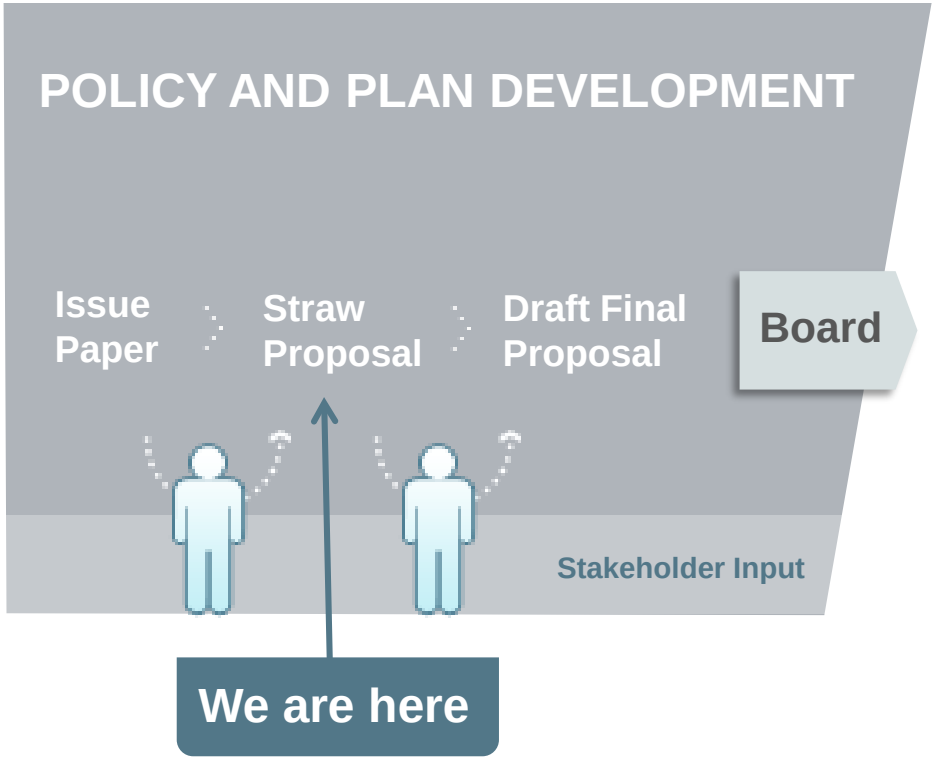
Stakeholder Conference Call
May 10, 2018
9 a.m. – 12 p.m. (PDT)

Agenda

Time	Item	Speaker
9:00 - 9:10	Stakeholder Process and Schedule	James Bishara
9:10 - 9:15	Introductions	Eric Kim Jill Powers
9:15 - 9:30	Background and Scope	
9:30 – 9:45	DR Modeling Limitations	
9:45 – 10:00	Removal of single LSE requirement and DLA	
10:00 – 10:40	PDR-Load Shift Resource	
10:40 – 11:15	Measurement of EVSE Performance	
11:15 – 11:30	Update on MUA	
11:30-11:50	Update on NGR	
11:50 - 12:00	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

Objectives

- Review changes and updates to proposal
  - DR modeling limitations
  - Removal of single LSE requirement and DLA
  - Load Shift Product
  - Measurement of EVSE performance
- Updates on MUA and NGR

DEMAND RESPONSE MODELING LIMITATIONS

Commitment Costs and Day-Ahead Market Enhancements

- Commitment Cost and Default Energy Bid Enhancements (CCDEBE)
  - Allows resources with a 0 MW minimum operating level to reflect minimum load and start-up costs
  - Still in tariff development phase
  - Stakeholders are encouraged to track CCDEBE initiative
- Day-Ahead Market Enhancement (DAME)
  - Elimination of RUC
  - Development of imbalance reserve product
    - Resource will have a MOO in real-time market with IR award

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

(2) 15 minute dispatchable – Bids submitted, committed at FMM price, and 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 above the Net Benefits Test threshold price for these resources
    - Eliminates 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
- SIBR will use monthly NBT prices to validate bid submissions
  - SC will be able to resubmit bids until the market closes
- In the case an RDRR will need to submit a bid in the real-time market
  - 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

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.

<u>Key features</u>

- 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 may utilize the same service account(s)
  - Registrations must include locations with a sub-metered storage device.

- The PDR-LSR will be registered as two separate resource IDs in the Masterfile
  - Resource ID for load curtailment (PDR-LSR_{curt})
  - Resource ID for load consumption (PDR-LSR_{cons})

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 at or above $0
- PDR-LSR_{cons} can bid from -$150 to < $0

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
- *The performance methodology was referenced as MGO-Shift and MEC in revised straw proposal but will now be renamed to:*
  - **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.

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

Please refer to attachment
"PDR-Load Shift Resource Example"

http://www.caiso.com/Documents/PDR-LoadShiftResourceExample.pdf

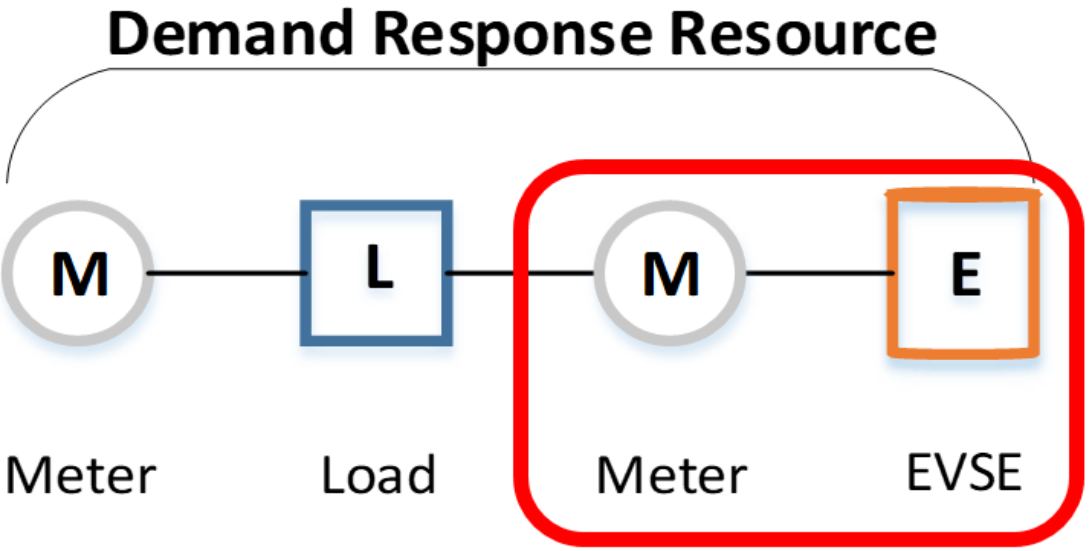
Key takeaways from performance evaluation methodology of PDR-LSR

- Both methodologies will incorporate consumption/curtailment values when calculating “typical use”
- The net-export rule will only apply under the LSR-curtailment 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.

RECOGNITION OF BTM EVSE LOAD CURTAILMENT

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
- At the moment, outside of identifying transmission level services for the pending report, the CAISO has not identified MUA issues that will require separate treatment in an initiative

UPDATE ON NON-GENERATOR RESOURCE

The CAISO has not made any changes to the NGR proposal

- CAISO has yet to hear from stakeholders on use-limited qualifications

- Revised Straw Proposal removed the consideration of identifying commitment costs for NGRs
  - NGR is modeled as a resource that is available and ready to be dispatched
  - This clarification will require an alignment between the tariff and BPM

NEXT STEPS

Next Steps

Milestone	Date
Revised Straw Proposal Posted	April 30, 2018
Stakeholder call	May 10, 2018
Stakeholder comments due	May 21, 2018

Written stakeholder comments on the issue paper are due by COB May 21 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