



Energy Storage and Distributed Energy Resources Phase 4

Issue Paper

Stakeholder Conference Call

February 13, 2019

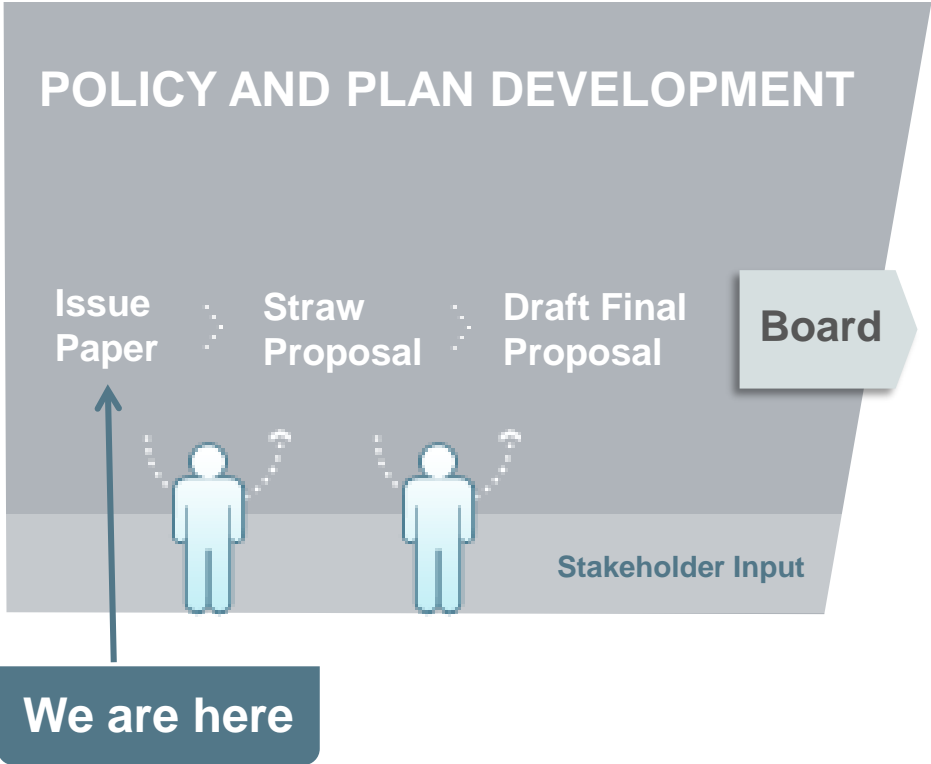
9:00 a.m. – 12:00 p.m. (Pacific Time)

Agenda

Time	Item	Speaker
9:00 - 9:10	Stakeholder Process and Schedule	James Bishara
9:10 - 9:15	Introductions	Eric Kim
9:15 - 9:30	Background and Scope	
9:30 - 10:30	Non-Generator Resource Enhancements	
10:30 - 10:40	Bidding Requirements for Energy Storage	
10:40 – 11:30	Demand Response Resources	
11:30 – 10:50	Multiple-Use Applications	
11:50 - 12:00	Next Steps	James Bishara

STAKEHOLDER PROCESS

CAISO Policy Initiative Stakeholder Process



BACKGROUND / SCOPE

ESDER's goal is to lower barriers and enhance the ability of storage and DER to participate in the CAISO market

- ESDER Phase 2 implemented in Fall 2018
 - New baseline methodologies, changes to net benefits test, and tariff clarification of station power definition.
- ESDER Phase 3 approved by CAISO Board in September 2018
 - Planned implementation for Fall 2019.
 - New DR bidding options, Load Shift Resource, EVSE measurement, and removal of the DLA.

Proposed ESDER 4 Scope

1. Enhancements to NGR model
2. Bidding requirements
3. Demand response enhancements
4. Multiple-Use Application provisions

NGR ENHANCEMENTS

NGR Enhancements: Real-Time SOC Management

- The real-time market optimization horizon may impede SCs from optimally managing their NGR over the day.
 - Optimization for fast start resources looks over a 1 hour and 45 min time horizon.
- Example:
 - Based on bids, the real-time market may find it economic to fully discharge a resource early in the day.
 - An SC may want to preserve SOC for a later point in the day.
- Explore if additional SOC parameters are needed and how they would be used.

NGR Enhancements: Effects of Multi-Interval Optimization

- An NGR may appear to receive an uneconomic outcome when the entire optimization horizon is not considered.
- Example:
 - NGR receives dispatch to charge at a price higher than its bid in an interval because the optimization schedules a future interval to discharge that results in a greater economic outcome.
 - Where the higher price in the future interval does not materialize:
 - The revenue shortfall is addressed through bid cost recovery.
 - Resource recovers its energy bid costs.

NGR Enhancements: Participation Agreements

- Today, NGRs sign both Participating Generator Agreement (PGA) and Participating Load Agreement (PLA).
- To reduce administrative burden...
 - NGR would sign only a PGA
 - Dispatchable Demand Response (DDR) would sign the PLA

BIDDING REQUIREMENTS FOR ENERGY STORAGE

Bidding Requirements for Energy Storage Resources

- Organized wholesale markets employ mitigation measures to minimize market power and non-competitive outcomes.
- Currently, the CAISO does not mitigate NGRs for local market power but sees a need due to growing participation and reliance on storage resources.
- The CAISO will consider market impacts and potential new bidding requirements and mitigation rules applicable to storage resources.

DEMAND RESPONSE

Demand Response: Operational Characteristics

- DR with a P_{min} of 0 MW face challenges reflecting operational limitations in CAISO market.
- DR resources receive dispatches to move between P_{min} and P_{max} .
 - Market respects minimum run time parameter because it will commit a DR resource to its P_{min} .
 - Certain DR resources can only provide a single sustained response from its P_{min} of 0 MW.

Demand Response: Operational Characteristics (Cont'd)

- The CAISO designed hourly and 15-minute bidding options which extend notification times and longer-duration interval dispatches.
- CAISO believes the CCDEBE and CCE3 initiatives will allow DR resources to reflect and value their operational characteristics and limitations.

Demand Response: Weather Sensitive

- The maximum output of certain DR resources can vary due to their weather sensitive nature, much like other variable energy resources.
- CAISO recognizes that the CPUC/LRAs must establish the qualifying capacity methodology for weather-sensitive DR.
 - CAISO is open to discussing with stakeholders to help inform and advance this issue for CPUC consideration.
- CAISO will also consider with stakeholder input, options about how to operationalize and accommodate weather-sensitive DR in the CAISO market.


MULTIPLE-USE APPLICATIONS

Multiple-Use Applications

- MUA is a construct that allows a DER to provide services and receive compensation from multiple entities (customer, distribution, and transmission).
- The CPUC adopted a decision based on a joint report with the CAISO that includes eleven rules to guide the formation of MUAs.
- Will examine the application of the rules in the context of the CAISO market.

NEXT STEPS

Next Steps



Milestone	Date
Issue paper posted	February 6, 2019
Stakeholder web conference	February 13, 2019
Stakeholder comments due	February 27, 2018

Written stakeholder comments on the issue paper are due by COB February 27 to InitiativeComments@caiso.com.

All material for the ESDER initiative is available on the ISO website at: http://www.caiso.com/informed/Pages/StakeholderProcesses/EnergyStorage_DistributedEnergyResources.aspx