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)
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CAISO Policy Initiative Stakeholder Process

POLICY AND PLAN DEVELOPMENT

Issue Paper ➔ Straw Proposal ➔ Draft Final Proposal ➔ Board

Stakeholder Input

We are here
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: Operational Characteristics

• DR with a Pmin of 0 MW face challenges reflecting operational limitations in CAISO market.

• DR resources receive dispatches to move between Pmin and Pmax.
  – Market respects minimum run time parameter because it will commit a DR resource to its Pmin.
  – Certain DR resources can only provide a single sustained response from its Pmin 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

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<tr>
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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