

CAISO 2021 Draft Policy Initiatives Roadmap: Stakeholder Comments

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LS Power appreciates the opportunity to submit comments on CAISO's 2021 Draft Policy Initiatives Roadmap and Annual Plan, as presented in the October 7, 2020 stakeholder call.

LS Power requests CAISO to timely open the next phase of its Energy Storage and Distributed Energy Resources (ESDER) initiative, and/or modify another stakeholder initiative, to address several pressing issues for storage integration into the markets. We understand that CAISO is proposing next round of ESDER initiative to start in 2023, which means 2025 would be the earliest any issues that will be addressed in that initiative can be implemented. This will be too late since there are several key issues that need to be addressed now. These issues mostly stem around CAISO's current system for processing bids and determining dispatch and settlement for energy storage, specifically in front of meter storage participating as a Non-Generator Resource (NGR), does not provide resource owners with adequate ability to convey their cost to operate to CAISO and to control their own dispatch. These issues may have been possible to overlook with just a few hundred megawatts of NGR projects online in the past, but these will become more widespread as CAISO interconnects thousands of megawatts of NGRs in the next few years and begins to rely on this asset class. We urge CAISO to include these issues in its 2021 initiatives in order to provide market clarity that supports continued investment in storage at this critical time when the state needs thousands of megawatts of new storage capacity to integrate renewable energy and replace capacity that is retiring. If ESDER initiative can't be started in 2021, then perhaps another CAISO initiative such Dispatch Enhancements, which is scheduled to start in 2021 can address these issues.

Specific policy issues to address include:

- Exceptional Dispatch for Storage and associated settlement rules:
CAISO should look at ways to minimize reliance on Exceptional Dispatch (ED) and similar tools that tightly control storage resources and take some or all of the NGR's capacity out of market without adequate compensation. While we understand the need for ED on certain days, under certain operating conditions such as System Emergencies, however excessive use of this leads to market inefficiencies, which in turn leads to increase in cost to serve load. In addition, inadequate compensation while on ED has negative economic outcomes for storage resources and the grid overall. Storage resources should be made whole to their bids (which according to our understanding is currently not happening) and also to potential lost opportunity costs for storage when it is taken out of market. While on

ED storage can miss out on several charge/discharge opportunities in response to FMM & RTD prices these could lead to huge lost opportunity costs for storage. Current settlement rules do not make NGRs whole for this loss.

- Minimum Charge Requirement for Storage resources:
CAISO has proposed tools that would reduce the participation of storage in the Real Time market, including Minimum Charge Requirement (MCR), which was initially introduced in ESDER and is now in the Resource Adequacy initiative. MCR effectively removes NGRs from the Real Time market automatically even under non-emergency conditions every time NGR has a Day Ahead discharge award. All this is done without compensating the resources for this action and the resource could potentially be out of Real Time market for several hours, holding its SOC just so it can discharge to its DA award. This leads to several lost opportunities for NGR in Real Time markets. CAISO is currently addressing this issue under RA Enhancements initiative and we are flagging this here so that if further discussions are required on this (which it appears will be required based on stakeholder feedback CAISO has received) there may be a need to roll this over into a separate initiative. LS Power commented on MCR on October 1 in the RA Enhancements initiative.¹
- Multi Interval Optimization enhancements for Storage:
The Multi Interval Optimization and Bid Cost Recovery algorithms/calculations were designed for conventional (e.g. gas) generation units and are impressive pieces of market design and engineering, but do not work well for energy storage today. These aspects of the market should be revisited to account for storage's unique characteristics, and to enable storage resource owners to determine the absolute price levels their resource will be dispatched at in real-time. Today, the dispatch algorithms frequently cause a storage unit to cycle more and at lower price spreads than it would if CAISO dispatched strictly according to the binding interval LMPs and the actual prices submitted by an NGR's Scheduling Coordinator. Because Multi Interval Optimization in real-time does not consider awards in prior market runs, it is not uncommon for the Multi Interval Optimization algorithm to lock in losses in storage operation during various intervals of the day. These losses are typically not covered by Bid Cost Recovery unless the losses in a period are so severe they wipe out the entire 24 hour day's revenue.
- Other significant but less central storage dispatch and market integration issues include:
 - Infeasible dispatch schedules and DOTs;
 - No ability to change the bid curve to reflect higher wear and tear costs from heavy cycling (i.e. VOM increases exponentially from 1 cycle to 2 to 3 in a day);
 - No tool to account for the charge speed of storage resources, which tapers off as the unit gets full (i.e. Pmin and Pmax changes as a function of SOC);
 - No way to convey to CAISO that Opportunity Cost, and thus the willingness to charge at higher prices, increases if the unit is at low SOC.
 - Further tweaks and monitoring of the implementation of tools from ESDER Phase 4 such as biddable State of Charge parameters, which risk being impacted by other stakeholder processes such as UCAP definitions for storage.

¹ LS Power, "Comments on September 15 and 17 Working Group", October 1, 2020 CAISO Resource Adequacy Enhancement Initiative, <https://stakeholdercenter.caiso.com/StakeholderInitiatives/AllComments/e0efc91f-6c4e-44be-a701-85039cefc61a#org-ed19d691-6015-491f-a88f-7722bcfb7675>

In CAISO's efforts to integrate new technologies in ESDER initiative, CAISO noted in the October 7, 2020 call that it will focus on Phase 3b and Phase 4 in 2021 and 2022, and not consider ESDER enhancements until 2023. LS Power urges CAISO to reconsider this timing, or adjust current initiatives such as ESDER Phase 4, the Dispatch Enhancements initiative or the Resource Adequacy Enhancements initiative to include the issues raise above.

LS Power requests stakeholder discussions in 2021 on storage integration issues to come to effective and economic market solutions. The LS Power team has experience in operating large battery storage projects in CAISO markets. We stand committed to working with CAISO team in addressing these issues.