California ISO

Stakeholder Comments Template

Energy Storage and Distributed Energy Resources (ESDER) Phase 4

This template has been created for submission of stakeholder comments on the Straw Proposal for ESDER Phase 4. The paper, stakeholder meeting presentation, and all information related to this initiative is located on the initiative webpage.

Upon completion of this template, please submit it to initiativecomments@caiso.com. Submissions are requested by close of business **May 17, 2019**.

Submitted by	Organization	Date Submitted
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Please provide your organization's general comments on the following issues and answers to specific requests.

1. **Non-Generator Resource (NGR) model SOC parameter**

WPTF supports the CAISO including additional optionality around the State-of-Charge (SOC) parameter. As we understand it, this additional optionality will enhance the NGR model in two important ways. First, Multi-Use and Storage as a Transmission Asset (SATA) resources will be able to more effectively participate in and then exit the CAISO market. Second, allowing scheduling coordinators to manage the SOC in real-time will give them more control of the resource being able to meet their day-ahead schedule, limiting financial risk between the two markets.

WPTF offers the CAISO an alternative SOC parameter proposal. Instead of a real-time-only SOC parameter that the optimization must meet exactly, WPTF proposes that the CAISO establish an hourly minimum and maximum SOC in the day-ahead and real-time market. We strongly believe that a minimum and maximum SOC will be beneficial to both storage participants and the overall market. We further propose that the minimum and maximum SOC be allowed to equal each other, so that resource that must be fully charged or have an exact target can also use these parameters. We believe this proposal would be beneficial to the market for the following reasons:

1. In many circumstances a minimum and maximum SOC parameter will enable participants to take advantage of all real-time opportunities while still being able to

meet their day-ahead schedule. For example, assume a 100 MWh/ 25 MW battery has a day-ahead schedule of 10 MW in hours 14 – 17. At the end of hour 13, the resource could have an SOC between 100 MWh and 60 MWh and still meet the day-ahead schedule. If the resource had to put in an exact SOC they would have to guess at the optimal dispatch at the end of hour 13 and for that entire hour essentially be a price taker. An SOC range would allow the resource to submit economic offers and be dispatched within that range if economic. WPTF envisions this working similar to the way multi-stage generation (MSG) resources are constrained in the real-time market. MSG resources are constrained such that they are always able to operate within their DA scheduled configuration in each respective hour. A storage resource could have a dynamic SOC "configuration" of sorts using the same logic.

2. Entities will still be able to "self-schedule" their SOC by setting the same maximum and minimum value. WPTF expects that in certain circumstances it may still be necessary for resources to exactly specify their end-of-hour SOC and if so, under WPTF's alternative the maximum and minimum value could simply be the same value and then treated the same as the CAISO's current proposed SOC policy. WPTF notes that if SOC is the equivalent of a self-schedule, the CAISO should propose within ESDER 4 how this would flow through Resource Adequacy (RA) must-offer and RA Availability Incentive Mechanism (RAAIM) rules.
3. Consistent biddable parameters between DA and RT lowers FERC risk. WPTF is concerned that only allowing a real-time biddable parameter may introduce FERC risk due to Order 841. FERC issued a deficiency letter to the CAISO and specifically asked the CAISO to demonstrate that bidding parameters were in both the day-ahead and real-time markets.[1]

2. **Bidding requirements for energy storage resources**

WPTF supports the CAISO applying the local market power mitigation mechanism to energy storage resources. We ask that the CAISO add an LMP option, that mitigates the resource based on the lower quartile of historical LMPs of the node during which the unit was dispatched over the past 90-days. WPTF recognizes that the LMP option would require the resource to have been participating and dispatched in the market prior to selecting this option; however, the CAISO could consider a similar construct using electrically similar nodes until enough historical data exists.

3. **DR operational characteristics**

[1] http://www.caiso.com/Documents/May1-2019-Response-DeficiencyLetter-Compliance-OrderNo841-ElectricStorageParticipation-ER19-468.pdf, page 13.

a. Please provide comments on the CAISO's three options.

No comments at this time.

4. **Variable output DR**
   a. CAISO requests additional detail and reasoning from stakeholders who believe a more appropriate method exists for determining QC than applying an ELCC methodology.
   b. CAISO requests stakeholder feedback on controls needed to ensure that forecasts accurately reflect a resource's capability.

No comments at this time.

5. **Non-24x7 settlement of behind the meter NGR**
   a. As a behind the meter resource under the non-generator resource model, any wholesale market activity will affect the load forecast. How will load serving entities account for changes to their load forecast and scheduling due to real time market participation of behind the meter resources?
   b. How would a utility distribution company prevent settling a resource at the retail rate when the behind-the-meter device is participating in the wholesale market?
   c. If a behind-the-meter resource is settled only for wholesale market activity, what would prevent a resource from charging at a wholesale rate and discharging to provide retail or non-wholesale services? How would this accounting work?

WPTF asks the CAISO to confirm that this policy would only be for non-RA resources.

6. **Additional comments**

Please offer any other feedback your organization would like to provide from the topics discussed during the working group meeting.

WPTF reiterates its previous ask for the CAISO to do a review of how existing storage resources are using the NGR model and to make transparent any known inefficiencies. It is our understanding that as of March only 60 MWs operated under the NGR model, which is less than the previous publicly stated participation amounts of over 100 MWs. WPTF believes that relatively minor improvements are likely needed to make the NGR model feasible for storage resources to efficiently participate in the real-time energy market.

WPTF again asks that the CAISO review historical dispatches of storage resources participating within the NGR model and explore which enhancements may be most

effective at facilitating additional storage participation. WPTF anticipates that the following issues at a minimum are likely to be identified:

- **Advisory prices are not predicting binding prices well during peak periods causing inefficient storage dispatches.** Advisory prices that differ from the binding prices for a given interval can lead to inefficient storage scheduling. This is because the market, in an advisory interval run, will frequently forecast a future high price that causes the storage resource to be charged in the current binding dispatch interval. When the high price is later resolved in a subsequent market run and thus does not materialize storage will charge in the "wrong" interval. This is important because while Bid Cost Recovery rules will make a storage resource whole to its offer, it does not make it whole to the lost arbitrage opportunity that results due to the inefficient schedule.
- **Limited visibility into the CAISO's SOC (versus the resource's calculation of their SOC) leads to infeasible dispatches.** The CAISO market may calculate the resource's SOC at 75% when in reality the resource is only charged to 70%, thus the market may issue an infeasible discharging instruction. This could happen with both the NGR and NGR-REM model. Additionally, bids are submitted in real-time at T-75. There is little certainty in terms of how the CAISO market will utilize a storage resource between the time bids are submitted at T-75 and T. Therefore, market participants do not necessarily have enough information at T-75 to optimally bid.

Thank you for the consideration of our comments.