



Stakeholder Comments Template

Energy Storage and Distributed Energy Resources Phase 4 – Work Shop

This template has been created for submission of stakeholder comments on the ESDER Phase 4 - Workshop that was held on June 27, 2019. The workshop, stakeholder meeting presentations, and other information related to this initiative may be found on the initiative webpage at:

http://www.caiso.com/informed/Pages/StakeholderProcesses/EnergyStorage_DistributedEnergyResources.aspx

Upon completion of this template, please submit it to initiativecomments@caiso.com. Submissions are requested by close of business on **July 11, 2019**.

Submitted by	Organization	Date Submitted
<i>Grant McDaniel 530-300-3562</i>	<i>Wellhead</i>	<i>June 10, 2019</i>

Please provide your organization's comments on the following issues and questions.

1. Default Energy Bids for Energy Storage

Wellhead appreciates the thoroughness of both the CAISO and DMM presentations. Wellhead fully agrees with CAISO's four primary cost categories for storage resources and believes that all four are required for proper DEB calculation. While Wellhead sees the need for an opportunity cost calculation similar to the DMM proposal along with a cycling cost calculation similar to that identified by the MSC, Wellhead encourages the CAISO to simplify the calculations until the market gains more experience with the various storage technologies. Specifically, Wellhead proposes:

- That the opportunity cost initially be calculated at an average DA LMP divided by the battery efficiency + a 20% adder
- That the cycling cost initially be calculated using the method identified by the MSC, but at an assumed 100% depth of discharge

This simple conservative approach will ensure that the CAISO can preserve the proper mechanics for storage DEBs while ensuring cost recovery as the CAISO and market participants gain the requisite experience to tune these costs down to reflect actual marginal cost.

2. NGR State-of-charge parameter

Wellhead supports the CAISO exploring an optional end-of-hour SOC parameter for all NGR resources. Wellhead finds that WPTF's proposal for an end-of-hour SOC range to be a superior proposal that can potentially provide market participants the necessary tools to ensure that schedules can be fulfilled while allowing the CAISO market some flexibility to find an optimal solution.

As previously requested, Wellhead seeks clarification on the impact of the SOC parameter on any current or future must offer obligation. For example, would RAIM penalties be assessed, or potentially a future UCAP value be impacted when the SOC target constraints become a self-schedule?

Currently Wellhead is leaning towards approach 1 for the BCR methodology. That said, we believe that the BCR methodology requires continued discussion and would like to see additional examples applied to the WPTF SOC range proposal.