California ISO

Stakeholder Comments Template

Energy Storage and Distributed Energy Resources Phase 3

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

Submitted by	Organization	Date Submitted
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1. **Bidding and real-time dispatch options for Demand Response**

Support

2. **Removal of the single load serving entity aggregation requirement and the application of a default load adjustment**

Support

3. **Load shift product for behind the meter storage**

Support with caveats

Stem greatly appreciates the extensive work done by CAISO staff to create the Load Shift Product and strongly supports the proposal. However, deeper analysis of the operations of our storage assets has revealed that one aspect of the proposal could meaningfully hamper our participation in the PDR-LSR. That aspect is the rule that the "typical usage" is set to zero if the baseline average calculation results in a value on the other side of the measured service.

The currently approved load-curtailment MGO methodology only considers positive generation (load curtailment / energy discharge) values when calculating the typical usage baseline. Thus, the MGO methodology does not properly account for scenarios where the energy storage device typical usage is to charge during non-event hours.

Under time constraints and before there was significant operational experience, market participants that sought to use the new MGO methodology accepted this design.

Years later, analysis of BTM storage operations has shown that storage participating in PDR could be charging during what would be considered non-event hours in order to provide maximum benefits to the customer. In this scenario, then a traditional retail-meter baseline would be preferred over the flawed MGO baseline methodology. This has been revealed as a key reason why storage participating in PDR has not elected to adopt MGO to date.

Within the ESDER 3 process, the CAISO staff has partially recognized this flaw[1]. Thus, the typical usage calculation for both directions of PDR-LSR accounts for positive and negative values in determining the average[2]. However, the proposal still sets the final value to zero if the average number is on the "other side": i.e. average is negative for curtailment, or positive for consumption.

While the proposal is an improvement over the current MGO methodology, it retains the same core problem, especially in a scenario where for example, the storage device is charging in every non-event interval included in a curtailment baseline. Importantly, the move towards non-event intervals, rather than non-event hours in PDR-LSR makes such a scenario more likely due to the manner in which energy storage devices operate to reduce customer demand charges (which are measured on 15-min intervals). Specifically, it's entirely possible for an energy storage device to be charging in the same 15-min interval each day ahead of a customer's peak, where that interval is later called for curtailment by the CAISO. In this case, that storage installation would not be included in a PDR-LSR aggregation.

As such, Stem believes that perpetuating this flaw in PDR-LSR will create the same barrier to participation that exists in the current curtailment MGO methodology. Stem has been proactive in contributing to and supportive of the PDR-LSR effort, but now fears that upon implementation, Stem will find only a small number of customer installations that will economically be able to participate.

Therefore, Stem recommends that the Final Proposal be simply modified to remove these phrases from page 20: "but only accept a value that is at or above 0 (positive generation = curtailment)" and "but only accept a value that is at or below 0 (negative generation = consumption)".

Stem fully recognizes that this recommendation is very late in the ESDER stakeholder process and this argument has been made and answered in previous ESDER meetings. Stem apologizes that it took this long to do the analysis on the change to using the non-

[1] "The CAISO believes the "typical use" of an energy storage resource as a PDR-LSR must consider movement in both directions." p.21

[2] ""using 10 non-event hours including both consumption and curtailment in the calculation of the simple average", p.20

event interval (15-min or 5-min) instead of the non-event hour in the baseline calculation. It was that analysis and the recent realization of how large an issue this has been in MGO to date that have prompted the stronger reiteration of this position.

In summary, Stem strongly supports the proposed Load Shift product with the caveat that if adopted without the recommended change, the product risks significantly less participation than stakeholders had been hoping for.

4. **Measurement of behind the meter electric vehicle supply equipment (EVSE) load curtailment**

Support

5. **Additional comments**

Please offer any other feedback your organization would like to provide on the Draft Final Proposal