



## Stakeholder Comments Template

### Energy Storage and Distributed Energy Resources Phase 4

This template has been created for submission of stakeholder comments on the Second Revised Straw Proposal and associated March 2 & 3 meeting discussions, for the Energy Storage and Distributed Energy Resources (ESDER) Phase 4 initiative. 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](mailto:initiativecomments@caiso.com).  
**Submissions are requested by close of business March 16, 2020.**

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. Demand Response (DR) ELCC Study Preliminary Results

Please provide your organization's feedback on the Effective Load Carrying Capability (ELCC) study preliminary results for DR resources, as discussed during the March 2 (day 1) stakeholder meeting. Please explain your rationale and include examples if applicable. Please also include any additional study results that would be helpful on this topic.

No comments.

#### 2. Operational Processes and Must Offer Obligations for Variable-Output DR

Please provide your organization's feedback on the proposed operational processes and must offer obligations for variable-output DR, as described within the second revised straw proposal. Please explain your rationale and include examples if applicable.

No Comments.

#### 3. End-of-Day State of Charge

Please provide your organization's feedback on the proposed end-of-day state of charge, as described within the second revised straw proposal. Please explain your rationale and include examples if applicable.

WPTF is generally supportive of allowing storage resources to reflect an end-of-day state-of-charge parameter in the day-ahead market. This optional parameter provides another tool for storage operators to utilize in managing the use of its resource that is more efficient from a market dispatch perspective than the alternative – self-scheduling. By allowing a participant to reflect a targeted parameter in the market, the market can then determine the most optimal and efficient dispatch of that resource over the 24-hour period to achieve the end-of-day state-of-charge while taking into account economic offers. This provides the market much more flexibility, and results in a more efficient outcome, than if the market participant were to self-schedule the resource to ensure a certain end-of-day state-of-charge.

However, WPTF believes additional discussion is warranted with regards to the ability of the tool to capture true spread bidding as well as restricting the parameter to be between 0% and 10%. The CAISO has indicated that the impetus for this proposed parameter is to facilitate “true spread bids” in the day-ahead market; market participants have asked for the ability to ensure that every megawatt of energy bought in the day-ahead market is then sold in the day-ahead market across the 24-hour period. WPTF appreciates the responsiveness of the CAISO staff to this request but believes additional examples of how the parameter may impact the dispatch of the resource in the day-ahead market would be valuable. For example, it could be the case that if a resource has an end-of-day state-of-charge in the market, the market will start charging/discharging the resource, *regardless* of the resource's market bids, to ensure the end-of-day state-of-charge parameter is met. While the resource would still sell every megawatt of energy it has purchased (assuming the end of day SOC is the same as the initial day-ahead SOC), it would not necessarily be the case that the charging/discharging was done in a manner that respected the price spread for its bids to charge and discharge. Because this parameter is being proposed as optional, WPTF does not believe this is necessarily a showstopper for this proposal element, but rather asks that this impact be illustrated so participants know the potential outcome when utilizing the parameter.

Lastly, it is WPTF's understanding that the parameter can only have a value between 0% and 10%. Restricting the parameter seems to then make it only useful to those storage resources that (1) want to ensure every megawatt purchased is sold and (2) come into the day-ahead market with a state-of-charge no more than 10%. The CAISO's justification appears to be based on both the market not fully discharging the resource during peak hours and the increase in capacity shortfalls with higher end-of-day state-of-charge parameter values. WPTF is unclear why the impact on the market dispatch of storage resources should warrant restricting the parameter. The optional parameter will provide the market more flexibility than if those resources are simply self-scheduled towards the end of the day to ensure a certain state-of-charge. If participants are aware of the impact the parameter may have on the dispatch of the resources, they can factor that into their decision when utilizing the parameter. Furthermore, the day-ahead market clears bid in demand against bid in supply. So WPTF questions why the impact on capacity shortfalls is used as justification for restricting the parameter values. Today, the IFM run can result in generation schedules that do not meet the CAISO's forecast of CAISO demand. After the IFM run, the CAISO executes additional market runs that clear supply against the CAISO's forecast of CAISO demand, and its in those market runs that any potential shortfalls

coming out of the day-ahead market will be remedied. Thus, WPTF asks that the CAISO continue discussions with stakeholders on the need to restrict the parameter.

#### 4. End-of-Hour State of Charge

Please provide your organization's feedback on the proposed end-of-hour state of charge, as described within the second revised straw proposal. Please explain your rationale and include examples if applicable.

WPTF strongly supports the CAISO's proposal to allow market participants the ability to reflect an end-of-hour state-of-charge targeted range in the real-time market. WPTF continues to ask for clarification from the CAISO that this proposal element meets the FERC Order 831 requirement that biddable parameters should be available for both the day-ahead and real-time markets.

WPTF does have some concerns regarding the proposed BCR treatment. In the CAISO's proposal, it states that stakeholders support that a resource should bear the costs of movement to meet an end-of-hour state-of-charge range rather than having the CAISO uplift that cost to measured demand. Given this, the CAISO is proposing to deem the resource ineligible for BCR for the hour in which there is an end-of-hour state-of-charge as well as the preceding hour. First, WPTF would like clarification on if the CAISO's proposal is to not include the cost portion in the BCR calculation, or to not include both the cost and revenues in those hours in the BCR calculation. Secondly, WPTF is unclear how deeming those two hours as ineligible aligns with the idea that the resource should bear the cost of *movement to meet an end-of-hour state-of-charge*. The market could simply be dispatching the resource economically in those hours and would have, based on bids, achieved the end-of-hour state-of-charge targeted range without the parameter being imposed. WPTF urges the CAISO to consider implementing additional logic to be used to determine if in fact the market is dispatching the resource in a certain way to meet the targeted range or if it's being dispatched based on economics. Then based on that logic, deemed certain hours as ineligible for BCR.

Lastly, during the stakeholder meeting, there was discussion around the issues that may arise with an end-of-hour state-of-charge range given the varying real-time market processes and differing outlook horizons. As discussed in more detail below, WPTF strongly encourages the CAISO to consider extending the real-time outlook horizons as means to minimize this concern.

#### 5. Default Energy Bid for Storage Resources

Please provide your organization's feedback on the proposed default energy bid for storage resources, as described within the second revised straw proposal. Please explain your rationale and include examples if applicable.

WPTF appreciates the additional effort that has gone into developing the default energy bid formulation for energy storage resources. As highlighted during the stakeholder meeting, it's imperative that (1) the right indices are used to set the DEBs and (2) the indices are even available at the time they are needed. WPTF asks that the CAISO provide additional detail in the next iteration on the timing and logistics of which indices

they will be using and when those indices are made available versus when the DEBs are actually being calculated.

Regarding the opportunity cost (OC) term of the DEB, WPTF would appreciate additional discussion on if basing the OC term on nodal prices rather than bilateral indices is more appropriate. The OC of a given storage resource can vary drastically due to price volatility at its location that would occur even absent uncompetitive conditions. WPTF is concerned that using a bilateral price index may not capture the large swings in volatility that drive a resource's OC, underestimate the DEB, and result in inefficient dispatch of the resource. Perhaps the CAISO could provide a comparison between DEBs that utilize the bilateral price index and DEBs that are based on nodal prices.

Lastly, WPTF believes this proposal element could benefit from use-case examples. The CAISO could calculate DEBs for a sample resource and compare the DEB to actual energy prices to ensure that the DEB would provide for efficient use of the resource across the limitation horizon.

## 6. Minimum Charge Requirement

Please provide your organization's feedback for inclusion of the minimum charge parameter in the ESDER initiative, and feedback on presented material at the stakeholder meeting on March 3, 2020.

WPTF does not support the minimum charge requirement element of this proposal as it will lead to inefficient market outcomes, and instead encourages the CAISO to extend the real-time lookout horizon. It is WPTF's understanding that the minimum charge requirement in the real-time market for energy storage resources will be based on schedules coming out of the day-ahead market. The CAISO has stated that one of the reasons for this element of the proposal is to ensure that there are enough resources charged and ready to meet expected net load needs in the real-time market. The RA program exists to ensure there is enough capacity made available to the market to meet peak demands. Today, RA resources bid its RA capacity into the day-ahead and real-time market to ensure enough capacity is made available to the market. The market then determines, based on bids, the most economic and efficient use of those resources to meet demand. The RA program today does not impose a minimum level of generation from each RA resource during certain hours of the day. WPTF is concerned that the CAISO minimum charge requirement will undermine the market efficiencies that are in place today to meet a need that is addressed through the RA program.

Today, traditional generators that receive day-ahead schedules can rebid in the real-time market. The real-time market will then re-optimize the resources based on updated bids to meet real-time demand. For example, a resource may have a day-ahead schedule of 100 MWs from HE 7-9 and 17-21. The resource can rebid into the real time market. Based on the updated bids, the market may choose to run the resource from HE 7-14, shut it down, and then due to its minimum off time, is not available to the market during HE17-21 when it had a day-ahead schedule. But that was the most market efficient use of that resource. Storage resources should be treated in the same manner such that based on updated real-time bids the market can re-optimize the use of storage resources and allow the market to determine when to charge and discharge the resource. However, the CAISO's proposal appears to be restricting the real-time market from re-optimizing the use of

storage resources in a way that (1) treats them differently than traditional generators and (2) will result in inefficient market outcomes.

WPTF was encouraged to see the CAISO identify other options to address the same issue – one of which is extending the real-time lookout horizon. WPTF strongly encourages the CAISO to extend the real-time lookout horizon. The CAISO has been discussing this as a potential solution to address several issues that have come up over the past few years. While WPTF understands extending the lookout horizon to 16+ hours may not be technically feasible, WPTF asks that the CAISO evaluate what extended horizons could be feasible. It may be the case that extending the horizon to, for example 10 hours, may be long enough to address the majority of the issues raised herein as well as during other previous stakeholder initiatives.

#### **7. Additional comments**

Please offer any other feedback your organization would like to provide from the straw proposal and topics discussed during the web meeting.

WPTF continues to support the CAISO examining the ability of storage resources to effectively reflect costs via bids in both the day-ahead and real-time markets.