



Stakeholder Comments Template

Hybrid Resources Initiative: Straw Proposal

This template has been created for submission of stakeholder comments on the **Hybrid Resources Initiative, Revised Straw Proposal** that was held on December 17, 2019. The meeting material and other information related to this initiative may be found on the initiative webpage at:

<http://www.caiso.com/informed/Pages/StakeholderProcesses/HybridResources.aspx>

Upon completion of this template, please submit it to initiativecomments@caiso.com. Submissions are requested by close of business on January 14, 2019.

Submitted by	Organization	Date Submitted
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8minute thanks the California ISO for the revised proposal and for addressing the issues that 8minute and other developers have raised previously. Please see our comments regarding the current version of the document below.

1. Terms and Defintions

8minute comments that the limits for when storage components create a hybrid resource should be specified as a percentage of the nameplate capacity of the non-storage component. 100kW of storage has a very different impact for a 100MW solar resource versus a 1MW solar resource. A percentage of nameplate capacity would capture the impact of the storage resource in terms of being able to smooth out variation of provide ancillary services. In addition, we think the ISO should differentiate between a small amount of storage to capture clipped energy and large amount of storage that is capable of firming up the plant output.

On page 11, capturing ITC is cited as a business driver. ITC is a cost driver for the solar+storage plant and that is how it affects the business. ITC by itself is not a business driver.

2. Forecasting

8minute suggests that ISO provide an example of hybrid resource net to grid operational forecast similar to the document published by ISO in 2014 (http://www.caiso.com/documents/example-howver_modeled_15minrutc-fmms.pdf) This would go along way in allowing stakeholders to fully understand the proposal.

As a second point regarding the hybrid net to grid forecast, 8minute requests further clarification on how the scheduling coordinator needs to generate the anticipated charging and discharging behavior of the storage component as this behavior depends on the market prices. It would be difficult to predict the behavior of the market prices 3 hours in advance. There is also a circular dependency where the forecast provides the upper economic limit of the hybrid resource in the market and the forecast depends on a prediction of the market behavior.

8minute understands that the ISO is trying to construct a forecast of VER + Storage components requiring the discharge/charge behavior of the storage device. We would like to understand the impact of not meeting the forecasted values.

8minute appreciates the ability of the scheduling coordinator to rely on the ISO to get the forecast for the VER component. 8minute would like the ISO to clarify how the scheduling coordinator retrieves the forecast from the ISO in order to create the forecast for the storage component.

3. Markets and Systems

8minute suggests that the ISO provide an example of hybrid resource bidding into the markets in conjunction with an example of net to grid forecast. This would allow the stakeholders to fully work through the details of the interaction between bids and forecasts.

8minute suggests that the ISO provide an example of co-located resource bidding in conjunction with with an example VER forecast for the intermittent resource that accommodates the ITC requirement of no or minimal grid charging. 8minute understands the example provided on page 21, but that example represents a point in time. For example, what happens if the VER was forecasted to be 75, and the storage resource put in a bid for -75MW of power, but then the VER generated 50MW? Is there a way to cap the negative dispatch of the storage resource to what the VER generates? If this is not possible, how can the system ensure that grid charging is kept at a minimum.

8minute supports the proposed interim solution where ISO implements an energy only version of the proposed interconnection constraint. As long as the final implementation of the proposed constraint is completed by Fall 2021, 8minute does not have any objections to the ancillary services limitation as described in the proposal.

8minute suggests that the ISO implement flexibility such that the splits of the POI limit can be changed once a month to better align between seasons.

4. Ancillary Services

During the in-person meeting in December, there was discussion on what the high sustainable limit of the VER is. 8minute understands this limit to be the actual AC capacity of the VER resource. For example, even if the POI limit is 200MW, we understand that an installed 250MW AC capacity will be reported as 250MW in the high sustainable limit when predicted. 8minute seeks further confirmation of this understanding. 8minute does not have any objections to providing state-of-charge of the storage resource to the ISO.

5. Metering and Telemetry

8minute has no comments on this section.

6. Resource Adequacy

8minute does not understand how the NQC of the hybrid resource is not equal to the NQC of VER combined with NQC of storage. If these resources were co-located, then the sum of the NQC of the two resources would be the NQC. The math does not seem to add up regardless of the CPUC proposed decision on this topic. CAISO's previous proposal was fair and should be preserved. Furthermore, the additive proposal also avoids the seasonal variations that are sure to be raised with the proposed decision published by the CPUC.

Additional comments

Please offer any other feedback your organization would like to provide on the Hybrid Resources Initiative.