



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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Summary of CPUC Energy Division Comments:

CPUC staff believe that the enhancements that would best enable hybrid resources to provide maximum value to the grid involve CAISO developing a resource model to optimize hybrid resources. This model could allow these resources to charge from on site generation only and do so at times optimized by market software responsive to prices and conditions on the grid. Improving market rules and processes for hybrid resources are critically important to address California's challenges with variable energy resources, meeting state renewable and reliability targets, and continuing its leadership in other markets.

CAISO acknowledges that developing a new resource model would be the best approach, but states that it would be far too complex and time consuming to implement. We continue to believe this is not only a worthwhile investment, but also the best course of action at this time. CPUC staff support the overall direction of the initiative, but we encourage the CAISO to pursue more significant market changes at this point, rather than the incremental efforts proposed.

CPUC staff offer the following comments and questions on various parts of the proposal.

Forecasting:

Net to grid operational forecast: CAISO has proposed that each hybrid resource will be required to submit a 'net to grid operational forecast,' which should represent 'the overall capability of the hybrid resource as a whole.' This forecast would be used by the market optimization to establish physical

limits of the resource, but exactly how it is composed is not clear. CPUC staff request that the CAISO provide detailed examples of how a resource would calculate a ‘net to grid operational forecast’. We request the examples include the following: calculations over the entire fifteen minute market (FMM) timeframe examples of calculations for subsequent market runs; simultaneous calculations of High Sustainable Limit (as defined in the Ancillary services section of the Revised Straw proposal); and an explanation of the differences in meaning and in calculation between net-to-grid forecast and the High Sustainable Limit under different conditions.

CPUC staff would also like to understand:

- When the CAISO says that they expect these forecasts to include “the anticipated charging or discharging operation of any storage component”, what does that mean?
- Does the CAISO expect scheduling coordinators (SCs) to forecast their charging and discharging for all the advisory intervals in the FMM?
- How does the net to grid forecast compare to the High Sustainable Limit described in the ancillary services section?
- Does the CAISO have any plans on how to prevent those forecasts from being used to manipulate resource commitments?
 - Example: if an SC for several hybrid resources submits forecasts predicting that the resources will be charging in an hour, that may prompt commitment of another resource to meet that extra load. Alternatively, if the SC forecasts significant discharging at the same time, that could prevent another resource commitment.

Metering and telemetry:

Metering design: CAISO has laid out several metering configurations that would facilitate different charging and participation models for hybrid and collocated resources. CPUC staff appreciate this effort, but question whether the metering design for co-located resources truly requires three meters or if the third reading can be derived or imputed from the other two. If the third meter could be eliminated that could bring down costs for hybrid resources.

Markets and systems:

Bidding timelines: CAISO has suggested that they may be able to change the bidding timeline to allow more frequent updating of forecasts and other parameters by hybrid resources. CPUC staff requests that CAISO clarify how this would work, and whether it would apply to all resources or just to hybrids.

Interconnection rights constraint: CPUC staff support the concept and design of the interconnection rights constraint, and believe the optimal way to implement the constraint is to implement the full constraint, including ancillary services, as soon as possible. This is in contrast to CAISO’s proposed phased schedule of implementation. CAISO’s proposal states that they first plan to implement a constraint that will ensure the total energy output from the co-located resources does not exceed the Interconnection rights, and will later add ancillary services (AS) into the constraint. Until ancillary services are added, resources that use this constraint will not be able to sell ancillary services. From a

programming standpoint the full constraint does not seem to be much different than the energy-only constraint. Implementing the full constraint would allow these resources to continue to provide AS while enforcing the constraint. The phased implementation that the CAISO has proposed may take many resources out of the AS market for some time. Staff asks the CAISO to elaborate on the difficulties in implementing the full version of the constraint.

Charging considerations for Hybrid resources with Storage: CPUC staff continue to believe that the most complete way to resolve all of the questions in this section is to build a new resource model that explicitly allows for the various kinds of charging and participation. We appreciate that the CAISO has carefully laid out the various options and attempted to address how each one could work, and how metering could function for each participation and charging option. Staff appreciate this work, but remain convinced that a new resource model would better achieve the goals of integrating hybrid resources into the CAISO markets and allowing them to provide the most value and flexibility possible.

Conclusion:

CPUC staff appreciate the ISO staff's work on this initiative. Many improvements have been made and continue to be discussed in how to plan for the participation of Hybrid Resources in the CAISO markets. Staff look forward to continuing to collaborate with the CAISO on this initiative.