



Stakeholder Comments Template

Hybrid Resources

This template has been created for submission of stakeholder comments on the Hybrid Resources Issue Paper that was published on July 18, 2018. The paper, stakeholder meeting presentation, 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 **August 13, 2019**.

Submitted by	Organization	Date Submitted
<i>Adam Stern 202-899-0922 Gabe Tabak</i>	<i>American Wind Energy Association</i>	<i>8/13/2019</i>
<i>Danielle Osborn Mills 916-320-7584</i>	<i>AWEA-California</i>	

The American Wind Energy Association (“AWEA”) and AWEA-California appreciate the opportunity to comment on CAISO’s Issue Paper on hybrid resources. We recognize that this process is at an early stage, and offer comments based principally on maximizing flexibility for hybrid resources and offering predictability for interconnection customers seeking to deploy hybrid resources. AWEA and AWEA-California support policies that will allow for flexibility in how hybrid resources are configured. We appreciate CAISO’s efforts to being to evaluate the various policies and market changes that may be needed to deploy and optimize hybrid resources and look forward to participating in the ongoing stakeholder process.

Please provide your organization’s comments on the following issues and questions. For all topics please explain your rationale and include examples if applicable.

1. Interconnection

Please provide your organization’s feedback on the interconnection topic as described in section 3.2.

- A. **Flexibility in Configuration and in-Queue Changes:** In general, AWEA commends CAISO for its current interconnection processes which will allow storage additions to be added without restudy so long as the total output of the project will not exceed the existing interconnection limits. CAISO should continue to ensure that, going forward, project developers can change the configuration and attributes of a hybrid resource in certain ways after it submits the initial interconnection application without requiring burdensome re-studies. To that end, the CAISO should develop clear and well-defined language on material modifications specific to hybrid resources regarding original data changes and estimated system impacts. Any mitigation measures should be reasonable and, to the greatest extent possible, should not require interconnection customers to submit new interconnection applications that push the project to the end of the interconnection queue.

Furthermore, though potentially less critical in CAISO than in some other regions, as re-studies are deemed necessary, as matter of principle, project developers should be allowed to use third-party consultants to perform re-studies in order to minimize potential delays and control costs.

- B. **DC-Coupled Storage Systems:** The addition of a DC-coupled storage resource to a project either before or after it has achieved its COD should not have any effects on project performance on the AC side of the system. Therefore, no additional interconnection studies should be required for DC-coupled projects.

2. Forecasting and Operations

Please provide your organization's feedback on the forecasting and operations topics as described in section 3.3.

- A. **State of Charge Self-Management:** Storage resource owners, including storage that is part of a hybrid resource, should be able to self-manage their state of charge (SOC) given their understanding of their resources' optimal charge and discharge times. Modern technology also makes it possible for owners to accurately model, control, and dispatch at optimal times. This approach is consistent with both FERC Order 841 and current treatment for other generators. Certain RTOs, including PJM, have confirmed they will not control SOC for storage resources. AWEA asks CAISO to confirm and ensure that a market participant would continue to have the choice to manage the SOC under the single resource ID hybrid approach.
- B. **Single Resource ID Modeling and Forecasting:** The CAISO should consider additional options for modeling and forecasting hybrid resources that include a renewable energy component so that these resources might have an option to maintain their status as intermittent resources (either fully, or partially based upon project characteristics). Although an energy storage component does mitigate

some of the intermittency of a renewable generator, the hybrid project would still be subject to a degree of intermittency that is unique to such projects. AWEA understands CAISO's concerns with modeling and forecasting an intermittent resource that injects power both to the grid and to an energy storage component. However, AWEA encourages the CAISO to develop non-binary options in addressing these concerns, so that resources do not have to select only "fully intermittent" or "fully dispatchable." Additionally, AWEA encourages CAISO to consider the differences between AC coupled projects and DC coupled projects

3. Markets and Systems

Please provide your organization's feedback on the markets and systems topics as described in section 3.4.

A. Stranded Capacity: AWEA agrees with the CAISO that the solution to the stranded capacity issue that currently exists for multiple resource ID configurations is to introduce a new hybrid resource constraint that "ensures these resource's output remains less than or equal to the hybrid resource's project's maximum POI rights without stranding capacity from either of the components of the overall hybrid resource." (Issue Paper, page 3) Removing the maximum output constraints on the individual components allows the operator to efficiently adjust output to minimize stranding while respecting the project's POI agreement and physical limitations. Given this issue's immediate impacts on current and future hybrid resource proposals, AWEA strongly encourages the CAISO to isolate this issue from the ongoing hybrid resource stakeholder process, and expedite the implementation of the hybrid resource constraint as the first, very expedited phase of this initiative (or as its own narrowly scoped initiative) consistent with the approach outlined in the Issue Paper.

4. Ancillary Services

Please provide your organization's feedback on the ancillary services topic as described in section 3.5.

5. Deliverability

Please provide your organization's feedback on the deliverability topic as described in section 3.6.

6. Resource Adequacy

Please provide your organization's feedback on the resource adequacy topic as described in section 3.7.

- A. **Net Qualifying Capacity for Single Resource IDs:** AWEA generally supports the idea of CAISO developing backstop provisions for NQC determination for single Resource ID hybrid resources. However, as CAISO develops these rules, it should be highly mindful of the incentives it may be creating and should thoroughly consider those incentives and the path they may direct resource owners to. For instance, if the exceedance approach for single resource ID creates significantly more NQC than the approach for multiple resource IDs, the NQC may drive resource owners to use a single resource ID. These impacts need to be thoroughly considered going forward.

7. Metering, Telemetry and Settlements

Please provide your organization's feedback on the metering, telemetry and settlements topics as described in section 3.8.

8. Additional comments

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

- A. **CAISO Should Develop Broadly Applicable Hybrid Resource Rules:** Given the early stage of this proceeding, AWEA appreciates the opportunity to call attention to the diverse range of hybrid resources, and ensure that CAISO's process is not unduly limited in terms of applicability. The issue paper focuses primarily on hybrid projects that feature an existing variable energy resource, and seek to add an energy storage component; as a consequence, it does not adequately address issues related to other hybrid resource types. AWEA notes the CAISO's intention to update their definition of hybrid resources – as stated on page 3 of the Issue Paper- “to encompass *any* combination of multiple resource technologies combined into a single generating facility with a single point of interconnection.” However, the framing of the Issue Paper risks losing sight of further issues or considerations that may arise from other types of hybrid resources. For example, the CAISO does not discuss the PIR or EIR status changes for a Wind plus Solar hybrid resource, let alone a wind-solar-storage project (as planned in several cases, including by Portland General Electric).¹ As the stakeholder process continues, CAISO's subsequent proposals should reflect the updated definition of hybrid resources, and should be broadly applicable to any multi-technology hybrid resource. Additionally, CAISO should consider defining particular configurations to add clarity to this initiative going forward and the application of different policies to different hybrid resource configurations and to different resource ID configurations.

¹ <https://www.utilitydive.com/news/pge-nextera-team-up-for-largest-wind-solar-storage-project-in-us/548376/>

- B. Energy Withdrawal:** As a general principle, AWEA supports the premise that when a hybrid resource with an energy storage component is acting as an energy storage resource (charging), withdrawals should be priced at the nodal LMP, as required by FERC's Order 841.