



Stakeholder Comments Template

Hybrid Resources Initiative: Straw Proposal

This template has been created for submission of stakeholder comments on the **Hybrid Resources Initiative, Second Revised Straw Proposal** that was held on May 7, 2020. 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 May 28, 2020.

Submitted by	Organization	Date Submitted
<i>Bora Akyol, 916 693 1585</i>	<i>8minute Solar Energy</i>	<i>May 20, 2020</i>

Please provide your organization's comments on the following topics and indicate your organization's position on the topics below (Support, Support with caveats, Oppose, or Oppose with caveats). Please provide examples and support for your positions in your responses as applicable.

Reflecting LSA/SEIA's comments, 8minute proposes to CAISO to:

- **Revise the CAISO's proposal to truncate the stakeholder process and take certain Co-located Resources proposals to the Board in July.** LSA does not believe that this rush is necessary to fix the Master File problem for those resources, and that the framework would be more coherent and rational by keeping the package together as a whole.
- **Adopt a stakeholder suggestion on the May 7th conference call to provide operating flexibility for the storage Resource ID in a Co-Located Resource configuration to accommodate Variable Energy Resource (VER) Resource ID production above real-time Dispatch Instructions.** This enhancement would avoid curtailment of the additional VER output without violation of the combined Point of Interconnection (POI) limitations.

1. Terms and Definitions

8minute suggests that CAISO define high sustainable limit and dynamic limit in the definitions. Specifically add examples of high sustainable limit is determined and how it is measured and communicated to the ISO. 8minute is additionally interested in how

a PV resource that is built in excess of the POI limit to charge the storage resource is reported to the ISO in terms of high sustainable limit.

2. Market Interaction for Hybrid Resources

8minute would like to state that ITC on a \$300 million battery in a PV+S plant is roughly \$90 million dollars. It is crucial to the financial viability of these plants to provide ways in which the investors have **certainty** about the way the battery would be charged. While ITC is not a direct market force, the impact of not having certainty about grid charging would add increased risk to co-located PV+S projects in financing. While 8minute staff have commented on various iterations of the hybrid resources pointing out various ways the proposal could be improved to have better outcomes in terms of managing grid charging, we have not seen an improvement in this subject. If this issue is not resolved, any additional costs will eventually be borne by California ratepayers and prevent California from meeting its climate goals because almost all new utility scale PV in CAISO is expected to include storage.

Both the hybrid and co-located resources models introduced in this stakeholder effort have significant drawbacks which I will list below:

- 1) According to the latest CAISO hybrid resources proposal, a VER loses its EIR treatment in the market when it is combined with a storage resource in a single resource ID scenario. This loss of EIR treatment would significantly reduce the expected revenue from PV generation or create a significant contingency since operating PV without EIR treatment would have an unquantified impact on production or imbalance fees. This change in treatment of the VER has the potential of increasing the cost of energy supplied by the plant thereby negatively impacting CA ratepayers. CAISO should continue to allow EIR status for VER in the single resource ID hybrid model.
- 2) Co-located Resources Replacement Energy: Let's us assume that a PV resource was given a 70MW dispatch, and the energy storage was given a 50MW dispatch. Under the currently suggested rules, if the renewable PV resource generates over the amount predicted by forecast and therefore dispatched, the PV would need to be curtailed because it is allowed to reduce generation as an EIR and the BESS would need to maintain the 50 MW discharge. This wastes PV generation and RECs that could have been produced. It also causes the battery to discharge energy when it could have been saved for a time when the CAISO grid actually needs the stored energy. An alternate arrangement that can be easily implemented by SCADA would reduce (for example) BESS by 10MW and allow PV to go up to 80MW while keeping the POI power on target. 8minute suggests that in the co-located resource case, CAISO permits PV generation to replace the battery generation if irradiance unexpectedly increases and the combined net of PV generation potential + BESS dispatch exceeds the POI limit. The solution we prefer is to allow the BESS to decrease discharge and to allow the PV generation to replace that energy at the POI.

- 3) The co-located resources model shows great flexibility in integrating with markets using existing CAISO mechanisms and preserves the EIR treatment for the VER. This is ideal for removing uncertainty from the project. One thing that should be added to the treatment of co-located resources is to allow the battery to only charge from its partner renewable resource for the ITC period. The ITC period can be captured in the LGIA and added to the master resource file. The grid charging limitation can be implemented on site by the control system since metering information is present and a “persistence” model for PV can be used to set the BESS charge limit dynamically. Then the BESS charge for the next 5, 15, 30 and 60 minutes can be communicated to the ISO via telemetry. The ISO may subtract the BESS charge limit from the PV generation to show the “net” energy going out the POI to the electric power system. With this new telemetry signal, the BESS will only charge from the partner renewable resource, and it will be able to discharge as needed. After the ITC period expires, the BESS with no major changes can participate in the markets for both charge and discharge.

3. Point-of-Interconnection (POI) Constraint for Co-Located Resources

8minute would like to ask ISO to give a demonstrative example for the charging or discharging behavior of the following PV+S plant given the current proposal:

Let us assume that the POI limit for the PV+S plant is 100MW and the plant is using the co-located resources model with two resource IDs. The PV plant is designed with an AC capacity of 130MW, and the storage component is sized 30MW with 4hrs energy capacity. 8minute would like to use the 30MW capacity that is over the POI limit of 100MW to charge the energy storage system. What should the market bids or self-schedule look like to allow the plant to supply 100MW to the grid, 30MW to the energy storage system for charging? Can ISO please provide a detailed example to walk the stakeholders for such a scenario?

4. Metering

8minute recommends CAISO to eliminate any difference in metering between hybrid and co-located resources scenarios. The cost of installing one more meter is insignificant for a utility-scale project. By making the metering configuration the same, CAISO can facilitate all resources to convert to two resource ID configuration once the ITC period ends.

We also noted that the drawings presented in the second proposal are showing DC coupled configurations. 8minute believes AC coupled systems present significant advantages in deployment and would like to get confirmation that AC coupled systems are indeed supported by the metering arrangement presented in the document.

5. Resource Adequacy

The use of outage cards for the dynamic limit tool has potential to effect available hours and reduce resource adequacy payments. The previous CAISO proposal

allowed us to use a forecast that did not cause in loss of available hours for resource adequacy. 8minute prefers to provide a forecast so that variable generation is not penalized for resource adequacy calculations.

Additional comments

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