California ISO

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
Jim Zoellick, 707-826-4350	*Schatz Energy Research Center (SERC)*	*08/13/19*

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.

We note that if adding energy storage increases the nameplate capacity of onsite generation above 1MW, then the Participating TO may require a SCADA recloser to be installed at the customers expense even if a generation limiting mechanism is installed. This should be considered during the CAISO interconnection study process.

2. Forecasting and Operations

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

We agree with CAISO that hybrid resources with a single resource ID makes the visibility needed to maintain grid reliability more challenging, however there are issues

with the multiple resource ID configuration, such as the issue of stranded capacity as addressed below. We believe there needs to be a forecasting option for projects operating under a single resource ID. When operating under a single resource ID, we support CAISO in developing new methods of gaining visibility into the BESS state of charge, as well as the forecast of the VER components of the hybrid resource.

We also note that by adding storage to a VER, this allows the ability to smooth out the variability and with proper visibility this is a benefit to CAISO, and can help to maintain grid reliability. We suggest that CAISO modify it's practice to allow hybrid projects with VER components some benefits of a PIR.

One example that should be considered is to allow single resource ID hybrid resources with VERs to update self-schedules or bids more frequently than once per hour and/or closer than 75 minutes before the operating hour. This could reduce operational risk. However, care should be taken to ensure this does not create issues of fairness in market operations.

3. Markets and Systems

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

We understand the need to limit hybrid resource's output to a maximum of each projects interconnection rights, and therefore we strongly support the need for the development of a new hybrid resource constraint which ensures that the combined output of hybrid resources is less than or equal to the POI rights without stranding the capacity of individual resources. This is an obvious reason that many projects would be concerned to pursue a multiple resource ID configuration.

Additionally, for DC coupled PV and Battery hybrid resources with a single resource ID that are only participating in the CAISO energy markets, we believe there could be consideration to allow the fuel type to remain "SOLR". Resources like these can shift solar energy output to the evening peak and should be incentivized in some way by CAISO. Direct telemetry can provide CAISO with real time SOC data. CAISO could develop a modelling methodology to forecast the output of such a resource based on a local solar forecast, an SOC forecast, and an energy price forecast. This could provide good visibility to CAISO for grid reliability while supporting grid decarbonization goals and positive economic returns for the resource owner. A key point here is that such a resource should receive similar treatment to VERs in the event of uninstructed deviations. We also note that if the resource is participating in the ancillary services market as well, then since they are charging from the grid at times it would be less realistic to justify the fuel type staying "SOLR".

4. Ancillary Services

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

We support CAISO in developing a new “plant potential” data point, and agree that CAISO visibility into state of charge is an important step in allowing hybrid resources to effectively participate in the Regulation markets. We also agree that obtaining state of charge data from single resource ID hybrid resources that are participating in the AS market would help CAISO more fairly determine and apply payment rescission for hybrid resources. We see no issue with CAISO establishing a mimimum storage generation sizing requirement for hybrid resources that wish to participate in the ancillary services market. A minimum capacity of 10% of the interconnection rights and 30 minute minimum operating period seem reasonable.

5. Deliverability

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

SERC has no comments.

6. Resource Adequacy

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

We do not believe that the issue paper effectively addresses issues relating to Resource Adequacy. As noted below, there are significant issues for multiple resource ID configurations, and we believe that a path needs to be developed to allow hybrid resources to participate in RA under a single resource ID.

While the CAISO notes that under multiple resource IDs the seperate components can individually have a QC determination, this situation creates an added burden on the project as each individual component then has a MOO. The VER component would be limited on it’s ability to charge the BESS, or risk not following thorugh on its MOO.

7. Metering, Telemetry and Settlements

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

We encourage the CAISO to allow for multiple metering configuarations that can accommodate the following options for hybrid resources:

- Both single and multiple resource IDs
- BESS charging from both the grid and on-site generation
- AC coupled and DC coupled hybrid resources.

8. Additional comments

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

- While we understand that CAISO currently has an expectation that the entire capacity of a BESS be available for dispatch, we propose that this requirement be modified for microgrid applications. One main function of distributed resources in microgrid applications is their ability to provide resilience in the form of back up power when needed. Therefore, the ability to partition out a portion of energy storage for resiliency purposes that will never be offered in the CAISO market is an important feature. Given the growing need and interest for such systems, we request CAISO develop a pathway to specify the total nameplate capacity, as well as the maximum available capacity that will be made available in the market.

- We believe that CAISO should develop a methodology for hybrid projects with a VER component that allows them to schedule times to charge storage from onsite generation. Our understanding is there is currently no pathways which allows this behavior. For both resiliency purposes, as well as for the operational health of the storage systems, maintaining an adequate SOC is important.

- We understand that CAISO perceives significant risk to hybrid projects which intend to operate under a single resource ID configuration and is therefore strongly encouraging projects to pursue multiple resource IDs. However, operating under a multiple resource ID configuration effectively negates many of the primary purposes and benefits of our project. Hybrid resources allow the coupling of storage with VERs to mitigate many of the issues that VERs present to grid operators, such as addressing the duck curve. We strongly believe that CAISO should create a path for hybrid projects to fairly and safely participate under a single resource ID and/or multiple resource ID pathways that maintain the benefits of pairing storage with VERs.