

# Hybrid Resources Issue Paper - Stakeholder Comments

Submitted by	Company	Date Submitted
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Southern California Edison (SCE) offers the following comments on the California Independent System Operator (CAISO) Hybrid Resources (HR) Issue Paper<sup>1</sup>.

HRs have the ability to: (a) Reduce mid-day over gen (b) Mitigate the evening ramp (c) Bring earlier hour generation to meet the evening peak. Helping HRs to better integrate is a very important issue.

There are several options to model HRs in the CAISO market, including the option of adding up the RA credits currently determined for individual components and the variants of this option thereof depending on deliverability and/or flexibility of the resource. These options have been presented and discussed in the CPUC's RA proceeding<sup>2</sup> and should be considered within this CAISO initiative. SCE requests that it be able to present these at the next meeting on this initiative.

Further, SCE appreciates the operational issues raised by the CAISO in this initiative. However, SCE believes the CAISO needs to arrive at an appropriate policy decision that considers both reliability and economics. These include:

1. **Providing increased economic dispatch to the CAISO** – A HR will react to the price signals by determining when to appropriately provide supply or to consume. This is the reason Resource Adequacy exists – to provide reliability when needed. And the CAISO's position has consistently been to drive reliability through price signals. A HR can solve either the peak capacity need or the energy need, depending upon the situation and the

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<sup>1</sup> <http://www.aiso.com/Documents/IssuePaper-HybridResources.pdf>  
<http://www.aiso.com/Documents/Presentation-HybridResources-IssuePaper.pdf>

<sup>2</sup> SCE Track 3 Proposals, dated March 4, 2019, submitted to the CPUC under the RA proceeding R.17-09-020. Other parties either opined on the SCE proposals or submitted their proposals as well.

CAISO should avail of this optionality to meet reliability – a need that will be guided by the prices that manifest in the market.

2. **Providing increased flexibility to the CAISO** – The eventual diminishing of the steep upward ramp of the duck curve by having HRs, through better management and dispatch of energy throughout the day rather than within a small set of hours. Note that HRs allow increased resource flexibility in production/consumption given not only their leveraging of more than one technology but also due to the ability of many modern technologies to ramp at faster rates than conventional resources.

For single resource ID HRs with storage technology, SCE believes that their participation should not be problematic as long as the resource owner/SC consistently communicates hour ending state of charge data to the CAISO.

### **Resource Adequacy – Attention to this process underscores the need to address changes within the RA Enhancements initiative**

***The CAISO has stated that reliability means meeting energy needs as well as meeting peak load needs. HRs have the capability of doing one or both and RA counting rules should recognize this.***

The advent of hybrid resources (HR) highlights the fact that RA has shifted from a peak capacity issue to an energy issue. The existence of such resources hinges on the market's need to have energy transferred between different times of the day. Solely focusing on meeting typical peak capacity hours is inappropriate. Not only is the fleet inevitably moving toward a dynamic resource mix with non-varying attributes but reliability needs don't necessarily arise only during typical peak capacity hours. A HR such as a VER with storage, is better suited<sup>3</sup> toward meeting reliability needs whether they arise earlier than evening peak or during the evening peak. RA is also meant to help meet reliability needs during other hours of the day. Consider instances where reliability events cause price spikes to occur outside of the evening peak hours. Should resources not be allowed to economically meet such needs when they receive economic signals from the CAISO? SCE believes that they should do so as long as the CAISO's prices reflect actual grid conditions. In sum, prices and MOO should be the drivers for resource provision of reliability through the RA framework.

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<sup>3</sup> Than a resource targeting only a small set of hours.

### ***The CAISO has consistently cited the need to meet the duck curve***

Throughout various initiatives, the CAISO's policy has been toward getting the resource fleet to meet the significant upward ramping need from when VER production drops off to when evening load ramps up. The CAISO's need for flexible resources underscores the need for a fleet that can react quickly between modes of production and consumption. HRs have this ability due to:

- (a) production and consumption constituents co-located that allow their participation as and when grid conditions change.
- (b) faster ramping ability than most conventional resources.

Having a resource that has the physical attributes and designed to meet the CAISO's price signals is what the CAISO has been asking for in every initiative where the CAISO asks for flexibility.

### ***Single resource ID HRs can have ELCC applied to them***

Consider a VER and storage single resource ID HR. The VER component qualifies for ELCC application and the CAISO can apply it as such. The storage component's ability to meet a MOO depends on its SOC. While the CAISO may not have telemetry on the storage component, it does have telemetry of the combined unit and can have the resource operator/owner report the hourly SOC to the CAISO. This would allow for an accurate representation of the ability of the entire unit, given its constituent resources.

It is not clear the an Exceedance methodology will provide an accurate measurement of a unit's capability, and therefore, may not be appropriate. There are several reasons that make for this:

1. A storage resource does not have fuel intermittence. While its charging may be governed by economic conditions, the discharging of a storage resource does not have any intermittence.
2. State legislation mandates the use of ELCC for VERs over the use of Exceedance. A single resource ID HR that has a VER as an individual component should still qualify to apply ELCC methodology to the VER component consistent with how ELCC is applied to VER resources.
3. With a single resource, it is unclear how the exceedance methodology would provide an accurate measurement of the RA contribution of the resource because the proposed

exceedance methodology, unlike ELCC, does not consider the effects on the probability of load loss directly, i.e. the underlying RA contribution.

4. In addition, an exceedance methodology does not account for the dispatchable nature of the battery which may dispatch in a variety of hours driven by price. The price and dispatch behavior of the battery historically is only indicative of future uses if the price in the future period is consistent with the price patterns in the past.

### **Market modeling for HR with storage**

While SCE appreciates the operational considerations when dealing with HRs, it cautions against setting policy based solely on such considerations. Changing grid conditions and state policy are moving toward more flexible resources, such as HR. Failure to set the right policy now may leave the CAISO in an untenable position in the future.

SCE disagrees that a VER should be disqualified from the CAISO 15-min forecasting the resource's schedule. A HR with a VER and a storage component can have the CAISO continue to accurately forecast the VER's schedule. The operator or owner of the HR can provide the SOC to the CAISO thereby allowing the CAISO transparency toward the storage resource.

### **Interconnection**

SCE requests clarification on the requirement for the PTO and the CAISO to study any reliability impacts from a resource charging at the CAISO's direction. Why would the CAISO anticipate a lack of supply if it is dispatching a storage resource to charge?

### **Forecasting**

SCE requests clarification on the CAISO's proposed requirement for meteorological stations for single resource ID HRs. How would any existing weather data (not resource output) for HRs be invalidated from the addition and integrated operation of a storage or other technology resource?

### **Operations**

SCE requests the CAISO share data with stakeholders, regarding its observation that single resource ID HRs are less dispatchable than traditional dispatchable resources<sup>4</sup>. While providing such data, the CAISO should also provide the representative benchmark (or mix) of dispatchable resources it is using as to represent a traditional resource. Such data should, at minimum, include MWhs of UIE, total MWh of dispatch, HE of dispatch, and seasonality. This would allow stakeholders to understand the situation faced by the CAISO and provide better market design in this initiative.

SCE requests that the CAISO explore recognizing that HRs with storage can have an operating range in the negative output as well as the positive range. Without this feature, the key reason to have a HR is lost and the resource is unable to accurately represent its ability to participate in the CAISO market.

### **Ancillary Services**

SCE notes that during Phase 1 of the Primary Frequency Response (PFR) initiative, the CAISO had discovered that much of the perceived lack of PFR was due to plant level controlling algorithms overriding governor level algorithms to provide PFR. This was corrected with Phase 1 specifying new droop and new deadband settings in the tariff filing. Additionally, Transferred Frequency Response (TFR) was made available as a tool to the CAISO. Phase 2 failed to demonstrate the need for any further frequency response. If the CAISO believes that there may be further need for frequency response, then it should provide data showing the measured shortfall including all the years since the PFR Phase 1 initiative.

Further, SCE requests the CAISO clarify why existing AS testing and certification is insufficient to determine whether new resources are able to provide AS. Pertaining to the minimum sizing concern, can the CAISO provide examples where it believes the HR will only use one constituent to provide AS and why the CAISO believes that it is appropriate to only consider that constituent capacity for providing AS whereas considering the entire HR as a single resource for all other cases?

SCE supports the CAISO's examination of payment rescission given any data transparency issues with single resource ID HRs.

### **Deliverability**

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<sup>4</sup> Page 15. Issue paper.

SCE generally agrees with the understanding presented by the CAISO. Specifically, resource transparency determines the deliverability capacity. That is, the study amount and the adopted methodology drive the available information to the CAISO, and in turn, the assessed deliverability.

### **Metering, Telemetry and Settlements**

The CAISO proposes that for single resource ID HRs with storage, that charge from the grid, individual resource meters be implemented. The CAISO will continue to issue a single dispatch. For this particular type of resource, the individual metering and telemetry proposal makes moot the CAISO's arguments in the Charging, Forecasting and Operations sections. The CAISO should demonstrate how, outside of dispatch, there is any transparency difference between a single resource ID HR vs a multiple resource ID HR. SCE does not see how a single dispatch signal changes the data transparency between a single resource ID HR vs a multiple resource ID HR, as long as each constituent resource is monitored.