



## 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](mailto:initiativecomments@caiso.com). Submissions are requested by close of business on May 28, 2020.

Submitted by	Organization	Date Submitted
<i>Nuo Tang 858-654-1818</i>	<i>San Diego Gas &amp; Electric Company</i>	<i>May 28, 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.**

#### 1. Terms and Definitions

Please provide your organization’s feedback on the proposed terminology and definitions as described in the revised straw proposal.

SDG&E believes that the proposed definitions of Hybrid and Co-located resources are reasonable except for the terms which require such resources to participate in the CAISO markets. CAISO market participation is not a requirement for other types of resources that describe the resource itself.

SDG&E proposes the following modifications to the CAISO’s definitions.

**Hybrid Resource:** “A resource type comprised of two or more fuel-type projects, or a combination of multiple different generation technologies that are physically and electronically controlled by a single owner/operator and scheduling coordinator (SC) behind a single point of interconnection (“POI”) with a single market resource ID and is metered and telemetered at the high side of the interconnection transformer. Hybrid resources are not eligible to be variable energy resources.”

**Co-located Resource:** A resource type comprised of two or more-fuel type projects, or a combination of multiple different generation technologies behind a single point of interconnection with market resource IDs and each resource is individually metered and telemetered. Co-located resources may be comprised of one or more variable energy resources and resources that are not variable energy resources

The CAISO notes that the proposed hybrid resource definition will not apply to multi-stage generators or other resources with multiple units of the same fuel type or generation technology. SDG&E requests the CAISO to better clarify which resource definition would such resources belong. It is possible to include an energy storage device with a multi-stage generator at a single point of interconnection and participate in the CAISO markets. While SDG&E understands that such resources may not be the bulk of the projects in the interconnection queue, it is still important to develop policies that comprehensively include such resources when they reach commercial operations.

The CAISO also proposes that hybrid resources meet the minimum sizing requirements of 500 kW for the participating generator resource and 100 kW for any storage resource. SDG&E requests the CAISO to clarify if a hybrid resource directly connected to a distribution system would be exempt from such minimum size requirements as currently written under Tariff Section 4.6.3.2.

## 2. Market Interaction for Hybrid Resources

Please provide your organization's feedback on the market interaction for hybrid resources proposal, as described within the second revised straw proposal.

SDG&E believes it is reasonable to require the resource owners or have the CAISO provide forecast data for the variable energy resource portion of the hybrid resource.

The CAISO proposes a new "dynamic limit" tool for hybrid resources which would limit the economic dispatch of a hybrid resource in the real time market. The tool will be optional and will not be required for all 5-minute intervals. The hybrid resource "will be allowed to submit a dynamic limit or not, but are not required to do so if the resource is capable of performing at the entire range of bids in the real-time market."<sup>1</sup> SDG&E requests the CAISO to clarify whether submission of a dynamic limit is entirely optional or only optional when the resource is capable of performing at the entire range of bids. If the submission is completely optional and no value is submitted, then would the CAISO assume the resource would be able to perform at the entire range of bids? Additionally, the CAISO warns of data lag if the resource were to depend on the CAISO to generate the forecast data of the variable energy resource. SDG&E would like to better understand where the additional lag occurs compared to the current process in which the CAISO forecasts for the renewable resource.

Finally, SDG&E would like the CAISO to clarify how it envisions hybrid resources would participate in the day-ahead market without the benefit of the dynamic limit tool

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<sup>1</sup> Proposal, pg 9

given that the CAISO will not be monitoring the state of charge of the energy storage device. SDG&E believes it would be helpful if the CAISO could provide an illustrative example of the bid patterns and operating ranges of a hybrid resource to better understand the lack of need for the dynamic limit tool in the day-ahead market.

SDG&E recommends the CAISO to consider incorporating the beginning state of charge in the day-ahead market for the hybrid resource and optimizing when the onsite generation would charge the storage device. If the resource is dispatched below the forecast of the renewable energy resource, then the optimization would assume that the undischarged energy would be sent or stored in the energy storage device within the charging limits of the inverter. As the state of charge increases throughout the day, the hybrid resource's capability to generate would be greater than that of the forecast of the variable energy resource. As such, the CAISO optimization would track the state of charge and optimally dispatch the hybrid resource. SDG&E does not believe the scheduling coordinator should submit hourly outage cards to limit the amount of generation capability for market optimization purposes. The CAISO market optimization should primarily account for the state of charge, variable energy resource forecasts and bid curves submitted to achieve an optimal dispatch award.

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

Please provide your organization's feedback on the POI constraint for co-located resources proposal, as described within the second revised straw proposal.

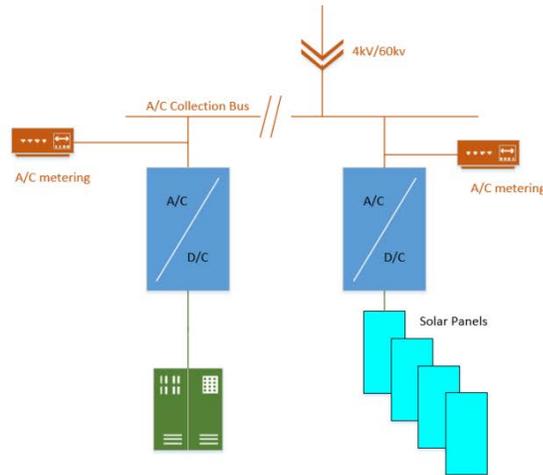
SDG&E requests the CAISO to clarify how it will limit the dispatch of co-located resources at the point of interconnection if the resources are unevenly sharing the interconnection or how the CAISO will recognize agreements of which market participant has priority of the interconnection.

### **4. Metering**

Please provide your organization's feedback on the metering topic, as described within the second revised straw proposal.

The CAISO provided a metering diagram of a co-located resource with two meters at the DC line for each component and another meter at the point of interconnection. SDG&E would like to understand whether the other metering layouts, such as the AC connection metering layout, detailed during the hybrid resource metering working group are also applicable.

AC connection metering layout for separate resource IDs –  
Both SCME and ISOME options are available.



## 5. Resource Adequacy

Please provide your organization's position on the Resource Adequacy topic, as described in the second revised straw proposal.

SDG&E would like the CAISO to clarify whether it will be adopting the CPUC's methodology of calculating the qualifying capacity value of hybrid and co-located resources as the CAISO's own default methodology that would be applicable to LSEs' whose local regulatory agencies may have not adopted their own methodologies.

The CAISO provides an example of a 100 MW solar resource with a +/- 50 MW energy storage device with a 66 MW must offer obligation. In the example, the solar resource is forecast to generate 80 MWs but elects to charge the energy storage device fully at 50 MWs and therefore only have 30 MWs of availability to bid into the market. Under this example, the CAISO notes that the scheduling coordinator must submit a 50 MW outage to account for the unavailability of the hybrid resource relative to the must offer obligation of the resource. SDG&E has several clarifying questions for this example.

1. Do other variable energy resources submit outage cards if their forecasted output is unable to reach the PMAX of the resource? In this instance, the CAISO would require a different outage card to account for the 20 MW of solar output not available due to the forecast
2. Would the dynamic limit tool be more appropriate to limit the total output of 30 MWs for the hybrid resource rather than the outage card?
3. Is the outage card expected to be utilized for the day-ahead market and would not need to be updated for the real-time market as the dynamic limit tool would have priority?

4. What nature of work would be submitted as reason in the outage card?
5. Would the scheduling coordinator be required to procure substitute capacity for this outage card as this card will most likely be treated as a Forced Outage.
6. If the energy storage device is unable to obtain sufficient state of charge to meet its day-ahead energy awards, would the CAISO require the resource to submit an outage card for insufficient fuel or adjust the dynamic limit tool?
7. Would the resource be subject to default energy bids if its dynamic limit is lower than the must offer obligation?

SDG&E believes the CAISO should treat a hybrid resource as a single resource rather than separate components that will require separate and inconsistent actions. As such, SDG&E believes that outage cards should be utilized for mechanical issues that limit functions of the resource. Using the variable energy resource to charge the energy storage device is not a mechanical issue but an economic decision. This should be managed with bidding behavior or the dynamic limit tool.

### **Additional comments**

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

SDG&E recommends the CAISO to indicate the fuel type for hybrid resources as “hybrid” rather than “other”. This will provide a clearer indication to market participants of the amount of hybrid resources and not be confused with other non-hybrid resources in the CAISO’s master control area generating capability list available on OASIS. If technology type is the more appropriate field rather than fuel type, then SDG&E recommends the CAISO to utilize “hybrid” under that field. Finally, SDG&E believes it would be helpful for the CAISO to indicate which resources are co-located with each other in the Masterfile and master control area generating capability list.