Submit comment on Issue paper and working group discussion

Initiative: Energy storage enhancements

1. Please provide a summary of your organization's general comments on the working group presentations and the scope of issues for this initiative:

California Community Choice Association (CalCCA) appreciates the opportunity to submit comments on parties' presentations during the Energy Storage Enhancements working group. As storage resources continue to make up an increasing portion of the resource mix, it will be critical to ensure the market can utilize this unique resource in an efficient and reliable manner.

CalCCA offers the following comments on the working group presentations:

- CalCCA supports NGR modeling and bidding parameter enhancements to include operational characteristics of new technologies and to allow for reflection of marginal costs as a function of cycling or state-of-charge;
- The CAISO should demonstrate existing market signals are not sufficient and create a need for a new market product to ensure state-of-charge product before proposing a replacement to the minimum state of charge requirement; and
- CalCCA supports the CAISO providing advisory real-time price data transparency such that scheduling coordinators (SCs) have more information about potential prices in later intervals.

2. Provide your organization's comments on the presentations provided by stakeholders at the working group:

NGR Model and Bidding Parameter Enhancements

CalCCA supports enhancements to the NGR model and bidding parameters to include operational characteristics of new technologies and to allow for reflection of marginal costs as a function of cycling or state-of-charge. WPTF's presentation indicated that long duration storage technologies have unique operational characteristics that require additional bidding parameters, including transition times, start-up times, and multiple ramp rates.[1] Modeling resources' operational characteristics correctly ensures the market dispatches them consistent with their physical operating capability.

CalCCA also supports bidding parameter enhancements to allow resources to better reflect marginal costs in their bids. CESA and GDS Associates discussed two potential enhancements to storage bidding functionality that would better reflect marginal costs, which can vary subject to state-of-charge and cycling levels. The first would allow storage resources to submit multiple bid curves to reflect marginal costs as a function of state-of-charge or cycle. The second would allow storage

[1] WPTF Presentation, July 26, 2021, at 5: http://www.caiso.com/InitiativeDocuments/WPTFPresentation-EnergyStorageEnhancementsWorkingGroup-Jul26-2021.pdf.

resources to submit updates to their bids closer to the dispatch interval to reflect changes to state-of-charge or cycle. Either approach will improve storage resources' ability to reflect marginal costs most accurately, enabling more efficient market operation.

In addition to bidding parameter enhancements, the CAISO should seek additional understanding about marginal costs for new storage technologies in order to represent them accurately. The CAISO should seek input from the Department of Market Monitoring (DMM) and storage resource owners about how to quantify such marginal costs. Additionally, the CAISO should consult with load serving entities (LSEs) contracting with storage resources as marginal costs are likely currently reflected through the contracts between LSEs and resources given marginal costs cannot yet be fully reflected in bids.

Ensuring State-of-Charge

Several parties discussed how to ensure storage resources are charged and available to provide energy when needed. PG&E presented a state-of-charge firming ancillary service product.[2] CESA highlighted modifications the CAISO could make including a longer real-time look ahead, scarcity pricing, an energy shift product, and a biddable state-of-charge product.[3] GDS Associates[4] and WPTF suggested market prices should ensure storage resource availability during times of greatest system need.[5] While storage resources are and will continue to be a key contributor to system reliability, it is not clear the market requires an additional product to preserve state-of-charge to ensure storage resource availability.

The CAISO should demonstrate existing market signals are not sufficient and create a need for a new market product to ensure state-of-charge product before proposing a replacement to the minimum state of charge requirement. The CAISO has expressed significant concern about the potential for the day-ahead market to schedule storage to meet net load peaks only to have this schedule undone by real-time market resulting in reliability concerns. However, this scenario has not yet proven to be a systemic issue and ignores the fact that storage resource will respond to price signals in a way that maximizes their profits. It also introduces a new reliability concern in which the CAISO constrains a resource's flexibility so it is unable to respond to another reliability event, such as a contingency in a local area. Before proposing a new product to ensure state-of-charge that restricts storage resources' flexibility, the CAISO should analyze recent battery market participation to evaluate if storage discharging at inopportune times is a systemic issue that needs to be addressed by a new product. If market prices provide appropriate signals that reflect grid needs, resource providers will make the best decisions on how to address such needs to maximize profit. The CAISO has not yet demonstrated that market prices do not provide sufficient incentive for storage resources to be charged for the most critical hours and as GDS Associates notes, it is not clear why the market would manage storage resources differently from other use-limited resources.

Prior to proposing a new product, the CAISO should first identify a need for one exists by evaluating recent storage resource participation to determine if they systemically discharge during times that adversely impact reliability. The CAISO should specifically consider storage participation during this summer, given the significant amount of storage that has come online in recent months.

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2 http://www.caiso.com/InitiativeDocuments/PG-EPresentation-EnergyStorageEnhancementsWorkingGroup-Jul26-2021.pdf

3 http://www.caiso.com/InitiativeDocuments/CESAPresentation-EnergyStorageEnhancementsWorkingGroup-Jul26-2021.pdf

4 http://www.caiso.com/InitiativeDocuments/GDSPresentation-EnergyStorageEnhancementsWorkingGroup-Jul26-2021.pdf

5 http://www.caiso.com/InitiativeDocuments/WPTFPresentation-EnergyStorageEnhancementsWorkingGroup-Jul26-2021.pdf

Publishing Advisory Price Data

CalCCA supports the CAISO providing advisory real-time price data transparency such that scheduling coordinators (SCs) have more information about potential prices in later intervals. Publishing advisory real-time price data would provide beneficial information about expected prices later in the day to allow storage resources to make better informed decisions about if and when to deviate from their day-ahead award when real-time prices are trending significantly higher than day-ahead prices. With advisory price data, storage resources will be able to better determine if the high prices in real-time will be sustained throughout the day or due a temporary price spike. If high prices are sustained throughout the day, it may be more profitable for the resource and reliable for the system for the resource to wait until the net peak to discharge. If a price spike is to address a temporary reliability need, it may be more profitable for the resource and reliable for the system for the resource to deviate from its day-ahead schedule to meet a temporary reliability need. Access to advisory price information will allow storage resources to better assess reliability needs of the grid in the absence of a longer real-time market look-out horizon.

3. Provide any additional comments on the working group, or any additional scope items your organization feels should be included for this initiative. You may upload examples and data using the "attachments" field below:

No additional comments at this time.