

Alta Gas - Pomona Energy Storage Comments on ESDER 2 Third Revised Straw Proposal

Submitted by	Company	Date Submitted
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Alta Gas - Pomona Energy Storage (Pomona) provides these comments on the CAISO's Third Revised Straw Proposal for the Energy Storage and Distributed Energy Resources Phase 2 (ESDER 2) Stakeholder Initiative. Pomona supports CAISO action and enhancements on participation, modeling, and valuation enhancements for energy storage and distribute energy resources (DERs), but believes faster action is needed to address short comings in the Non-Generator Resource (NGR) model design. Pomona provides the following comments for consideration:

Section 6.2 NRG Enhancements – CAISO Proposed NGR Model Enhancements

Pomona strongly supports a fresh look at NGR enhancements which are needed to adequately represent storage participation in the various ISO markets. In the 3rd revised straw proposal the ISO raises the possibility of developing daily cumulative maximum energy charge/discharge limits to help address concerns regarding high throughput for battery storage resources. Pomona is supportive of exploring this concept further but suggests the ISO consider (1) allowing battery storage resources to enter hourly limits in additional to daily limits and (2) allow such limits to be an optional parameter.

Hourly limits will help battery storage resources better manage their real-time State of Charge (SOC) given the fact that real-time bids are due 75 minutes before the start of the hour. The T+75 minute bid submittal deadline creates uncertainty around energy bid formation because of the need to estimate what the real-time SOC will be at the start of the hour. Allowing, hourly limits would help counterbalance this uncertainty by allowing the combination of the bid and the hourly limit to drive CAISO dispatch and ultimately drive SOC management in real-time.

Making the cumulative maximum/minimum energy limits parameters optional is recommended because not all energy storage resources operate in the same NGR mode and/or have the exact same throughput/equivalent cycle concerns.

Additional NRG Model Enhancements Suggested by Pomona Energy Storage

In addition to the enhancements proposed by the ISO, Pomona would like the ISO to consider enhancing the NGR model to address the following:

1. *Regulation Dispatch Divergence from RTD Price Signal* – Pomona has observed a trend in the real-time market where the majority of the time a positive real-time price spike occurs, the CAISO's regulation signal is asking for regulation down service. Although Pomona hasn't observed many instances where a negative price spike results in the ISO instructing regulation up service, we want to highlight that the regulation dispatch divergence from RT price signals can occur while providing either regulation up or regulation down.

As a result of these divergent signals, the regulation provider is forced to purchase energy at high real-time prices, often times \$1,000, for charging energy as a result of following the ISO signal. This consistent pattern seems counter intuitive, as the mere fact that the real-time LMP price is near the bid cap signals the need for incremental generation and not the need for decremental generation. It's unclear what is driving this divergence, but the RTD energy price signal provided prior to the interval in which regulation is actually requested is clearly disconnected from system needs. The ISO needs to address this issue and explain to market participants why this is occurring. The current market structure seems broken and acts as a disincentive for energy storage resources to provide regulation service and a fast ramp rate (i.e. the faster the ramp rate the more movement is requested of regulation resources).

Pomona has observed that a few intervals of high real-time prices and a regulation down instruction can wipe out an entire day's regulation capacity payments. For small scale energy storage resources this type of outcome can have detrimental financial impacts and disincentives the resource from providing the type of services the ISO market needs. Short of identifying a market flaw that is causing this counterintuitive trend to continue, the ISO needs to consider developing some type of make whole payment or it risks devaluing the benefits energy storage can provide to the market.

2. *Multi-Segment Ancillary Service Bids* - CAISO should allow all resources, not just energy storage, to provide a multi-segment reserve and regulation bid. CAISO currently allows a multi-segment bids for energy. Specific to energy storage resources, allowing a multi-segment reserve and regulation bid will help with real-time SOC management. By allowing such bids, an energy storage resource can signal to the ISO optimization the desire to clear certain amount of ancillary service capacity at various price levels. As a result, better positioning itself in real-time to manage the real-time SOC. For example, if a 10 MW energy storage resource can use a multi-segment bid to only clear 5 MWs of regulation service, and utilize energy bids for the remaining 5 MWs to manage the real-time SOC.
3. *Variable O&M* - CAISO doesn't allow energy storage resources to include a Variable O & M (VOM) charge in the master file. The traditional use of a VOM charge may not make much sense for an energy storage resource, but allowing some sort of VOM adder to an energy bid when an energy storage resource nears the 0% or 100% SOC level could allow resources to price maintenance and warranty costs into the market. This concept could also be used when an energy storage resource comes close to hitting any maximum charge/discharge energy throughput limits. Lastly, allowing for a VOM to be added to energy bids in real-time may offer significant benefits when energy storage resource batteries are reaching end of life.