



Submit comment on Draft revised final proposal

Initiative: Day-ahead market enhancements

1. Please provide your organization's feedback on the changes made to the Day-Ahead Market Enhancements final proposal: *

The California Energy Storage Alliance (CESA) appreciates the opportunity to provide comments on the Draft Revised Final Proposal (DRFP) put forth by the California Independent System Operator (CAISO or ISO) April 6 and discussed in the stakeholder meetings held by the ISO April 7th and 17th, as well as the Addendum posted by the ISO April 19th. While we recognize the ISO's willingness to receive stakeholder feedback to develop the DRFP, CESA continues to have material concerns with elements of the ISO's proposal, as detailed below.

The ISO's proposed envelope equations concept adds further complexity to storage management, does not further alignment between various storage management approaches, and may overstep the boundaries set by the Federal Energy Regulatory Commission (FERC) regarding state-of-charge (SOC) management.

In the DRFP, the ISO includes new requirements for the amount of state of charge that a storage resource must hold to support imbalance reserve (IR) awards in the day-ahead market. This includes anticipating upper and lower values (or an envelope) for SOC to ensure that storage resources can deliver imbalance reserve awards in the real-time market, as failure to do so could have negative reliability implications. Key to this proposal is the introduction of the envelope equations which would constrain the operation of storage resources by estimating upper and lower bounds given the asset's energy and IR schedules. The goal of the envelope equations is to limit how much IR is awarded to storage by ensuring that once the hypothetical SOC reaches either of the limits, the market will limit IR awards in preference for energy schedules to charge or discharge, depending on if the lower or upper limit is reached prior to scheduling any additional imbalance reserves.

CESA has some concerns with the ISO's proposal. First, the ISO's envelope equations proposal does not build upon the common understanding stakeholders have developed as part of the Energy Storage Enhancements (ESE) initiative and the efforts to better represent the impacts of Regulation on SOC. This, in turn, makes it so that the CAISO's proposal adds further complexity to the myriad of formulae that are currently utilized for SOC management. Second, the CAISO's proposal does not further alignment among the different formulae used for SOC management; namely, the AS SOC constraint and the SOC calculation. While CESA understands that the purposes of all these formulae may be different, whether or not there should be different purposes being achieved is an open policy question. CESA is not convinced that the SOC management approaches should be developed to meet different purposes based on the discussions. We are of the opinion that the ISO should provide enough information to demonstrate how all these formulae would work together and verify that the use of different multipliers across the formulae is needed. CAISO should explore more fully whether the SOC management approaches developed in ESE could be leveraged.

Third, CESA is concerned that the CAISO's envelope proposal could be considered beyond the limits applied by FERC relative to SOC management under their storage participation policy. In Order 841, FERC established that "the energy limitations of electric storage resources will need to be factored into their market offers" and that "each RTO/ISO [shall] demonstrate how its existing market rules provide a means for energy-limited resources, including electric storage resources, to provide capacity [including] ways for energy-limited resources, such as electric storage resources, to represent their energy limitations through their offer prices, which, if allowed by the RTO/ISO, would not constitute economic withholding". CESA considers that the establishment of envelope equations could be deemed an overstep to said FERC policy as they preempt the opportunity to reflect energy limitations through their bids and instead limit the number of hours storage could be awarded IR.

Finally, it is important to underscore the difficulty in supporting a proposal that has been so expeditiously developed and finalized despite its deeply technical nature and its material implications. It is particularly complex given the fact that the ISO has made different statements regarding the potential initial multipliers to be used in the envelope equations. The ISO would afford itself considerable discretion to adjust the configurable multipliers, which makes evaluating how this proposal would impact storage's eligibility to participate in the proposed IR market difficult, if not impossible.

For these three reasons, CESA urges the ISO to (1) reconsider its proposal to apply these equations at this time (2) reassess the proposals put forth by other parties such as CESA (see below), and after which (3) if the ISO determines that the envelope equations are still preferable then direct further development of the concept.

The ISO should reconsider modifications to the formula that governs state-of-charge (SOC) calculations in the Day-Ahead (DA) market and the existing state-of-charge constraints.

As noted in prior comments, CESA understands that modifying the myriad of formulae that are involved in SOC management is challenging given the timeline of this initiative. As such, CESA recommends that within the present initiative the CAISO commits to, *ad minima*, incorporate the following changes:

- CESA's *ad minima* proposal:
 - o Modify the DA SOC Calculation as follows: $SOC_{i,t} = SOC_{i,t-1} - (P_{i,t}^{(+)} + \eta_i P_{i,t}^{(-)} + \mu_{i,t}^{(+,RU)} RU_{i,t} + \mu_{i,t}^{(+,IRU)} IRU_{i,t-1} + \mu_{i,t}^{(-,RD)} \eta_i RD_{i,t} + \mu_{i,t}^{(-,IRD)} \eta_i IRD_{i,t-1})$
 - Initially, equate the multipliers used for IRU and RU, and IRD and RD
 - Commit to update this as more data is available.
 - Commit on moving toward resource specific values as data allows, or if difficult move towards zonal values such as NP-15 and SP-15
 - o Prior to implementation, commit to testing scenarios that would identify whether any inefficient or infeasible awards result from different multipliers in the SOC calculation than in the AS SOC constraint.

The ISO should eliminate any provision of its proposal that seeks to account for the mistaken idea that IR is part of RA or an RA successor product.

As CESA has previously stated, the IR product is a new product that is seeking to mitigate increasingly difficult challenges related to intra-hour variance that materializes between the day-ahead and real-time market runs. In this context, CESA has urged that the ISO should remove all

features of the imbalance reserve product (be it the “opt-in” mechanism, a claw back, or a means for SC trading) that are intended to account for the mistaken idea that the imbalance product will cause a double payment under existing RA contracts.

IR, as clearly expressed before by CESA and several other stakeholders, is neither part of RA nor an “RA successor” product. CESA continues to hold this position: IR is completely new and unrelated to anything that currently exists in the RA framework. As a result, we urge the ISO to resolve the fundamental disagreement regarding the relationship between IR and the RA construct by explicitly clarifying that IR is a new product, that the behavior it seeks to incent is not currently provided by RA assets, that IR is not part of RA, and that IR is not an RA successor product.

The ISO should clarify if the newly included \$55/MWh bid cap for IR implies a cap on the IR Up product’s price.

In the DAME Addendum posted April 19th, the ISO proposes a change to its design approach for IR in order to eliminate mitigation for the IR Up product. So as to obviate the need for local market power mitigation (MPM), the ISO proposes reducing the offer cap from \$247/MWh to \$55/MWh. CESA appreciates the ISO’s consideration of design approaches that would eliminate the need for local MPM; nevertheless, we are concerned with the sudden modification of the IR bid cap. The changes put forth by the ISO in the Addendum had not been socialized by the ISO in the previously held Workshops, nor were they put forth by other stakeholders presenting therein.

Overall, the changes to the proposed IR bid cap materially dilute confidence in the product’s design given the lack of data (1) supporting the revision, which departs from the caps applied to other AS, and (2) estimating its impact on IR and other market products. The changes also appear to materially dilute the signal that IR would send to ensure flexibility in the market, reducing the value of introducing a new product. As such, while we agree with the ISO’s conclusion that local MPM is unwarranted for the IR product, we request the ISO further document and justify the reduction to the IR bid cap. In addition, we request clarification on an important implication of this proposal.

Namely, it is unclear from the text of the Addendum whether the \$55/MWh offer cap will imply a cap on the price of IR Up. This merits clarification given the fact that IR is co-optimized with energy. As such, the price for IR Up could not have an upper bound as it includes any lost opportunity cost of providing IR up over energy. As such, if the energy price is higher than the IR Up offer in that hour, the price of IR Up should not be bound to the \$55/MWh bid cap. This is particularly important for storage as it is an energy-limited resource and, if storage is on the margin, it is critical to ensure these assets do not receive an IR Up award and are capped at the IR offer cap despite the fact that the energy price is significantly higher than the IRU price. In this context, CESA requests the ISO to address these potential circumstances through examples and to clarify in the Final Proposal that the \$55/MWh bid cap for IR will not bound or limit the price of IR Up.