

Comments on Day-Ahead Market Enhancements

Configurable Parameters Implementation Working Group – August 7, 2024

Department of Market Monitoring

September 4, 2024

Summary

The Department of Market Monitoring (DMM) appreciates the opportunity to comment on the *Day-Ahead Market Enhancements - Configurable Parameters Implementation Working Group*.¹

DMM understands that the next scheduled meeting of this working group is in 2026. DMM believes the ISO should hold additional stakeholder meetings on the configurable parameters working group prior to 2026, to provide stakeholders a sufficient opportunity to provide input on the scope of testing, and the scenarios and cases to be tested. Holding additional meetings and opportunities for stakeholder engagement before 2026 may also be necessary to meet commitments made by the ISO at the Board of Governors and WEIM Governing Body meetings in May 2023.

DMM notes that the data used in testing before go-live may not necessarily be realistic market data and may not produce realistic results. Therefore, the ISO should use actual market data wherever possible and continue robust stakeholder engagement in testing after go-live.

While the ISO plans to test the sensitivity of changing the \$55 demand curve cap and default capacity bid, any consideration of alternative values for either should come from a separate policy stakeholder initiative with its own data analysis supporting such a tariff change. The ISO should not propose changes to the \$55 demand curve cap and default capacity bid only on the basis of pre-market testing.

DMM generally supports the ISO's proposed approach to testing the appropriateness of the envelope constraint multipliers, but the ISO should also test how the deliverability of reliability capacity awards is affected by changes to the envelope constraint multipliers. Further, DMM notes that there are many situations that can lead to significant differences between day-ahead and real-time state-of-charge (SOC). The appropriateness of a given value of the envelope constraint multipliers may vary depending upon the expected overall level of divergence between day-ahead and real-time SOC. Therefore, the ISO may also need to consider testing the performance of potential values of constraint multipliers under a variety of specific scenarios that may create differences between day-ahead and real-time SOC.

If testing reveals that the envelope constraints may have detrimental overall market impacts, it may be appropriate to reduce the constraint multiplier pending any needed design changes. However, if testing indicates that the envelope constraints are generally functioning as intended, DMM recommends that the ISO not lower the multiplier to a value less than 0.85 until the ISO gains actual operational experience after go-live.

¹ *Day-Ahead Market Enhancements: Configurable Parameters Implementation Working Group*, California ISO, August 7, 2024: <https://stakeholdercenter.caiso.com/InitiativeDocuments/Presentation-Day-AheadMarketEnhancementsConfigurableParametersImplementationWorkingGroup-Aug7-2024.pdf>

Comments

The ISO needs to hold additional stakeholder meetings before 2026

The ISO's presentation indicates that the next stakeholder meeting for the configurable parameters working group is scheduled for early 2026.² This is a large gap without meetings or stakeholder engagement, given the level of stakeholder interest in how the parameters will operate and affect market outcomes. Further, DMM believes this relative lack of transparency and lack of opportunity for stakeholder engagement may be inconsistent with commitments made at CAISO Board of Governors and WEIM Governing Body meetings in May 2023.³

DMM recommends the ISO hold additional meetings of the configurable parameters implementation working group prior to 2026. Providing additional meetings for stakeholder engagement and review of testing results before 2026 will allow stakeholders to have a better understanding of the testing, the ability to review existing results, and the opportunity to provide more input on the testing of the configurable parameter.

Testing results should be interpreted with caution when non-market data is used

The ISO is leveraging its pre-market simulation processes to test the sensitivity of market results to changes in the configurable parameters. It is DMM's understanding that the pre-market simulation process has primarily been used to ensure that new functionality operates as intended, to ensure that data flows where needed, and to test interfaces between market participants and the ISO.

The data used in these processes may not necessarily be realistic market data and may not produce realistic results. Descriptive statistics and charts of the data used should be included with the reporting of results. The ISO should also consider using actual market data, when possible, while testing the configurable parameters.

After the market go-live for the day-ahead enhancements, the ISO should also undertake and engage stakeholders in additional analysis of the configurable parameters using actual market data and bids.

The imbalance reserve demand curve cap and default bid should not be increased, especially on the basis of pre-market testing

The \$55 value for the imbalance reserve demand curve cap and default capacity bid was established through extensive discussion in policy process, and codified in the CAISO tariff. Any changes to this value would require a tariff change and represent a departure from approved policy.

While DMM does not oppose the ISO testing the performance of the \$55 imbalance reserve demand curve cap and default capacity bid, any consideration of alternative values for either the demand curve cap or the default capacity bid should come from a separate policy stakeholder initiative with its own

² Ibid Slide 11.

³ Addendum to May 10, 2023 Memorandum to ISO Board of Governors and Western Energy Imbalance Market Governing Body, California ISO, May 15, 2023: <https://www.caiso.com/documents/decisiononday-aheadmarketenhancements-addendumtomemo-may2023.pdf>

data analysis. Changes should not come through this working group, particularly if the parameters are not tested with realistic market data.

As DMM has previously commented, an administrative demand curve with a penalty price that is too high, as is likely the case with the current \$55 value, will increase day-ahead energy and reserve costs while providing limited market benefits that are below these increased costs.⁴

Envelope constraint multipliers

In the Day-Ahead Market Enhancements policy, the ISO introduced “envelope constraints” to help ensure the real-time deliverability of imbalance reserves and reliability capacity awarded to energy storage resources. These constraints function by establishing an upper and lower bound of modeled state-of-charge (SOC) after considering day-ahead energy awards, and an assumed percentage of imbalance reserve deployment and reliability capacity utilization, to estimate the impact of imbalance reserves and reliability capacity on SOC. The constraints then ensure that the day-ahead market processes of the integrated forward market (IFM) and residual unit commitment (RUC) do not award energy, imbalance reserves, or reliability capacity such that this upper and lower bound of modeled SOC would fall outside of the minimum or maximum SOC for the resource. The envelope constraints use multipliers on a scale from 0 to 1 to model the estimated impact of imbalance reserves and reliability capacity on SOC in the day-ahead market processes. Multiplier values closer to 1 reflect an assumption of greater SOC impacts from imbalance reserves and reliability capacity awards.

DMM understands the ISO plans to test and initially implement a multiplier value of 0.85. DMM further understands that the ISO plans to test the appropriateness of this multiplier value by assessing the frequency of instances with SOC sufficient to meet imbalance reserve awards, the magnitude of such SOC sufficiency, and by conducting sensitivity analysis while holding other parameters constant.^{5,6} DMM supports this general approach to testing but notes that consideration of SOC sufficiency to meet reliability capacity awards was not explicitly considered in presented materials.⁷ The ISO should also assess the sufficiency of real-time SOC to provide reliability capacity awarded in RUC.

DMM notes that there are many situations that can lead to significant differences between day-ahead and real-time SOC. The appropriateness of a given value of the envelope constraint multipliers may vary depending upon the expected overall level divergence between day-ahead and real-time SOC. Therefore, the ISO may also need to consider testing the performance of potential values of constraint multipliers under a variety of specific scenarios that may create differences between day-ahead and real-time SOC.

⁴ *Motion to Intervene and Comments of the Department of Market Monitoring of the California Independent System Operator Corporation*, FERC Docket No. ER23-2686-000, September 21, 2023, pp 4-5: <https://www.caiso.com/documents/dmm-comments-er23-2686-dame-edam-9-21-2023.pdf>

⁵ *Day-Ahead Market Enhancements: Configurable Parameters Implementation Working Group*, California ISO, August 7, 2024, slide 18: <https://stakeholdercenter.caiso.com/InitiativeDocuments/Presentation-Day-AheadMarketEnhancementsConfigurableParametersImplementationWorkingGroup-Aug7-2024.pdf>

⁶ <https://stakeholdercenter.caiso.com/InitiativeDocuments/FlexibleParameterMatrix-Day-AheadMarketEnhancements.pdf>

⁷ Ibid

In particular, DMM highlights that the day-ahead initial state-of-charge parameter submitted by scheduling coordinators is the initial condition for batteries in the day-ahead market, and will initialize the envelope and day-ahead SOC constraints. This value alone has potential to lead to large differences between day-ahead and real-time SOC, and may have implications on the deliverability of imbalance reserves and reliability capacity awarded in the day-ahead market processes. Therefore, it may be important to consider the performance of different constraint multipliers under different scenarios of initial SOC divergence between day-ahead and real-time. Similarly, the ISO may need to test the performance of potential constraint multipliers under a variety of real-time bidding scenarios, and scenarios of different real-time ancillary service awards and deployment, which may also create large differences between day-ahead and real-time SOC.

In the absence of operational experience, DMM supports the relatively high initial multiplier value of 0.85 as a conservative starting point that will be relatively constraining in the day-ahead awards of storage resources. DMM also supports the ISO's general approach to testing its appropriateness. While data used in the pre-market simulation process may not necessarily be realistic market data and may not produce realistic results, testing may be sufficient to assess whether the envelope constraints are generally working as intended.

If testing reveals that the envelope constraints may have detrimental overall market impacts, it may be appropriate to reduce the constraint multiplier pending any needed design changes. However, if testing indicates that the envelope constraints are generally functioning as intended, DMM recommends that the ISO not lower the multiplier to a value less than 0.85 until the ISO gains operational experience after go-live. As the ISO gains operational experience outside of the testing environment, the ISO should continue to track the frequency and magnitude of SOC sufficiency to meet imbalance reserve awards and access reliability capacity under different scenarios. Sufficient collection of this real-world operational data over time may better inform the potential appropriateness of different constraint multiplier values in the future.