Comments on Price Formation Enhancements: Discussion Paper and Stakeholder Recommendations

Department of Market Monitoring

October 14, 2024

The Department of Market Monitoring (DMM) appreciates the opportunity to comment on the *Price Formation Enhancements - Discussion Paper and Stakeholder Recommendation.* [1] DMM supports moving the scarcity pricing and market power mitigation elements to the policy development phase. DMM has previously outlined reasons it believes fast-start pricing is inconsistent with the features of locational marginal pricing that maximize market surplus and provides incentives for units to operate at the most efficient, socially optimal dispatch level. However, if the ISO and a consensus of stakeholders are considering adoption of fast-start pricing, DMM supports further analysis and discussion of fast-start pricing prior to moving this component to the policy development phase.

Scarcity pricing

The working group discussed several possible policy changes that could address scarcity pricing issues to ensure prices adequately reflect tight conditions. In previous comments, DMM suggested the ISO place priority on foundational market enhancements that will improve price formation before embarking on more complicated market design changes. [2] DMM recommended prioritizing the following foundational enhancements: (1) extending the time-horizon of the flexible ramping product (or creating a new product/constraint that serves this purpose), (2) enhancing the incorporation of dynamic intraday opportunity costs into default energy bids for storage resources, and (3) re-optimizing ancillary services in the real-time market.

The ISO implemented measures intended to address the second of these suggested foundational enhancements by improving the ability for resources to reflect intraday opportunity costs by increasing the cap on default energy bids (DEBs) to $2,000/MWh, and modifying the bid cap for battery storage resources in some circumstances. DMM supported increasing the cap on DEBs and did not oppose implementing a new bid cap for storage resources that reflects the maximum of the highest cost-verified bid and the fourth highest maximum import bid price (MIBP). [3] DMM views the modified storage bid cap

[1] *Price Formation Enhancements Discussion paper and Stakeholder Recommendations,* California ISO, September 5, 2024: https://stakeholdercenter.caiso.com/InitiativeDocuments/Discussion-Paper-and-Stakeholder-Recommendations-Price-Formation-Enhancements-Sep-05-2024.pdf

[2] *Comments on Price Formation Enhancements Working Group Sessions – Scarcity Pricing Topics,* Department of Market Monitoring, February 20, 2024: https://www.caiso.com/documents/dmm-comments-on-scarcity-pricing-feb-20-2024.pdf

[3] *Comments on Price Formation Enhancements: Rules for Bidding above the Soft Offer Cap Draft Final Proposal,* Department of Market Monitoring, May 8, 2024: https://www.caiso.com/documents/dmm-comments-on-pfe-rules-for-bidding-above-the-soft-offer-cap-draft-final-proposal-may-8-2024.pdf

as a short-term solution. DMM continues to recommend that the ISO should enhance the storage DEB to allow for an hourly value that includes intraday opportunity costs appropriate for each hour. This may result in a higher DEB in some hours, but a lower DEB in other hours, such as the peak net load hours where resources face diminished intraday opportunity costs. This enhanced storage DEB could then be used to inform the bid cap for battery storage resources. DMM supports the ISO's new initiative focusing on storage bid cost recovery and default energy bids enhancements. [4]

As the ISO considers potential solutions to the scarcity pricing issues, DMM continues to suggest the ISO focus on the remaining two suggested market enhancements: (1) extending the current 15-minute time-horizon of flexible ramping product (FRP), and (2) re-optimizing ancillary services in the real-time.

Extending the time-horizon of the flexible ramping product, or creating a similar product, would allow the optimization to consider upcoming scarcity beyond the 15-minute time horizon of the flexible ramping product. This would allow capacity needed for real time uncertainty be procured through the market, rather than relying on operator interventions such as the very large upward load bias in the hour-ahead and 15-minute markets currently used by grid operators. This would also allow the cost of procuring or reserving such capacity to be reflected in real-time prices, and would provide more targeted compensation to units actually providing needed flexible and fast-start capacity.

Re-optimizing ancillary services in the real-time would allow real-time energy prices to better reflect real-time (ancillary service) conditions. DMM supports the ISO placing high priority on considering these two enhancements.

BAA-level market power mitigation

DMM continues to support the two enhancements to the balancing authority area (BAA)-level market power mitigation process that were discussed in the working group meetings. [5] One potential enhancement includes introducing a grouping mechanism for testing the competitiveness of groups of BAAs, rather than testing the competitiveness of each BAA individually. The second potential enhancement includes subjecting the CAISO balancing area to BAA-level mitigation.

DMM continues to support implementing a grouping mechanism to test the competitiveness of groups of BAAs. [6] Testing BAAs together, rather than individually, may reveal that the group as a whole is competitive, and avoids unnecessarily subjecting individual non-competitive BAAs to mitigation. DMM supports the ISO's proposal to place high priority on analyzing how to group and test BAAs for competitiveness. DMM agrees that this will be a complex process and will require detailed examples,

[4] *Storage bid cost recovery and default energy bids enhancements* initiative: https://stakeholdercenter.caiso.com/StakeholderInitiatives/storage-bid-cost-recovery-and-default-energy-bids-enhancements

[5] *Comments on Price Formation Enhancements September 14, 2023 Working Group,* Department of Market Monitoring, October 4, 2023: https://www.caiso.com/documents/dmm-comments-on-price-formation-enhancements-sep-14-2023-working-group-oct-10-2023.pdf

[6] *Ibid*, p 1

analysis, and consideration of various design aspects. DMM agrees with stakeholders' request for more technical details, additional examples, and a clear algorithm for the grouping approach.

In addition, DMM requests further clarifications on how the ISO calculates demand for counter-flow in the current BAA-level dynamic competitiveness path assessment (DCPA) in the Western Energy Imbalance Market (WEIM), as well as how the ISO would calculate demand for counter-flow in the extended day-ahead market (EDAM).[7] Such details are important to clarify, in order to ensure that the various inputs to the residual supplier index (RSI) calculation incorporate appropriate assumptions of competitiveness. Specifically, the ISO will need to clarify the treatment of transfers from other WEIM/EDAM BAAs in the RSI calculation. For instance, it may be appropriate to assume that such transfers are competitive under the current market design, but the ISO may need to revisit this assumption under a revised approach to BAA-level market power mitigation that groups BAAs, and does not assume the CAISO BAA is always competitive.

DMM also supports the ISO's proposal to determine whether the BAA-level market power mitigation process should include the CAISO BAA and subject it to BAA-level mitigation like the other WEIM/EDAM BAAs, rather than assume it is always competitive. DMM continues to recommend the ISO should test the CAISO BAA for competitiveness, and subject it to BAA-level mitigation if deemed uncompetitive on its own, or as a part of a group with other BAAs. Enhanced market power mitigation procedures should not assume the CAISO BAA is always structurally competitive. In 2022, there were 130 hours with a residual supply index in the CAISO day-ahead market less than one, indicating an uncompetitive level of supply.[8] While the CAISO BAA may not be structurally uncompetitive frequently, this can change over time depending on a number of conditions.

Analysis of actual impact of market power mitigation

Lastly, DMM acknowledges some stakeholders have raised questions and concerns about the hours in which WEIM BAAs may be most often subject to mitigation under the current BAA-level mitigation design. Previous analysis by DMM revealed that, in 2023, WEIM BAAs were most often subject to mitigation during peak solar production hours, when system prices were typically low and WEIM transfers out of the CAISO BAA were constrained.[9] This observation has led to consideration of whether different triggers for mitigation may be more appropriate, or if the mitigation process needs other design changes, such as the inclusion of an "impact test".

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[7] *Comments on the 11-16-2023 Price Formation Enhancements Working Group,* Department of Market Monitoring, December 18, 2023: https://www.caiso.com/documents/dmm-comments-on-price-formation-enhancements-nov-16-2023-working-group-dec-18-2023.pdf https://www.caiso.com/documents/dmm-comments-on-price-formation-enhancements-nov-16-2023-working-group-dec-18-2023.pdf

[8] 2022 Annual Report on Market Issues and Performance, July 11, 2023, pp 154-156: http://www.caiso.com/Documents/2022-Annual-Report-on-Market-Issues-and-Performance-Jul-11-2023.pdf

[9] *BAA-level mitigation in the WEIM*, Department of Market Monitoring, November 16, 2023, slide 12: https://www.caiso.com/documents/presentation-dmm-report-on-price-formation-enhancements-nov-16-2023.pdf

DMM does not oppose discussions that consider potential modifications to the BAA-level mitigation process. However, DMM highlights that these modifications may require significant change to the mitigation process and would require extensive analysis. In consideration of how to prioritize changes such as an impact test, DMM encourages the ISO and stakeholders to consider not only the frequency with which WEIM BAAs may be subject to mitigation under the current design, but also the infrequency with which mitigation actually results in lowered bids or increased dispatch when it does occur.

DMM has conducted hourly-level analysis of the impacts of mitigation for WEIM areas, for the same period in 2023 that DMM previously analyzed (January 2023 – October 2023). This analysis shows that while WEIM areas may be more often subject to mitigation in some off-peak hours (e.g., solar production hours), the impact of mitigation in terms of any increase in dispatch due to changes in bids is actually very limited.

Figure 1 to Figure 4 show the average impact of mitigation in the 15-minute market (RTPD) across all hours during the timeframe. By averaging impacted quantities across all hours, these metrics capture both the frequency with which resources in a region are subject to mitigation, and the realized impacts of that mitigation by BAA group.

- The blue bars in these figures show the average hourly volume of bids subject to mitigation (but which did not have bid prices changed at all by mitigation).
- The yellow bars show the average volume of bids that were lowered by mitigation, but which did not have any change in dispatch as a result of these bid changes.
- The red bars show the average volume of bids that had bids lowered and may have been incrementally dispatched as a result of this mitigation.

While there is some variation by BAA region, the actual impact of mitigation is quite limited compared to the amount of bids that are just subject to mitigation. The potential increase in dispatch on bids lowered due to mitigation is minimal.

Figure 1: Average hourly RTPD mitigation for the California WEIM BAAs

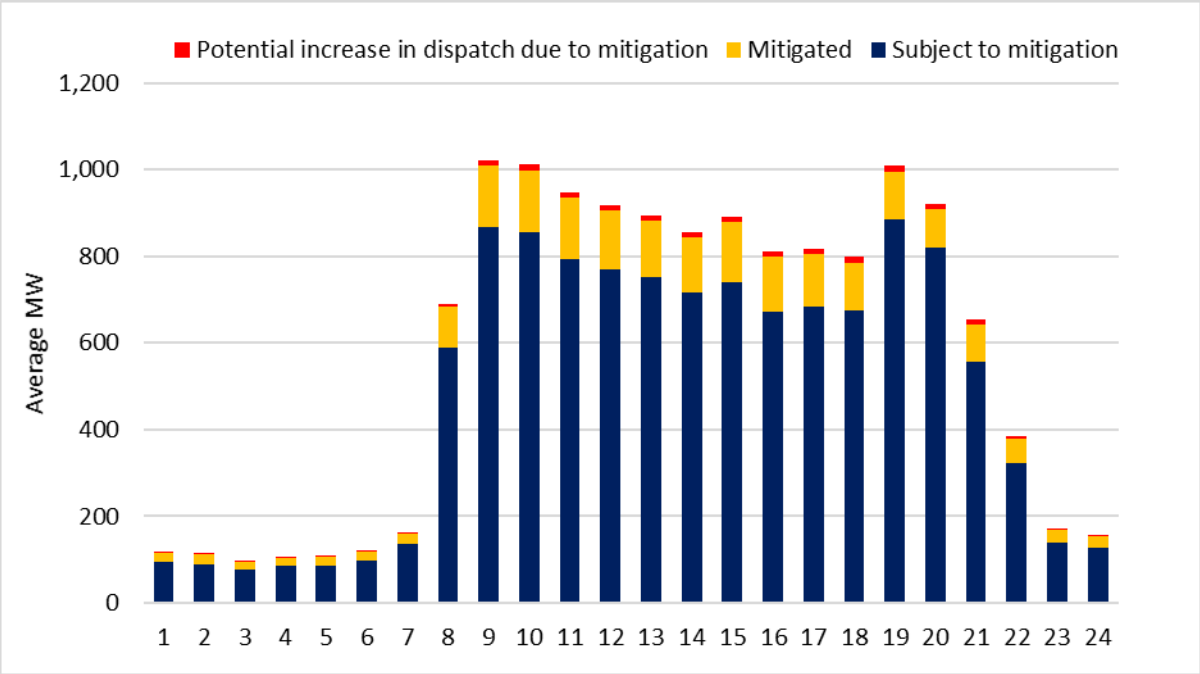


Figure 2: Average hourly RTPD mitigation for the Desert Southwest WEIM BAAs

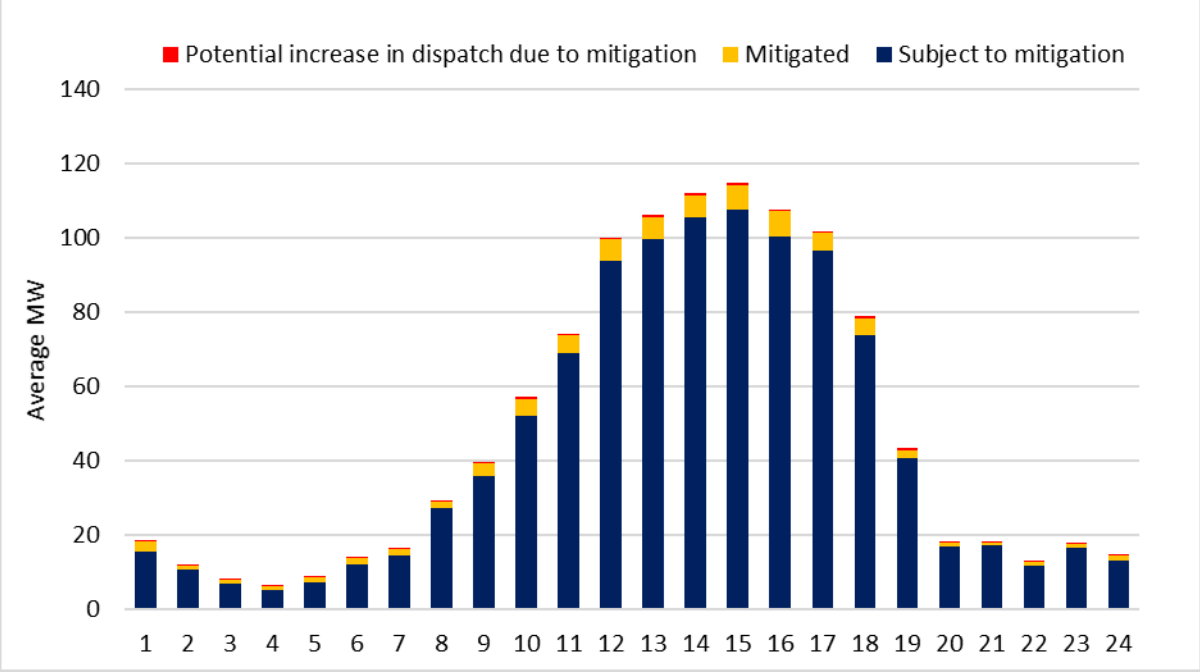


Figure 3: Average hourly RTPD mitigation for the Mountain Northwest WEIM BAAs

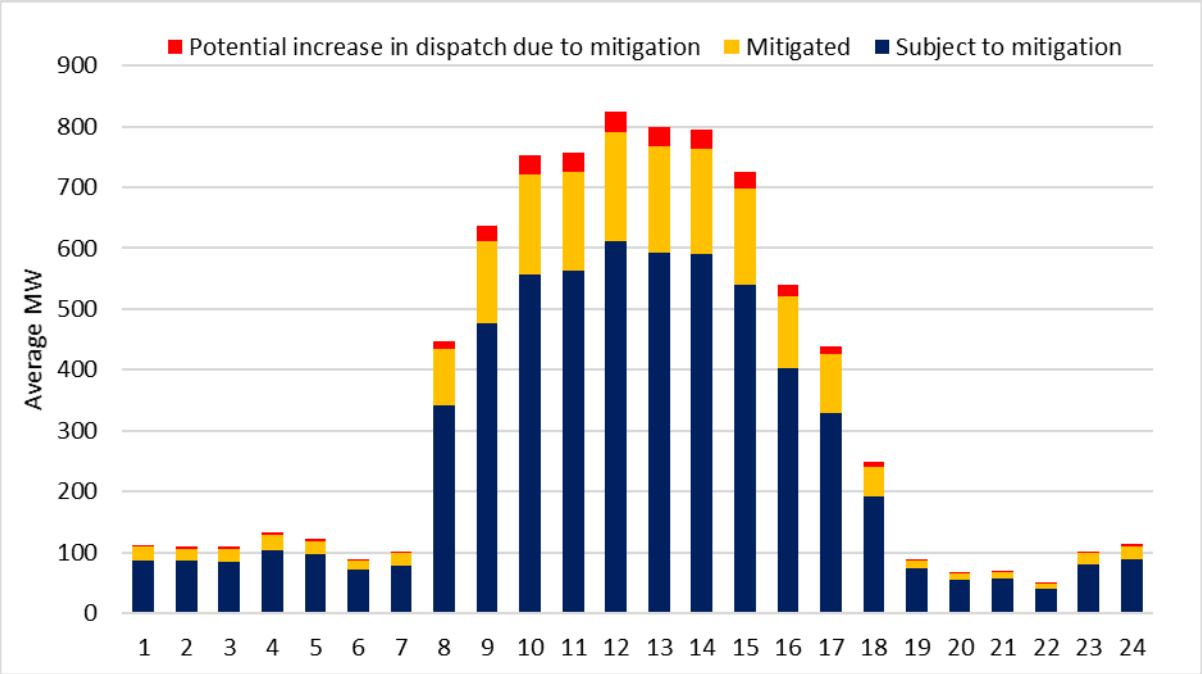
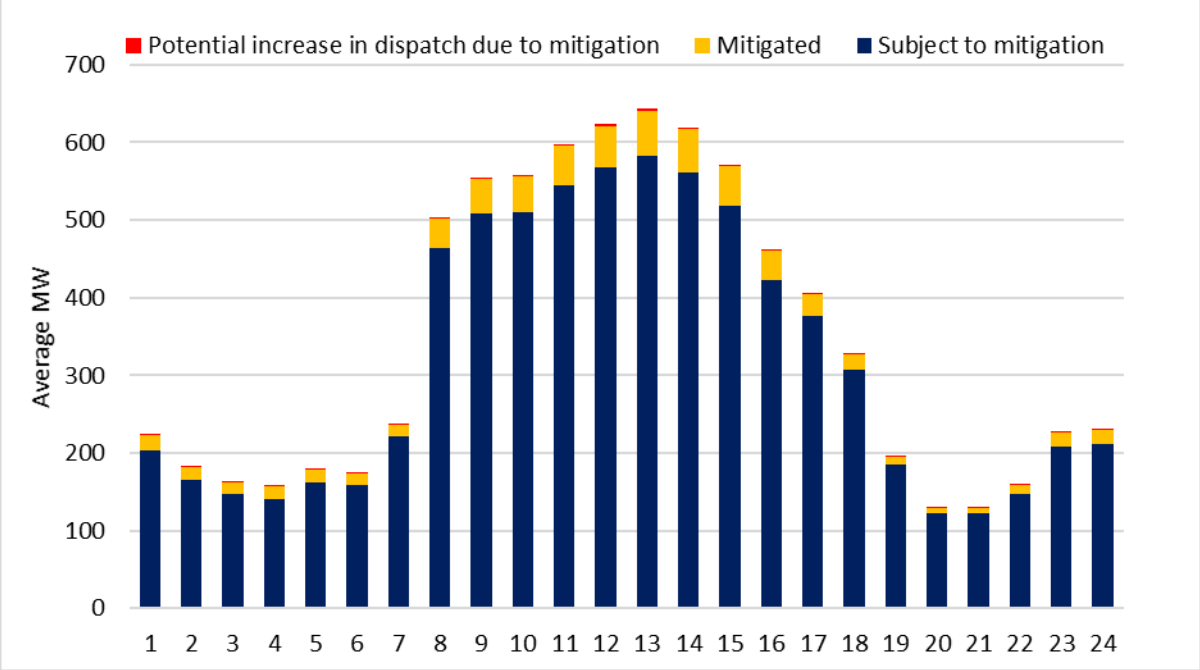


Figure 4: Average hourly RTPD mitigation for the Pacific Northwest WEIM BAAs



Fast-start pricing

DMM has previously outlined reasons it believes fast-start pricing is inconsistent with the features of locational marginal pricing that maximizes market surplus and provides incentives for units to operate at the most efficient, socially optimal dispatch level. However, DMM understands that in response to requests from stakeholders, the ISO is examining the possibility of adopting some form of fast-start pricing in the ISO and existing WEIM markets. [10]

DMM agrees with the stakeholder comments that argue fast-start pricing needs further evaluation of costs and benefits, depending on the design and its interaction with existing market features. [11] DMM supports the ISO's decision to delay moving this potential change to the policy phase, to allow time for further exploration of this potential policy change, approaches, and potential impacts.

[10] *Comments on Price Formation Enhancements: Fast-Start Pricing Analysis,* Department of Market Monitoring, May 10, 2024: https://www.caiso.com/documents/dmm-comments-on-price-formation-enhancements-fast-start-pricing-analysis-may-10-2024.pdf

[11] *Price Formation Enhancements Discussion Paper and Stakeholder Recommendations,* California ISO, September 5, 2024, p 26: https://stakeholdercenter.caiso.com/InitiativeDocuments/Discussion-Paper-and-Stakeholder-Recommendations-Price-Formation-Enhancements-Sep-05-2024.pdf