

Comments on Maximum Import Bid Price Analysis Workshop to Discuss Hourly Shaping Factor

Department of Market Monitoring

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The ISO has published a white paper exploring the composition and performance of the hourly shaping factor used in the Maximum Import Bid Price (MIBP) calculation.¹ Since early 2024, DMM has raised concerns about the hourly shaping factor component of the MIBP calculation.² DMM recommends the ISO separate this MIBP initiative into two phases. Phase 1 should focus solely on updating the hourly shaping factor calculation to reflect the description in the tariff language. DMM recommends the ISO implement Phase 1 as soon as possible and preferably prior to August 1, 2024. Phase 2 should be longer term and consider any additional improvements to the MIBP calculation, such as better addressing region considerations or changing the definition of a high-priced day.

The MIBP serves as an hourly estimation of prices outside of the CAISO system and is used to determine which days the hard bid cap of \$2,000/MWh is triggered and at what prices most imports can be offered. The MIBP multiplies the maximum bilateral block price from either Mid-Columbia or Palo Verde by an hourly shaping factor to transform these block prices to hourly prices, and then multiplies this value by a 110 percent multiplier.

The hourly shaping factor is defined in the BPM as

$$= 1 + \frac{\text{Hourly DA SMEC}_{\text{most recent available day}} - \text{Average DA SMEC}_{\text{representative high-priced day}}}{\text{Average DA SMEC}_{\text{representative high-priced day}}}$$

Which is mathematically equivalent to

$$\frac{\text{Hourly DA SMEC}_{\text{most recent available day}}}{\text{Average DA SMEC}_{\text{representative high-priced day}}}$$

Currently, the numerator of this equation uses the hourly day-ahead (DA) system marginal energy cost (SMEC) from the most recent available day, while the denominator reflects the average DA SMEC from the last high-priced day.³

The tariff describes the shaping factor as dividing the DA SMEC in that hour of a representative trading day by the average DA SMEC of the **same** representative trading day.⁴ This is similar to the second

¹ California ISO, *Maximum Import Bid Price Shaping Factor Analysis*, May 28, 2024: <https://www.caiso.com/documents/whitepaper-maximum-import-bid-shaping-factor.pdf>

² Department of Market Monitoring, *Comments on Price Formation Enhancements: Rules for Bidding above the Soft Offer Cap Draft Final Proposal*, May 8, 2024, pp 4-7: <https://www.caiso.com/Documents/DMM-Comments-on-PFE-Rules-for-Bidding-above-the-Soft-Offer-Cap-Draft-Final-Proposal-May-8-2024.pdf>

³ Market Instruments BPM, pp 487-489. In general, the most recent available day for day-ahead MIBP calculations is the DA SMEC from the previous day, and the most recent available day for real-time calculations is the DA SMEC of that same day.

⁴ Tariff Section 30.7.12.5.3.

equation but instead of using data from two different days, both the numerator and denominator use data from the representative high-priced day.

$$\frac{DA\ SMEC_{representative\ high-priced\ day}}{Average\ DA\ SMEC_{representative\ high-priced\ day}}$$

The primary issue with the ISO's current implementation is that it uses data from two different days. This has two mathematical implications. One, the average of these hourly shaping factors across the day does not equal one and therefore the average MIBP does not equal 1.1 times the bilateral hub price, as it should. The purpose of the shaping factors is to transform the 8- or 16-hourly block prices to an hourly shape. This should increase the MIBP in hours where the SMEC tends to be higher, and lower the MIBP in the hours where the SMEC tends to be lower.

Second, by using the hourly SMEC from the most recent available day in the numerator, this ratio does not shape the bilateral prices to the last high-priced day, unless that day also happens to be the last high-priced day. Initially, the ISO was planning to shape bilateral prices based on the pattern of prices on the most recent available day.⁵ However, the Market Surveillance Committee noted that the disparity between peak prices and the average daily price is larger on days where the CAISO has higher peak prices, and thus suggested using the last high-priced day as a basis for the shaping factor.⁶

The primary concern with the current implementation of the shaping factor is that it may lead to inaccurately low MIBP calculations when entering high-priced conditions. The main measure of the performance of a shaping factor is whether the resulting MIBP correctly triggers the \$2,000/MWh bid cap by exceeding \$1,000/MWh when the bid cap should be triggered, and falling below \$1,000/MWh when it should not. The ISO's analysis suggests that the current formulation may depress the MIBP when entering high-priced conditions, as compared to the formulation implied by the tariff.⁷ This is consistent with DMM's analysis that showed during the 2024 January cold snap that the MIBP formulation based on the tariff language would have triggered the \$2,000/MWh bid cap on the first day of the cold snap, January 12, while the current calculation did not.⁸

DMM recommends the ISO update the shaping factor calculation to divide the hourly SMEC in the last high-priced day by the average SMEC of that same last high-priced day. This formulation is consistent with the description of the equation in the tariff, results in an hourly shaping factor that averages to one across the day, and shapes bilateral prices to the pattern of prices on the last high-priced day. This will

⁵ California ISO, *Revised Draft Final Proposal – FERC Order No. 831 – Import Bidding and Market Parameters*, July 22, 2020, pp 27-29: <https://www.caiso.com/InitiativeDocuments/RevisedDraftFinalProposal-FERCOrder831-ImportBidding-MarketParameters.pdf>

⁶ Market Surveillance Committee, *Opinion on FERC Order 831 Import Bidding and Market Parameters*, Sep 9, 2020, p 7: https://www.caiso.com/Documents/MSO-OpiniononFERC831ImportBiddingandMarketParameters-Sep9_2020.pdf

⁷ California ISO, *Maximum Import Bid Price Shaping Factor Analysis*, May 28, 2024, pp 11-13: <https://www.caiso.com/documents/whitepaper-maximum-import-bid-shaping-factor.pdf>

⁸ Department of Market Monitoring, *Comments on Price Formation Enhancements: Rules for Bidding above the Soft Offer Cap Draft Final Proposal*, May 8, 2024, p 6: <https://www.caiso.com/Documents/DMM-Comments-on-PFE-Rules-for-Bidding-above-the-Soft-Offer-Cap-Draft-Final-Proposal-May-8-2024.pdf>

ensure that on the first day of a high-priced event, the shaping factor will correctly shape bilateral prices to mimic the shape of the last high-priced day.

Because the ISO is currently proposing to expand the use of the MIBP to include setting a daily bid cap for energy storage resources on days when the \$2,000/MWh bid cap is in effect, it is even more pressing that the ISO address this issue prior to the coming peak summer months. DMM recommends the ISO separate this into two initiatives with the first focused solely on changing the shaping factor calculation to match the description in the tariff, and the second phase can be longer term and focus on other potential improvements to the maximum import bid price calculation.