



Memorandum

To: ISO Board of Governors and WEIM Governing Body

From: Eric Hildebrandt, Executive Director, Market Monitoring

Date: May 15, 2024

Re: **Comments on Management's proposed changes to rules for bidding over the soft-offer cap**

This memorandum does not require ISO Board of Governors or WEIM Governing Body action.

EXECUTIVE SUMMARY

This memo provides comments by the Department of Market Monitoring (DMM) on Management's proposal to enhance rules for allowing bids over the \$1,000/MWh soft-offer cap.

Removing the cap on default energy bids. The first element of Management's proposal would remove the \$1,000/MWh cap on all default energy bids (DEBs). This change is aimed at allowing hydroelectric resources that may have intra-day opportunity costs in excess of \$1,000/MWh to incorporate these costs in their bids when the \$2,000/MWh hard bid cap is in effect. DMM supports this element of the proposal as an interim solution to this issue. However, DMM cautions that allowing bids up to the uncapped DEBs for all hours of the day can increase the potential exercise of market power hours when this value overstates intra-day opportunity costs. DMM recommends that in a future initiative, the ISO develop DEBs for hydro resources that can change hourly, and more accurately reflect intra-day opportunity costs for hydro resources with daily energy limitations

Modifying the bid cap for storage resources. The second element of the proposal would establish a daily bid cap for battery storage resources that can exceed \$1,000/MWh on days that the \$2,000/MWh hard offer cap is in effect. DMM conceptually supports allowing storage resources to reflect higher intra-day opportunity costs in bids for the hours where these costs may exceed the \$1,000/MWh soft-offer cap. DMM does not oppose the higher bid cap for battery storage resources on days that the \$2,000/MWh hard offer cap is in effect, as a temporary solution for summer 2024. However, DMM questions the urgency of needing to implement a quickly developed and imprecise interim solution by summer 2024. Analysis by DMM shows that a limited portion of battery resources have actually bid at the current \$1,000/MWh cap on days when the proposed changes would have been triggered. DMM also notes this approach would allow bids that are likely to exceed intra-day opportunity costs for some hours of the day. DMM further notes that allowing higher bids from battery

resources carries risks of increasing unwarranted bid cost recovery payments to batteries on days when the \$2,000/MWh hard cap is in effect.

Maximum import bid price. DMM notes that a key input to the proposed storage bid cap — the maximum import bid price (MIBP) — is not being calculated correctly and should be fixed prior to summer 2024. The MIBP calculation is also used to determine hours that the \$2,000/MWh hard offer cap should be in effect, and for setting the maximum hourly bid prices for many imports on these critical days. Additional detail on this issue is provided in an attachment to this memo.

PROPOSED RULE CHANGES FOR BIDDING OVER SOFT-OFFER CAP

Background

Management's proposal stems from an expedited initiative to develop short-term changes to allow hydro and battery storage resources to bid above the \$1,000/MWh soft offer cap when their intra-day opportunity costs may exceed \$1,000/MWh. The ISO is seeking to implement a solution by summer 2024. However, the ISO has indicated that a number of technical limitations significantly limited the solutions that could be implemented in this timeframe.

DMM supported a solution that targeted specific hours where intra-day opportunity costs for hydro and batteries may exceed \$1,000/MWh. However, the ISO has indicated that it would be infeasible to make significant software changes that would allow hourly variation of bid caps by summer 2024. DMM also suggested that the ISO's current process for manual reference level change requests could be used to allow bids over \$1,000/MWh for any hydro resources with significant daily energy storage limits.

During the stakeholder process, DMM provided analysis of a recent sample of high priced days indicating that a limited amount of battery capacity has actually been bid at the \$1,000/MWh cap during the time when the proposed changes would have been triggered. In light of these points, DMM suggested that it may be appropriate to defer the development of a short-term solution for storage resources in summer 2024, and instead focus on options targeted at any hydro resources with significant daily energy storage limits.

DMM has also raised concerns about the current calculation of the maximum import bid price (MIBP), which the ISO proposes to use as a proxy for intra-day opportunity costs in the proposed bid cap for storage resources.¹ The MIBP calculation is also used to determine hours that the \$2,000/MWh hard offer cap should be in effect, and for setting the maximum hourly bid prices for many imports on these critical days. Given the significant impact this calculation can have on the ISO and WEIM markets, DMM recommends that the ISO address this issue prior to the coming peak summer periods. Additional details on the calculation of the MIBP are provided in an attachment to this memo.

¹ These concerns about the MIBP calculation were first raised by CPUC staff in early 2024, and DMM raised these concerns with the ISO in early February.

Removing the cap on default energy bids

The first element of Management's proposal would remove the \$1,000/MWh cap on all default energy bids (DEBs). These DEBs are calculated using established formulas to estimate marginal cost, which for some resource types includes opportunity costs based on prices in other markets and time periods. DMM agrees that default energy bids (DEBs) reflecting reasonable estimates of a resource's marginal cost should not be capped at the \$1,000/MWh bid cap. Since DEB calculations are designed to provide an accurate representation of marginal costs, it seems unnecessary to require resources to submit a reference level change request to allow the resource to bid up to its calculated DEB. In addition, it appears there are currently technical limitations that prevent certain resource types from submitting special reference level change requests to the ISO that can be used to request cost justification of bids over \$1,000/MWh.

For these reasons, DMM supports raising the cap on DEBs from \$1,000/MWh to \$2,000/MWh. However, DEBs must currently be a single static value for all hours of the day. Since intra-day opportunity costs can vary hourly, DEBs should also be allowed to vary hourly. Therefore, DMM has noted that the proposal to remove the \$1,000/MWh cap on DEBs and allow hydroelectric resources to bid up to that uncapped DEB all day represents a potential policy tradeoff.

While the proposal may increase the amount of supply voluntarily offered into the market by hydroelectric resources with estimated costs exceeding \$1,000/MWh, the proposed changes may also increase the ability of some hydro resources to exercise market power. By increasing DEBs, which are static throughout the day, the proposal could allow for the exercise of market power up to these high DEBs in hours when the DEB may overstate the opportunity costs of hydro resources with intra-day opportunity costs that vary throughout the day. In hours when the DEB overestimates costs, resources will not be mitigated below their daily DEB values.

Currently, the DEB for hydroelectric resources is static across all hours of the day, as this is meant to reflect the inter-day opportunity costs of hydroelectric resources. However, hydroelectric resources with daily limitations that are bidding to reflect intra-day opportunity costs may not face similarly static opportunity costs across the day. DMM recommends prioritizing policy development aimed at developing DEBs for hydro resources that can change hourly, and more accurately reflect intra-day opportunity costs for resources with daily energy limitations.

Modifying the bid cap for storage resources

On days where there are hours in which the \$2,000/MWh bid cap is in effect, storage and other resources with daily energy limitations may have intra-day opportunity costs higher than \$1,000/MWh in a subset of hours preceding the highest priced hours. During and after the highest priced hours, the intra-day opportunity costs can approach zero.

Allowing resources to reflect intra-day opportunity costs can support efficient dispatch and reliability by preserving limited energy for the highest valued and highest need hours of the day. Therefore, DMM supported increasing the bid cap for resources with

intra-day opportunity costs in certain hours as an interim solution until the ISO can begin an initiative to design hourly DEBs that reflect variable intra-day opportunity costs. However, DMM recommended only raising this bid cap to allow for bidding over \$1,000/MWh in a limited number of hours where intra-day opportunity costs are most likely to exceed \$1,000/MWh. The ISO indicated that implementing a solution targeting specific hours by summer 2024 would be infeasible.

As an interim solution for summer 2024, the ISO proposes using the higher of (1) \$1,000/MWh, (2) the fourth highest maximum import bid price (MIBP), or (3) the highest cost-verified bid as a proxy for intra-day opportunity costs. While the MIBP is not a perfect reflection of intra-day opportunity costs, it may serve as a reasonable proxy as it does have the potential to set prices in the hours that drive intra-day opportunity costs. DMM supports using the fourth highest MIBP as opposed to other alternatives under consideration – such as the highest MIBP of the day. This formulation is similar to the logic that approximates the simplified intra-day opportunity costs in the storage DEB.

The highest cost-verified bid is a parameter that changes hourly. Prices in a particular hour that may be determined by the highest cost-verified bid do not impact the intra-day opportunity cost of daily limited resources in that same hour. Using the highest cost-verified bid as a proxy for intra-day opportunity costs implicitly assumes that these bids are constant throughout the day. While this may be a valid assumption for some resources, it may not hold for daily limited resources who have intra-day opportunity costs. Thus, if the highest cost-verified bid is set by a hydroelectric resource with daily limitations, this may not serve as an accurate proxy for intra-day opportunity costs of storage resources in that same hour.

Although DMM conceptually supports the idea of storage resources being able to reflect intra-day opportunity costs in bids, DMM questions the urgency of implementing a quickly developed interim solution that would overstate the intra-day opportunity costs of storage resources in many hours. As shown in Figures 1 and 2, a sample of recent high priced days indicates that at most, between 17 and 20 percent of storage capacity submitted real-time bids to discharge up to the current \$1,000/MWh bid cap. This suggests that the need to further increase the bid cap for storage resources is not urgent, and does not require an interim solution for summer 2024.

Figure 1: Percent of submitted real-time discharge bids for storage capacity by price bin – September 6, 2022

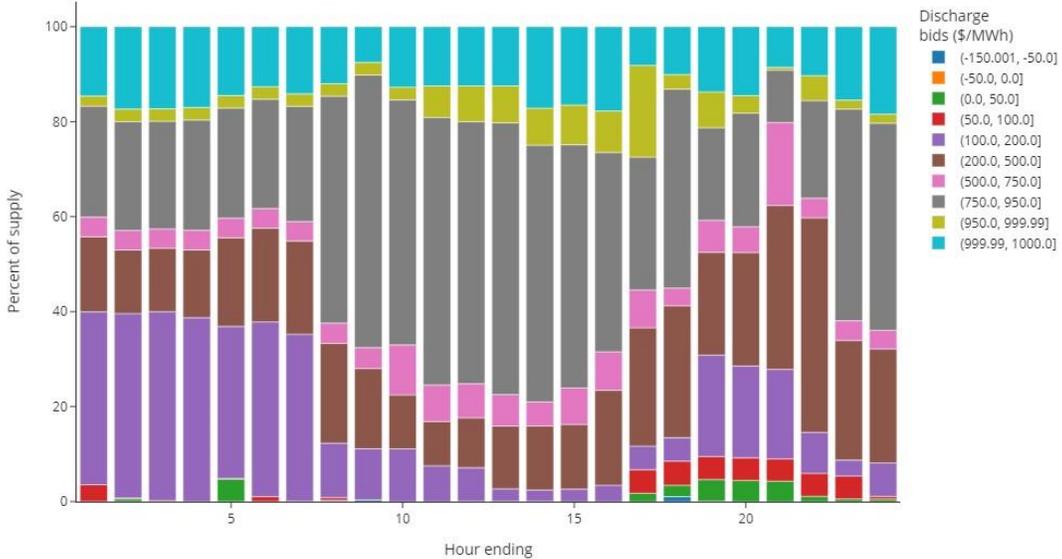
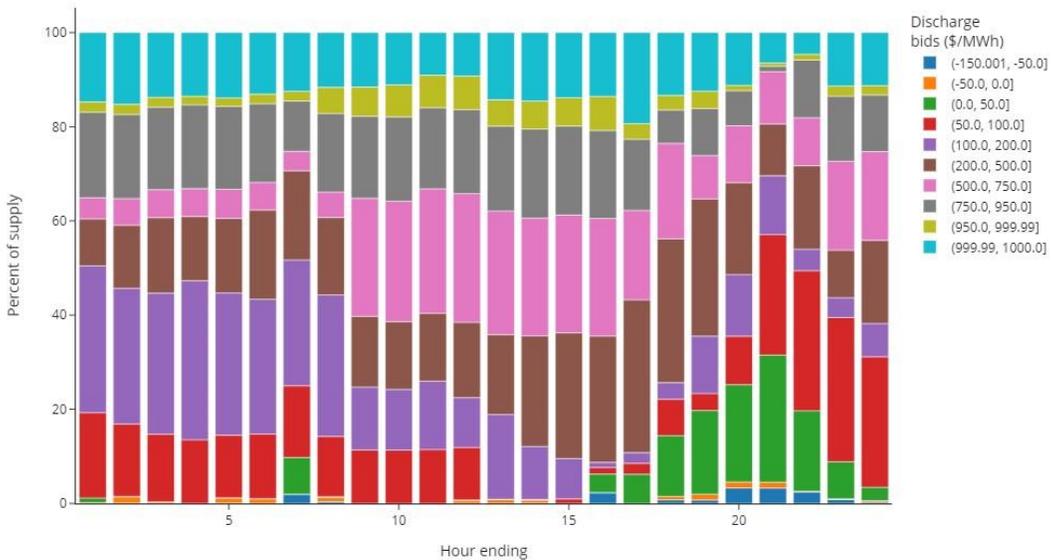


Figure 2: Percent of submitted real-time discharge bids for storage capacity by price bin – August 16, 2023



In addition, the current bid cost recovery (BCR) design for storage resources minimizes exposure to losses potentially incurred when state-of-charge is insufficient to meet day-ahead schedules. Therefore, under the current BCR design, there may be less need for storage resources to bid in a manner that preserves state-of-charge to ensure deliverability of day-ahead discharge schedules.

DMM further notes that allowing higher bids from storage resources may increase the bid cost recovery payments to storage resources in some circumstances. In general, there are a number of situations where batteries may receive inappropriate or inefficient bid cost recovery payments. DMM has recommended enhancing bid cost recovery rules for storage resources to consider state-of-charge limitations and other attributes unique to storage resources. Until these issues are addressed, allowing storage resources to submit higher energy bids – even when aligned with intra-day opportunity costs – could further increase unwarranted BCR payments to storage resources on days when the \$2,000/MWh hard cap is in effect.

Raising the bid cap for storage resources for all hours of the day will allow storage resources to submit bids over \$1,000/MWh during hours in which their intra-day opportunity costs are less than \$1,000/MWh. This may increase the ability of storage resources to exercise market power in some hours, particularly in the highest priced hours of the day where intra-day opportunity costs are significantly diminished. However, the risk of local market power is mitigated because the ISO does not propose to change the storage DEB calculation used when resources are mitigated for local market power. While the current DEB calculation may overstate the intra-day opportunity cost for storage during many hours of the day, these DEBs are likely to be less than the proposed bid cap for storage resources, and therefore will provide some degree of market power mitigation.

DMM does not oppose Management's proposal to increase the bid cap for storage resources on days when the \$2,000/MWh bid cap is in effect. However, DMM notes the risks described above and apparent lack of urgent need to implement an interim solution by this summer. If the proposal is adopted, the ISO should be prepared to act quickly to mitigate an excessive increase in BCR, should it occur.

DMM also continues to recommend the ISO promptly initiate a stakeholder process that would revise BCR rules for storage resources, and develop an hourly DEB for storage resources that would appropriately identify changing intra-day opportunity costs and determine the hours in which these resources can bid over \$1,000/MWh.

Maximum import bid price

DMM highly recommends fixing the calculation of the maximum import bid price (MIBP) by this summer. DMM believes that fixing this issue should be a higher priority than the proposed changes increasing the bid cap for storage resources. Additional detail on this issue is provided in an attachment to this memo.