Memorandum

To: ISO Board of Governors and Western Energy Imbalance Market Governing Body

From: Anna McKenna, Vice President Market Design and Analysis

Date: May 21, 2024

Re: **Decision on rules for bidding above the soft offer cap**

This memorandum requires ISO Board of Governors and WEIM Governing Body action.

EXECUTIVE SUMMARY

Management proposes to modify the market rules for resources bidding above the $1,000/MWh energy offer cap, also known as the "soft offer cap." Management launched this expedited stakeholder initiative in response to stakeholder concerns that the current rules may impede the ability of storage and hydro resources to reflect their opportunity costs in their energy offers when those costs exceed the $1,000/MWh soft offer cap. Approval of this proposal will enable more optimal use of these resources during tight system conditions and will incentivize resources to offer economically in the market.

An expedited but thorough stakeholder process produced a solution feasible for implementation during summer 2024 that will enable these resources to reflect their costs more accurately in their energy offers in order to preserve battery state of charge or limited water in hydro reservoirs for the highest-priced periods. The proposed changes are intended to improve market and operational efficiency and avoid the need for manual actions putting stress on ISO operations. Management believes the proposal meets the objectives of delivering a meaningful improvement and being deliverable in the near-term.

Many stakeholders support the objective of finding a solution that aligns with existing market design objectives. Some stakeholders raise concern with the expedited pace of policy development or question the appropriateness of the interim methodology for representing opportunity costs. Many stakeholders agree that the proposal is incremental to existing policy and accept it as necessarily limited due to desired timing. Management believes the final proposal is a reasonable and balanced approach for addressing near-term market and operational needs and aligns with the scale of storage of energy limited hydro

resources in the system. Notably, in response to continued feedback, Management has elected to modify the proposal since the Draft Final Proposal was published, to better tailor the changes to the problem at hand, acknowledging the quick pace of policy development and the desire to avoid unintended consequences.

Management recommends the ISO Board of Governors and WEIM Governing Body approve the proposed changes to the market rules for resources bidding above the soft offer cap as described in this memorandum. These changes will enhance market efficiency and reliability by allowing storage and hydro resources to better manage their limited energy during tight grid conditions. Any further enhancements needed to better address the identified issues will be considered through the ongoing more comprehensive Price Formation Enhancements stakeholder initiative.

Moved, that the ISO Board of Governors and WEIM Governing Body approve the change to the rules for bidding above the soft offer cap as described in the memorandum dated May 16, 2024; and

Moved, that the ISO Board of Governors and WEIM Governing Body authorize Management to make all necessary and appropriate filings with the Federal Energy Regulatory Commission to implement the change proposed in this memorandum, including any filings that implement the overarching initiative policy but contain discrete revisions to incorporate Commission guidance in any initial ruling on the proposed tariff amendment.

DISCUSSION AND ANALYSIS

Federal Energy Regulatory Commission ("FERC") Order No. 831, issued in 2016 and implemented by the ISO in 2021, requires the ISO to verify the cost of incremental energy offers above $1,000/MWh (the "soft offer cap") before allowing such bids in the market. FERC expressly intended for cost verification to work in conjunction with existing market power procedures. The ISO calculates default energy bids to mirror resources' costs in the market in conditions when market participants might have market power. The ISO also uses the default energy bid to represent verified energy offers above $1,000/MWh. Today, all default energy bid calculations are capped at $1,000/MWh, *i.e.*, the soft offer cap. If suppliers need to bid above $1,000/MWh, to ensure consistency with FERC Order No. 831, which requires only cost verified bids can go above the soft-offer cap, they must request an adjustment of their default energy bid, called a "reference level change request."

The reference level change request (RLCR) process was designed to allow resources to request that different costs be used in ISO market processes. Today, gas resources can leverage two options – the manual and automated RLCR processes. The automated RLCR process gives gas resources the opportunity to adjust their default energy bid hourly in response to intra-day gas price volatility. However, storage and

hydro resources are unable to successfully adjust their default energy bids through the automated RLCR process, whether above the soft offer cap or not. The ISO and stakeholders have identified two immediate issues as a consequence:

1. Resources with intra-day opportunity costs may not be able to bid high enough to preserve their limited energy for the highest price hours.
2. These resources may not be able to maintain their day-ahead market schedules when real-time prices exceed the soft offer cap.

Consequently, when the bid cap increases for other resources, such as import and export bids or when a fuel region price increases for a large number of gas fired resources, storage and hydro resources' bids will inevitably be lower than those of other resources that are able to bid above $1,000/MWh. This will result in such resources being dispatched by the market because they appear more economic. This could result in the depletion of the state of charge or the hydro needed to discharge energy later in the day.

The objective of this proposal is to enable storage and hydro resources with intra-day opportunity costs to reflect these costs more accurately in energy offers, when the bid cap exceeds $1,000/MWh for other resources, and to ensure that these resources are able to preserve their limited energy for hours when it would be most valued.

Management proposes two sets of changes to address these issues that can be implemented in summer 2024.

First, Management proposes to remove the $1,000/MWh cap on default energy bids for all resources, in both the day-ahead and real-time markets. This change would allow default energy bids to be calculated above $1,000/MWh if the underlying cost calculations support such values, not to exceed the hard cap of $2,000/MWh. It would allow resources to bid up to their true marginal costs, as reflected in their default energy bid, even if it is above $1,000/MWh, without needing to go through the RLCR.[1] Lifting the cap on default energy bids is particularly relevant for resources using the standard hydro default energy bid. Our analysis shows that hydro default energy bids could have exceeded $1,000/MWh on historical high-priced days. The $1,000/MWh cap suppresses their ability to reflect their true opportunity costs in those periods. Note that while this change applies to all resource types, including thermal resources, this is a change in process rather than a change in rules. That is, this change will streamline the process of submitting offers over $1,000/MWh for thermal resources, but it does not change the conditions under which resources would have a valid reason to offer over $1,000/MWh.

[1] The storage default energy bid is not available for use as a bid cap in the day-ahead market. Storage resources can bid in the day-ahead market above $1,000/MWh up to a default energy bid if they use other default energy bid formulations, such as the Variable Cost Option, LMP Option, or the Negotiated Rate Option. The storage default energy bid calculation would have only ever yielded a value over $1,000/MWh very infrequently and for only a few resources; this was the main driving factor for including the second part of the policy change in today's proposal.

Second, Management proposes to modify the bid cap for energy storage resources in the real-time market to provide additional bidding flexibility using a proxy opportunity cost value. Even if the default energy bid is uncapped, the opportunity cost used to calculate storage default energy bids may not be a sufficient proxy for real-time opportunity costs on high priced days. That is because the storage default energy bid is based on the fourth highest hourly day-ahead price. Bidding up to the fourth highest hourly day-ahead price means that four hour storage resources will generally be dispatched in real-time for the four hours of highest value, assuming that real-time prices are roughly equivalent to day-ahead prices. However, that assumption often does not hold true on high priced days. This proposal would allow storage resources to reflect real-time opportunity costs not fully captured by the default energy bid.

Note that it is a modification from the Draft Final Proposal to apply this only in the real-time market and not also in the day-ahead market. After further stakeholder feedback and consideration of the Market Surveillance Committee opinion, Management agrees that it is prudent at this stage to focus this rule change on the real-time market, which is where the risk arises for premature depletion of state of charge. While Management continues to believe that it is generally preferable to have rules aligned in the day-ahead and real-time markets, Management acknowledges the quick pace of policy development and the possibility for unintended consequences to arise. Moreover, the day-ahead market's 24 hour horizon will optimize the use of storage and result in day-ahead discharge schedules in the highest value hours, regardless of whether storage is able to bid over $1,000/MWh.

In the real-time market, this proposal would allow storage resources to bid up to the higher of the 4th-highest hourly maximum import bid price value and the highest cost-verified bid, when either value rises above $1,000/MWh. The maximum import bid price is a tool already used in the ISO markets to identify when import/export bids must be free to exceed $1,000/MWh because bilateral markets outside the ISO are trading at prices above $1,000/MWh. This reflects the opportunity cost for import/export bids and ensures the ISO balancing area can compete for external resources when needed.

This change will allow storage resources to submit real-time bids above the $1,000/MWh soft offer cap when the bid cap is increased for other resources, enabling them to indicate to the market their intra-day opportunity costs. This change supports their availability for discharge during more stressed grid conditions when prices might exceed the current soft offer cap and avoids the ISO having to intervene manually to maintain their state of charge when the storage resources are needed during the net-peak. Note that this change is directed solely at storage resources because it is not needed for hydro resources – the hydro default energy bid already reflects the bilateral index prices that underpin the maximum import bid price.

Bilateral hub prices that support offers greater than $1,000/MWh, either through the hydro default energy bid or through the maximum import bid price, have occurred only a handful of days per year in recent years (six trade dates thus far in 2024, two trade dates in 2023, and seven trade dates each in 2021 and 2022). Today's proposal is not expected to significantly increase the number of days that would contain prices above

$1,000/MWh, but it may increase the number of hours in those days with prices above $1,000/MWh. The overall net cost impact would depend on factors such as the frequency and magnitude of hydro and storage resources bidding above $1,000/MWh, the impact on market clearing prices, and the potential efficiency gains from improved resource dispatch. While there is potential for some increase in market costs during tight days (because resources could potentially set prices above $1,000/MWh in hours prior to the peak times), this should be weighed against the potential benefits of more efficient dispatch, reduced out-of-market actions and associated make-whole costs, and improved resource availability during critical periods.

Management believes this two-part proposal represents a balanced approach for allowing hydro and storage resources to better reflect opportunity costs in their energy offers within the existing regulatory framework. The removal of the DEB cap is a foundational change that will facilitate streamlined processes during future events where the bid cap rises above $1,000/MWh for other resources that are able to cost verify their increased cost. Management recognizes that improvements to the storage DEB calculation may reduce the need for the storage bid cap change in today's proposal. Management commits to monitoring this element of the policy change, and will evaluate the continued need for it at the time of any future changes to the storage DEB calculation or other relevant policy changes.

POSITIONS OF THE PARTIES

Though the stakeholder process preceding and supporting these proposed changes was expedited because of the urgency raised by stakeholders, the process was thorough. This expedited initiative was launched in response to concerns raised by stakeholders in the Price Formation Enhancements working groups about the inability of storage and hydro resources to reflect their opportunity costs in their energy bids when those costs exceed the $1,000/MWh soft offer cap.

Through a series of five working group meetings and five opportunities for written comments, stakeholders were able to participate in discussions that explained the issues, considered alternative proposals, developed potential solutions, and refined the final proposal. Stakeholders broadly agree that the existing market rules can lead to premature dispatch of storage and hydro resources during tight system conditions, as these resources may be unable to sufficiently reflect their opportunity costs in their offers and preserve state of charge or limited water for the periods of highest prices or greatest system need.

Many stakeholders support pursuing a solution for summer 2024, though some prefer delaying implementation to allow more time to assess risks and avoid unintended consequences. Other key points of divergence are whether the solution should apply in both the day-ahead and real-time markets and the methodology for representing opportunity costs. Also, a few stakeholders suggested that certain demand response resources should also be in scope for this effort, but ultimately there was not sufficient information about the nature of such opportunity costs to merit inclusion at this time.

Some stakeholders object to or have concerns with using the maximum import bid price for this purpose, while others including the Department of Market Monitoring, worry that the methodology may increase the potential for storage and hydro resources to exercise market power.

Management has assessed the feasibility of various design options and is proposing policy that balances the need for an improved near-term solution with implementation, policy, and other constraints. While it may not fully satisfy every stakeholder position, the final proposal reflects many of the key principles and objectives emphasized by stakeholders. Stakeholders will continue to consider potential further enhancements through the ongoing Price Formation Enhancements initiative. During the stakeholder process preceding the changes proposed in this memorandum, stakeholders identified and discussed long-term improvements to the RLCR process, enhancements to default energy bid calculations, and exploring opportunity costs for demand response resources. These proposed changes go beyond those proposed for summer 2024 and will need to be developed further through greater stakeholder engagement. A matrix summarizing stakeholder positions and Management's responses is attached to this memorandum (Attachment 1).

Some stakeholders have raised concern about how the maximum import bid price is currently calculated. Management is committed to address this item, independently of its use in this proposal because, as noted above, the maximum import bid price is already used in the ISO markets to reflect the opportunity cost of import resources. Based on the outcome of that stakeholder engagement, Management will propose any further enhancements to the maximum import bid prices as necessary.

The Department of Market Monitoring raised concern that the proposal could increase unwarranted bid cost recovery payments to storage resources on days when the $2,000/MWh hard cap is in effect. Because the concerns about unwarranted bid cost recovery payments to storage exist regardless of the changes proposed in this memorandum, Management is initiating a stakeholder process to consider enhancements to bid cost recovery as it applies to storage resources.

The Market Surveillance Committee considered the proposal at its April 24, 2024 general session meeting. The MSC's final opinion is attached for reference (Attachment 2).

CONCLUSION

Management recommends the Board of Governors and WEIM Governing Body approve the proposed modifications to the market rules for resources bidding above the $1,000/MWh soft offer cap. These changes are critical for improving market and operational efficiency and reducing out-of-market actions during tight system conditions by allowing storage and hydro resources to reflect their opportunity costs more accurately in their bids.

Implementing these enhancements for summer 2024 is crucial for addressing pressing stakeholder concerns and ensuring these resources are optimally dispatched to preserve limited energy for the highest-priced periods. The proposed approach balances the need for timely improvements with implementation feasibility and stakeholder input.

Approving this proposal is an important step in evolving the ISO's market design to better integrate energy-limited resources and meet the needs of the transforming grid. The ISO remains committed to ongoing collaboration with stakeholders on further enhancements.