



Memorandum

To: ISO Board of Governors

From: Mark Rothleder, Vice President, Market Policy and Performance

Date: September 23, 2020

Re: Decision on FERC Order No. 831 - Import Bidding and Market Parameters Proposal

This memorandum requires Board action.

EXECUTIVE SUMMARY

In 2016, the Federal Energy Regulatory Commission (FERC) issued Order No. 831 requiring ISOs/RTOs to increase their market bid caps from \$1,000/MWh to \$2,000/MWh. FERC issued the order in response to the polar vortex in the northeast that caused extreme natural gas prices that resulted in generator costs in excess of the \$1,000/MWh bid cap. Order No. 831 includes the provision that suppliers must verify costs above \$1,000/MWh to be eligible to set market prices. The order does not require verification of import or virtual bids above \$1,000/MWh.

Management proposes two market enhancements in addition to the compliance requirements to tailor the implementation of the higher bid cap to better align with characteristics of the western energy market. The first enhancement is designed to enable the use of the current market pricing parameters based on \$1,000/MWh unless market conditions can support costs and bids above \$1,000/MWh. The second enhancement provides additional protections for import and virtual bids above \$1,000/MWh.

The first proposed enhancement relates to the pricing parameter used in the ISO market to calculate locational marginal prices when energy supply bids are not sufficient to meet demand. This administrative price is referred to as a shortage price. The ISO market enforces a power balance constraint that ensures supply equals demand. Today, if there is insufficient supply and the market must relax the power balance constraint, the market will set prices based on the current \$1,000/MWh bid cap. Management's proposed enhancement will enable the ISO market to set appropriate levels of shortage pricing when energy costs exceed \$1,000/MWh. This enhancement does not affect shortage price setting when energy costs are below \$1,000/MWh.

This enhancement will also ensure that when energy costs exceed \$1,000/MWh and there is insufficient supply to meet demand, the market will set prices based on the amount of the supply shortfall. The market will base prices on the price of the highest-priced cleared energy bid if the shortfall is no more than a small threshold value. Market prices will be based on \$2,000/MWh if the shortfall is greater than the threshold value.

The threshold will limit shortage pricing when there are small shortfalls in supply that could be the result of modeling or forecast errors and may not represent a true supply shortage. The threshold value is based on the amount of supply shortfall a balancing authority area can incur and still comply with system reliability standards. The proposed threshold would be calculated each year for each balancing authority area in the energy imbalance market using a formula based on a North American Electric Reliability Corporation (NERC) reliability standard.

The second proposed enhancement consists of rules for allowing import and virtual bids greater than \$1,000/MWh. Unlike other American ISOs/RTOs, the ISO is often dependent on import bids to meet demand. Therefore, Management finds it necessary to include criteria for accepting import bids above \$1,000/MWh. Management proposes that the market accept non-resource adequacy import and virtual bids priced above \$1,000/MWh only when the ISO has cost-verified a bid or the ISO has calculated a maximum import price that exceeds \$1,000/MWh. The ISO would calculate the maximum import price using a maximum import bid price index that is based on prevailing bilateral prices. For resource adequacy import bids, Management proposes to reduce the price of bids priced above \$1,000/MWh to the maximum import bid price index or the highest resource-specific cost-verified bid.

Management proposes the following motions:

Moved, that the ISO Board of Governors approves the FERC Order No. 831 - Import Bidding and Market Parameters proposal described in the memorandum dated September 23, 2020; and

Moved, that the ISO Board of Governors authorizes Management to make all necessary and appropriate filings with the Federal Energy Regulatory Commission to implement the proposal described in the 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.

Management presented this FERC Order No. 831 – Import Bidding and Market Parameters proposal to the EIM Governing Body on September 16, 2020. The EIM Governing Body will be providing advisory input to the Board regarding this proposal.

BACKGROUND

In 2016, FERC issued Order No. 831 requiring all Independent System Operators and Regional Transmission Organizations (ISOs/RTOs) to revise their tariffs to raise the energy bid cap from \$1,000/MWh to \$2,000/MWh, and generally required that suppliers base bids priced above \$1,000/MWh on verifiable expected or actual costs.

Order No. 831 requires that ISOs/RTOs verify the costs underlying these cost-based offers above \$1,000/MWh before using them in their market to calculate energy prices. The order also states that an offer may not be used to calculate energy prices if an ISO/RTO cannot verify the costs underlying the offer before a market runs. However, it also states the ISOs/RTOs must provide for after-the-fact make-whole payments for costs that they can later verify and for verified cost-based incremental energy bids above \$2,000/MWh. The Order does not require verification of import or virtual bids above \$1,000/MWh, but states individual ISOs/RTOs could propose to do so in a separate filing to FERC.

Similarly, Order No. 831 did not specify whether ISOs/RTOs should modify their rules for setting shortage prices under a \$2,000/MWh bid cap, but stated that individual ISOs/RTOs could propose modifications to their existing rules if they require revision in light of the increased offer cap.

In March 2018 the Board approved certain market rule changes that enable the ISO to comply with Order No. 831 as part of Management's commitment cost and default energy bid enhancements proposal. These rule changes did not include the enhancements that are the subject of this memorandum. Without these enhancements, the market will set the system marginal energy price at \$2,000/MWh whenever there is a supply shortfall and import and virtual bids will be allowed at all times priced up to \$2,000/MWh.

In September 2019, the ISO submitted its proposed tariff changes to FERC by the deadline to comply with Order No. 831 and proposed that they go into effect in fall 2020, concurrent with the changes resulting from the commitment cost and default energy bid proposal. However, a number of stakeholders continued to object to setting the system marginal energy price at \$2,000/MWh whenever there was a supply shortfall and concern arose regarding import bids above \$1,000/MWh given the concerns that had arisen fairly recently about system-level market power in the ISO balancing authority area.

Consequently, in January 2020, the ISO requested that FERC extend implementation of its Order No. 831 compliance requirements to fall 2021 to allow more time for policy development and implementation of the enhancements this memorandum describes. However, on September 21, 2020, FERC issued an order accepting the ISO's compliance filing and ordered that the ISO implement the changes by March 31, 2021. Management is currently evaluating whether it can accelerate implementing the

enhancements this memorandum describes so that they can be implemented concurrently with the Order No. 831 compliance requirements.

PROPOSAL

The following sections describe Management's proposal for calculating the system marginal energy cost when there is insufficient supply to meet demand and for rules for import and virtual bids priced above \$1,000/MWh under the higher \$2,000/MWh energy bid cap required by FERC Order No. 831.

Market Constraint Price Parameters

The ISO market enforces various constraints such as constraints to ensure supply equals demand and to ensure schedules and dispatches do not overload transmission lines. The constraint that ensures supply equals demand is referred to as the power balance constraint. The various types of constraints have different price parameters, which are the cost at which the market will relax a constraint if it cannot come to a feasible solution while enforcing the constraint. If this occurs, the market calculates locational marginal prices based on these administratively determined relaxation prices.

The power balance constraint relaxation price is currently equal to the \$1,000/MWh energy bid cap in the market run that calculates prices. Consequently, the market sets the marginal energy cost, used to calculate locational marginal prices, to \$1,000/MWh in market intervals when there is a shortfall of supply to meet demand.¹ This price is higher than the highest-priced cleared supply bid and is intended to represent the value of scarce supply during shortages. The price parameters of the other constraints in the market are set at prices that are relative to the \$1,000/MWh power balance constraint price parameter.

As described above, FERC Order No. 831 requires the ISO to increase its energy bid cap from \$1,000/MWh to \$2,000/MWh. The power balance constraint parameter price must be at least as high as the highest-priced bid in the market for that bid to clear. If the ISO set the administrative parameter price to something less than the maximum bid a supplier can submit, the market would relax the power balance constraint rather than meet demand with a higher priced bid.

However, FERC Order No. 831 specifies that bids priced above \$1,000/MWh are only allowed when resource specific costs, generally fuel costs, exceed \$1,000/MWh. Historically, it has been exceedingly rare in the west to have fuel costs high enough to justify a bid in the ISO market above \$1,000/MWh. Consequently, the bid cap in the ISO most likely will effectively remain at \$1,000/MWh the vast majority of the time.

¹ This can be either the marginal energy cost for either an individual balancing authority area or for a group of balancing authority areas in the EIM.

Because of this, Management proposes that the power balance constraint relaxation price parameter remain at \$1,000/MWh and that the price parameters of the other market constraints remain scaled relative to \$1,000/MWh, unless verified energy costs are greater than \$1,000/MWh.² This approach will avoid drastically increasing the administrative price the market uses to calculate prices in the event it must relax the power balance constraint in a market interval and when fuel costs are in their typical range.

Management proposes to use a \$2,000/MWh power balance constraint relaxation price parameter and use other constraints with price parameters scaled relative to \$2,000/MWh only if: (1) there is a submitted and cost-verified energy bid from a resource-specific resource³ greater than \$1,000/MWh, or (2) the ISO-calculated “maximum import bid price” is greater than \$1,000/MWh. As described further below, Management proposes to calculate the maximum import price based on published day-ahead bilateral electrical price indices.

Management proposes an additional enhancement that would apply when the ISO has triggered the \$2,000/MWh pricing parameters to recognize that small amounts of power balance relaxation may not represent actual shortfalls, such as those due to forecast and modeling inaccuracies.

Management proposes to set energy prices based on the amount of supply shortfall when the \$2,000/MWh power balance constraint is in place. If the shortfall is no more than a pre-determined threshold, then the market will set energy prices based on the price of the highest-priced cleared economic bid. The market will set prices based on the \$2,000/MWh power balance constraint relaxation price if the shortfall is greater than the threshold. This threshold will not be applied in the day-ahead market because the day-ahead market forgoes procuring reserves before relaxing the power balance constraint, which would indicate actual scarcity conditions.

Management proposes to establish this pricing threshold for each balancing authority area in the EIM based on the NERC reliability standard for maintaining system frequency. System frequency is maintained by matching supply to demand. However, small mismatches and resulting differences in frequency from the desired 60 Hz are acceptable. The reliability standard defines the amount that supply can be less than demand while still maintaining system frequency within an acceptable limit.

Import Bid Price Screening

As described earlier, FERC Order No. 831 did not require verification of import or virtual bids priced above \$1,000/MWh, but states individual ISOs/RTOs could propose rules

² The ISO market schedules and dispatches resources using two market runs, an initial “scheduling run,” followed by the “pricing run.” The power balance constraint price parameter is \$1,000/MWh in the pricing run, which is the market run that produces market prices. The power balance constraint price parameter is a higher value in the scheduling run and the other market constraints in the scheduling run are scaled relative to this higher value.

³ Resource-specific resources include ISO generating units, EIM participating resources, and resource-specific import bids.

that limits these bids in a separate filing. However, since the ISO often relies on energy from imports to meet demand, Management proposes additional protections for import and virtual bids above \$1,000/MWh.

For import bids that are not resource-specific, it is not practical for the ISO to verify the actual costs behind such import bids because it does not have the cost information associated with the bid. Instead, Management proposes to use a maximum import bid price index to evaluate import bids priced above \$1,000/MWh. The maximum import bid price index is calculated using the higher of the Mid-Columbia and Palo Verde published bilateral day-ahead electrical price indices, plus 10 percent. Mid-Columbia and Palo Verde are the primary liquid trading hubs for bilateral electrical transactions in the west and are representative of prevailing energy prices outside of the ISO. Management proposes to use the higher of the two index prices to help ensure the ISO market can compete for imports.

The published index prices represent average prices for purchases covering the sixteen peak hours of the day. Management proposes to convert the published index prices into hourly prices by scaling the index price by an hourly multiplier. The ISO will calculate the multiplier for each hour based on the hourly shape of prices during a representative previous period. It will increase the price in the hours that typically have higher prices and decrease it in the hours that typically have lower prices.

Management proposes to use the maximum import bid price index used to: 1) screen non-resource adequacy imports and virtual bids above \$1,000/MWh and 2) limit resource adequacy import bids above \$1,000/MWh. Under the proposal, non-resource adequacy imports and virtual supplier bids greater than \$1,000/MWh are allowed only if one of the following two conditions is present: 1) the maximum allowable import bid index is greater than \$1,000/MWh or 2) the ISO has verified a specific resource's cost to be greater than \$1,000/MWh. On the other hand, resource adequacy import bids are treated differently. Resource adequacy import bids above \$1,000/MWh are reduced to the greater of: 1) highest resource specific verified cost, 2) maximum allowable import bid index, or 3) \$1,000/MWh.

Management proposes to not reduce the prices of virtual bids or bids for imports that are not providing resource adequacy. Reducing the prices of the import bids that are not providing resource adequacy resources could discourage suppliers from offering these additional imports to the ISO market because there would be a risk the ISO could reduce their bid below their costs. Import suppliers providing resource adequacy capacity can factor this risk into their capacity contract. Consistent with the rules for non-resource adequacy imports, the ISO would not reduce the price of virtual bids.

STAKEHOLDER POSITIONS

Stakeholders are generally divided in their support for Management's proposal.

Load serving entities, EIM participants, and the California Public Utilities Commission are generally supportive of Management's proposal to continue to use \$1,000/MWh to set prices when the market must relax the power balance constraint when cost-verified energy prices are no more than \$1,000/MWh. These stakeholders either support or do not oppose Management's proposal to set prices based on the last cleared bid when cost-verified energy prices are above \$1,000/MWh and the power balance constraint relaxation amount is less than a threshold amount. EIM participants maintain there should be a different approach to scarcity pricing in the balancing authority areas in the energy imbalance market outside of the ISO because not all of their resources are reflected in the market.

On the other hand, suppliers and the Western Power Trading Forum maintain that pricing power balance constraint relaxation at \$2,000/MWh and allowing import bids up to \$2,000/MWh at all times would more appropriately compensate supply during supply shortfalls, encourage additional supply and provide stronger incentive to deliver on schedules. They point out this would have been particularly important during the August heat wave when energy prices rose above \$1,000/MWh. A number of stakeholders point to the need for the ISO to examine its market's scarcity pricing provisions and make improvements.

Management believes its proposal balances the concern that \$2,000/MWh may be an excessive price for small power balance constraint relaxations that may not represent real shortfalls with the countervailing concern that prices during shortages should be higher than the highest-priced bid so that they represent the value of scarce supply during shortages. However, Management acknowledges that this proposal, which is necessary to complement its compliance with FERC Order No. 831, does not address all of the potential scarcity pricing issues for the ISO market. Management plans to conduct a stakeholder process next year to more comprehensively review scarcity pricing.

While most stakeholders support or do not oppose Management's proposal to limit import bids to \$1,000/MWh except when costs or bilateral prices are above \$1,000/MWh and to reduce resource adequacy bids to a maximum price, a number of stakeholders suggest modifications. The California Public Utilities Commission and many load serving entities believe all imports should be limited to a maximum bid price.

Management believes its proposal balances the ISO market's ability to compete for imports with a level of protection against unreasonably high import bid costs with additional protection for resource adequacy imports.

The ISO Department of Market Monitoring generally supports Management's proposal stating it is a reasonable approach for allowing bids priced above \$1,000/MWh and triggering scarcity pricing under FERC Order No. 831. However, the DMM is concerned that the use of published index prices for bilateral trading hubs outside the ISO could allow high-priced imports and exports and raise ISO market prices when there is not scarcity in the ISO. DMM points to extremely high bilateral prices during the August heat

wave that was not a result of high fuel costs that FERC Order No. 831 contemplated. Additionally, DMM is concerned that at times the trading hubs may not be sufficiently liquid to produce accurate prices.

Management believes the use of published bilateral price index prices is a reasonable approach to determine the prevailing price of electricity in areas outside the ISO balancing authority area that are the source of imports. It is important to not overly restrict the price of imports because the ISO relies on imports to serve its load. The Mid-Columbia and Palo Verde trading hubs are the most liquid hubs outside of the ISO balancing authority area.

The ISO Market Surveillance Committee supports Management's proposal but encourages the ISO to conduct a subsequent stakeholder process to develop a more holistic and consistent approach to scarcity pricing for both the ISO and EIM regions.

Attachment A presents a more detailed summary of stakeholder comments and Management's responses.

The Market Surveillance Committee provided a formal opinion on Management's proposals, which is included as Attachment B.

CONCLUSION

Management recommends the Board of Governors approve this proposal. The FERC Order No. 831 - Import Bidding and Market Parameters proposal will allow the ISO market to set appropriate prices when there is insufficient supply to meet demand. The proposal also provides additional protection to the market against unreasonably high import bid prices while allowing price levels that reflect prevailing prices for import energy. The different application of the import protections to resource adequacy and non-resource adequacy imports will ensure that non-resource adequacy supply is not discouraged from offering into the ISO market during tight supply conditions.