

Memorandum

To: ISO Board of Governors

From: Keith Casey, Vice President – Market & Infrastructure Development

Date: October 25, 2012

Re: **Decision on Enhancements to Improve Price Consistency**

This memorandum requires Board action.

EXECUTIVE SUMMARY

Management is seeking Board approval of a proposal to implement three market functionality enhancements that will improve price and dispatch consistency in the ISO market. Pending approval from the Board of Governors and the Federal Energy Regulatory Commission, Management is targeting spring 2013 for implementing these changes.

Moved, that the ISO Board of Governors approves the proposal to implement the price consistency enhancements as described in the memorandum dated October 25, 2012; and

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

DISCUSSION AND ANALYSIS

The ISO market software optimizes supply and demand bids offered by scheduling coordinators to determine awards and prices for energy and ancillary services markets while respecting operational and market constraints. In a market solution, awards and prices are expected to be consistent with one another. In the simplest scenario, a supply bid is expected to be awarded only if the clearing price is equal to or greater than the bid-in price. Similarly, a demand bid should only be awarded if the clearing price is equal to or lower than the bid-in price. However, given the interplay of market design features, this expected outcome may not always be achieved. In some market solutions, the clearing price at an intertie location may not support the import or export award. In other market situations, physical or convergence bid

awards at trading hubs or default load aggregation points may not be consistent with bid-in prices.

While such price and dispatch inconsistencies are infrequent, the ISO has observed that most of them occur due to three specific situations. As a result, Management proposes to implement three enhancements that will address price inconsistencies arising from these three scenarios. These enhancements address several stakeholder concerns and increase the efficiency of the ISO market.

After careful consideration of input from stakeholders and ISO software developers, Management recommends that the price consistency enhancements listed below be incorporated into the tariff and ISO systems. The recommended solutions balance stakeholder feedback and system software capabilities to accommodate the enhancements.

Management recommends the following three enhancements to the market functionality:

1. *Use both awards and prices from the pricing run.*

Due to the way constraints are enforced in the market optimization, the ISO energy market requires two market runs, a scheduling run and a pricing run. Each run produces awards (dispatches) and prices. Currently, the binding awards are taken from the scheduling run while the binding prices are taken from the pricing run. Management proposes to use both awards and prices from the pricing run.

Under normal conditions when the solution can be achieved using submitted bids that are in the normal bid range of -\$30 and bid cap of \$1000, the outcomes between the scheduling and pricing runs are expected to be reasonably consistent to one another. However, in cases where a solution cannot be achieved using economic bids, the scheduling run uses administrative price parameters for relaxing market constraints (e.g., self-schedules) that are outside of the economical bid range but are necessary to adjust in order to achieve a market solution. These administrative price parameters are set to different levels for different market constraints to ensure such uneconomical adjustments are consistent with established priorities. When the market solution uses uneconomic parameters to achieve a solution, the resulting prices in the scheduling run would no longer strictly reflect economic bids but rather would reflect the higher administrative price parameters.

To achieve a solution that is reflective of economic bids, a pricing run is introduced. In the pricing run, the administrative parameters used in the scheduling run are replaced by parameter values that reflect the bid floor or cap depending on the nature of the scheduling run solution. The prices and schedules in the pricing run should be consistent with one another. As a result, Management proposes to use both the pricing and awards from the pricing run.

2. *Use a hard bid floor.*

Another reason for the inconsistency between the scheduling run and pricing run is due to the use of a soft bid floor. Under the current market rules, the bid floor is a soft floor such that bids below the bid floor may be submitted and are still included in the determination of the market solution. However, such bids below the bid floor are not allowed to set the price. Based on historical data, bids below the bid floor have been consistently submitted to the ISO market. A soft bid floor creates the opportunity for inconsistent price and bid awards at least for the resource that submitted the bid below the bid floor. Such bids may also create price inconsistencies for other resources elsewhere in the system.

To eliminate inconsistencies due to the soft bid floor, Management proposes to replace the soft floor with a hard bid floor. Management recommends making this change effective concurrent with the change of the bid floor from -\$30 to -\$150, as defined in the scope of the initiative for Renewable Integration: Market and Product Review, Phase I. Having a hard bid floor will eliminate the corresponding inconsistencies between the scheduling and pricing.

3. *Use a different price to settle default aggregate points and trading hubs.*

The third mechanism for price and award inconsistencies relates to how aggregate prices for default aggregate load points and trading hubs are formed. Currently, the price for such aggregations is determined based on the weighted average price of all constituent pricing nodes weighted by the quantity of load or supply at each node. As a result, an aggregate price may be affected by any redispatch adjustments the market software makes to resources at individual nodes that are effective in relieving congestion. Due to the way these aggregated scheduling points are used to manage congestion, the weighted average price of the constituent nodes may be inconsistent with the bid price of an awarded bid at an aggregated scheduling point.

To address this issue, Management proposes to use an aggregated price that is derived directly from the market optimization based on the effectiveness of the total aggregation on relieving congestion, rather than the weighted average price of the total awarded quantities at the constituent nodes, which is based on the effectiveness of individual nodes at relieving congestion. This change would minimize price inconsistencies arising from the use of weighted average prices. This enhancement will be applied to both the day-ahead market and real-time market.

POSITION OF PARTIES

The price consistency enhancements recommended herein received wide support from stakeholders. There was some concern raised over whether the proposed pricing changes for settling default load aggregation points and trading hubs might create opportunities for

exploitive market behavior. The ISO carefully considered this concern and concluded it would not pose a credible opportunity for such behavior due to the difficulty in effectively predicting when such a strategy would be profitable to engage in. To further address this concern, the ISO will apply the same aggregate pricing methodology to both the day-ahead market and the real time market. Nonetheless, it is something that Management will closely monitor. A stakeholder matrix is attached for your reference.

MANAGEMENT RECOMMENDATION

The enhancements proposed here will effectively address the three most common causes for pricing inconsistencies in the ISO market. These enhancements are designed to improve market efficiency and received wide support from stakeholders. For these reasons, Management recommends that the Board approve the proposed pricing enhancements described above.