



Memorandum

To: ISO Board of Governors and EIM Governing Body
From: Anna McKenna, Vice President, Market Policy and Performance
Date: February 2, 2022
Re: Decision on adjustment to inertia constraint penalty prices

This memorandum requires Board of Governors and EIM Governing Body action.

EXECUTIVE SUMMARY

Management proposes to modify the parameters for inertia constraints used by the ISO's residual unit commitment process and real-time market so that the market optimization will not allow inertia schedules to exceed the applicable scheduling limit. This change will enhance the reliability of the market solution, especially during tight supply conditions, by ensuring the ISO's optimization observes the inertia transmission constraints in reaching a market solution.

The ISO's market optimization uses economic bids and supply offers to clear the market and produce feasible schedules and dispatches. In certain circumstances, however, the ISO's market optimization uses parameters or "penalty prices" that guide the market-clearing software to maintain expected scheduling priorities and comply with constraint limits. Under extreme conditions, the market optimization may encounter infeasibilities and thus may have to adjust certain inputs or constraints in order to reach a solution, including a constraint modeling the transmission scheduling import limits on an inertia.

One example occurred on July 9, 2021, when two ISO inertias experienced significant derates due to the Bootleg fire in southern Oregon. With the derates in place, in order to reach a solution, the ISO real-time market had to simultaneously relax the constraint that balances supply and demand (the power balance constraint) and a transmission constraint that limits inertia schedules to the inertia's scheduling limit. By relaxing the transmission constraint, the market optimization essentially considered there to be more feasible imports than the system could actually accommodate because of the physical derate. As a result, the real-time market over-scheduled imports on the derated inertias, which forced the ISO operators to have to take manual actions to curtail these inertia schedules. A similar phenomena occurred in the day-ahead market's residual unit commitment process for August 19, 2020. The change proposed by Management

in this memorandum will ensure the ISO market optimization does not overschedule imports at its interties under these conditions.

Management presents these proposed changes to the EIM Governing Body in its advisory role, and to the Board of Governors requesting its approval, at the February 9, 2022, joint meeting. Management proposes the following motion for the EIM Governing Body:

Moved, that, as discussed at the February 9, 2022 meeting, the EIM Governing Body advises the ISO Board of Governors, that it [supports/opposes/takes no position on] Management’s adjustment to intertie constraint penalty prices proposal described in the memorandum dated February 2, 2022.

Management further recommends the following Board of Governors motion:

Moved, that the ISO Board of Governors approves Management’s adjustment to intertie constraint penalty prices proposal as described in the memorandum dated February 2, 2022; 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.

BACKGROUND

The ISO’s market optimization determines optimal dispatches and prices based on bids and offers. The market uses a set of parameters, or “penalty prices,” to determine the priorities of the various constraints it enforces and the priorities of submitted non-priced schedules when it reaches infeasibilities and must relax constraints to reach a solution. For example, the optimization enforces a power balance constraint designed to ensure that supply equals demand. The market optimization also enforces transmission constraints, including intertie transmission scheduling limits. The optimization will relax these constraints in extreme conditions in order to reach a solution.

On August 19, 2020, and July 9, 2021, the ISO experienced high electricity demand. In addition, there was a significant reduction in transmission capacity on the ISO’s interties with the northwest on July 9, 2021, because of the Bootleg fire in southern Oregon. On both days, the ISO’s market optimization simultaneously relaxed the power balance constraint and intertie transmission constraints in order to reach a solution. Based on

existing penalty prices, the optimization determined that the least-cost solution was to relax the intertie scheduling limit and as a result it overscheduled the interties. Overscheduling creates issues for both reliability and market efficiency. Markets clear intertie schedules over the limit, which then requires operators to manually curtail after the fact. Additionally, when this happens, the market clearing process accounts for import supply that is not actually available, which results in inaccurate market signals.

PROPOSAL

Management proposes to change penalty prices related to intertie constraints to avoid these issues. Specifically, Management proposes to increase the penalty prices for intertie transmission constraints to \$3,200/MWh in the residual unit commitment process and to \$2,900/MWh in the real-time market when energy bids are limited to \$1,000/MWh. The ISO proposes to increase the penalty prices for intertie transmission constraints to \$3,200/MWh in the residual unit commitment process and to \$5,800/MWh in the real-time market when energy bids are limited to \$2,000/MWh.

These changes will ensure the market optimization does not overschedule imports even if it is necessary to relax the power balance constraint. These proposed changes ensure the existing scheduling priorities are maintained and will help ensure the market optimization more accurately reflects actual supply available to the system to meet demand.

STAKEHOLDER POSITIONS

ISO staff held a stakeholder process to explain the use of penalty prices in the market optimization and the interaction of those penalty prices. In response to stakeholder requests, ISO staff presented analysis that showed how the proposed penalty prices would have resolved overscheduling issues the ISO experienced on July 9, 2021, and August 19, 2020. No stakeholder opposes the proposed changes to the intertie transmission constraint penalty prices.

CONCLUSION

Management requests the EIM Governing Body exercise its advisory role to support this proposal, and that the Board of Governors approve the proposal. Management intends to implement these changes in the market optimization in advance of summer 2022 to help mitigate the risk of overscheduling that could occur during tight supply conditions.