

Memorandum

To: ISO Board of Governors

From: Benjamin F. Hobbs, Chair, ISO Market Surveillance Committee

Date: July 18, 2018

Re: Briefing on MSC activities from May 9 to July 13, 2018

This memorandum does not require Board action.

During the period covered by this memorandum, the MSC held a general session meeting on June 7, 2018. During that meeting, there were presentations and discussions on the ISO's congestion revenue rights auction efficiency initiative, the day-ahead market enhancements initiative, and recent improvements in the real-time ramping product implementation. The presentations and discussions are briefly described later in this memo.

The MSC also drafted an Opinion on Track 1b of the Congestion Revenue Rights Auction Efficiency initiative, which was adopted on June 13, 2018.¹ and summarized by Dr. Jim Bushnell of the MSC at the ISO Board of Governors meeting of June 21, 2018.

General Session Meeting of June 7, 2018²

1. Day-Ahead Market Enhancements

Dr. George Angelidis, Principal for Power Systems Technology Development for the ISO, made a presentation on price formation and cost allocation in the proposed day-ahead market enhancements. A careful description was provided of how shadow prices in the day-ahead market for the energy and imbalance reserves would be used in settlements, and how imbalances in energy and flexible ramp product in real-time would then be settled.

MSC members and the stakeholders discussed several related issues. For instance, Dr. Hobbs, chair of the MSC, expressed concern whether an unnecessarily large amount of capacity capable of moving within 15 minutes would be procured day-ahead. He pointed out that day-ahead forecast errors tend to be persistent, so that if one interval's net load is too high, the next interval's net load would also likely be too high, so 15 minute rampable capacity would not likely be needed to meet the full amount of day-ahead forecast error in the latter

¹ J. Bushnell, S. Harvey, and B.F. Hobbs, *Opinion on Congestion Revenue Rights Auction Efficiency, Track 1B*, Market Surveillance Committee of the California ISO, June 12, 2018. www.caiso.com/Documents/MSCOpiniononCongestionRevenueRightsAuctionEfficiencyTrack1B-June13_2018.pdf

²All presentations are available at www.caiso.com/Pages/documentsbygroup.aspx?GroupID=FC136FD0-00F3-4E96-BBAB-CFE9C22DB783

interval. Dr. Scott Harvey, member of the MSC, asked about the impact of consistent under-scheduling of intermittent renewable energy in the day-ahead market. Dr. James Bushnell emphasized the need for a holistic approach that results in appropriate incentives for flexible capacity across the day-ahead and real-time markets, as well as in the resource adequacy mechanisms.

2. System Market Power in Day-Ahead Market

Dr. Amelia Blanke, Manager of Monitoring and Reporting at the Department of Market Monitoring of the ISO, made a presentation that summarized concerns about the potential for system-wide market power that were raised in the Department's 2017 annual report.³³ Presently, system-wide market power (as opposed to local market power) is not systematically monitored and mitigated in the ISO markets. The concerns Dr. Blanke described included both structural and conduct trends, including tightening resource margins and very high bids setting system prices during some intervals, respectively. Dr. Blanke asked the MSC about what additional metrics would potentially be useful to detect system-wide market power, and whether the MSC would make any recommendations concerning mitigation of such market power at this time.

Stakeholders and MSC members discussed these questions. Dr. Bushnell pointed out that resource adequacy contracts are not designed to mitigate market power, either local or system-wide, although those contracts involve a must-offer obligation. The capacity reserve margins acquired in the resource adequacy process are not set at levels high enough to ensure that there is no market power.

3. Congestion Revenue Rights Allocation and Auction

This agenda item addressed the ISO's Track 1b proposal. Two MSC members made presentations concerning the issues raised by that proposal. Dr. Bushnell presented a review of the motivation and purposes of financial transmission rights. He highlighted the tradeoff between (1) the desire for full funding of rights (and consequent hedging of all congestion costs between market locations), which includes insurance against network changes that could increase congestion, and (2) the desire to reduce shortfalls between rights payouts and revenues from the rights auction, which might be reduced if payments are not made for congestion arising from network changes. Track 1b's proposal to reduce payments when flows associated with transmission rights exceed actual transmission capacity emphasizes the latter, and diminishes the overall hedging value of the rights. Dr. Bushnell then discussed several alternatives for reducing revenue inadequacy (the difference between rights payouts and congestion revenues) and auction shortfalls. MSC members commented favorably on the idea of assigning at least some responsibility for inadequacy resulting from network changes to the participating transmission owner whose network outages caused the inadequacy.

Dr. Harvey made a presentation that summarized experience with revenue inadequacy in several ISOs, including the California, New York, and Mid-Continent ISOs. He pointed out

³³ CAISO DMM, *2017 Annual Report on Market Issues and Performance*, June 2018, www.caiso.com/Documents/2017AnnualReportonMarketIssuesandPerformance.pdf

that the magnitude of inadequacies in the California market is strikingly higher than elsewhere, and likely contributed to the ISO's auction shortfalls. MSC members and the audience then discussed some of the reasons. For instance, a stakeholder pointed out that the Mid-Continent ISO apparently has many fewer nomograms than the California ISO, and may treat transmission contingencies in a way that results in fewer congestion revenue shortfalls. Meanwhile, New York's assignment of responsibility to transmission owners for shortfalls arising from network outages has apparently provided incentives for flexible scheduling of outages to limit their impacts on congestion.

4. Flexible Ramping Product Requirements and Load Forecasts

Ms. Amber Motley, Manager of Short Term Forecasting for the ISO, presented an overview of improvements that have been made to the implementation of the real-time flexible ramping product requirements. First, she described a fix that has been implemented in the calculation of the ramp uncertainty that determines the product requirements. This fix has made a large difference in the amount of product that has cleared the market. She then described an adjustment in how renewable forecasts are averaged across 5 minute intervals. In response to a MSC member's question, ISO staff stated that it is however too early to tell whether a systematic change in prices has resulted from those changes.

The remainder of the presentation and discussion addressed forecasting improvements. Among those improvements were the use of persistence-based wind and solar forecasts calculated from more recent telemetry. Ms. Motley also discussed the relative performance of forecasts from the automated load forecast system with the market submitted forecasts.