Memorandum

To: ISO Board of Governors

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

Date: May 8, 2019

Re: **Briefing on MSC activities from March 20, 2019 to May 7, 2019**

This memorandum does not require Board action.

During the period covered by this memorandum, the MSC adopted a formal Opinion on the ISO's reliability must-run and capacity procurement mechanism initiative, which was summarized in the MSC Board memorandum of March 20, 2019.[1] The MSC also held a general session meeting in Folsom on April 5, 2019.[2] The presentations and discussions are briefly summarized below. The next general session meeting of the MSC will be held on June 7, 2019.

General Session Meeting of April 5, 2019

At the April 5 general session meeting, four ISO initiatives were on the agenda. ISO staff made formal presentations at each followed by discussions among stakeholders, ISO staff, and MSC members. The topics and initiatives discussed included:

1. Real-time pricing analysis;
2. Congestion revenue rights market analysis;
3. System market power; and
4. Resource adequacy enhancements: Import resource adequacy provisions

In the first agenda item, Dr. Guillermo Bautista Alderete, Director, Market Analysis & Forecasting at the ISO summarized the formal analysis effort that the ISO is commencing on issues concerning price divergence and prices not reflecting market conditions. The MSC commented on a number of these issues and possible causes in its January 18, 2019 opinion

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[1] J. Bushnell, S.M. Harvey, and B.F. Hobbs, Opinion on Local Market Power Mitigation Enhancements, March 20, 2019, www.caiso.com/informed/Pages/BoardCommittees/MarketSurveillanceCommittee/Default.aspx

[2] www.caiso.com/Pages/documentsbygroup.aspx?GroupID=5AA91563-D6DA-4F1C-9E9A-55103CB79C4B

on intertie deviations settlements.[3] In that opinion, the MSC hypothesized twelve possible reasons for non-delivery of power transactions in real-time that were scheduled in the day-ahead market and hour-ahead scheduling procedure, most of which are related to possible pricing issues.

In his presentation, Dr. Bautista Alderete laid out several reasons why prices in multi-settlement markets like the ISO's could diverge for reasons other than market fundamentals. He reviewed the ISO's day-ahead, hour-ahead, fifteen-minute, and five-minute markets, and identified issues that could lead to such divergences. Examples of such issues include inconsistent look-out horizons and operator actions to align the market with current and expected conditions. He presented data on average prices in each of those markets as well prices on particular interties, indicating that day-ahead prices have generally been higher than real-time prices in the last year. MSC members, ISO staff, and stakeholders extensively discussed reasons for manual dispatch of interties and exceptional dispatch. Dr. Bautista Alderete closed the discussion with an overview of the items that the ISO proposes to analyze over the coming months.

In the second agenda item, Dr. Bautista Alderete presented data on the results of the congestion revenue rights settlements in January and February, 2019, which since the start of 2019, reflect the new pro-rata funding logic. This logic accumulates surpluses and deficits of potential payouts to rights holders relative to congestion revenues throughout the month by constraint. Then if revenues for a particular constraint are less than the potential payout, the actual payout is reduced accordingly. The intent of this change was to mitigate one reason for the fact that payouts to rights holders have been well in excess of prices paid in the congestion revenue rights auctions as well as congestion revenues themselves. The change resulted in a decrease of $5 million in payouts to auctioned congestion revenue rights in those two months, and therefore a modest reduction in the deficit between auction revenues and payouts to auctioned rights. Under the new pro-rata logic, surpluses by constraint are allocated to measured demand. Dr. Bautista Alderete noted that in January and February 2019 that this change resulted in $11 million more of payments to measured demand than would have otherwise occurred.

Active discussion with MSC members and stakeholders then followed on issues such as collateral risk, which constraints have seen the greatest deficits, and the role of unscheduled power flows for deviations between day-ahead estimated flows (which accrue congestion rents) and flows implied by congestion revenue rights.

In the third agenda item, Dr. Bautista Alderete and Dr. Jiankang Wang, Engineering Specialist Lead at the ISO, presented a summary of the residual supply index approach that the Department of Market Monitoring uses to gauge market power at the system level, and some recent trends in that index. The index compares the supply controlled by a market participant (or set of participants) to the excess of available supply over demand; if the controlled supply is more than this excess, then the participant or set of participants are

[3][3]J. Bushnell, S.M. Harvey, and B.F. Hobbs, Opinion on Local Market Power Mitigation Enhancements, Opinion on Intertie Deviations Settlements, http://www.caiso.com/Documents/MSC-OpiniononIntertieDeviationSettlment-Jan18_2019.pdf

deemed pivotal, and may be able to materially affect prices by their unilateral actions. Technical issues, including the measurement of demand, treatment of forward contracts, definition of supply, inclusion of virtual bids, and treatment of affiliates, all affect this calculation.

The ISO presentation showed the results of extensive sensitivity analyses involving 25 combinations of alternative demand and supply assumptions for each of 24 hours for 8760 hours of a year. For many hours of a sample day, variants of the RSI ranged from well below 1.0 (market power present) to as high as 2.0 or more, showing a high sensitivity to the assumptions. Different RSI definitions could result in most hours in the year failing the test or very few hours failing. The presentation closed with a review of sources of real-time supply that were not present in the day-ahead markets; most of this additional supply was from inflexible sources, including self-schedules and variable renewables. The presentation stimulated extensive discussion by stakeholders, MSC members, and staff concerning issues such as appropriate system-wide measures of market power and treatment of intertie bids at the bid cap which may not actually be fully backed up by available supply.

The last agenda item addressed one of a number of important issues that will be addressed in the resource adequacy enhancements initiative. This issue concerned import resource adequacy provisions, in which imports can be counted towards resource adequacy requirements although they may not be shown to be backed by particular physical supply resources. Mr. Chris Devon, Senior Infrastructure and Regulatory Policy Developer at the ISO, presented an overview of the initiative as a whole, as well as several particular reasons why imported resources present conceptual and practical problems when being credited towards adequacy requirements. Major concerns include imported resources that are not delivered due to a lack of backing physical resources or firm transmission reservation; the lack of visibility to the ISO of the source of imports; and the lack of certainty concerning whether imported resources could be recalled during emergencies or system-wide shortages when critically needed. Mr. Devon outlined additional data analyses of import performance that could be undertaken to support the initiative, and several alternative changes to import resource adequacy requirements that are under consideration.

These issues and potential changes were extensively discussed by meeting participants. For instance, it was pointed out that the flexibility to substitute one physical resource for another within an importer's portfolio can have significant cost and reliability advantages; imposition of a requirement that imported resources be associated with particular designated physical resources could therefore increase the cost to the ISO of those resources. MSC members pointed out that such a requirement is not a feature of the eastern US markets, and that strong performance incentives might be preferable to a rigid designation requirement. The tension between the desire to make imported and within-ISO resources more comparable and the need to not discourage imports to the ISO was extensively discussed. Another issue that was discussed was the desirability of a real-time bidding requirement for imports, which could provide more flexibility but on the other hand might discourage offers of inflexible resources that are still valuable to the system.