



Memorandum

To: ISO Board of Governors

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

Date: September 10, 2015

Re: **Briefing on MSC activities from July 2, 2015 to September 2, 2015**

This memorandum does not require Board action.

Over the time period covered by this memorandum, members of the Market Surveillance Committee (MSC) held a general session meeting of the MSC on July 15, 2015, which is summarized in the next section. In addition, members of the MSC have interacted informally with staff and stakeholders on several ISO initiatives and market issues. Initiatives and issues that individual members of the MSC have been consulted on include the following.

1. The environmental benefits of expansion of the ISO markets to other states in the West. MSC member Dr. Jim Bushnell and I have contributed a blog on these benefits, which was posted on August 31, 2015.¹
2. Flexible ramping product design and requirement specification.
3. Commitment costs enhancements phase 3, especially the calculation and application of opportunity costs for generating units with limited starts, energy, or operating hours.
4. Transmission cost alternatives for the energy imbalance market.
5. The impact of nodal constraints in the day-ahead market and congestion revenue right auction.

We anticipate that the MSC will be preparing formal opinions on one or more of these topics in late 2015 or early 2016. The full MSC will be discussing some of these issues along with other ISO initiatives at the general session meeting to be held in Folsom on September 24, 2015.

¹ J. Bushnell and B. Hobbs, "Can California Ignore Its Neighbors," Energy Institute at Haas Blog, <https://energyathaas.wordpress.com/2015/08/31/can-california-ignore-its-neighbors/>. Disclaimer: the opinions expressed in this posting do not necessarily represent the opinions of our academic institutions or the California Independent System Operator, or the Market Surveillance Committee of the CAISO. The responsibility for any opinions and errors in this posting is solely the authors'.

July 15, 2015 MSC General Session Meeting

The July 15 general session meeting included presentations by ISO staff and MSC members, as well as public discussions among MSC members, staff and stakeholders on four topics.

The first topic was run-times for the day-ahead market (integrated forward market). Dr. Guillermo Bautista-Alderete, Manager of Market Validation and Quality Analysis at the ISO, gave a presentation summarizing the recent history of publication times for the day-ahead results, including reasons for the recent increase in delayed publication and planned steps to address those reasons.

The second topic was the recent evolution of daily profiles of net load, known as the “duck curve,” and current market conditions. Clyde Loutan, Senior Advisor for Renewable Energy Integration at the ISO, made a presentation. He noted that in spite of much less hydropower production, the frequency of negative real-time prices in the middle of the day during the spring months is almost twice as large in 2015 as 2014, and several-fold larger as in 2013. The reasons for this were explored. Other market issues discussed included minimum on-line generation and its contribution to over-gen situations; concerns about frequency response recovery and the possible need for a new ancillary service to address that issue; and renewable energy curtailment.

On the third topic, flexible ramping products, three presentations were made. Don Tretheway, Senior Advisor for Market and Regulatory Policy at the ISO, first provided an update on the development of the product proposal, and then described in detail a proposed procedure to estimate the need for the product and its implementation in the form of demand curves in the real-time (fifteen minute) market. He concluded by describing the proposed no-pay rules to address non-performance by resources that are scheduled to provide the product, but are unable to provide the amount awarded. Roger Avalos, Lead Market Monitoring Analysis for the ISO Department of Market Monitoring, made the second presentation, in which he summarized a relatively simple way to develop a demand curve for the product, based on the expected costs of energy balance constraint violations as a function of the amount of product acquired. The relationship of this method to that being tentatively proposed by the ISO was discussed by ISO staff and MSC members.

In the final presentation on flexible ramping products, Dr. Scott Harvey, member of the MSC, reviewed the reasons for and against allowing bidding to provide the flexible ramping product in real time, and the possible market efficiency consequences of allowing such bidding. He reviewed the variable and opportunity costs that might be associated with providing the product in real-time, and concluded that there were none. He summarized reasons that a resource owner might still want to submit a non-zero bid, which could include attempts to influence the price of the product (market power) or a strategy to interact the bid with uplift rules to create additional profits. Finally, he examined some possible consequences for the efficiency of market schedules and

prices if bidding was allowed. In particular, the ISO would face the ambiguity of whether or not to count a resource's unloaded capacity (in the upward flexibility case) as providing the system flexibility for energy dispatch in subsequent intervals, even if its bid price exceeded the clearing price for the product. A similar ambiguity occurs with the downward product. If the ISO does not count those resources, then it might increase the cost of real-time schedules by scheduling other resources out-of-merit to create additional room for the system to respond.

The final topic discussed at the July 15 meeting was the opportunity cost methodology under development under the commitment costs enhancement 3 initiative. Kallie Wells, Market and Infrastructure Policy group team member at the ISO, reviewed several methodological questions in her presentation, which the MSC members responded to. The questions included: whether to use projected day-ahead or fifteen-minute prices to calculate the opportunity cost of committing or dispatching a unit today; how often and under what circumstances to update inputs and re-run the opportunity cost estimation methodology; how to update the start, hours, and energy limits in the opportunity cost calculations to reflect past usage; and how to translate rolling 12 month limits on emissions or fuel use into limitations that can be modeled by the methodology.