

Memorandum

To: ISO Board of Governors

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

Date: January 25, 2023

Re: Briefing on MSC activities from December 7, 2022 to January 25, 2023

This memorandum does not require ISO Board of Governors action.

During this period of time, the Market Surveillance Committee of the California ISO undertook the following activities. The Committee held general session meetings on December 12 and 19, 2022, respectively, which are briefly summarized below in Section 1. Chairman Benjamin Hobbs and Member James Bushnell made presentations on two Opinions to the Joint ISO Board of Governors and WEIM Governing Body general session meetings on December 14, 2022, addressing the energy storage enhancements and phase 2 of the resource sufficiency evaluation enhancements, respectively.¹ Finally, the Committee prepared draft Opinions on the extended day-ahead markets and day-ahead market enhancements initiatives. The former draft will be posted on January 25, 2023, and will be considered for possible adoption in a MSC general session meeting scheduled for January 27, 2023. Section 2 below summarizes the conclusions of the draft extended day-ahead markets Opinion. Posting and possible adoption of the Opinion on the day-ahead market enhancements has been deferring as a result of the ISO extending that initiative to give further consideration to the design of the imbalance reserve product.

1. General Session Meetings

1.1 General Session Meeting of December 9, 2022²

This meeting included two agenda items, the first addressing the day-ahead market enhancements initiative, and the second concerning transmission service and market scheduling priorities phase 2 initiative.

¹These Opinions were adopted on Dec. 6, 2022, as reported in the MSC's Board memo of Dec. 6, 2022. The Opinions are available at www.caiso.com/Documents/MSCOpiniononEnergyStorageEnhancements.pdf and www.caiso.com/Documents/MSCDraftOpiniononResourceSufficiencyEvaluationEnhancementsPhase2.pdf, respectively.

² www.caiso.com/Pages/documentsbygroup.aspx?GroupID=18E94ACB-1326-474A-9A6F-C3D02D0F2A4D

The first agenda item of this meeting consisted of a presentation by James Friedrich, who is Lead Policy Developer at the ISO, and Katie Wikler, who is Market Engineering Specialist with the ISO. The presentation reviewed several elements of the day-ahead market enhancements initiative, including the following:

- **Construction of a step-wise administrative demand curve for imbalance reserves based upon penalty prices for shortfalls**, reflecting the probability of violating the power balance constraint and the penalty for doing so. This proposal is analogous to the procedure used to construct demand curves for the flexible ramping product in the ISO real-time markets. MSC members pointed out that restricting imbalance reserve capacity to capacity available within 15 minutes is likely to understate the effective amount of capacity available to meet net load forecasting errors, since operators will have long enough notice of such errors to allow slower ramping capacity to be deployed to meet at least some of the unexpected net load. This will likely result in an overstatement of the probability of load balance violations. Another MSC member pointed out that using the power balance violation penalty assumes a worse consequence that would actually apply in many or most cases.
- **Definition of default bids for imbalance reserve up and reliability capacity up products within a proposed local market power mitigation scheme.** Mr. Friedrich described how the proposed \$55/MW/hr default bid could be revised in the future in response to experience under competitive market conditions. Extensive discussion ensued among the MSC members, stakeholders, and staff on several issues, including the predictability of the need for mitigation of imbalance reserve offers, how nodal reserve needs are to be defined, and on whether mitigation should be triggered for one hour at a time, or for the entire day if detected for a single hour.
- **Consideration of energy dispatch costs in the process for procuring imbalance reserves.** Energy dispatch costs are relevant because imbalance reserves would be frequently deployed, so those costs could be significant. A detailed statistical analysis of probability distributions of real-time dispatch costs was presented, and the merits of using such studies as the basis for a cap on imbalance reserve energy bids were discussed. Extensive discussion ensued on several topics, including how the proposed cap on energy offers would affect real-time prices, the availability of needed reserves, and interactions with the present local market power mitigation procedures for energy offers.

In the second agenda item, Milos Bosanac, Regional Markets Sector Manager in Market Infrastructure Policy at the ISO, discussed the transmission service and market scheduling priorities initiative. He explained the purpose of the initiative, which is to establish a durable design for assigning priorities to wheel-through transactions in the ISO markets. He also summarized the procedures to be used in the proposed process, including:

- definition of available transmission capacity. This would account for native load needs, including their growth and uncertainty; uncertainty would be addressed by a transmission reserve margin;

- prioritization of requests using energy contract durations;
- charges for wheel-through reservations based on payment of a wheeling access charge which is levied whether or not the wheel-through actually takes place in all or most hours; and
- a process to study wheel-through requests of one-year or longer, and to identify and fund upgrades that might be needed to accommodate such requests.

Discussion by MSC members and attending stakeholders addressed several issues. MSC members asked whether an auction could be used rather than a fixed access charge scheme, to which staff replied that the intention was to stay consistent with existing open access transmission tariff procedures.

1.2 General Session Meeting of December 19, 2022³

This meeting of the MSC focused on three features of the extended day-ahead market proposal, with three sets of presentations:

- Resource sufficiency evaluation in the day-ahead market, by Danny Johnson, Market Design Sector Manager, Market and Infrastructure Policy;
- Payment for and provision of transmission to the extended day-ahead market, by Partha Malvadkar, Principal, Resource Adequacy Infrastructure and Grid Enhancements,; and
- Accounting of greenhouse gas emissions associated with energy imports to jurisdictions with greenhouse gas regulations, by Sylvie Spewak, Senior Policy Developer, Policy Development. This presentation reviewed three features of this part of the proposal, including definition of the boundary of greenhouse gas regulation areas in the market software; representation of differentiated greenhouse gas bid adders for multiple regulated areas; and limiting of secondary dispatch through a counterfactual approach together with constraints on resource-specific redispatch and exports of greenhouse gas energy from non-regulated balancing authority areas. Secondary dispatch occurs when energy from a base schedule in non-regulated area that was designated in the counterfactual for consumption in that or another non-regulated area is then redirected and deemed as imported to a regulated area in the day-ahead market software.

Extensive discussion by MSC members, ISO staff, and stakeholders occurred during and following each presentation. The issues and alternatives discussed are discussed in the Committee's draft Opinion on the proposal, which is summarized in the next section.

³ www.caiso.com/Pages/documentsbygroup.aspx?GroupID=7F9E59F4-033F-49D3-99B5-DB7E0BE99F04

2. Opinion on the Extended Day-Ahead Market Initiative

The Market Surveillance Committee was asked to comment on the proposed extended day-ahead market proposal by the ISO,⁴ and will post a draft Opinion on the initiative on Jan. 25, 2023.⁵ Below is a summary of the issues covered and recommendations made in the draft Opinion; these recommendations are not finalized, and could be modified in the final version of the opinion when adopted.

We agree with the stance of many stakeholders that there are significant potential benefits to an expansion of the current energy-imbalance market into day-ahead trading. The vast majority of power is trading well in advance of the real-time western energy imbalance market. There is abundant empirical evidence that regional transmission organization-style day-ahead markets, such as that coordinated by the ISO, can improve the efficiency of power-system operations and lower the cost of serving customers. These benefits stem from both the ability of their markets to optimize and deploy resources across relatively large footprints as well as the removal of various trading frictions that increase transaction costs in more traditional markets.⁶ The success of the extended day-ahead market initiative would therefore be a significant step forward for the western power market.

It is worth noting that the proposed day-ahead market design attempts to reconcile, rather than replace, the two prominent electricity trading paradigms: traditional trading through open access transmission tariffs and regional transmission organization-based market dispatch. While the latter system is theoretically more efficient, a result supported by empirical studies, transitions from traditional trading systems can create significant concerns over losses in benefits to some parties. As a result, it might be easier to secure agreement on market reforms if the transition is to a system that is less of a departure from the open access and energy imbalance market structures that are familiar to most market parties in the West. As such, while the proposal would extend many elements of the regional transmission organization market model to day-ahead markets outside of the ISO, it also imposes some elements of the open access tariff model on current participants in the ISO.

We also note that there are many important details of both the extended day-ahead market, as well as the related day-ahead market enhancements initiative, that remain either ambiguous or

⁴ *Extended Day-Ahead Market, Final Proposal*, California ISO, Dec. 7, 2022, <http://www.caiso.com/InitiativeDocuments/FinalProposal-ExtendedDay-AheadMarket.pdf>

⁵ To be posted at www.caiso.com/informed/Pages/BoardCommittees/MarketSurveillanceCommittee/Default.aspx

⁶ The “pancaking” of transmission charges across multiple systems in traditional power markets, even for interfaces experiencing no congestion, is an example of these frictions. The experience in other regions forming ISOs (such as the Mid-Continent ISO) has been shown that contract path transmission scheduling designs typically materially understate the available transmission.

unresolved at this time.⁷ The ultimate success of this initiative will very much depend upon those details being resolved in a satisfactory manner. In this opinion we highlight several issues that are either ambiguous or of concern and potentially in need of revision, or at least monitoring. The unresolved questions constitute the “known unknowns” at this time. These issues include detailing how exactly supply shortfalls in both the extended day-ahead market and energy imbalance market will be distributed amongst participants, as well as important financial considerations such as the appropriate penalty values for reserve shortfalls, the greenhouse gas accounting formulation that will be used, some elements of the design for compensation for foregone short-term firm and non-firm revenues, the details of the export constraint in the extended day-ahead market, and several elements of the day-ahead market enhancements design which will be incorporated into the extended day-ahead market rules that are currently unresolved.

The ambiguities in the current proposal, as well as the ambitious scale and scope of the combined initiatives, together imply that there are almost certainly “unknown unknowns” as well. These will become apparent only as the initiative proceeds further toward implementation. A common theme in this opinion is the need for detailed simulation to assess the impacts of different model specifications and parameters, as well as to evaluate how the pieces fit together. We agree that this is an appropriate time to take the first formal steps to establishing the extended day-ahead market. This will focus attention on the critical details of market design, and build momentum that will enable stakeholders and policy makers to complete the hard work that needs to be done to successfully implement the vision of a West-wide day-ahead market.

The day-ahead market enhancements and extended day-ahead market designs contain a number of design elements that have not been tested in other ISOs but are important elements of the proposed design. It is likely that the proposed design will benefit from adjustments based on experience from extended day-ahead market operations. The likelihood that the extended market will begin operation with a small set of balancing areas that will expand over time will help the ISO and other participants improve the design with accumulating experience. It is important that the ISO build flexibility into the software so that parameters can be adjusted without undue delay.

⁷ Very recently the day-ahead market enhancements initiative has been deferred, so our comments relating to the interaction of that initiative with the extended day-ahead market should be considered in the context of the fact that day-ahead market enhancement proposal’s details could change.