California ISO | WESTERN ENERGY MARKETS

Memorandum

To: Western Energy Markets Governing Body and ISO Board of Governors

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

Date: February 25, 2026

Re: **Briefing on Market Surveillance Committee activities: October 24, 2025 – December 13, 2025 – February 22, 2026**

This memorandum does not require Western Energy Markets Governing Body or ISO Board of Governors action.

During the period of time covered by this memorandum, Ben Hobbs, the Chair of the Market Surveillance Committee (MSC) of the California ISO, summarized the MSC's formal Opinion on the ISO's gas resource management initiative at the Western Energy Markets Governing Board meeting on December 16, 2025.[1] The MSC also held general session meetings on January 16, 2026 on system-level market power mitigation, and on February 6, 2026 concerning the ISO's analysis of extended day-ahead market configurable parameters.

General Session Meeting Jan. 16, 2026: Price Formation Enhancements Initiative

This meeting addressed the second phase of the price formation enhancements initiative, emphasizing the issues of system-level market power and market power mitigation.[2] Presentations were made on the following specific issues by MSC members and ISO staff:

1. Dr. Jim Bushnell, member of the MSC, discussed how increasing penalty values that are applied under the present market design (for instance, for the power balance constraint) would be a simpler and more quickly implementable way to accomplish the goals of scarcity pricing compared to mechanisms that have been proposed to increase prices as supply margins decrease (such as new reserve products or the stakeholder-proposed capacity margin concept). Penalties have not been adjusted since before 2010, while general price levels in the economy have increased by about 50%.

   The market would benefit from higher penalties and the resulting higher prices during near-scarcity conditions in several ways. For example, increasing penalty values

[1] J. Bushnell, S. Harvey, and B.F. Hobbs, "Opinion on Gas Resource Management", Opinion of the California ISO Market Surveillance Committee, December 12, 2025, https://www.caiso.com/meetings-events/topics/market-surveillance-committee

[2] Straw Proposal - Price Formation Enhancements - BAA-level Market Power Mitigation and Scarcity Pricing 08/22/2025, https://stakeholdercenter.caiso.com/StakeholderInitiatives/Price-formation-enhancements

would, under scarcity conditions: incentivize more efficient utilization of storage and delivery of scheduled imports; increase the ability of the extended day-ahead market to compete for supplies from other markets; and motivate demand-side flexibility.

2. Dr. Scott Harvey, MSC member, addressed the issue of identifying the conditions of heightened risk of market power. Before considering such a change in mitigation design that would apply some type of system market power test to the CAISO and adjacent balancing areas, he argued the CAISO should assess the need for such a change. In particular, the CAISO should identify days on which significant unmitigated economic withholding occurred and assessing the impact on prices. He emphasized that the straw proposal on balancing authority area level market power mitigation[3] makes some statements that could be misunderstood concerning the evidence for such conditions in the CAISO markets. In particular, showing that offers were above default energy bids is not sufficient evidence of market power, unless those benchmark bids can be shown to be reasonably accurate representations of costs (including opportunity costs) and that the high offers actually affected dispatch and prices. Dr. Harvey is unaware of analyses that have established that non-competitive outcomes have occurred in recent years, or that have identified conditions that have rendered the California market less competitive since 2014.

   Dr. Harvey then discussed particular issues in identifying non-competitive conditions. These include: difficulties in estimating gas prices; the need to account for mitigation and a number of other factors in counterfactual price runs; the need to fully account for opportunity costs of storage in default bid calculations and how increased dispatch of storage that would lower prices in one interval could increase prices later; and the impact of load serving obligations on incentives for an entity to raise prices. He recommended that the proposed change in the way the CAISO is tested for market power should only be implemented after the CAISO has shown its design can accurately test the potential for the exercise of system market power within the Western EIM, including accounting for the load serving obligations of utilities and avoiding widespread triggering of mitigation unrelated to the potential for the exercise of market power.

   He also posed a question as to whether the pivotal supplier test is needed in regions where generators are constrained down due to export constraints, or if there is evidence of the exercise of market power in such cases. The remainder of the presentation was a detailed explanation of the conduct-and-impact test used by other ISOs to identify situations in which market power is actually being exercised. This discussion included a comparison with the CAISO three pivotal supplier test (citing critiques by the MSC made in a 2013 Opinion), and some practical considerations,

[3] https://stakeholdercenter.caiso.com/InitiativeDocuments/StrawProposal-Price-Formation-Enhancements-BAA-Level-MPM-Scarcity-Pricing.pdf

including conditions under which overmitigation is still possible under the conduct-and-impact test. He ended the presentation with a conclusion that the conduct-and-impact based market power test design offers the CAISO the potential to shift in the long run to a more accurate mitigation design for resources with short-term energy limits. It therefore deserves careful consideration, although not immediate implementation.

3. James Friedrich, Lead Policy Developer at the ISO, gave an overview of several components of the price formation enhancements, including balancing area authority-level market power mitigation, calculation of load serving obligations for a modified market power test (as recommended earlier by the MSC), and the status of the scarcity pricing policy formation, including a summary of working group deliberations, a stakeholder proposal, and stakeholder comments.

4. ISO staff members Kun Zhao (Lead Quantitative Analyst) and Scott Lehman (Market Validation and Quality Analyst) presented a detailed set of analyses of the results of the balancing area authority grouping algorithm using Q3 2025 data. Sensitivity analyses addressed the effect of an adjusted grouping algorithm; treating the CAISO balancing area in the same manner as all other areas; and netting out load serving obligations from pivotal supplier calculations in the test.

The final presentation that was scheduled was prepared by MSC Member Dr. Harvey, but there was insufficient time to present it. Therefore, detailed presentation slides were posted and made available to stakeholders. The presentation addressed two general issues in the price formation enhancements initiative in detail: price signals and their consequences, and reserve products. Under the first issue, he discussed the need for scarcity pricing to incent imports. Concerning the second issue, Dr. Harvey then discussed the possible value of 30 to 60 minute reserve products for the CAISO area, similar to what other ISOs have. An appropriately designed reserve product could be less expensive, more appropriately located, and focus more on flexible resources compared to load conformance (scheduling of excess energy). However, several implementation issues for the CAISO flexiramp and imbalance reserve products would also need to be addressed for a new reserve product, and his presentation recommended that work begin on these issues now.

General Session Meeting Feb. 6, 2026: Configurable Parameters

The subject of this meeting was the on-going analysis by CAISO staff of the effect of configurable parameters in the extended day-ahead market.[4] This analysis is informing the configurable parameters working group process that began in August, 2024 and is scheduled to continue through April 2026.

[4] https://stakeholdercenter.caiso.com/StakeholderInitiatives/Day-ahead-market-enhancements

During this meeting, two presentations were made and followed by discussion among stakeholders, MSC members, and ISO staff:

1. Scott Lehman, Lead Analyst, Market Performance & Advanced Analytics at the ISO, gave an overview of the working group process. Mr. Lehman summarized the timeline of the working group effort, the results of the first stage of analyses, the ISO's plan for monitoring and testing during parallel operations, and the proposed start of parallel operations and next steps.

    - In the first (market simulation) stage of the analyses, one-way (single parameter) sensitivity analyses were used to explore market effects of the following five parameters in the extended day-ahead market:

        i. envelope constraint multiplier for storage state-of-charge equations and the impacts of reserves on those relationships;

        ii. the imbalance reserve bid price cap;

        iii. default availability bids for imbalance reserves and reliability capacity;

        iv. a factor representing the assumed fraction of imbalance reserve that is deployed in the market software's representation of the congestion impacts of deployed reserves; and

        v. the selection of constraints to enforce in day-ahead imbalance reserve and real-time flexiramp markets. The enforced constraints would ideally be the same between energy and imbalance reserve markets, and imbalance reserves and flexiramp markets. But because of computational limits, the included constraints will include (in the following order of decreasing priority): flowgates, then nomograms and then feasibility under contingencies.

    - Mr. Lehman described additional analyses that examined interactions among the parameters, such as the interactive effects upon deliverability or reserve prices of the selected set of enforced constraints together with the bid cap or deployable reserves factor. Detailed results are available from Mr. Lehman's slides.[5]

    - The later parallel operations phase will be assessing the impact of those parameters under more realistic conditions, in which market participants can

[5] https://www.caiso.com/documents/presentation-extended-day-ahead-market-edam-configurable-parameters-feb-06-2026.pdf

choose hypothetical offers for imbalance reserves, whose impact would be simulated. This testing will provide information that will be used to recommend values for the parameters for "go live." A two-phase approach will be used for implementing the parameters after go-live – an initial cautious set of parameters (conservative values), and then a transition to a second phase in which a standard set-up for imbalance reserves is intended to be implemented.

2. Dr. Harvey then made a presentation in which he described how market design choices and parameter and simulation modeling choices could influence the cost of imbalance reserves both in CAISO simulations and in the extended day-ahead market. First he expressed concern that the imbalance reserve prices shown in the simulations may be higher than what will actually be experienced as a result of modeling choices. On the other hand, he pointed out that market design choices might indeed be inflating imbalance reserve prices in a way that will be actually be experienced in the extended day-ahead market. He presented lists of simulation modeling choices and market design choices that he conjectures could each influence reported and actual imbalance reserve prices, respectively.

   As an example of a perhaps crucial market design choice, he cited the restriction that resources providing imbalance reserves must be dispatchable on a 15-minute basis (as well as the restriction that all ramping capacity must be available within 30 minutes). He suggested that this restriction has the potential to greatly increase the commitment costs associated with imbalance reserves on thermal resources, which was suggested by MSC members in previous general session meetings and the MSC opinion.

   Dr. Harvey then identified some market design and modeling choices that could impact the cost of imbalance reserve provided by battery storage. These choices mainly concern opportunity costs, which could be inflated either in modeling, or also in EDAM operation, by the way imbalance reserve schedules are modeled in calculating battery state-of-charge constraints. These modeling choices would interact with parameter choices such as the energy usage factor for storage resources providing imbalance reserves and the energy offer price submitted by storage resources, which might differ between the CAISO modeling and real-world operations. He also suggested that the level of imbalance reserves procured, and the shape of its demand curve could have important impacts on the cost of imbalance reserves in the simulations and EDAM operation.

   Dr. Harvey also identified some simulation results that are not easily explained, and might be the result of unrealistic modeling choices, data input issues, or other factors. The cause of anomalous modeling results should be explored to ensure that modeling results being relied on to make market design or parameter decisions are reasonable and explainable.