



# Memorandum

**To:** WEIM Governing Body and ISO Board of Governors

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

**Date:** March 13, 2024

**Re:** **Briefing on Market Surveillance Committee activities –January 29, 2024 to March 6, 2024**

---

***This memorandum does not require WEIM Governing Body or ISO Board of Governors action.***

The Market Surveillance Committee (MSC) of the California ISO held a general session meeting on February 13, 2023 that addressed the topic of resource adequacy.<sup>1</sup> Presentations at the meeting addressed three subtopics that were the focus of previous discussions of needed reforms by the ISO's resource adequacy modeling and program design working group: capacity accreditation, performance and availability incentives, and rules for resource substitution when outages occur. The MSC is planning to hold future general session meetings on resource adequacy and, as appropriate, submit an opinion to the ISO Board of Governors and WEIM Governing Body

A summary of the discussions is given below.

## **MSC General Session Meeting, February 13, 2024**

The meeting had one agenda item, which included a presentation on three resource adequacy subtopics by ISO staff members Partha Malvadkar, Principal, Resource Adequacy and Anja Gilbert, Lead Policy Developer, as well as a presentation of comments on those subtopics by MSC member Dr. Jim Bushnell. In addition, Drs. Scott Harvey and Ben Hobbs of the MSC offered comments, and attending stakeholders participated in the discussions.

**ISO Staff Presentation and Discussion.** Concerning the first subtopic, resource counting, the ISO staff presentation briefly reviewed issues concerning the definition and application of the concept of unforced capacity, which is the subject of a California Public Utility Commission proceeding. The presentation and discussion then focused on requirements and tools, such as outage definitions, must-offer requirements, bid-insertion rules when offers are

---

<sup>1</sup> [www.caiso.com/informed/Pages/BoardCommittees/MarketSurveillanceCommittee/Default.aspx](http://www.caiso.com/informed/Pages/BoardCommittees/MarketSurveillanceCommittee/Default.aspx)

not submitted for resources, and rules concerning resource performance and availability. The need to update these requirements and tools in response to trends in technology mixes and market and regulatory structures was identified because of concerns that present requirements and tools would fail to incentivize provision of resources when and where needed. The emphasis of the discussion was not on long-run planning and investment, but on incentives and rules affecting shorter-term maintenance and upgrading of resources. In response to MSC questions, ISO staff indicated that the evidence of a problem is an increase in forced outage rates, with the issue focused on in the Resource Adequacy working group being timing and magnitude of outages rather than their location in the system. An MSC member suggested that three complications (the interaction of declared forced outages with derates during hot periods, the possible need to declare forced outages in order to do maintenance, and outage substitution rules) makes it difficult to unambiguously blame higher forced outage rates on lack of performance incentives.

The ISO presentation then summarized stakeholder desires for a more transparent framework for evaluating reserve margins and resource counting rules, and how a local resource adequacy requirement contributes to overall system reliability. One challenge discussed concerned costs arising from deficiency or procurement of capacity in the resource sufficiency evaluations that are to be performed daily as part of the ISO's extended day-ahead market--in particular the assignment of costs to entities that cause them, given the different local regulatory authority counting methods and planning reserve margins.

After summarizing the ISO's resource adequacy processes, and distinguishing those from the decisions that are the responsibility of other entities (local resource areas, California Energy Commission, load-serving entities, and resource owners), the presentation provided detailed resource outage data. These data included daily outage rates for the last three summers (showing outage rates that more often than not in excess of assumptions in published assessments and outlooks); the timing of outages within a subset of days with extreme outage events; monthly outage rates by type of resource; and data on thermal deratings due to high temperatures. MSC members asked clarifying questions about the data presented and apparent contradictions; they and ISO staff offered possible explanations for higher outage rates during very early mornings, such as environmental and noise restrictions.

The presentation then turned to discussions about availability incentives. One stakeholder suggested that there are two undesirable effects of allowing resources to sell the portion of capacity that will be subject to ambient temperature derates as "available" capacity at a high market rate, but then pay an availability penalty only when the capacity does not actually show up. One is possibly undeserved net payments to resource owners, and another is a disincentive to provide realistic "shaping" of net qualifying capacity that actually reflects anticipated ambient derates, which can result in overoptimistic projections of capacity

availability on the day.

Stakeholders, staff, and MSC members then discussed the relationship of western market capacity prices (as implied by energy contracts at external hubs) and the ISO's soft offer cap of \$6.31/kW-month in its capacity procurement mechanism. Disentangling capacity values from energy prices is not an unambiguous process, but seems to show that the \$6.31 cap is significantly lower than capacity prices implied by western energy contracts. A stakeholder noted that the fact that implied capacity prices exceed the cap is consistent with observed decreases in imports to California. Lauren Carr of the California Community Choice Association quoted capacity pricing data that she had developed, and, after the meeting, she shared their capacity pricing report and data with the MSC.

The discussion turned to the magnitude of resource adequacy incentive mechanism penalties that have been assessed in California, which peaked at \$3.5M in September 2022. The relatively low level of these penalties is highlighted by their being an order-of-magnitude lower than the approximately \$35M penalties paid by resources during just a two-hour period in December 2022 in ISO-New England. Several possible adjustments to the California incentive mechanism were then suggested by ISO staff.

The staff presentation then touched upon the planning reserve margin, which has not been revised since 2006 despite subsequent changes in generation mix and load shapes. Staff proposed that this is an appropriate time to revisit the calculation and levels of the margin.

The final part of the staff's presentation addressed resource counting, specifically the estimation of unforced capacity for thermal resources. Unforced capacity calculations focus on historical unavailability, and those values are adjusted by a series of procedures resulting in a comparison of anticipated available capacity to target values, such as the planning reserve margin, by seasons and hours. MSC members, stakeholders, and ISO staff discussed the desirability of more modern methods for reliability assessment based on probabilistic analyses accounting for all the resources in the system's portfolio, loss-of-load expectations, weather-based uncertainty in peak loads, ambient derates, correlations of outages due to fuel risk, and so-called EFORd resource unavailability indices used by eastern ISOs. This portion of the meeting concluded with discussions by ISO staff, MSC members, and stakeholders of the pay-for-performance systems used by PJM and ISO-New England.

**Presentation by MSC Member Dr. Jim Bushnell.** Dr. Bushnell began his presentation with a summary of possible goals for reformed resource adequacy mechanisms, as being considered by the ISO's resource adequacy modeling and program design working group. These goals include more realistic gauging of reliable capacity in

aggregate, stronger incentives to reduce outages especially at times that matter most, and stronger incentives to bid resources flexibly and improve the contributions of energy limited resources and imports. The ideal would be objective, technology-neutral, accurate, and reliability-relevant metrics of resource contributions.

He then summarized the essential characteristics of unforced capacity metrics. These are based on historical data that result in adjustments in counted capacity (and thus payments) in future years, and that are ideally focused on high priority time periods. The delayed impact of outages resulting from using historical availabilities to determine future resource capabilities and payments results in a dilution of incentives.

Dr. Bushnell then contrasted that approach with performance incentives, which reward or punish performance at the time of performance, rather than with long delay. The penalties are administrative, and are low in California compared to elsewhere. Unlike unforced capacity systems, performance incentives also provide bonuses for “overperformance” relative to target levels, and to capacity not subject to a resource adequacy contract.

He then summarized some controversies and challenges associated with provision of strong performance incentives. These include: defining which sources of unavailability should be subjected to incentives, and which should be excused as out of the resource’s control; market power mitigation of offers, considering how offers are affected by risks of participation; and credit risks. Dr. Bushnell pointed out that the incentives provided are philosophically similar to higher scarcity prices for energy, but that performance incentives might still be more practical if a focused high incentive is desired for certain periods or if higher scarcity prices cannot be implemented.

Dr. Bushnell’s presentation then offered some additional observations on the possible implementation of the unserved capacity concept in California. Among those observations is that this concept is usually not applied on a plant-specific level, but is instead applied to classes of resources. This does make it easier for the California Public Utility Commission to manage resource counting than a plant-specific day-by-day performance incentive scheme. Stakeholders offered comments in support of a resource-specific scheme, and one stakeholder suggested that the Commission could start with a default class average, and then resources could ask for adjustments.

Concerning incentives, Dr. Bushnell mentioned several concerns, advantages, and design variants (such as alternative performance indices). One concern perhaps worth addressing is that the ISO’s adequacy incentive mechanism may deter showings of resources because, for example, of the complexity of substitution rules. He suggested, however, that stronger incentives for performance by imported resources could be highly beneficial for ensuring their availability, and that such incentives could also encourage resources to provide more realistic estimates of their capabilities.