

Comments on Resource Adequacy Modeling and Program Design

February 13, 2024 Working Group

Department of Market Monitoring

February 27, 2024

Summary

The Department of Market Monitoring (DMM) appreciates the opportunity to comment on the *Resource Adequacy Modeling and Program Design February 13, 2024 Working Group*.¹

DMM supports the overarching goal that resource adequacy (RA) enhancements should improve the economic incentives for individual participants to procure sufficient capacity, and make this capacity operationally available to the ISO markets. Some of the areas highlighted in recent workshops in which incentives can be improved include:

1. Unforced capacity (UCAP) adoption to create a fungible RA market
2. UCAP accounting at the unit-level, and regular net qualifying capacity (NQC) updating
3. Enhance forced outage reporting

Adopting UCAP will support a fungible RA market

A few workshop participants raised the issue of RA resource accounting and fungibility. DMM would also like to highlight this as a potential benefit of UCAP. UCAP incorporates forced outages in such a way that allows the market to equally account for the expected resource availability during constrained grid conditions. The availability derived from a UCAP framework allows for load serving entities (LSEs) to have a fungible market across all resources, and alleviates the need for LSEs to procure RA across the dimensions of quality and quantity. UCAP simplifies RA procurement to a quantity framework, and this homogeneity is amenable to classic economics and market clearing conditions, which is the foundation of ISO market design.

Qualitative differences will still exist across the RA fleet. These differences are incorporated in the resource availability incentive mechanism (RAAIM). The up-front UCAP framework levelizes differences between and within resource types, and any deviations from historical resource availability can be incentivized appropriately in the RAAIM framework. Therefore, DMM recommends pursuit of the UCAP framework, while also maintaining and enhancing RAAIM.

UCAP accounting and NQC updates

The working group discussion of UCAP was generally limited to creating alignment between CAISO and the California Public Utility Commission (CPUC). DMM encourages both entities to continue to work together and understand specifically which forced outages should be included to generate a more

¹ *Resource Adequacy Modeling and Program Design – Working Group Meeting*, CAISO, February 13, 2024 [sic]: <https://www.caiso.com/InitiativeDocuments/Presentation-ResourceAdequacyModeling-ProgramDesignWorkingGroup-Feb132024.pdf>

fungible market. Additionally, DMM encourages the ISO and the CPUC to pursue UCAP at the resource-level instead of using a grouping methodology (such as quantiles).

As was discussed in the workshops, UCAP accounting at a group level may create poor incentives. DMM believes an individual resource-level UCAP is appropriate for the following two reasons:

1. Attribution to individual resources will create appropriate incentives to demonstrate improved performance over time to increase the resource's net qualifying capacity (NQC), and thus increase the volume of RA the resource can sell.
2. Individual resource-level curtailment data are not confidential. DMM notes that these data are publically available in the ISO's Daily Curtailment Reports, and suggests the ISO and CPUC work together to use publically available curtailment data.²

DMM also encourages the ISO and CPUC to incorporate all forced outages into the UCAP accounting framework. However, forced outages should be separated into two categories for grid planning and management: (1) forced outages under the control of the scheduling coordinator and asset owner, and (2) forced outages out of their control. With resource-level UCAP accounting and regular NQC updating through the UCAP framework, this will incentivize resources to reduce all unnecessary forced outages. However, no adjustments to a resource's NQC should be made in cases of forced outages that are outside the control of the scheduling coordinator and asset owner (e.g. a transmission line outage). In such cases, the planning reserve margin (PRM) should be used to ensure proper grid planning.

DMM believes that with this change in the RA valuation methodology, it will be important to regularly update resource NQC under a UCAP framework. Such updating could be annual, and there could be greater weight given to the most recent year. In addition to providing incentives to improve resource availability, this will also create adaptive policy that will be responsive to policy changes that would modify resource availability and thus forced outage accounting. Such changes could include enhancements to the market design for energy storage resources, or substitution capacity policy changes.

Finally, there has been concern within the stakeholder community that forced outages are being used as a means to manage resource operations. DMM understands this concern is especially salient to energy storage resources. This concern should be assessed as the ISO proceeds with further policy enhancements. DMM suggests this concern be addressed in a future initiative focused on energy storage market design. Such an initiative would be better suited to evaluate the reasons energy storage resources may be using forced outages, and to consider market design enhancements that may reduce the use of forced outages by energy storage resources.

Substitution capacity rule changes highlight the need for enhanced forced outage reporting

During the workshop, stakeholders noted that outages in the forced timeframe increased following the requirement to include substitution capacity for planned outages. This policy changed June 1, 2021.

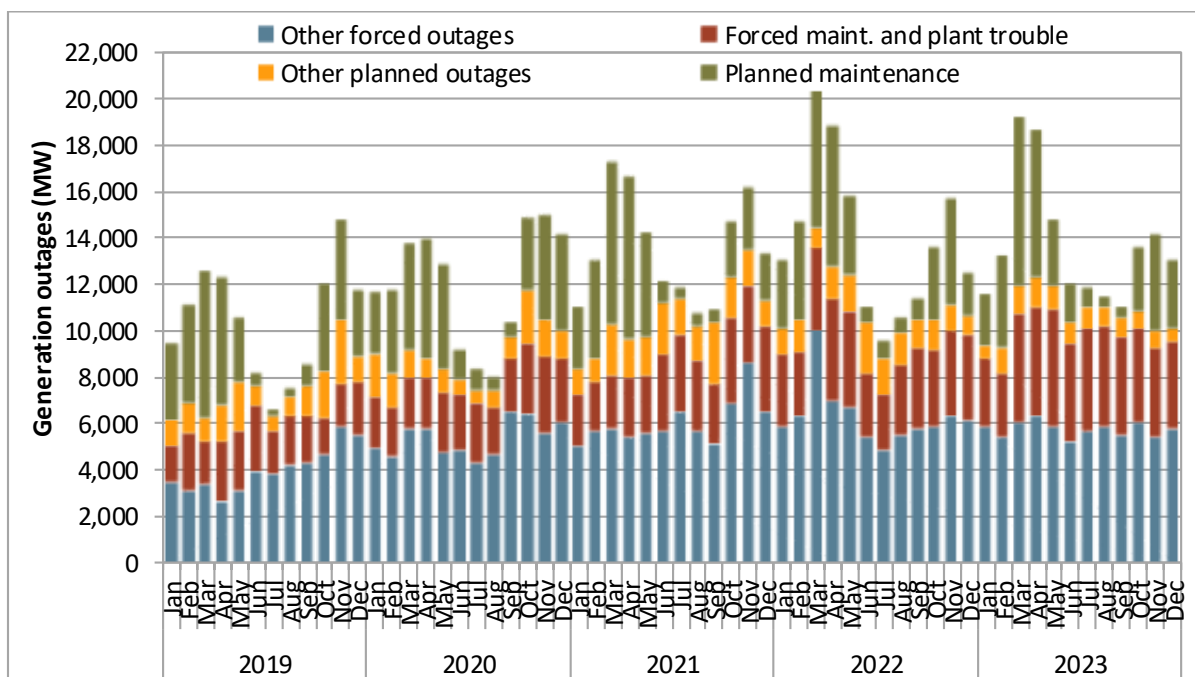
² *Curtailed and non-operational generators in California and neighboring balancing authorities*, CAISO: <https://www.caiso.com/market/Pages/OutageManagement/CurtailedandNonOperationalGenerators.aspx>

DMM reporting on average outage volume supports these stakeholder observations. Figure 1 shows that forced outages increased during peak hours following the policy change.³ During the reporting period (2019-2023), average forced outages increased from 3,550 MW to 4,860 MW, and average planned outages decreased from 2,330 MW to 1,920 MW.

While the substitution requirement correlates with increased forced outages, there may be other factors leading to increased forced outages. Other factors may include a significant increase in energy storage resource capacity, and use of forced outages by storage resources to manage resource operations.

DMM continues to recommend the ISO enhance outage reporting requirements to more clearly require the resource scheduling coordinator to identify if a forced outage is necessary immediately for plant operation, or if the forced outage is for discretionary plant maintenance that could be postponed in the case of imminent system reliability concerns.⁴

Figure 1. Monthly average of maximum daily generation outages by type – peak hours



³ 2022 Annual Report on Market Issues and Performance, CAISO DMM, July 11, 2023, p 54: <https://www.caiso.com/Documents/2022-Annual-Report-on-Market-Issues-and-Performance-Jul-11-2023.pdf>

⁴ Comments on Resource Adequacy Modeling and Program Design, CAISO DMM, January 30, 2024, p 1: <https://stakeholdercenter.caiso.com/Common/DownloadFile/ee178c6e-3048-4acb-ac34-63164eedc29e>