Memorandum

To: Energy Imbalance Market Governing Body

From: Anna McKenna, Interim Vice President, Market Policy and Performance

Date: March 3, 2021

Re: Decision on market enhancements for summer 2021 readiness proposal

---

This memorandum requires EIM Governing Body action.

EXECUTIVE SUMMARY

Management proposes a set of market enhancements to prepare for this upcoming summer in response to market performance issues that arose during last summer's heat events. The enhancements are focused on changes that are feasible for both the ISO and market participants to implement by summer 2021. Management plans to address potential longer-term changes in upcoming stakeholder processes. Despite this initiative's fast timeline, stakeholders have provided valuable input that has shaped Management's proposal.

The first proposed change enhances the Western Energy Imbalance Market's (EIM's) resource sufficiency evaluation to better ensure each balancing authority area participates in the EIM with sufficient resources. Management proposes to enhance the resource sufficiency evaluation to ensure each balancing authority area has sufficient resources to account for the uncertainty of its net load, in addition to sufficient resources to meet its load forecast.

The second proposed change will improve operational coordination between balancing authority areas in the EIM. This enhancement addresses a market modeling issue related to energy interchanges between EIM balancing authority areas and the ISO balancing authority area that caused operational issues during last summer's tight conditions.

The third proposed change improves ISO market pricing during very tight supply conditions. Management proposes to price energy based on the market's energy bid cap when the ISO is arming load to meet the ISO balancing authority area's contingency reserve requirements.

The proposed tariff rules to implement the enhancements to the resource sufficiency evaluation and to address the energy interchange modeling issue are EIM-specific and are under the EIM Governing Body's primary approval authority. The enhancement to

address market pricing under tight supply are under the EIM Governing Body's advisory role as they are generally applicable to the ISO's real-time market.

Management is also considering enhancements to the market parameters for managing load, export and wheel through scheduling priorities for the ISO balancing authority area. Any such enhancements would be under the EIM Governing Body's advisory role and would be presented at a subsequent meeting.

Management proposes the following motion:

> ***Moved, that the EIM Governing Body approves the proposal to enhance the resource sufficiency evaluation and to require automatic updating of mirror resources, as described in the memorandum dated March 3, 2021; and***
>
> ***Moved, that the EIM Governing Body authorizes Management to make all necessary and appropriate filings with the Federal Energy Regulatory Commission to implement the proposal described in the memorandum, including any filings that implement the overarching initiative policy but contain discrete revisions to incorporate Commission guidance in any initial ruling on the proposed tariff amendment.***

BACKGROUND

A historic heat wave affected the western United States for several consecutive days in mid-August 2020, causing energy supply shortages that led to two rotating power outages in the ISO balancing authority area on August 14 and 15. The *Final Root Cause Analysis: Mid-August 2020 Extreme Heat Wave* report documents these events.[1] The ISO initiated this expedited initiative in response to these events and is committed to developing actions to prevent supply shortages and to ensure equitable EIM participation in advance of summer 2021.

PROPOSAL

Management proposes enhancements to:

- Better ensure each balancing authority area participates in the EIM with sufficient resources and improve the way the real-time market reflects operations related to transfers between balancing authority areas; and
- Provide improved incentives for supply to be available during tight system conditions.

EIM resource sufficiency evaluation and EIM coordination review

[1] California Independent System Operator, California Public Utilities Commission, and California Energy Commission. Final Root Cause Analysis: Mid-August 2020 Extreme Heat Wave. January 13, 2021.

Management proposes an enhancement to the EIM's resource sufficiency evaluation to better ensure each balancing authority area participates in the EIM with sufficient resources. The EIM's resource sufficiency evaluation is designed to ensure each balancing authority area participating in the EIM provides sufficient resources to reliably serve its load, thereby minimizing inequitable resource "leaning" between balancing authority areas. The resource sufficiency evaluation includes two tests designed to ensure each balancing authority area has sufficient resources while participating in the EIM: the "capacity test" and the "flexible ramp sufficiency test." If a balancing authority area fails the resource sufficiency evaluation in a fifteen-minute market interval, its EIM energy transfers cannot increase beyond the amount scheduled in the previous interval.

Management's proposal to enhance the resource sufficiency evaluation results from the ISO's review, conducted in coordination with stakeholders, of the resource sufficiency evaluation's performance during last summer's tight conditions. This review was prompted by the *Final Root Cause Analysis*'s findings that the ISO balancing authority area failed the resource sufficiency evaluation in only very limited periods despite being in emergency conditions for extended periods.

Management proposes to enhance the EIM's resource sufficiency evaluation's capacity test so that it accounts for net load uncertainty in addition to each balancing authority area's net load forecast. The capacity test is designed to ensure each balancing authority area provides a sufficient quantity of energy schedules and bids to meet its load. Net load is total load minus renewable output. Actual net load can be significantly different than forecast, particularly with significant amounts of renewable resources. For example, an unexpected sudden decrease in solar output increases the net load that must be met by dispatchable resources.

Management proposes to enhance the capacity test to require each balancing authority area to submit sufficient energy schedules and bids to account for net load forecast uncertainty, in addition to sufficient schedules and bids to cover its forecast load. This will better ensure each balancing authority provides sufficient schedules and bids and the associated resource capacity to meet its actual net load, including net load that may be different than forecast. The resource evaluation's "flexible ramping test" also accounts for net load uncertainty, but it only looks at ramp rate capability between market intervals and consequently does not ensure each balancing authority area has sufficient overall capacity based on its resource schedules and energy bids to meet its forecast net load and account for net load uncertainty.

The net load uncertainty amount used in the resource sufficiency evaluation is determined by similar principles that the ISO market systems use for the real-time market's flexible ramping product procurement. The requirement accounts for the net load forecast error between the fifteen-minute and five-minute real-time market dispatch. This amount is adjusted to reflect the diversity benefit of meeting net load uncertainty across the EIM with one set of resources.

The ISO also identified and corrected software errors that contributed to resource sufficiency evaluation inaccuracies during the August heat events. These affected how the resource sufficiency evaluation accounted for the capacity of resources with partial outages and how it accounted for energy interchanges between balancing authority areas. The ISO is making various other software fixes to correct system issues and adding additional market features to improve operational coordination between balancing authority areas in the EIM, particularly during tight and contingency conditions. These enhancements do not require tariff changes.

In addition to enhancing the resource sufficiency evaluation, Management also proposes an enhancement related to how the real-time market models energy interchanges into the ISO balancing authority areas at intertie scheduling points that are sourced from adjacent balancing authority areas in the EIM. This enhancement resulted from the ISO's review of operational issues that occurred during last summer's heat events because the ISO market's systems and EIM balancing authority area used incorrect information in a particular situation. Management proposes to make it mandatory for EIM balancing authority areas to use an automated market feature that updates the EIM balancing authority area's "mirror resource" when the ISO market awards an import at an ISO intertie scheduling point that was sourced from the EIM balancing area. These are separate from EIM transfers resulting from the EIM's resource-specific dispatch. These mirror resources model the energy interchange out of the EIM balancing authority area. It is currently optional to use the automated update functionality. An oversight in updating a mirror resource's schedule during tight conditions last summer resulted in system anomalies and operational issues.

Real-time scarcity price enhancements

Management proposes an enhancement to improve market pricing when system conditions are very tight and the ISO system operators are "arming load" to meet the balancing authority area's contingency reserve requirements and using resources previously providing contingency reserves to serve load.

This enhancement will price energy that is from generation the ISO is releasing from contingency reserves to serve load at the market's applicable energy bid cap. The applicable bid cap will be either $1,000/MWh or $2,000/MWh as determined under the ISO's *FERC Order No. 831 – Import Bidding and Market Parameters* proposal that is currently under consideration at FERC.

The ISO system operators "arm load" by contacting the utility distribution companies and having them configure their systems to immediately shed certain portions of their load in the event the ISO experiences an unexpected supply loss. This allows the ISO real-time market to dispatch supply resources for energy that the market was previously reserving for contingency reserves. Under current market rules, prices can decrease in this situation because the price of the energy bids of the supply resources put into the real-time market can be below the current real-time market price. Because the EIM does not manage or optimize operating reserves for other balancing authority areas that

participate in the EIM, this change will not apply to energy from operating reserves managed by EIM entities. Management's proposed pricing policy more appropriately reflects that the ISO is short supply under these conditions. This will improve incentives for supply to be available during tight system conditions and for load to more fully schedule in the day-ahead market.

STAKEHOLDER POSITIONS

Stakeholders generally support or are not opposed to adding the net load uncertainty requirement to the resource sufficiency evaluation's capacity test although Pacific Gas & Electric and California Public Utilities Commission staff oppose adding it. The EIM Body of State Regulators urges the ISO to continue to develop further resource sufficiency evaluation enhancements to implement for summer 2021 and believes that the capacity test should account for all capacity required to meet a balancing authority's obligations, including those due to net load uncertainty.

The ISO Department of Market Monitoring supports Management's proposal stating that adding net load uncertainty to the capacity test would make it more accurate. DMM also urges the ISO to continue to consider more comprehensive resource sufficiency evaluation changes.

The ISO Market Surveillance Committee urges the ISO to carefully test for unintended consequences in adding net load uncertainty to the capacity test. They point out interactions between the market's flexible ramping product procurement and the capacity test that could result in test failures. They suggest the ISO have the ability to reverse this change if there are unintended consequences.

EIM participants outside of the ISO balancing authority area believe that adding the uncertainty requirement to the resource sufficiency evaluation's capacity test and fixing identified software errors are incremental improvements. However, they maintain the ISO should work with stakeholders to develop further resource sufficiency evaluation enhancements to implement for summer 2021. They maintain these should include (1) further enhancing the capacity test, including accounting for off-line resources, (2) modifying the consequences of resource sufficiency evaluation failure, and (3) modifying how the resource sufficiency evaluations count EIM transfers towards a balancing authority area's available capacity.

PG&E opposes adding the net load uncertainty requirement to the capacity test. PG&E maintains this will harm reliability because it increases the likelihood that balancing authority areas will fail the resource sufficiency evaluation, potentially resulting in capped transfers during system emergencies resulting from tight supply conditions. The CPUC staff oppose adding the net load uncertainty requirement to the capacity test, maintaining this enhancement has been very rapidly developed and is not critical to summer reliability.

Management believes its proposal provides a reasonable improvement to the resource sufficiency evaluation that will result in it better reflecting each balancing authority area's capacity needs and further decrease leaning. PG&E is correct that it could increase resource sufficiency evaluation failures and the resultant limiting of EIM transfers, but the premise of the resource sufficiency evaluation is that each balancing authority area participate in the EIM with sufficient supply to meet its own needs. Management believes the proposed change will incent EIM participants to bring more capacity to the market during tight supply conditions.

Management will also continue to analyze the effects of this change and its interactions with other market functionality. If feasible, it will implement the market system changes so that net load uncertainty can be removed from the capacity test if there are unintended consequences.

Management will also continue working with stakeholders to develop further enhancements to the resource sufficiency evaluation and is planning a stakeholder initiative later this year. However, Management notes that the topics the EIM participants request to be addressed are complex and/or involve examining the fundamental tenants of the resource sufficiency evaluation and the EIM. Consequently, it is not feasible to implement these changes by this summer.

Stakeholders support the change to make it mandatory to use an automated market feature that updates the EIM balancing authority area's "mirror resource" when the ISO market awards an import at an ISO intertie scheduling point sourced from an EIM balancing authority area. They state this is an important enhancement to ensure operational coordination.

Most stakeholders support the ISO's proposal to release reserves to the market at bid cap prices for use as energy priced when the ISO must arm load to meet its contingency reserve requirements, stating it results in market prices that better reflect system conditions. PG&E is concerned that the proposal may incentivize suppliers to physically withhold supply in the real-time market. Southern California Edison maintains the proposal could aggravate system market power without system market power mitigation in-place. CPUC staff believes this change should be considered along with more comprehensive market changes.

Management believes its proposal provides the appropriate price signal to reflect tight supply conditions, which should incent more supply to be available. Management does not believe system market power mitigation is needed in conjunction with this change because the resulting prices are unaffected by submitted supply resource bid prices.

Appendix A summarizes stakeholder comments.

CONCLUSION

Management requests the EIM Governing Body approve the proposed enhancements to the resource sufficiency evaluation described in this memorandum because they will better ensure each balancing authority area participates in the EIM with sufficient resources to meet its load and will improve operational coordination between balancing authority areas. Management also request the EIM Governing Body support its proposal for market pricing when the ISO is arming load to meet its contingency reserve requirement as it will improve market incentives during tight supply conditions.