



Memorandum

To: ISO Board of Governors and WEIM Governing Body
From: Elliot Mainzer President and Chief Executive Officer
Date: September 12, 2023
Re: CEO report

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

INTRODUCTION

For my September 2023 CEO report, I will provide an update on summer operations and the findings of our Summer Market Performance Report for July, the ISO's tariff filing with the Federal Energy Regulatory Commission (FERC) for our extended day-ahead market (EDAM) and day-ahead market enhancements (DAME) initiatives, the August 30 EDAM Forum and news about the Balancing Authority for Northern California (BANC) and Sacramento Municipal Utility District (SMUD) announcing their decision to join the market. I will also discuss progress on phase 2 of our interconnection process enhancements initiative, preparations for the solar eclipse in October, and the latest quarterly benefits report for the Western Energy Imbalance Market (WEIM).

CONGRATULATIONS ISO BOARD OF GOVERNOR ANGELINA GALITEVA

First and foremost, I wanted to give a hearty congratulations to Governor Angelina Galiteva for getting confirmed by the California Senate on Sept. 1 to her fifth term on the ISO's Board of Governors. The Senate confirmed Governor Galiteva with a unanimous 32-0 vote, which is a fitting outcome considering her strong, insightful leadership on so many important issues at the ISO. I, the executive team, and ISO staff are deeply appreciative of her work and commitment to the organization, to the people of California and to our clean-energy future. Congratulations Governor Galiteva!

SUMMER OPERATIONS UPDATE

Overall, reliability conditions this summer have been relatively stable, with California better positioned on resource adequacy with record snowpack and strong hydro production, newly added generation and storage resources, and fairly mild temperatures compared to last September.

In late July, we experienced several challenging evenings of grid operations. During that time, there was high but not excessive demand in California, heavy demand externally from record-setting heat in the Desert Southwest, and also reduced Pacific Northwest hydro. In many ways, conditions were the mirror image of what we saw last September when California was on the

edge with a historic heat wave and other regions were able to supply us with large quantities of power to help maintain reliability.

On the evening of July 20, ISO operators entered the net peak period showing sufficient capacity and flexibility to meet demand and manage the approximately 16,000 MW solar ramp over the course of the evening. Entering the 7:00 – 8:00 p.m. hour, however, there was a confluence of unanticipated conditions that reduced available supply by approximately 2,000 MW, resulting in an Energy Emergency Alert (EEA) 1 at 7:30 p.m. The 2,000 MW reduction in available supply was from lower than expected state-of-charge readiness from a portion of the battery fleet, lower than forecast variable renewable resource production, a drop in imports available from the WEIM due to the persistent Southwest heat and demand, and transmission congestion on Path 26 that restrained the ISO's ability to move power from north to south, where it had not cooled down and demand was reasonably high.

The cumulative impact of these intra-hour supply deficiencies depleted available regulation capacity and required the use of operating reserves, which resulted in the declaration of an Energy Emergency Alert 1 at 7:30 p.m.

Once in that condition, the ISO accessed available tools, including the dispatch of up to 850 MW of reliability demand response resources and a small amount of Emergency Load Reduction Program (ELRP) resources and we were able to return to normal operations by 8:30 p.m.

The following day, our operators concluded that supply margins had not been sufficient on July 20 given the external demand for power and the variability and uncertainty manifesting under current conditions. As a result, the ISO increased supply margins by making an upward adjustment to the load forecast within the ISO's balancing authority.

On July 25, in addition to upwardly biasing load by approximately 2,500 MW, the ISO curtailed significant amounts of low-priority exports and positioned resources as effectively as possible to provide sufficient headroom going into the net peak.

That evening, additional uncertainties materialized going into the net peak, including a 3,200 MW change in real-time supply, about 2,000 MW of additional resource outages, additional congestion on Path 26 due to high demand in Southern California, and several fires threatening transmission lines. As a result of those conditions, the ISO declared an EEA Watch from 7:26 – 10:00 p.m. that provided access to additional resources, including the strategic reserve and the state's ELRP. Overall reliability was maintained with no interruptions of service.

On the morning of July 26, to provide more cushion as the ISO worked to address the causal factors behind the supply uncertainties and transmission congestion, the ISO proactively declared an EEA Watch for 6:00 - 10:00 p.m. that evening, which helped provide additional advance notice of the potential need for strategic reserve and ELRP resources.

We advised adjacent balancing authorities and energy marketers of the potential risk of further low-priority export curtailments and made some adjustments in the market to manage congestion. Our operators also assumed that WEIM transfers would be limited, which ensured more firm hourly imports. The combined effect of these adjustments, as well as access to strategic reserve

resources, a portion of ELRP and some demand side grid support resources resulted in overall reliable operations for July 26 and the EEA Watch concluded at 10:00 p.m.

The three alerts have been the only times the ISO has triggered the North American Electric Reliability Corporation (NERC) Emergency Alert system this year. No Flex Alerts have been called. The ISO has continued its practice of using load biasing to ensure access to resource adequacy committed to California load-serving entities, both in-state and imports. We have also been working closely with adjacent balancing authorities and energy marketers to make sure they are not placing unsustainable demands on the ISO's balancing authority during our net peak.

Through the use of low-priority export curtailments in the day-ahead market process, strong communication and coordination to promote greater liquidity in the hourly market, and the combined capabilities of the WEIM and the ISO's reliability coordination function, the ISO was able to manage through a set of fairly high demand conditions within California and across the West in mid-August while supporting overall reliability in the Western Interconnection.

On August 29, I had an opportunity to provide an overview of these events with the California Senate Utilities & Energy Committee during its hearing on "Electricity Reliability as California Transitions to a Zero-Carbon Future."

The ISO Summer Market Performance Report for July 2023 has a more detailed analysis of the July grid events. A stakeholder call is planned to provide an overview of the report; a retrospective on August conditions will be released at the end of September.

EDAM AND DAME TARIFF FILING

The ISO took another major step toward establishing an EDAM on August 22 when we filed the proposed tariff changes with the FERC. The filing was the result of extensive stakeholder engagement that included input from energy providers, public utility commissions, and a variety of different entities representing various interests and points of view throughout the Western Interconnection.

In the same filing, we also proposed tariff changes for our DAME initiative that, among other things, propose a day-ahead market feature that further commits much needed flexible energy supply to efficiently and reliably address changes that occur between day-ahead and real-time market conditions.

The ISO requested that the Commission issue an order by December 21, 2023, accepting this tariff amendment in its entirety. We have requested a December 21, 2023, effective date for new tariff sections 33.1, 33.2, and 33.4 and the new pro forma agreements to be included in Appendix B of the ISO's tariff, which constitute the extension of EDAM, the initial onboarding and implementation provisions, the roles and responsibilities of EDAM participants, and the agreements that participants need to execute.

Based on our recent discussions with PacifiCorp and the Balancing Authority of Northern California (BANC) that are referenced below, we are in the process of re-evaluating our earlier timeline that anticipated a 2025 launch date for EDAM, with 2026 now the more likely onboarding

timeline. We will keep FERC apprised of our implementation schedule while maintaining our request for expeditious tariff approval and notify the Commission of any implications of our revised schedule.

SUCCESSFUL EDAM FORUM

Our August 30 EDAM Forum in Las Vegas was a big success, with 240 people from across the West attending in person and another 300 participating remotely. The all-day event featured a diverse array of utility executives, regulators, stakeholders and other Western energy leaders discussing the benefits of a broad Western electricity market, progress made thus far and the work underway regarding resource adequacy, governance and other issues that are key to successful regional market integration.

There was a palpable sense of optimism and excitement about the progress that has been made toward greater Western market integration. These efforts got a nice boost with an announcement during the morning CEO Roundtable from Jim Shetler, general manager of the Balancing Authority of Northern California that BANC and its largest member, the Sacramento Municipal Utility District, have committed to join EDAM in 2026.

INTERCONNECTION PROCESS ENHANCEMENTS TRACK 2 (IPE2)

The ISO continues to work on foundational improvements to our interconnection processes in line with the current round of interconnection reforms underway at the FERC and in the spirit of the Memorandum of Understanding signed with the California Public Utilities Commission and California Energy Commission in December of 2022. Our Infrastructure and Operations Planning team convened five stakeholder working group sessions over the summer to develop shared principles and clear problem definitions for the initiative, and to discuss possible solutions proposed by both the ISO and stakeholders. We plan to publish a straw proposal for the interconnection process enhancements phase 2 initiative on September 21.

The IPE2 straw proposal envisions a streamlined process, with prioritization of commercially viable projects in zones with available transmission capacity. Our goal is to see the most advanced projects move forward into a streamlined, single-phase study process, with more explicit provisions around time in queue to prevent projects from lingering in the queue and frustrating future development. We are on track to bring these changes to the Board of Governors at their February 2024 meeting.

At the same time, the ISO is working on compliance with FERC Order No. 2023 issued in late July. It outlines new requirements for Improvements to Generator Interconnection Procedures and Agreements, which will necessitate additional changes to our interconnection process. We will refine our process through the IPE2 initiative in parallel with compliance with the FERC order. Comments within the Order anticipate and encourage transmission service providers with enhancement efforts underway to continue those efforts, addressing issues that go beyond the Order, which we will do with our IPE2 initiative. A compliance filing is due December 4. We plan to comply with the order within the required timeframe and bring our IPE2 changes to FERC once we have Board approval.

PREPARING FOR THE OCTOBER 14 SOLAR ECLIPSE

On September 1, our short-term forecasting team published a Technical Bulletin regarding the annular solar eclipse that will pass over the Western U.S. including California, Oregon, Nevada, Utah and New Mexico the morning of Saturday, October 14, 2023. The bulletin details the expected impact of the solar eclipse, identifies the risks and possible measures to be taken by the ISO, the Western Energy Imbalance Market, Reliability Coordinator West (RC West) and other balancing authority areas as well as market participants and stakeholders to address the loss of solar generation during the eclipse.

As the paper notes, the United States experienced a total solar eclipse on Monday, August 21, 2017, but this year's eclipse will be more impactful because of the growth in solar capacity since 2017. The ISO's grid-scale and rooftop behind-the-meter solar have grown by 6,500 MW and 8,550 MW respectively since 2017, while WEIM footprint grid-scale and rooftop solar have grown by 9,414 MW and 5,720 MW, respectively, since 2017.

The eclipse is expected to reduce output from grid-scale and rooftop solar generation. The results from the study show that from the start of the eclipse until the eclipse maximum, grid-scale renewables generation will decline by 9,374 MW while gross load will increase by 2,374 MW. These changes will lead to steeper ramping conditions on both the up-ramp to the eclipse max and down-ramp following the eclipse return. The study assumes clear-sky conditions, so these results should be viewed as a high-impact scenario since cloud cover could mitigate the eclipse impacts. The ISO will coordinate with RC West, Utility Distribution Companies, and WEIM entities to ensure stable market operations to support reliable system operations on the eclipse day.

WEIM SECOND QUARTER 2023 BENEFITS

The WEIM benefits report for Q2 of 2023 was released July 31, reporting \$798.7 million in benefits the first half of the year. The report also showed a new record of \$4.2 billion in cumulative benefits since the market was launched in 2014. The real-time energy market's \$379.91 million in second-quarter results is attributed to the growing number of participants providing diversity and economical energy transfers replacing more expensive generation.

The environmental benefits are also significant, with a cumulative reduction in greenhouse gas emissions since the WEIM started of more than 878,000 metric tons, or the equivalent of taking almost 184,000 passenger cars off the road for one year.