NEWS RELEASE

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California ISO posts analysis of September heat wave

Power grid operator maintained reliability despite historic heat and demand

FOLSOM, Calif. – During September's record-setting heat wave, the California Independent System Operator (ISO) was able to keep electricity flowing without interruption thanks to increased capacity added under California's resource adequacy program, new state programs that provided non-market resources to address extreme events, enhanced collaboration with state and federal agencies and significant conservation by commercial and residential electricity customers.

Imported electricity from neighboring balancing authorities and market enhancements made since August 2020 also played key roles in maintaining reliability.

Those are among the primary conclusions of an in-depth Summer Market Performance Report for September 2022 published today by the ISO. During an uninterrupted 10-day stretch of triple-digit heat that saw only minimal nighttime cooling and record use of electricity, the ISO maintained reliability throughout the event without having to use rotating outages to balance supply and demand.

In addition to identifying what worked well during the historic heat wave that baked much of California and the West from Aug. 31 through Sept. 9, the report also cited needed market enhancements to improve how increasingly frequent, extreme, and long heat events are managed, including the clearing of energy exports in the market and real-time testing for resource sufficiency. Some necessary software changes identified in the report have already been completed.

Specific factors that supported reliability cited in the report include:

- Increased resource adequacy procurement since 2020, including 3,500 megawatts (MW) of battery storage;
- Improved coordination and communications with California utilities and state agencies, including the Governor's Office, the California Public Utilities Commission, and the California Energy Commission, and enhanced coordination with other regional utilities and members of the Western Energy Imbalance Market (WEIM);
- Market enhancements put in place in the past two years;
- Use of new state programs to provide non-market resources to address extreme events and other conservation efforts;
- Close coordination with load-serving entities during the ISO's highest emergency alert level of the event;
- Emergency assistance energy flowing into and out of the ISO grid, demonstrating the importance of resource-sharing among collaborating electricity systems in the West.

The ISO issued Flex Alerts calling for voluntary consumer conservation for a record 10 consecutive days. On Sept. 6, when record temperatures were set all over California and the West, demand on the ISO system reached a record peak of 52,061 MW.

Regional cooperation also contributed to maintaining reliability. That same evening, about 6,500 MW of net energy imports from neighboring energy providers and balancing authorities were made available to the grid when it was most strained. Another 1,000 MW of energy was transferred to the grid via the WEIM, a real-time market with participants throughout the western United States.

The report identified three areas for improvement in system operations:

- Improve coordination between day-ahead and real-time operation of batteries to ensure they are optimally dispatched and used most effectively during short and long heat events;
- Address a software issue associated with how the market allows or curtails low-priority exports under very high demand conditions. A software upgrade was deployed on Oct. 13, 2022 to address this issue.
- Make changes to the calculations used in the WEIM resource sufficiency test that resulted in the ISO's balancing area only failing the test during two 15-minute intervals during the heat wave, when the ISO should have actually failed during six 15-minute intervals. Of note, the errors did not materially affect capacity because transfer limits that occur during such failures were well above the actual available transfers from the WEIM.

"The heat wave of September 2022 was one of the most challenging events in the history of the ISO grid," said Elliot Mainzer, California ISO President and CEO. "During events like these, it is important to carefully and transparently examine what went well and to identify issues to address and lessons learned that can be carried forward into future operations.

"This retrospective report accomplishes both of those goals and we look forward to further discussion of the findings with our market participants and other stakeholders. I would like to once again thank all of our regional partners across industry and state government who effectively collaborated with us to help maintain reliability during such extraordinary conditions."

A stakeholder call is scheduled for Thursday, November 17 to review details of the analysis and answer stakeholder questions.

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The California Independent System Operator (ISO) is a nonprofit public benefit corporation dedicated, with its partners, to continuous improvement and secure operation of a reliable grid operated for the benefit of consumers.
It provides comprehensive grid planning, open and nondiscriminatory access to one of the largest networks of high-voltage transmission power lines in the world, and operates a $9 billion competitive electricity market. Recognizing the importance of the global climate challenge, the ISO is at the forefront of integrating renewable power and advanced technologies that will help provide a sustainable energy future efficiently and cleanly.

The Western Energy Imbalance Market (WEIM) is a real-time wholesale energy trading market that enables participants anywhere in the West to buy and sell energy when needed. The WEIM Governing Body is the governing authority designed by regional stakeholders and has shared authority with the ISO Board of Governors to resolve rules specific to participation in the WEIM.