California ISO

WESTERN ENERGY MARKETS OBSERVATIONS

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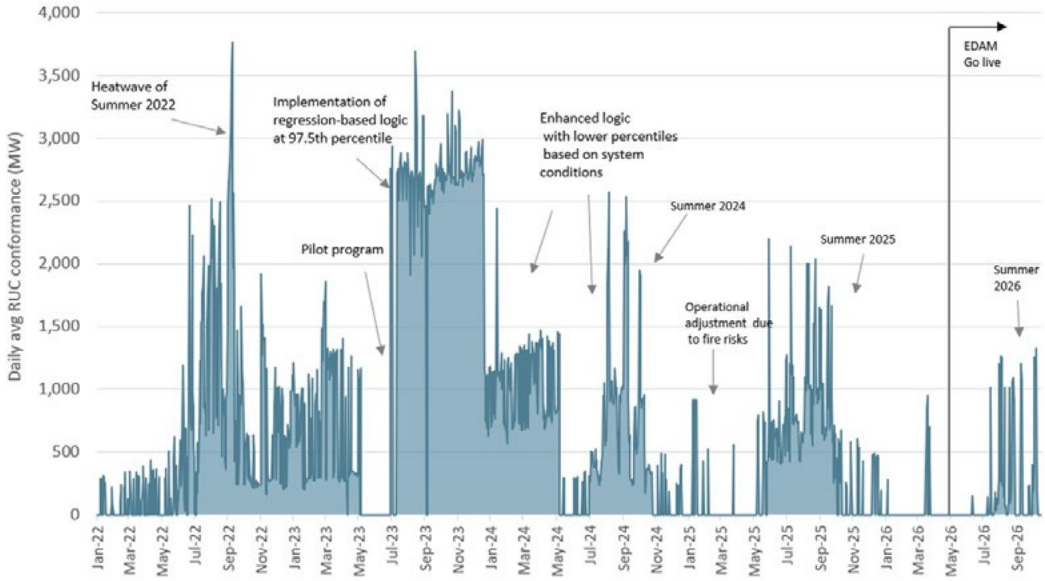
New reliability products reduce need for manual actions

One of the goals of the Extended Day-Ahead Market (EDAM) was not only to improve regional trading of energy, but also to give system operators better market-based tools for managing uncertainty and maintaining reliability. Prior to EDAM, operators often relied on manual adjustments to ensure enough generating capacity would be available to meet demand. While these tools remain available when needed, the introduction of new reliability products has allowed more of these needs to be addressed directly through the market.

Take as an example, the Residual Unit Commitment (RUC) process. RUC acts as a reliability backstop within the day-ahead market process, allowing additional resources to be committed if operators believe existing schedules may not be sufficient to meet forecast demand. Within the RUC process, operators can use the manual load adjustment to increase the amount of demand that the market must plan to serve. Historically, these adjustments have been used most frequently during periods of high demand and tight supply conditions realized mainly in summer months.

With the launch of EDAM, operators gained access to two new market clearing products: imbalance reserves and reliability capacity. These products are designed to procure flexible capacity ahead of time to manage forecast uncertainty, unexpected changes in renewable generation, and differences between scheduled supply and forecasted system conditions. Rather than relying primarily on operator judgment to secure additional resources after the market clears, a larger share of reliability needs can now be addressed automatically through market procurement.

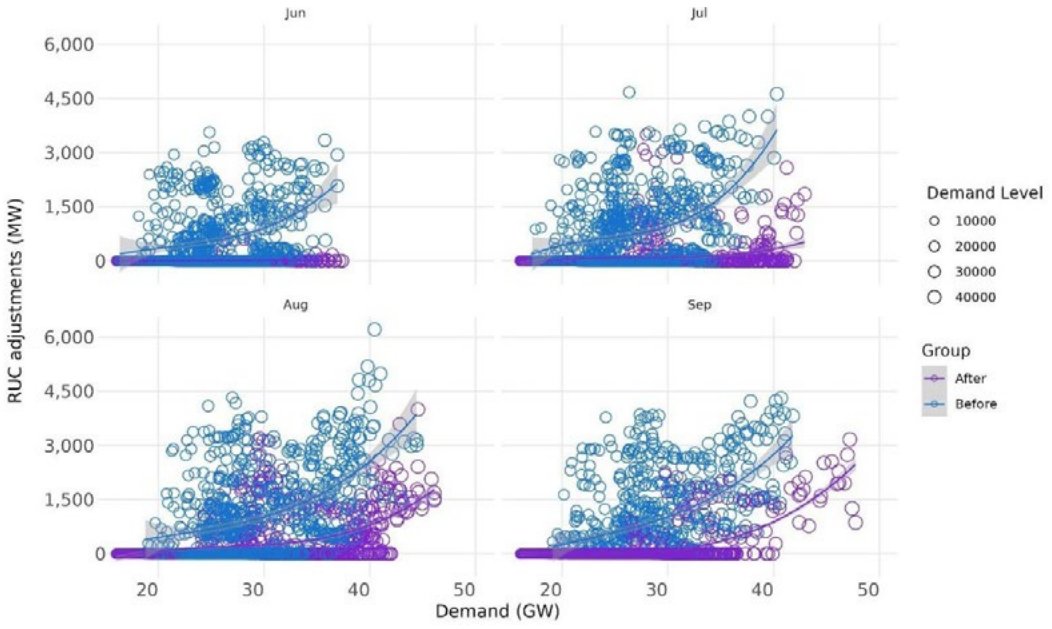


The market results from July through September 2026 suggest that these new tools are beginning to reduce reliance on manual actions. Across these months, the use of RUC load adjustments declined substantially compared with the same months in 2025. September extended that pattern even as CAISO recorded its highest peak demand since EDAM launched.

For example, in August 2025, manual RUC adjustments were applied in 486 hours, with average adjustments reaching as high as 3,390 MW during the evening peak hour. In August 2026, after the introduction of EDAM and imbalance reserve products, the number of hours with RUC adjustments fell to 298 and the maximum hourly average adjustment declined to roughly 400 MW. This followed an even more striking reduction in July, when adjustments occurred 19 percent of the time, compared with 61 percent in July 2025.

The September market performance report, published October 23, shows that the reduction continued: RUC adjustments occurred just 11 percent of the time, compared with 65 percent in September 2025. No RUC infeasibilities were observed. These results came during a month in which CAISO demand peaked at 50,335 MW on September 9, above the California Energy Commission's month-ahead forecast of 46,360 MW. Average demand was lower than in July and August, however, so the monthly comparison also reflects differences in operating conditions rather than the effect of the new products alone.

The decline in magnitude of manual interventions can be seen in the plot, which graphs the RUC adjustments against the demand, grouped by before and after the launch of EDAM. This shows the large decline in the volume of adjustments at similar levels of demand after the launch of EDAM.



The decline in manual adjustments reflects the way the new products are designed to address uncertainty directly in the market. Imbalance reserves create an additional layer of flexible capacity around expected demand, allowing the market to prepare for forecast errors and changing renewable output before they occur. Reliability capacity provides a market mechanism for ensuring sufficient resources are available when cleared day-ahead supply differs from expected demand. Together, these products allow the market to purchase flexibility and reliability needs explicitly rather than relying as heavily on operator adjustments after the fact.

Regional coordination also plays an important role. Before EDAM, each balancing authority had fewer opportunities to access flexibility outside its own footprint. Under EDAM, participants can share both imbalance reserves and reliability capacity across a larger geographic area. Because weather patterns, renewable generation, and demand peaks do not occur simultaneously in every region, the market can often use available flexibility from one area to help satisfy reliability needs in another.

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The results are particularly notable given that July through September 2026 included periods of elevated demand. Energy imports into California increased significantly during July and August, reserve prices rose during key ramping periods, and transfers of reliability products expanded throughout the EDAM footprint. September then brought the highest peak demand since EDAM implementation, even as average demand moderated. The continued low frequency of manual adjustments is consistent with a shift toward market-based reliability procurement, although these early comparisons do not isolate the contribution of the new products from weather, supply availability, and other operating conditions.

Manual reliability tools remain an important safeguard and continue to be available and put in use when needed, albeit at a reduced level. However, the early performance of EDAM suggests that reliability products are beginning to serve their intended purpose: procuring flexibility through transparent market processes before operators need to step in. The substantial reduction in RUC adjustments from July through September provides an early indication that more reliability needs are being addressed through advance market procurement.

Overall, these results highlight one of the less visible but potentially important benefits of EDAM. While much attention is focused on energy trading and price outcomes, the market's ability to reduce reliance on manual operator actions may ultimately be just as valuable. By proactively procuring flexibility, sharing resources across a broader regional footprint, and incorporating uncertainty directly into market outcomes, EDAM can help support reliable grid operations while reducing the need for administrative interventions that have traditionally been used during periods of system stress.

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