CAISO Battery Shifts

New data shows that batteries are changing the game for power and capacity

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Revenue strategies shift under BESS pressure

The rapid expansion of battery storage across the Western United States is beginning to materially reshape power market dynamics, particularly in CAISO and the broader Western Energy Imbalance Market (WEIM).

Battery deployment is no longer simply absorbing excess midday solar generation; it is increasingly altering the marginal supply stack during evening peak hours. **Project revenues are increasingly dependent on power trading strategies that leverage duration risk, congestion patterns, and resource adequacy constraints across the western US.**

Real time power prices across the WEIM averaged $34/MWh in 2025, a 14% decline from the preceding year despite a tighter market for natural gas in the region. Paired with stable total load in WEIM over the same period is evidence of battery expansion as the most significant driver of this decline in power pricing.

Battery capacity across WEIM balancing areas grew sharply over the past year, reaching more than 25 GW of installed capacity.

This expansion represents one of the fastest structural changes in the Western power system and reflects both aggressive renewable deployment and increased reliance on storage as a reliability resource.

Historically, Western power markets have been characterized by the well-known “duck curve,” where abundant midday solar generation suppresses prices during daylight hours before steep evening ramps require rapid increases in thermal generation.

Natural gas plants traditionally served as the primary resource meeting this ramping demand, leading to significant price volatility during late afternoon and evening hours. Natural gas prices have been volatile to the upside in recent years: SoCal Citygate gas prices were 45% higher in 2025 than in 2024, while summer 2026 natural gas prices for the same location are more than double 2024 lows.

The growing presence of battery storage is now moderating this pattern. Batteries increasingly charge during midday periods of low prices and discharge during the evening ramp, providing substantial incremental supply precisely during the hours that historically required gas-fired generation.

Gas displacement accelerates

New data indicates that evening battery discharge has increased significantly compared with prior years, effectively replacing a portion of the gas generation that previously met peak demand.

Batteries in California are routinely meeting nearly 20% of daily peak load, and averaged out across hours 10 to 13 in CAISO batteries now account for more than 14% of load supply, a massive increase from less than 2% at the start of the decade. The share of gas in the evening hours in California fell by roughly half since 2020.

This shift has important implications for power market pricing. Power prices are steadily disconnecting from their long-established link to natural gas availability.

Through several recent episodes, average wholesale power prices in Western markets declined even as natural gas prices increased. Battery discharge during peak hours reduces the need for higher-cost marginal generation, effectively compressing peak pricing spreads.

But the impact of storage on market dynamics is more nuanced than simple price suppression. While batteries are reducing average peak prices, they are also altering the structure of volatility. Price formation increasingly depends on localized transmission constraints, duration limitations of storage assets, and the interaction between renewable output and battery dispatch.

Congestion as a profit center

In practical terms, this means that traditional trading frameworks built around predictable solar-driven ramps may become less reliable.

Market participants who have moved to reorient their trading strategies around grid congestion have already benefited from the increase value of congestion revenue rights sold by CAISO. Prior to 2019 these righs solf for roughly 50% of their CAISO-assessed face value, but in the years since have appreciate since to sell for an average of 70% of their face value.

Looking forward, continued growth in battery storage suggests that this transformation is only beginning. As additional storage resources enter service across the West, market participants should expect ongoing changes in price formation, volatility patterns, and the role of thermal generation in meeting peak demand.

Battery generation growth in CAISO is forecast to continue to expand geometrically. From 2025 to 2028, 8.2GW of battery capacity is scheduled to come online in California alone, with another 19.4 GW planned for WEIM states. Even with an aggressive completion discount ratio applied to the interconnection queue, battery installations are set to surge 400% in California by the 2040s.

Noreva power and capacity forecasts illustrate how these shifting dynamics will be reflected in trade-aligned pricing. Capacity merchant curves for the CAISO Resource Adequacy product show long-term deflation as batteries back up cheap solar, a significant departure from years of chaotic price spikes as solar displaced baseload but still required expensive on demand gas backup.

For traders and investors, the key takeaway is that Western power markets are transitioning toward a system where storage often determines marginal supply conditions during critical hours. Understanding how batteries interact with renewable generation, transmission limits, and market design will be essential for identifying the next generation of trading opportunities in the region.

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