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Quarterly Energy Markets Insights for DER Owners

November 2025

Executive summary

Electricity price volatility has become one of the dominant economic and political issues of 2025. Across the country, commercial and industrial electricity costs are rising sharply at the same time that grid conditions are becoming more strained. The result: significant financial risk for U.S. businesses — but also unprecedented energy revenue opportunity.

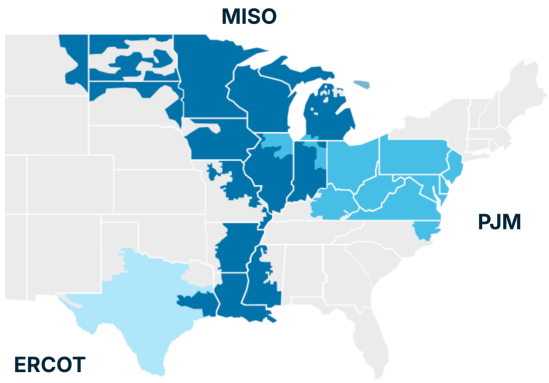
This report breaks down what is driving today's volatility and shows how large energy users and distributed energy resource owners can convert that volatility into new revenue streams through demand response (DR) and virtual power plant (VPP) participation.

There are four macro trends driving up the value of DR and VPP participation:

- Explosive load growth from data centers and AI that is outpacing generation construction
- Rapid renewable energy deployment requiring flexible balancing resources
- Declining grid reliability due to increased weather-driven emergencies
- Virtual power plants are transitioning from backup tools to essential grid infrastructure

Three high-value market opportunities:

- **PJM**: Record-high capacity prices are creating the highest DR earnings in years, with flexible energy users able to offset — or even exceed — rising capacity costs through capacity, peak avoidance, operating reserves, and economic DR programs.



- **ERCOT**: A sweeping market overhaul (new real-time market, redesigned ancillary services, ERS restructuring, and possible 4CP reform) is opening new revenue paths for loads that historically, could not participate.
- **MISO**: Tightening supply and record capacity prices have made this the most lucrative DR environment in the region's history, with strong value across capacity payments, emergency performance savings, and real-time price response.

Large energy users with operational flexibility, backup generation, or batteries are now positioned to offset rising electricity costs while supporting grid reliability.

Continue reading for more insights and opportunities across PJM, ERCOT, and MISO.

Macro trends

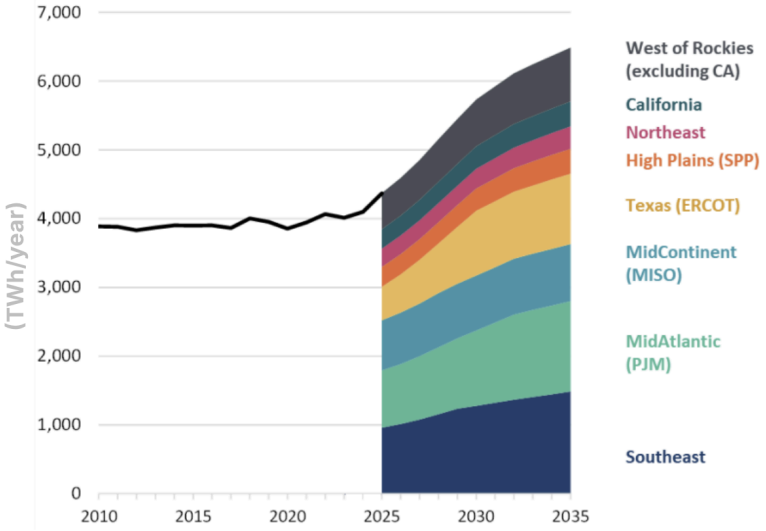
1. Explosive load growth

After decades of flat electricity demand, the U.S. is entering a multi-decade period of sustained load growth. Data centers, AI computing, electrification, and industrial expansion are driving regional demand curves upward faster than new generation can be built.

New data centers typically require 18–24 months to come online. New power plants typically take 5–7 years.

This mismatch is straining capacity margins across ISO footprints — pushing market prices up and dramatically increasing the value of demand response.

Forecasted Growth of US Electricity Demand

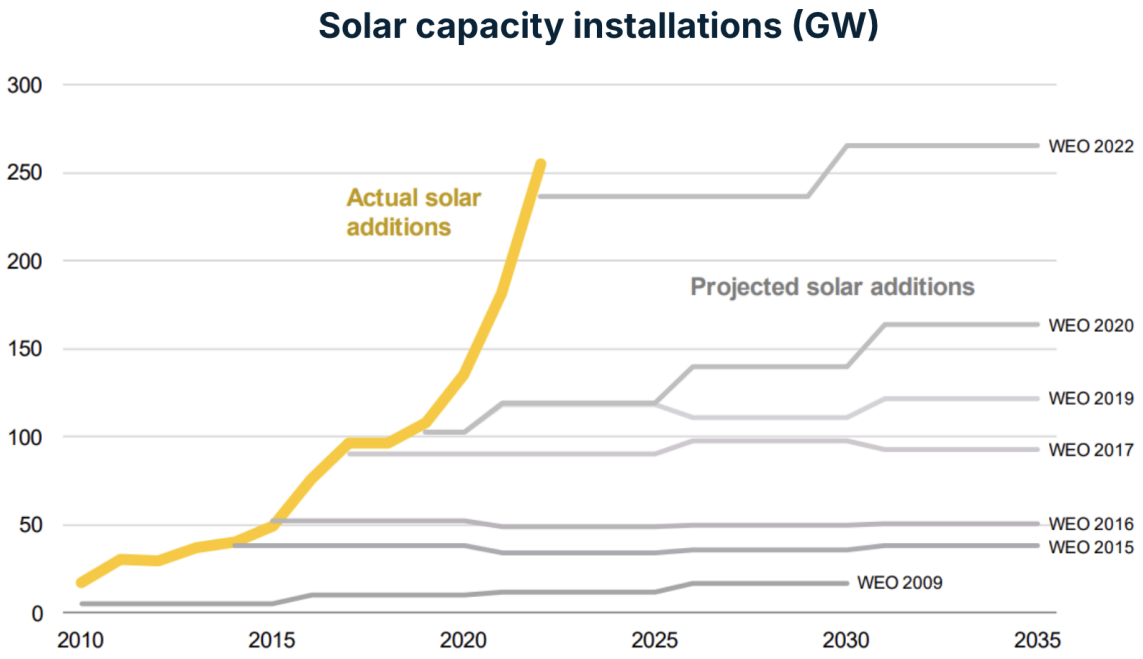


(Source: The Brattle Group, based on an aggregation of forecast from RTOs and utilities)

Electricity demand forecasts show significant growth across all U.S. regions through 2035, with the steepest increases occurring in areas like PJM (Mid-Atlantic) and ERCOT (Texas).

2. Rapid renewable energy growth

Renewable growth continues to exceed expectations. Solar and wind deployment is accelerating so quickly that planning models consistently underestimate the amount of variable generation coming onto the grid.

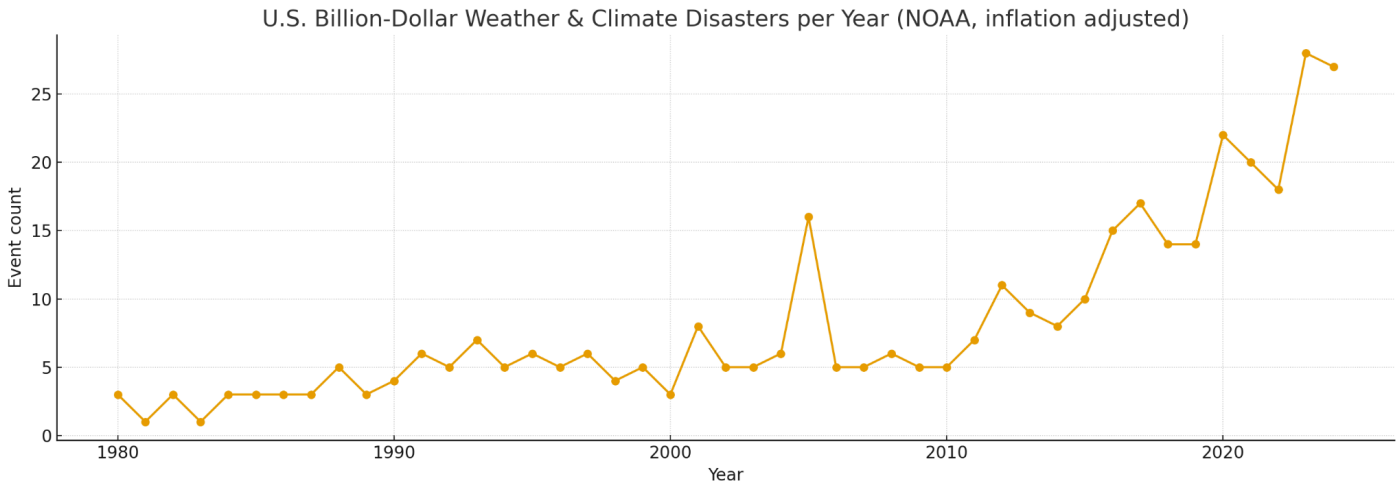


(Source: IEA STEPS Scenario)

This rapid shift requires more flexible balancing resources — exactly the type that energy users can provide through energy conservation, backup generation, and energy storage.

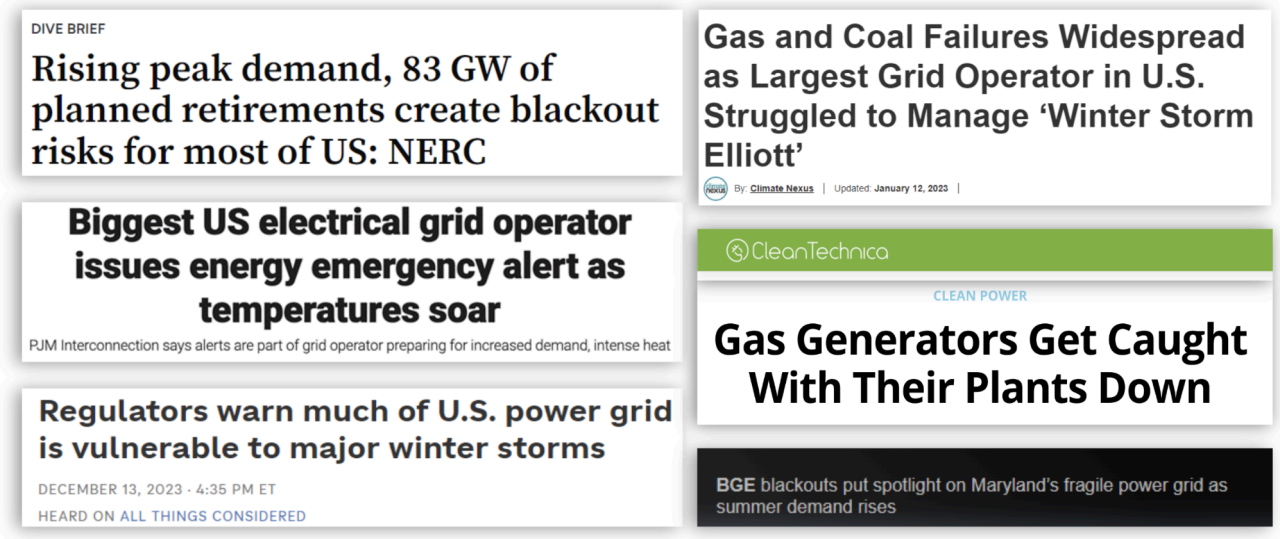
3. Declining grid reliability

Weather-driven grid emergencies are increasing in frequency and severity. Extreme cold snaps, heat waves, hurricanes, and wildfires are all stressing regional power systems.



(Source: National Oceanic and Atmospheric Administration (NOAA)

Events that once seemed extraordinary — Winter Storm Elliott, widespread summer heat emergencies, and fire-driven transmission outages — are now annual occurrences. **Grid operators now rely on DR and VPPs as frontline reliability assets. These are no longer emergency-only tools; they are integrated into daily grid operations.**

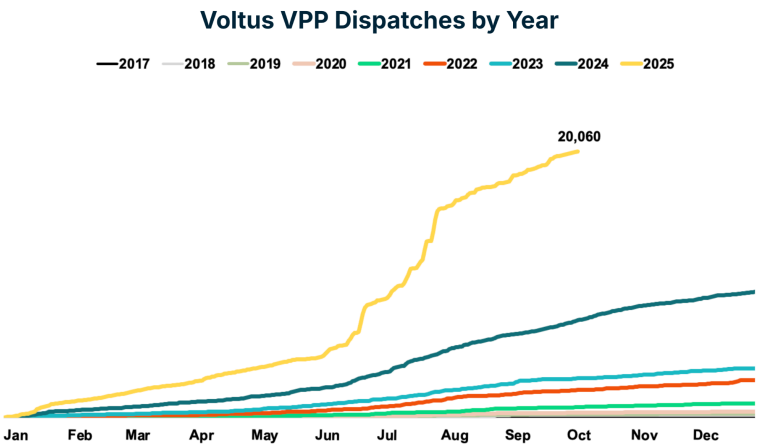


4. Virtual power plants move from "backup" to "backbone"

Read the full article in Latitude Media

As seen in the chart below, Voltus's VPPs are now dispatched in North America every single day.

Facilities with flexible load are increasingly treated like fast, reliable, and cost-effective power plants. This shift has meaningful financial implications: more opportunities to get dispatched and more revenue opportunities.

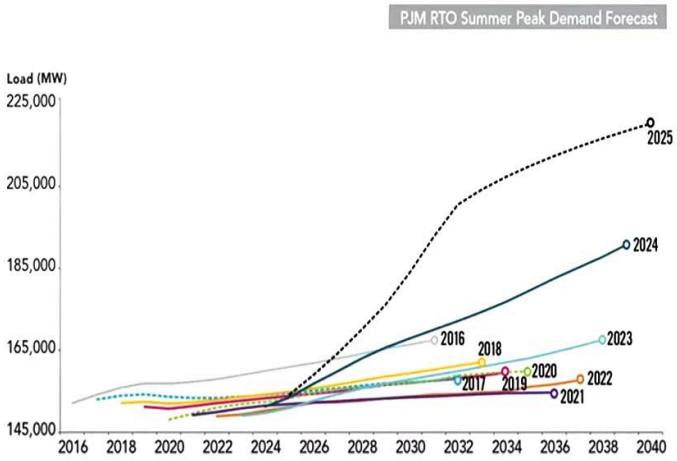


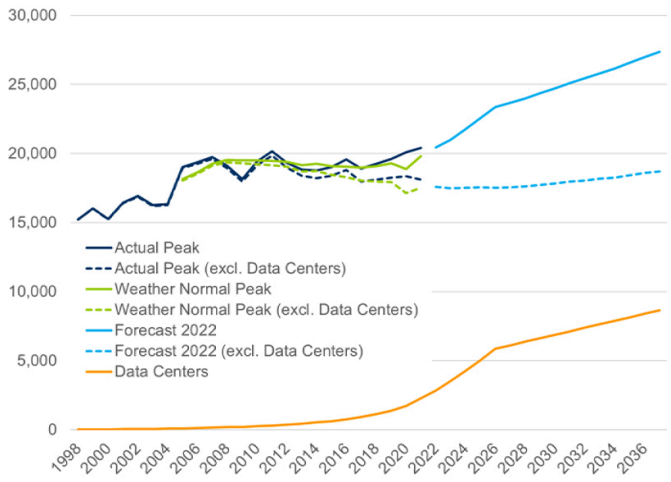
These macro trends are reshaping electricity markets nationwide, but the specific impacts and opportunities vary significantly by region. Understanding the distinct dynamics in PJM, ERCOT, and MISO is essential for large energy users looking to maximize the value of their demand flexibility. The following sections examine how these trends are creating concrete revenue opportunities in each market.

PJM

Record capacity prices = record DR earnings potential

PJM is experiencing one of the most dramatic demand surges in its history, driven largely by data center expansion. Demand is projected to hit 215 GW by 2040, with supply additions lagging materially.

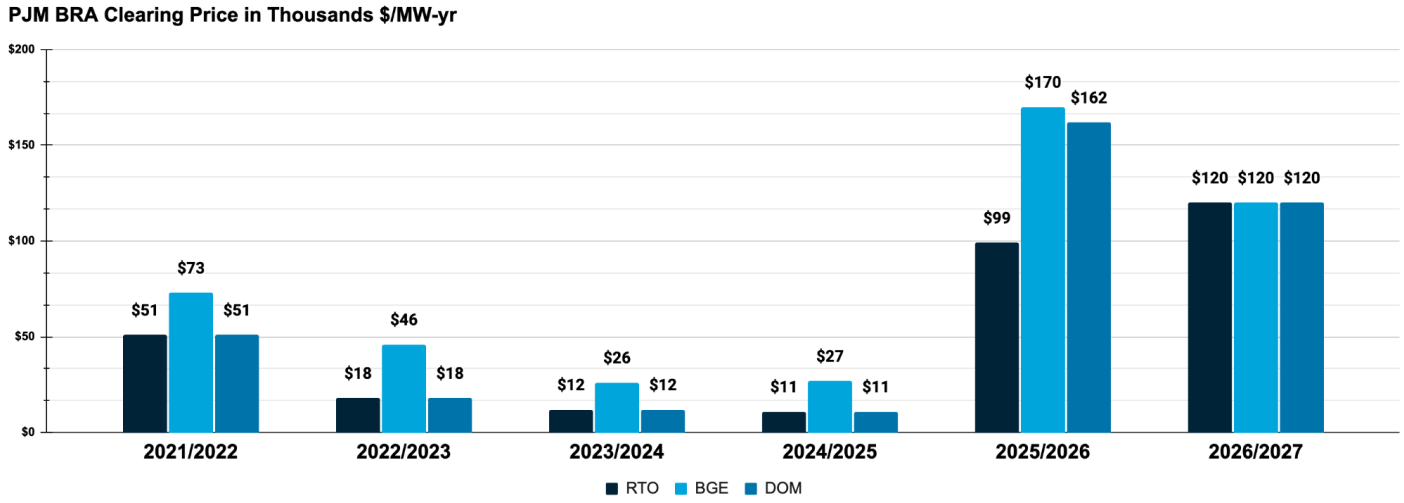




(Source: PJM)

Capacity auction outcomes

For the 2026/2027 program year, PJM's Base Residual Auction cleared at the market cap: $120,000/MW-year across all zones.



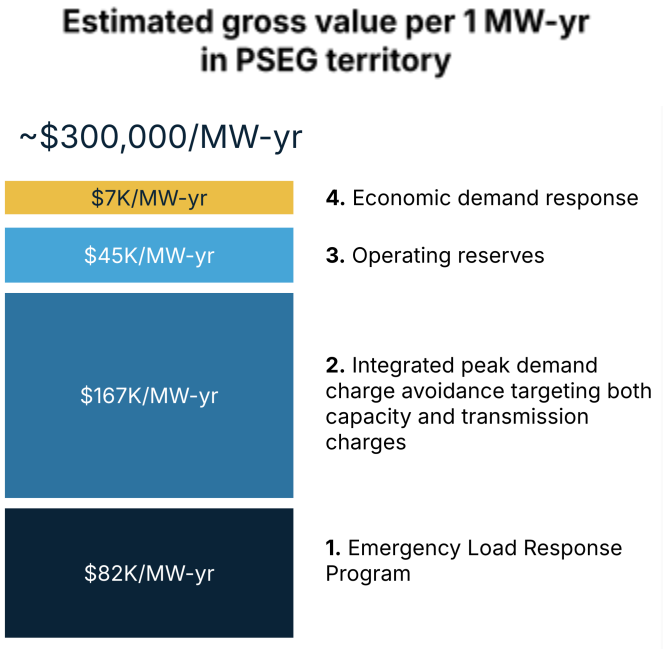
(Source: PJM)

The upcoming December auction will set pricing for 2027/2028, and all signs point to another extremely tight supply-demand balance.

There are four ways to capture value in PJM

1. PJM Emergency Load Response (ELRP): Earns capacity payments for being available during emergencies, plus performance payments during dispatches. High market prices make this one of the most valuable DR programs in years.

2. Peak demand charge avoidance (Peak Saver): Voltus's integrated Peak Saver program targets both capacity and transmission peaks. Given the magnitude of PJM's capacity prices, peak avoidance is now a mission-critical cost reduction lever.



Co-optimizing ELRP with Peak Saver is essential — mismanagement can lead to lost revenue or higher demand charges.

3. Operating reserves: A strong fit for flexible loads that can respond within ~10 minutes.

4. Economic demand response: Pays for curtailing during high-price periods in the hourly energy market.

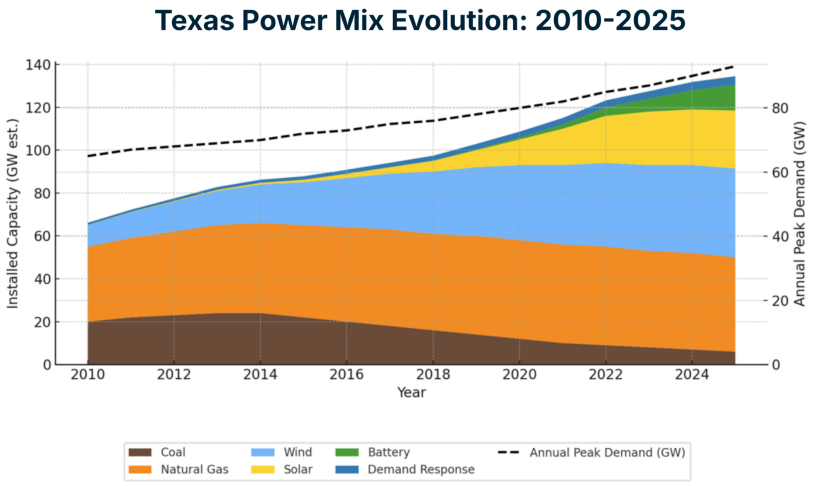
Key insight

Demand response can offset the impacts of PJM's record-high capacity prices. Working with a specialist is critical to choosing the right programs, designing a participation plan that is not operationally disruptive, and then maximizing value across selected programs.

ERCOT

Texas is undergoing a dramatic market overhaul

ERCOT's grid has transformed faster than any other market — with unprecedented growth in renewables, data centers, crypto loads, and battery storage. Solar and wind have exploded since 2010. Coal has nearly disappeared. Batteries are scaling on a curve similar to early wind and solar adoption. Meanwhile, peak demand keeps hitting new all-time records.



(Source: EIA, ERCOT Long-Term System Assessment, ERCOT DR & ERS data, Texas Comptroller (2024))

ERCOT's four major upcoming changes create new financial opportunity for large energy users:

1. Expected rise in ancillary services pricing

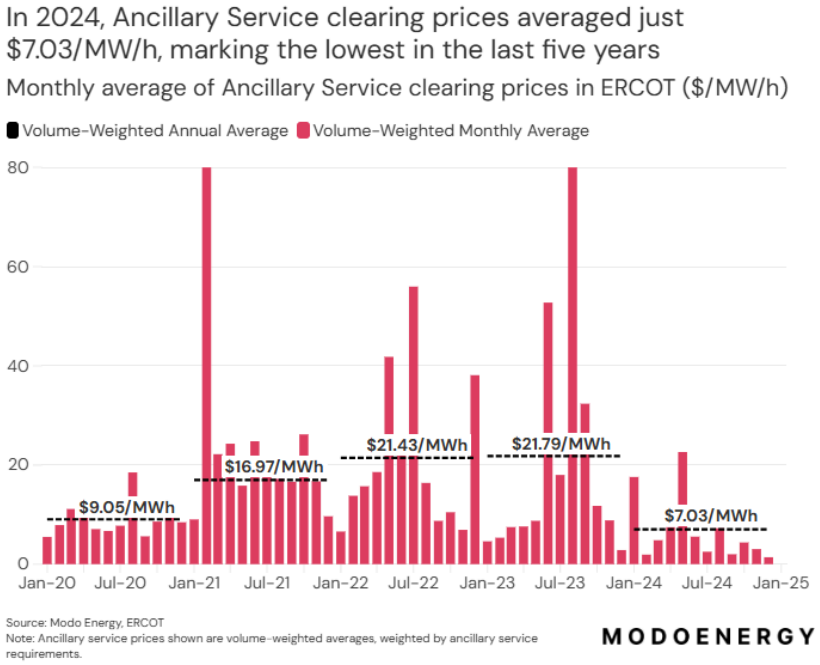
Battery saturation drove ancillary services pricing down sharply in recent years.

Example: Non-Spin fell from $195,000/MW (2022) to $24,000/MW (2024–2025).

But starting next month, ERCOT is launching a redesigned ancillary services market with:

- Co-optimized energy + ancillary services clearing
- A new real-time balancing market
- Improved alignment of true supplier cost curves

These changes are expected to push prices back up.



2. A new real-time market opens the door for more load participation

Previously, unpredictable or variable loads were excluded because:

- Offers had to be submitted day-ahead
- No compliant mechanism existed to update availability intra-day

The new real-time market eliminates these barriers.

As seen below, Voltus's AI Adjuster technology automatically updates load availability in real time — allowing facilities with variable operations to participate safely and profitably. This materially expands the pool of commercial and industrial energy users who can earn revenue from ancillary services.

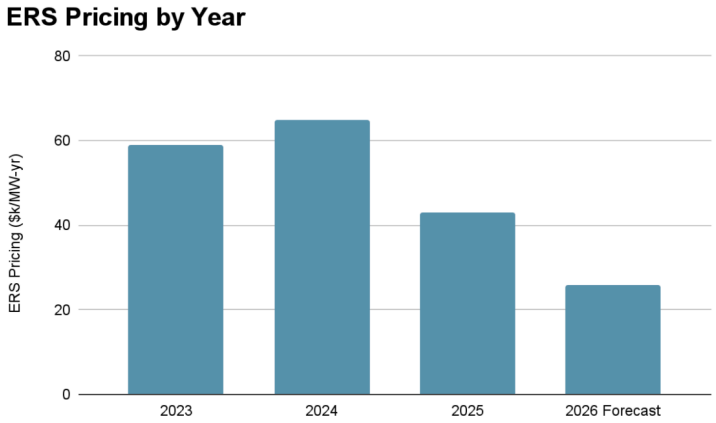
If you have opted out of ancillary services in ERCOT in the past because of low prices or because you were told you weren't a good fit due to a variable load pattern, now is a good time to reconsider participating.

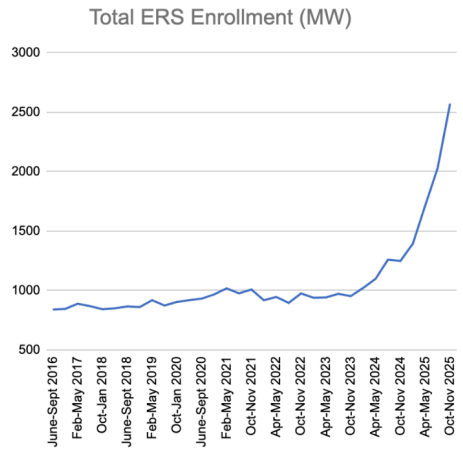
3. Potential removal of price-responsive load from ERS

ERCOT is signaling that loads that already curtail in response to high prices may be barred from participating in the Emergency Response Service (ERS) program.

Counterintuitively, this could be good for price-responsive loads. Here's why:

- ERS pricing has collapsed largely because price-responsive load has flooded the program
- Removing that load is expected to drive ERS pricing up, benefiting facilities with fixed baselines
- Price-responsive loads aren't stranded — they simply shift earnings into ancillary service markets where real-time flexibility is now rewarded





4. Major changes coming to 4CP (peak demand charges)

Texas's 4 Coincident Peak (4CP) model is under state review because:

- Data centers are so good at avoiding peaks
- This results in costs disproportionately shifting to smaller commercial and industrial customers

If 4CP is replaced or materially revised, the structure of peak demand charge avoidance in Texas could change significantly by 2026.

Voltus is engaged in this regulatory process and will advise customers as final rules emerge.

Key insight

ERCOT is undergoing sweeping structural changes. Energy users who act early can capture upside as ancillary pricing recovers, the real-time market opens access, and ERS and 4CP evolve.

MISO

Massive load growth + tight supply = high capacity prices

Data center growth is reshaping the Midwest energy landscape. MISO forecasts up to 7 GW of new data center load by 2030, surpassing EVs and building electrification as the leading driver of demand growth (Figure 12).

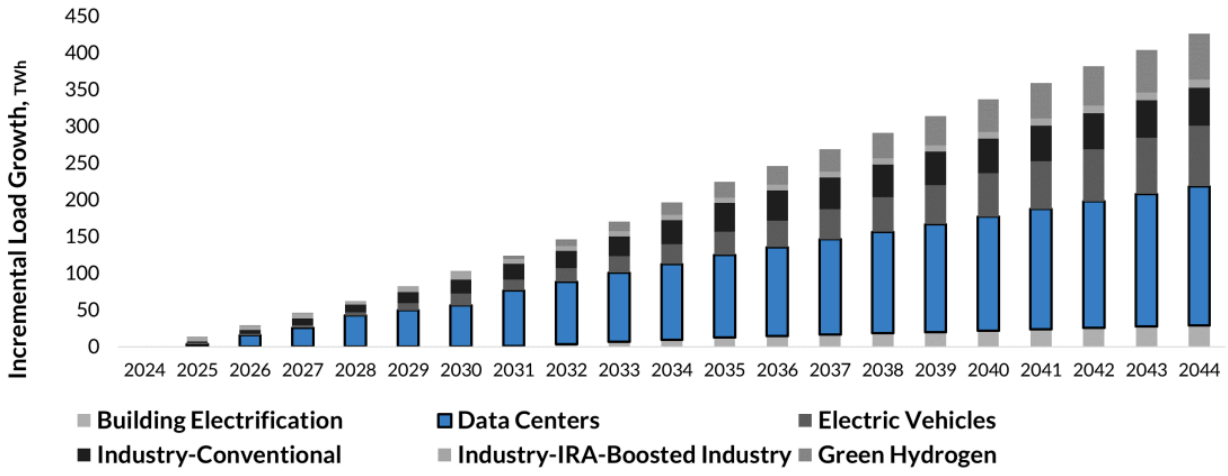


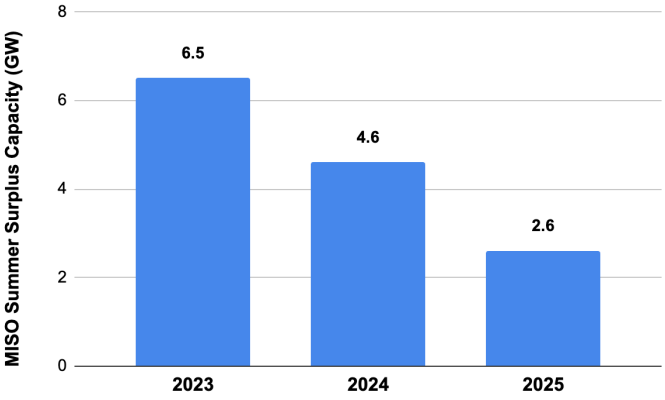
Figure 12: MISO Current Trajectory Incremental Load Growth Forecasts by Segment (TWh) – Data Centers Highlighted

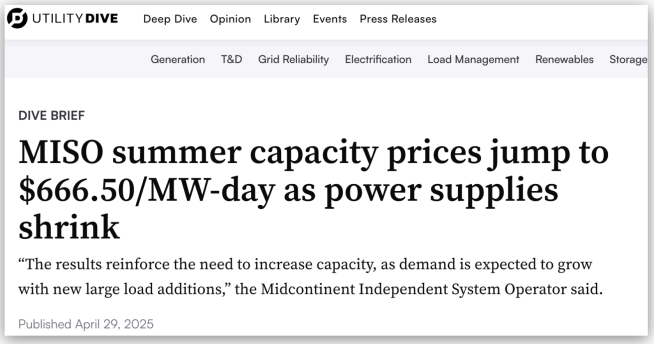
At the same time:

- Surplus summer capacity has shrunk from 6.5 GW (2023) to 2.6 GW (2025) (as seen in the chart below)

- Retirements of coal and gas plants continue
- Accreditation rules are tightening
- Fewer new resources are entering the market

The result: Capacity prices jumped to $666.50/MW-day — the highest in MISO history. This environment is extremely favorable for DR participation.

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DIVE BRIEF

MISO summer capacity prices jump to $666.50/MW-day as power supplies shrink

"The results reinforce the need to increase capacity, as demand is expected to grow with new large load additions," the Midcontinent Independent System Operator said.

Published April 29, 2025

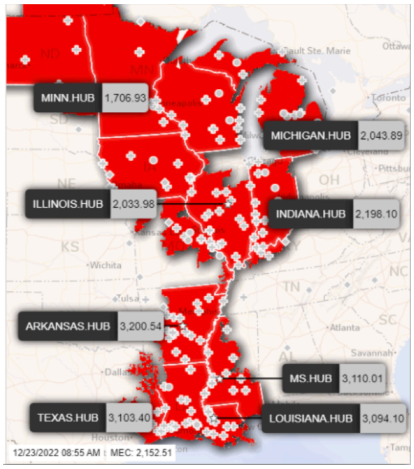
(Source: MISO)

There are three ways to capture value in MISO

1. Capacity payments (Load Modifying Resource Program)
Pays customers for being available and performing during grid emergencies or annual tests.

2. Emergency-event performance savings
Reducing load during emergency events avoids extreme energy costs — often $500 to $3,000/MWh.

- Every kilowatt-hour offset can translate into major avoided costs for commercial and industrial facilities.



3. Price response (economic DR)
Pays customers at real-time wholesale LMPs for reducing during price spikes.

During Winter Storm Elliott (Dec 2022), prices exceeded $2,000/MWh across large areas of MISO. Participating customers were paid those prices rather than paying them. Some earned more in three days than they earned all year from capacity payments alone. And, participation works regardless of retail structure — fixed price, variable price, or hybrid.

Key insight:

MISO's tightening supply conditions and record capacity prices make this the most lucrative DR environment in the region's history.

Conclusion

Across all three major markets covered in this report — PJM, ERCOT, and MISO — structural grid challenges and changes are driving unprecedented price volatility. But those same conditions dramatically increase the financial value of flexible load enrolled in VPPs.

Large energy users and DER owners who participate in DR today can:

- Offset high capacity and energy costs
- Generate new revenue streams from flexibility
- Strengthen local grid reliability
- Position themselves to benefit from evolving market structures

With the right partner — one who understands changing market dynamics and energy policy — energy users can turn volatility into a competitive advantage.

To learn more, visit www.voltus.co or contact info@voltus.co.