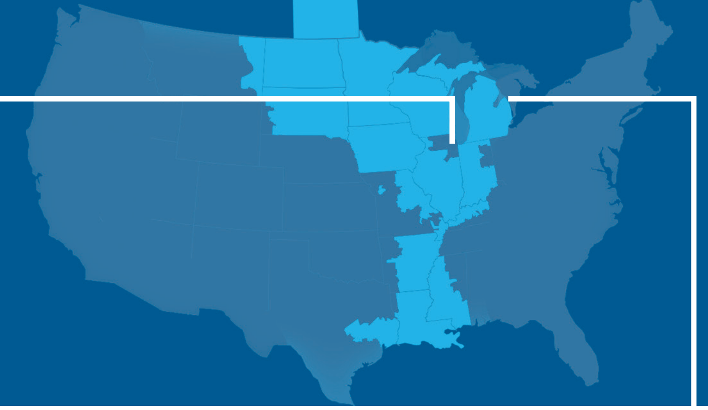
# Energy Storage in MISO



## Energy Storage Boosts Electric Grid Reliability & Lowers Costs

Energy markets that have evolved to integrate more energy storage are realizing significant benefits. Across the United States, energy storage facilities have become essential infrastructure, enhancing grid reliability and cost savings.

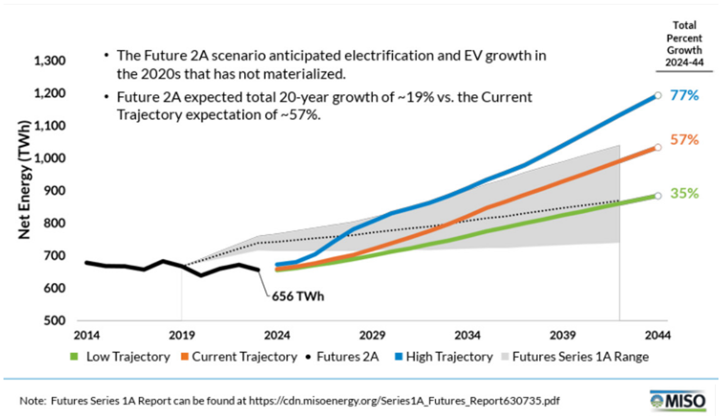
In Texas, energy storage has played a critical role in managing the state's rapidly rising electricity demand and volatile weather. During a single winter storm in Texas, energy storage helped keep the lights on and homes warm while saving the ratepayers more than $700 million in energy costs. That same year, throughout the Summer of 2024, energy storage resources enabled Texas to withstand historic electricity demand and Summer heat – providing reliability services that saved families and businesses more than $750 million compared to 2023. In California, energy storage has reduced the risk of black outs and brown outs – and in 2022, played a key role in preventing a costly grid failure.

Communities are also seeing the direct benefits of deploying local energy storage. In Nevada, a single energy storage facility built on the site of a retiring power plant will contribute to utility bill reductions of up to 20%. In regions with the greatest reliability challenges, energy storage has demonstrated its unique ability to enhance grid resilience while also making electricity more affordable.

### Energy Storage Can Help MISO Address Rising Demand for Electricity

**Since 2019, US energy storage deployment has grown 25x with almost 29 GWs now connected to the grid, representing enough capacity to cumulatively power 22 million homes.** In 2024, energy storage was the second most deployed resource, yet MISO lags other regional electric grids because of outdated market rules and restrictive modeling practices.

More than 12 GWs of energy storage resources were added to the grid in 2024 reinforcing its status as one of the fastest growing and most rapidly deployed energy infrastructure. As MISO anticipates a historic rise in peak energy capacity needs, other regions that have faced increasing electricity demand have relied on energy storage as a cost-effective, scalable solution to bolster grid reliability and expand capacity.




## ENERGY STORAGE IS READY TO QUICKLY FILL THE GAP

MISO's annual and peak load is expected to grow an additional 50 GWh and 9 GW by 2030. Storage is a key part of the solution to quickly and reliably meet that need.

- New energy storage capacity can be built in **12-18 months** to meet time-sensitive reliability needs
- Texas built more than **5 GWs of energy storage in 1 year** to support grid reliability
- MISO currently has **1.6 GW** of pending projects and **37 GW** in the Interconnection Queue.

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## States are Taking Action: 15+ GWs of Storage Targets Pending

States and utilities are driving the expansion of energy storage deployment. In Michigan, the state is planning to build more than 2.5 GWs of storage by 2030. Meanwhile Illinois has advanced 1.5 GWs of energy storage procurements in 2025 and is considering a target of as much as 15 GWs over the next decade. With sensible market reforms, regional grid operator MISO can help ensure these resources are able to maximize their benefit to the region.

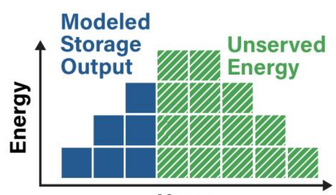
## MISO Modeling Undervalues the Reliability Contributions of Energy Storage

While several reforms that could enable MISO to better integrate energy storage, capacity accreditation remains an active high impact challenge. MISO is developing a new method for evaluating the capacity of its energy resources. The grid operator is reforming its **Direct Loss of Load (DLOL) methodology** and **Loss of Load Expectation (LOLE) modeling** to better assess grid reliability as the energy mix changes. Traditionally, MISO has used an annual LOLE metric, which estimates the probability of power shortfalls over an entire year. However, this approach doesn't fully capture the growing impact of weather-driven variability, renewables, and demand shifts. The DLOL approach introduces a forward-looking probabilistic analysis that evaluates resource performance during high-risk periods rather than averaging risks across a full year. However, MISO's proposed modeling of energy storage under this framework does not fully capture storage's true reliability contributions.

For example, deploying demand response (DR) only after all reserves are exhausted forces greater reliance on stored energy, which does not reflect real-world operations. If storage is dispatched before emergency procedures in the simulation, it depletes storage resources earlier, leaving them less available for high-risk hours and ultimately reducing its capacity accreditation. Instead, dispatching DR earlier to maintain reserves would preserve the availability of storage resources during those hours, better serving reliability needs and aligning with actual grid operations.

### "EARLY" METHOD

**No output** in **unserved energy** hours means 0 UCAP

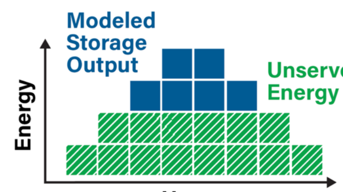



**36% Capacity**
In 2025-2026

MISO's status quo "Early" DLOL method shows no storage output during unserved energy hours. Because DLOL evaluates the marginal value of storage based largely on model output during load shed hours, this would yield an accreditation of zero. This is not an accurate assessment of the reduction in unserved energy when storage is added.

### "EVEN" METHOD

**Output** in **unserved energy** hours counts towards UCAP

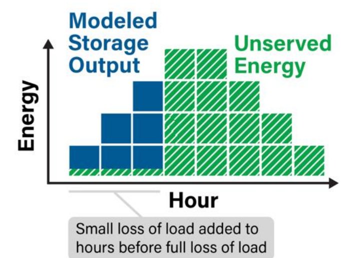



**62% Capacity**
In 2025-2026

"Even Loss" dispatches storage to minimize the depth of load shed. MISO states this is less realistic for load shed operations (although it is likely realistic for non-load-shed scarcity). Nonetheless, this DLOL evaluation better reflects the fact that an incremental addition of storage would directly reduce unserved energy.

### "BLENDED" METHOD

Combination of **Early** in **Even**




**50% Capacity**
In 2025-2026

MISO's intermediate "Blended" method is based on the Early method, with storage output slightly withheld in early hours (inducing some load shed), such that storage output in those hours count in the final accreditation evaluation.

Source: Brattle Group Analysis

## Accurate Storage Modeling Enables More Reliable & Affordable Grid

MISO's DLOL methodology also evaluates only a single snapshot, failing to account for how marginal storage additions improve reliability. By shifting energy from non-risk hours to risk hours, storage can reduce the likelihood of depletion and increase its capacity accreditation. While MISO's DLOL approach is less effective than a two-step ELCC methodology—which inherently compares a baseline with resource additions—MISO can better model and support energy storage deployment using an energy equity or capacity equity approach, as illustrated in the two graphs. This approach more accurately reflects the real-world performance of storage resources, enhancing grid resilience by aligning planning and resource adequacy requirements with actual system conditions.