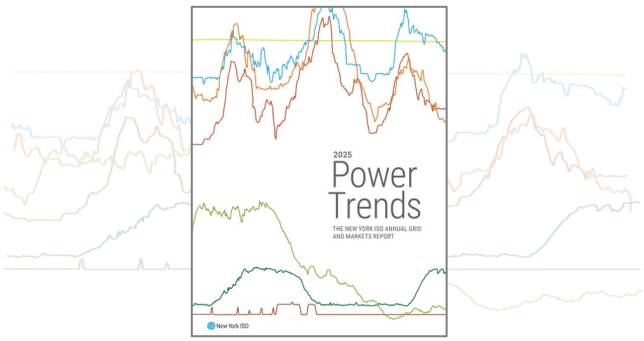
New York ISO

Power Trends 2025

STATE OF THE GRID & MARKETS REPORT



Power Trends explores the issues and challenges shaping the grid of the future based on the latest economic data, forecasts of peak demand and changing generation mix.

Our 2025 report underscores the heightened uncertainty of future system conditions and key assumptions such as population and economic growth, installation of behind-the-meter renewable resources, electric vehicle adoption and charging patterns.

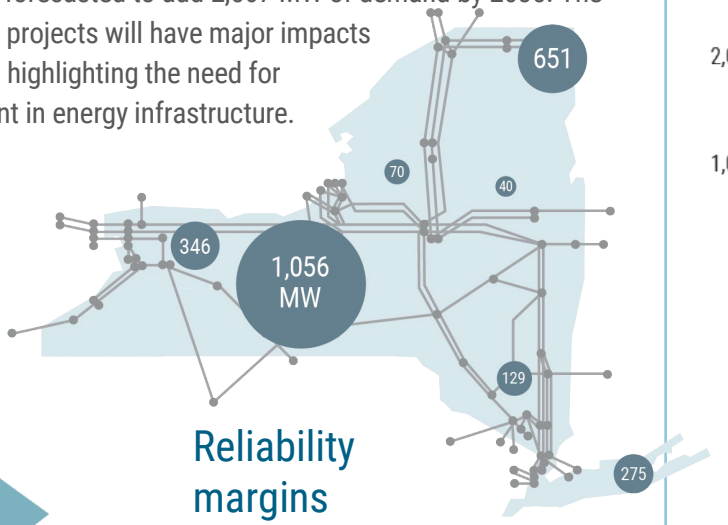
Specifically, the impact on the load forecast of several energy-intensive economic development projects, such as data centers and semiconductor manufacturing, provides additional forecasting and planning challenges.

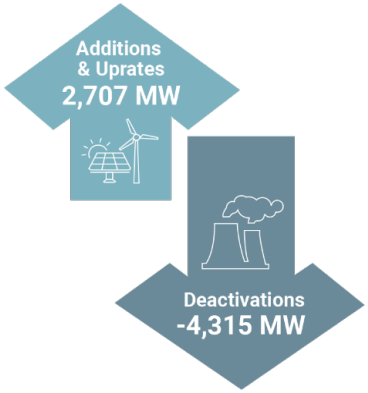
Key Takeaways

New high-tech, AI and data center projects are having an impact on future electric demand and load growth

The impact of large load assumptions on the forecast is significant. The pace of new load interconnection requests from data centers, high-performance computing projects and chip manufacturing has grown dramatically in recent years. Gold Book 2025 data shows that large loads are forecasted to add 2,567 MW of demand by 2035. The timing of these projects will have major impacts on system risk, highlighting the need for large investment in energy infrastructure.

2,567 MW of Expected Demand from Large Load Projects by 2035

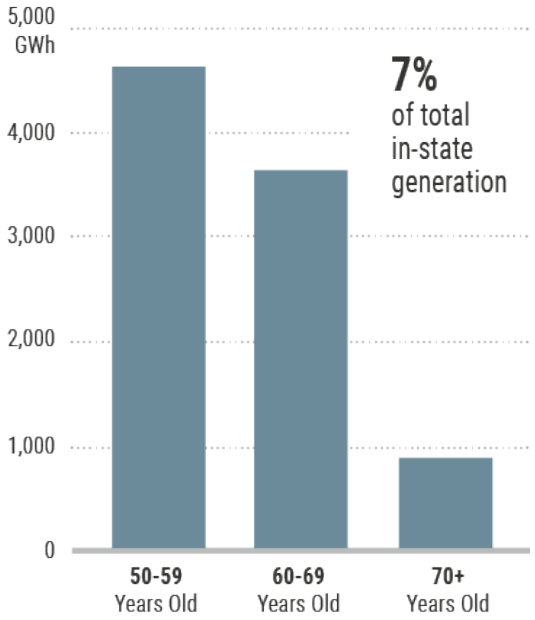




Reliability margins are declining

Since 2021, NYISO has reported on declining margins as fossil-based generation has deactivated in response to emissions goals and other factors. The addition of new generation has not kept pace with deactivations.

New York's fossil fleet is aging



New York's fleet of fossil-based generators are reaching an age when similar units across the country are retired.

9,217 GWh, or 7% of the state's 2024 energy production came from generators that are over 50 years old. More than 10,000 MW, roughly 25% of the state's total generating capacity has been in operation more than 50 years.

The fossil fleet provides essential reliability services to the grid.

Maintaining reliability of the grid during a time of great change

Our planning engineers run multiple scenarios to examine a range of possible outcomes. This better prepares us for the future of the electric system. While our forecasting work has become more complex, we embrace this challenge to serve our mission as an independent, authoritative source of critical information on the changing electric system.

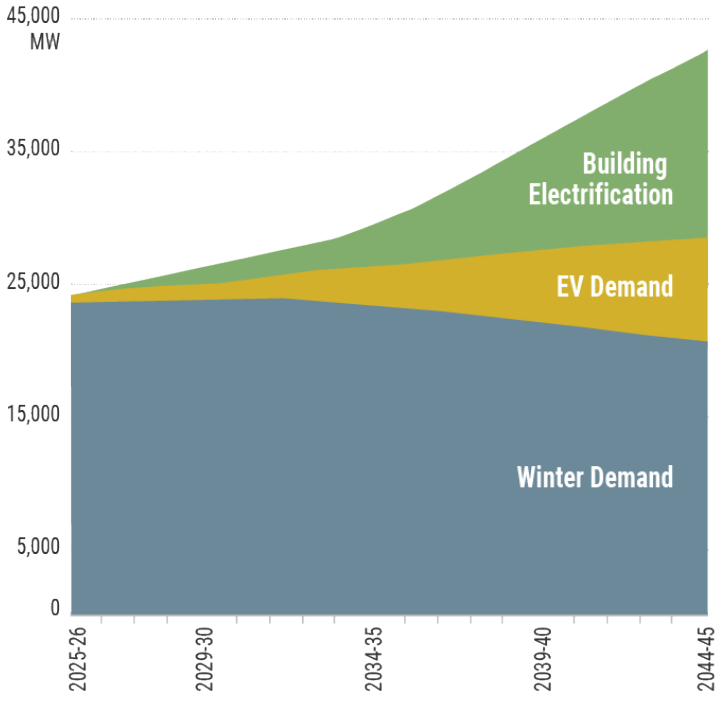
A record number of renewable energy projects are seeking to connect to the grid through an enhanced, streamlined process

Nearly 240 project proposals are under evaluation in the NYISO's streamlined interconnection process. All but one are wind, solar, and energy storage resources. Together, the capacity of those projects is about 35,000 MW.

NYISO's interconnection process has evolved to balance developer flexibility with the need for more stringent timeframes. New processes streamline study timelines while maintaining a focus on electric system reliability.

Drivers of winter demand growth

New York's electric grid is currently summer-peaking but will shift eventually to winter-peaking, with demand expected to grow by approximately 14,000 MW by the year 2040. In fact, some parts of the state are already winter-peaking. As more consumers rely on electric space heating, electric appliances and electric vehicles we must continue to maintain reliability.



Modernizing aging generation can offer a bridge to a cleaner, more reliable grid of the future

Benefits of repowering include:

- **Increased efficiency & capacity:** Newer technologies can generate more power with the same or less resources.
- **Reduced environmental impact:** Modernizing equipment can reduce carbon emissions.
- **Improved stability & reliability:** Upgrading components can extend their lifespan and may offer "voltage support" which bolsters electricity flow over distances.
- **Cost Savings:** Repowering can be less costly than building a new plant, especially when existing infrastructure can be utilized.

The strength of competitive markets to attract needed investment in the grid

The grid needs investment and innovation to maintain reliability and meet rising consumer demand for electricity.

During a time of changing policy mandates, supply chain constraints, and economic uncertainty, competitive wholesale electricity markets administered by the NYISO continue to provide superior cost efficiency and strong investment signals.

The markets provide real-time price signals that encourage efficient use of resources. Competitive markets shift investment risks from consumers to suppliers.

The changing nature of the grid requires continuous enhancements to competitive electric markets to ensure that market signals drive reliability and efficiency to support the health, safety, and welfare of New Yorkers.

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