Power Trends 2024

The New York Independent System Operator's state of the grid and markets report

The shift from fossil fuel-based generation to clean energy resources is advancing with a quickening pace. At the same time, consumer demand for electricity is increasing as state policies decarbonize the building and transportation sectors and attract large economic development projects to New York. The successful transition of the electric grid depends on the careful balance of reliable energy supply with the forecasted increase in demand.

The power of competitive electricity markets to attract new resources while protecting consumers

For 25 years, competitive electricity markets have provided New Yorkers with reliable, least-cost power by producing real-time price signals that allow power suppliers to respond to the grid's changing needs. With ever-increasing intermittency, extreme weather, and demand from electrification and economic development, the balancing force of markets is essential.

First in the nation DER integration

In April 2024 we launched a program to integrate DER aggregations over 10 kilowatts into competitive electricity markets to provide grid reliability services.

Through ongoing, effective engagement with stakeholders and policymakers, the NYISO continues to prepare the wholesale electricity markets of today for the needs of consumers tomorrow.

Enhancements underway include:

✓ **Winter reliability capacity enhancements**
A winter-peaking system introduces new reliability challenges on the coldest days. Proper price signals are needed to encourage participation from supply resources with firm arrangements.

✓ **Dynamic reserves to balance intermittency**
New requirements will more accurately account for uncertainty and procure added reserves at the lowest cost to consumers.

✓ **Advanced storage modeling**
Efforts are underway to develop capabilities and tools for grid operators that allow storage resources to provide load and supply to the grid.

✓ **Carbon pricing**
Our proposal incorporating a cost of CO_2 emissions in electricity markets can help New York meet its CLCPA goals faster and more cost-effectively.

Improving the interconnection process

Driven by state and federal policies, an unprecedented number of renewable and clean energy projects entering our interconnection queue. In 2019, there were 275 projects in the queue. Today, more than 500 projects are under consideration. Recent enhancements to our processes, interconnection team, and technology have led to measurable improvements.

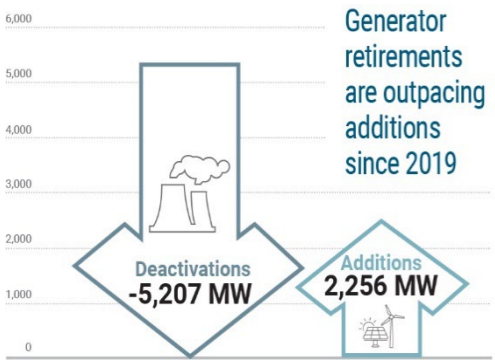
Building on recent improvements, we're hard at work reforming the interconnection process to comply with the Federal Energy Regulatory Commission's Order 2023. Those reforms will further shorten the total study period while maintaining a focus on system reliability.

7,452 MW

of new wind, solar, energy storage, and transmission expansion projects competed their final interconnection study in 2023

Power Trends 2024

Annual state of the grid and markets report

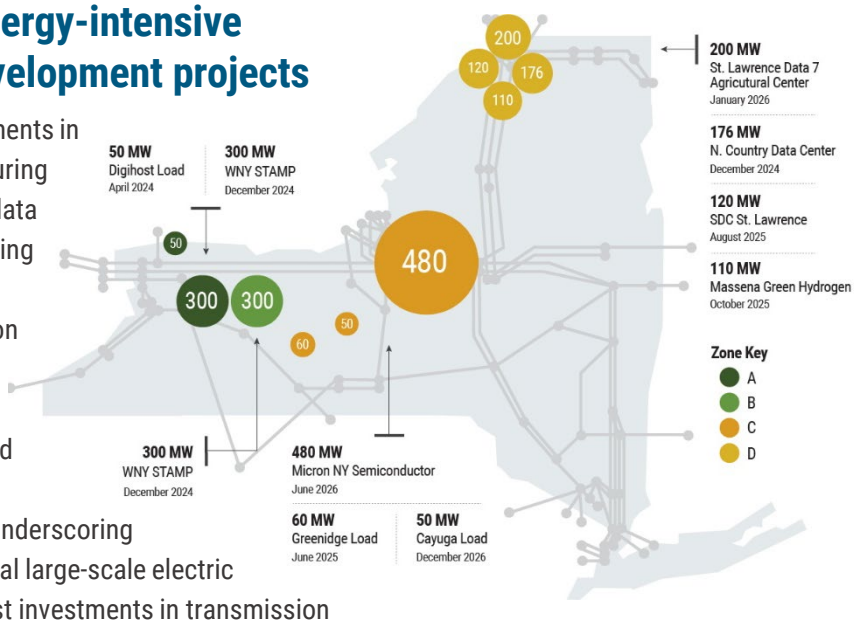


Declining reliability margins

Traditional fossil-fueled generation is retiring faster than clean energy resources are entering service. This has, in part, contributed to declining electric system reliability margins across the state. Strong reliability margins contribute to the ability of the power system to meet peak demand or respond to sudden disturbances and avoid outages.

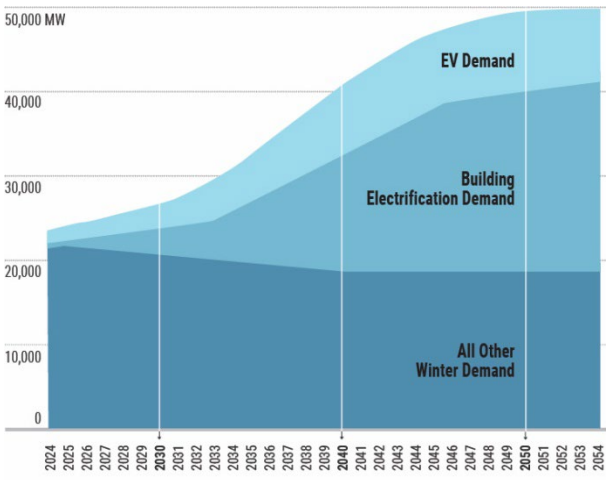
New large, energy-intensive economic development projects

Several large investments in microchip manufacturing and state-of-the-art data centers are contributing to the increase in forecasted demand on the electric system. These new facilities are expected to consume great amounts of energy, underscoring the need for additional large-scale electric generation and robust investments in transmission and distribution infrastructure.



Impact of electrification on statewide winter peak demand

The grid is expected to become a winter-peaking system in the mid-2030s as winter demand grows to accommodate electrification. As more consumers rely on electric heating, the NYISO must ensure the grid is prepared to supply winter peak periods reliably. Current winter reliability margins are sufficient. However, if natural gas becomes unavailable, and supply cannot be secured elsewhere, statewide deficiencies could arise as soon as winter 2029-2030.



WHAT'S NEXT?

Our upcoming 2024 *Reliability Needs Assessment* (RNA) will evaluate risk factors, such as winter conditions, large industrial loads, and anticipated generator deactivations that could potentially lead to deficiencies in reliable electric service over the planning horizon.

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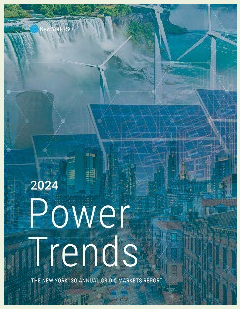

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