New York ISO

2026 Power Trends

Annual Grid & Markets Report

THE NEW YORK INDEPENDENT SYSTEM OPERATOR (NYISO)
is a not-for-profit corporation responsible for operating the state's bulk electricity grid, administering New York's competitive wholesale electricity markets, conducting comprehensive long-term planning for the state's electric power system, and advancing the technological infrastructure of the electric system serving the Empire State.

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Published annually by the NYISO, the *Gold Book* presents New York Control Area system, transmission and generation data and NYISO load forecasts of peak demand, energy requirements, energy efficiency, and emergency demand response; existing and proposed resource capability; and existing and proposed transmission facilities.

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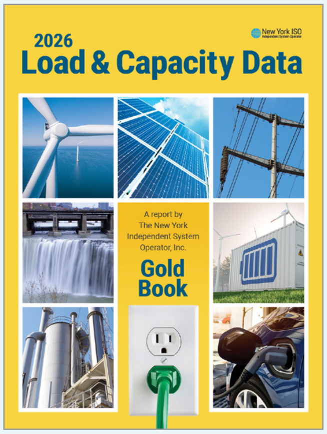

A letter From the CEO

The transformation now underway in New York's electric system stands alongside two defining periods in our history: the original buildout of the grid during the turn of the last century, and the sweeping expansion that followed World War II. In each of those moments, the Empire State met a surge in economic growth and technological change with vision, investment, and a commitment to reliability.

Early planners recognized the importance of building a system that could support industry, communities, and long-term prosperity. New York benefited from a remarkable diversity of energy resources, including the development of the Niagara Power Project, which harnessed one of the state's most abundant natural assets to deliver reliable, low-cost electricity at scale. Later, investments in safe, advanced nuclear generation helped provide power that supported decades of industrial growth, strengthened the state's manufacturing base, and improved the quality of life for millions of New Yorkers.

Those decisions were not made in response to immediate needs alone. They reflected foresight about the demands of future generations. As a result, New York built one of the most robust and reliable electric systems in the nation, enabling sustained economic expansion and supporting the health, safety, and prosperity of its residents.

Today, we face another moment of comparable significance.

New York's grid is once again being reshaped by the convergence of technological advancements, evolving public policy, and changing patterns of supply and demand. The transition to a cleaner energy system, combined with rapid electrification and new energy-intensive economic development, is creating both opportunity and risk at a scale not seen in decades.

The NYISO's recent planning studies and operational experiences tell an emerging and consistent story: reliability margins are tightening, and the system is becoming more sensitive to uncertainty.

Across the state, longstanding generation resources are retiring or aging, while new supply is not being added at the pace or with the characteristics necessary to fully replace them. As a result, the electric system is operating with narrower margins for error, increasing exposure to extreme weather, fuel constraints, and variability in both supply and demand.

At the same time, electricity demand is rising and becoming more difficult to forecast. Electrification of buildings and transportation, combined with rapid growth in large energy-intensive projects such as data centers and advanced semiconductor manufacturing, is placing additional pressure on the system. These trends are reshaping how and when electricity is needed, shifting risk toward winter months and increasing the need for resources that can respond flexibly and perform reliably under sustained stress.

A central challenge is the growing gap between the operational capabilities required to maintain reliability and those provided by the evolving resource mix. Conventional generating units, many of which are 50 to 70 years old, continue to supply critical reliability services, including dispatchable output, voltage support, and dependable multi-hour performance. Yet these units face increasing risks of outages, maintenance constraints, and retirement pressures.

These conditions underscore a fundamental need: New York requires additional new generation and infrastructure, especially resources that are flexible, dependable, and capable of operating through extended periods of high demand.

The good news is that New York has a strong foundation to meet such challenges. Competitive wholesale electricity markets remain one of the state's most effective tools for maintaining reliability and attracting necessary investment while minimizing costs to consumers.

The competitive electric markets administered by the NYISO reward operational excellence, incentivize flexibility, and encourage innovation across all resource types. They guide investment toward the resources and locations on the electric system where they are needed most. All while allocating investment risk to private developers rather than consumers and shielding ratepayers from the cost of uneconomic or underperforming investments.

In this way, wholesale electricity markets serve multiple essential functions at once: they support reliability, reduce costs through competition, protect consumers from financial risk, and enable the system to adapt to changing conditions.

Yet the system must be supported by policies that recognize these present and emerging risks while taking necessary action toward solutions that align with operational needs.

Electricity is foundational to New York's economy, public health, and quality of life. It powers homes and businesses, supports critical services, and enables continued economic growth. Ensuring that electricity remains reliable at reasonable cost is essential to every New Yorker.

The challenges before us are real, but so too are the tools available to address them. By aligning market structures, policy objectives, and investment decisions, New York has the opportunity, once again, to evolve our electric system to support economic growth, protect public health and safety, and strengthen the Empire State for generations to come.

Sincerely,

Rich Dewey

Rich Dewey
President and CEO

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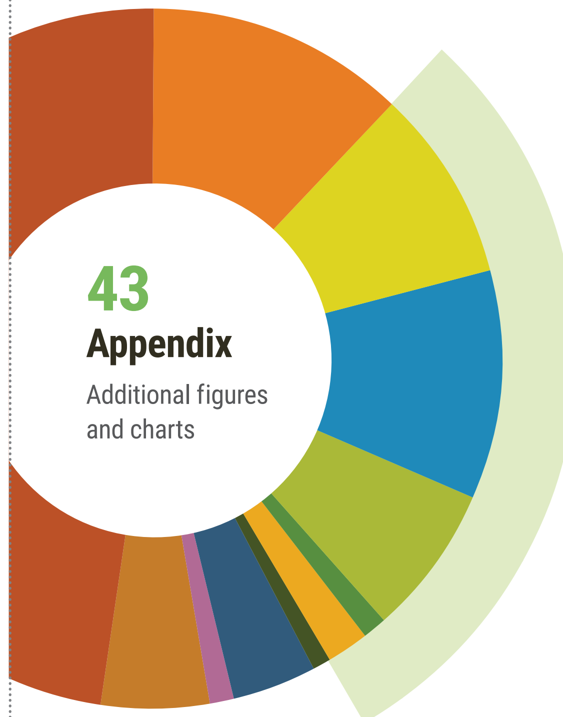


New York's grid of the future

Overview

New York's electric system is in the midst of a historic transformation driven by simultaneous changes in supply, demand, and infrastructure. Public policy is accelerating the transition of the generation mix, resulting in the retirement of long-serving fossil-fueled resources and growth in renewable generation and energy storage. At the same time, electricity demand is increasing and becoming more uncertain, shaped by electrified heating and transportation, emerging technologies, and large energy-intensive economic development projects.

These changes are occurring on a grid originally designed to serve more predictable demand with conventional generation located close to load. Today, the system must support a resource mix that is more geographically dispersed, increasingly weather-dependent, and operationally complex. As a result, the way the grid is planned and operated is being fundamentally reshaped.

Maintaining reliability through this transition depends not only on the quantity of resources connected to the system, but on whether the evolving resource mix can provide the operational capabilities required under real-world conditions. Seasonal risk profiles are shifting, with winter conditions emerging as a defining reliability challenge. At the same time, the system's reliance on an aging generation fleet introduces additional uncertainty around resource availability during periods of stress.

Disciplined planning, timely investment, and market structures that can adapt to growing uncertainty will be essential to pursuing clean-energy goals in a reliable and affordable manner. As load growth, resource development, and transmission expansion increasingly unfold on different timelines, the electric system must be capable of performing across a wide range of plausible futures, not just a single expected set of conditions.

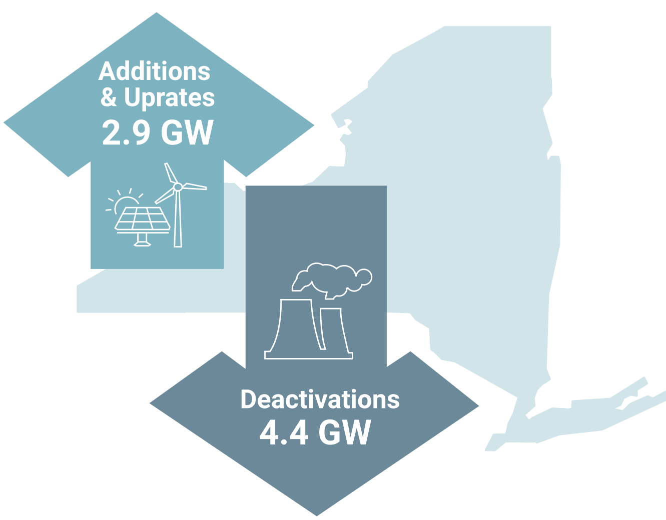
Markets and planning processes play a central role in managing these risks by aligning investment with system needs, valuing operational performance during stressed conditions, and limiting reliance on potentially costly and less efficient emergency actions to preserve reliability. Public policy also plays a decisive role. Policies that recognize emerging risks and enable flexible, risk-aware solutions will support a smoother transition. How New York navigates this period will shape not only grid reliability, but also the cost, certainty, and sustainability of electricity service for households and businesses statewide.

Reliability margins are declining

New York's electric system is operating with the narrowest reliability margins in recent years. Multiple factors are converging to reshape these margins, collectively exposing the system to greater risks from extreme weather, fuel supply uncertainties, and rapid shifts in supply and demand.

A key reason for tightening margins is that generator deactivations are outpacing new supply additions. As aging fossil-fuel plants deactivate or experience performance declines, the system loses assets that provided dependable, multi-hour output and operational flexibility. New resources, primarily wind, solar, and shorter-duration storage, offer benefits but currently lack the full range of capabilities needed to sustain essential grid services during extended stress events. This creates a widening gap between what operators require and what the evolving fleet can reliably deliver.

FIGURE 1: ADDITIONS AND DEACTIVATIONS SINCE 2019



At the same time, shifting load patterns are increasing operational risks. Electrification of buildings and transportation, along with growth in large load facilities, is driving greater peak load uncertainty and steeper hour-to-hour ramps. Under extreme winter conditions, demand can surpass forecasts significantly, leaving little room for contingencies. As demand grows and becomes more unpredictable, the system needs more dispatchable and flexible resources to maintain adequate reserves and adapt to real-time supply changes.

Trends shaping system conditions

> **Aging generation** is a growing and measurable risk. Improved analytical tools highlight rising outage risks among older fossil-fueled units that continue to provide essential reliability services, elevating aging infrastructure as a key planning consideration.

> **Winter conditions** now drive key reliability stress cases. Fuel constraints affecting gas-only generation, combined with rising winter demand, have shifted critical risk considerations from summer to winter, increasing reliance on demand response and emergency measures during cold weather events.

> **Potential demand from large loads** is growing and less predictable. While electrification of the housing and building sectors continues to drive demand upward, potential demand from large loads — including data centers — is rising. This growth is difficult to forecast due to uncertainty with construction timelines, permitting, and evolving state policies. It also increases the need for flexible, dispatchable generation capability.

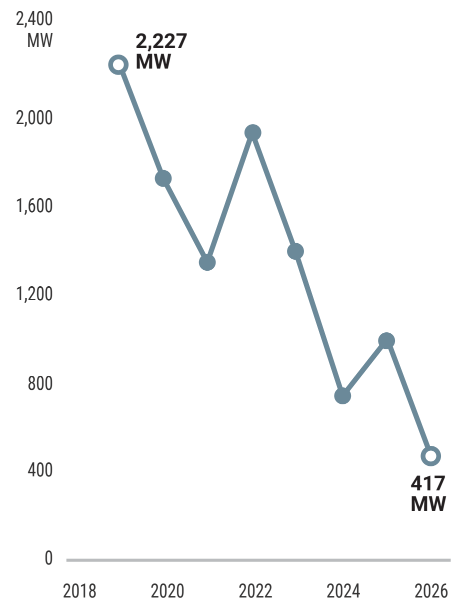
> **System uncertainty** is widening. Electrification trends, renewable output variability, extreme weather, fuel constraints, and large load development have expanded uncertainty ranges, reinforcing the importance of scenario-based, risk-aware planning frameworks.

> **Reliability assessments** indicate that transmission security concerns could arise as early as summer 2026 in New York City and summer 2027 on Long Island. System reliability is increasingly dependent on the timely completion and performance of a small number of major future projects.

These risks are no longer hypothetical. Recent operations show that extreme weather quickly erodes already slim reliability margins, forcing operators to take extraordinary measures beyond traditional planning assumptions. In the past two winters, sustained cold spells pushed the system near its limits, requiring frequent emergency actions, including activation of demand response, to stabilize operations. Emergency procedures were used far more often than in previous years, highlighting that the grid is under increasing strain. The *2025–2034 Comprehensive Reliability Plan* (CRP) warns that growing reliance on emergency measures underscores the urgent need for timely integration of flexible, dispatchable resources and expanded transmission capacity.

Fuel availability is another critical aspect of reliability. During severe cold, gas-fired generators that are essential for winter reliability face fuel availability constraints as natural gas is prioritized for heating customers. Even with robust planning and operational practices, fuel security limitations can reduce dispatchable capability just as demand peaks.

FIGURE 2: SUMMER BASELINE CAPACITY MARGINS



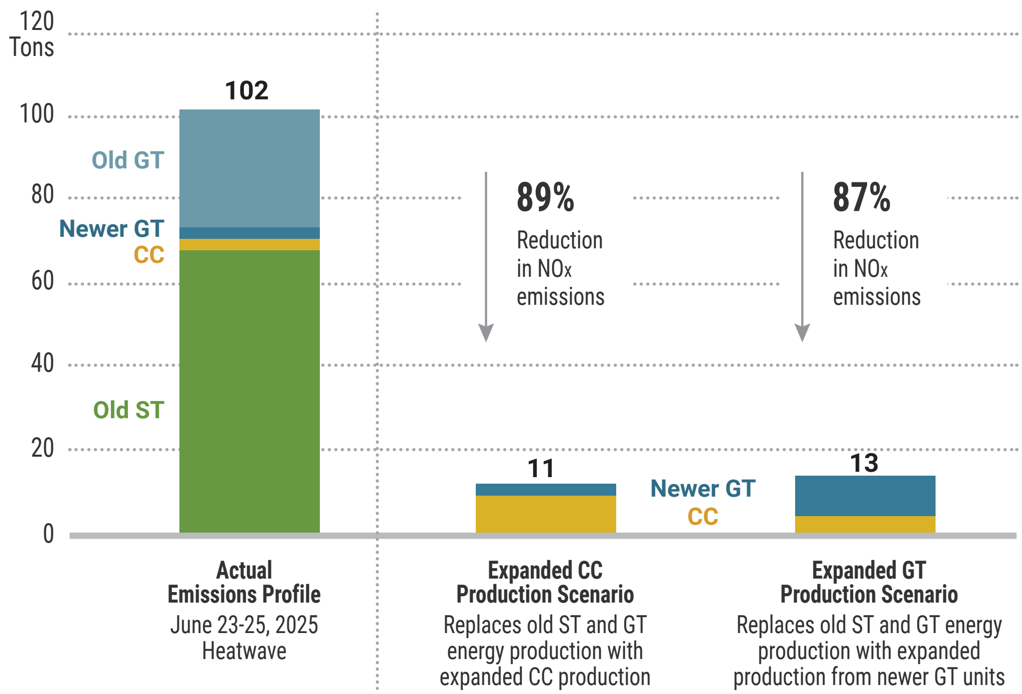
Looking ahead, the reliability outlook depends on the timely completion and proven performance of major transmission projects and new resource additions, as well as progress toward integrating technologies that can provide longer-duration and/or weather-independent reliability services. Until these projects are operational and effective, the system will continue to operate with shrinking safeguards, leaving less room for unexpected events.

An aging generation fleet

New York's fossil-fuel generation fleet continues to provide many of the essential reliability attributes that keep the grid stable, including fast ramping capability, multi-hour performance, inertia, voltage support, and dispatchable, dependable supply. However, a significant share of this fleet is now more than 50 years old, with some units approaching or exceeding the end of the typical economic and/or mechanical life of similar generation facilities across the nation. As units age, the likelihood of forced outages and more frequent and extended maintenance periods increases, reducing the certainty that these resources can be counted on during periods of system stress.

Aging generation also has important implications for emissions. Many older steam and simple cycle combustion turbine units operate with significantly higher Nitrogen Oxide (NOx) emissions rates than modern generation technologies. An analysis of the June 2025 heatwave that occurred over three days found significant potential for lowering emissions during such events by replacing aging equipment. Old gas turbines contributed only about 2.5% of the energy generated from New York City-based power plants during that period but caused 28% of NOx emissions. Aging steam turbines were another source of high emissions. Comparing the output of older units with newer combined cycle or gas turbine resources shows that repowering or replacing aging facilities can materially reduce emissions, potentially lowering NOx by more than 85%, with concurrent reductions in Carbon Dioxide (CO_2) over time. Conversely, continued reliance on an aging fleet, especially during peak operating conditions, tends to result in higher emissions intensity for the electricity produced.

FIGURE 3: NEW YORK CITY EMISSIONS VS. ENERGY REPLACEMENT SCENARIOS DURING JUNE 23-25, 2025 HEATWAVE



As public policy accelerates the retirement of fossil-fuel units, the system is losing resources that historically supplied the full suite of dispatchable reliability services. New renewable and storage resources, while critically important for decarbonization, do not yet provide comparable attributes at scale, especially for long-duration or severe-weather conditions. This widening gap between the capabilities needed and the capabilities entering the system contributes to shrinking reliability margins, increasing uncertainty in long-term planning. This uncertainty is amplified by the growth in demand from electrification and new large load projects.

NYISO planning studies are beginning to reflect this exposure by incorporating retirement risk based on unit age into reliability assessments. Many older units face regulatory, economic, and operational pressures simultaneously, making their continued availability less certain year-to-year. This elevates the importance of strategic repowering, life extension projects, or technology upgrades at existing sites, particularly in downstate regions. Such investments can preserve essential reliability services while also lowering emissions relative to continued operation of older equipment.

In short, the aging fleet remains a critical but increasingly vulnerable component of the system. Aging resources create uncertainty that can introduce cost pressures if replacements do not come online in time. Managing this transition effectively will require careful planning, well-timed replacement, and continued investment in resources with the attributes needed to keep the system reliable under both normal and extreme operating conditions.

Enhancing the interconnection process

The volume of clean energy and storage projects seeking to connect to New York's grid remains at historically high levels. To manage this momentum and ensure projects progress efficiently, the NYISO has implemented significant reforms to the interconnection process. These enhancements are designed to better align study timelines with developer needs, strengthen coordination with transmission owners, and improve transparency for stakeholders.

In recent years, the NYISO has overhauled its interconnection study structure, most notably through the transition to an improved "cluster study" process consistent with federal reforms. This approach evaluates groups of projects together rather than individually, reducing redundancy, shortening study cycles, and creating a more predictable path for developers. At the same time, improvements to the NYISO's interconnection portal have made it easier for applicants to track progress, access study materials, and engage with the NYISO and transmission owner staff throughout the process.

Even with faster studies, the speed at which a project proceeds can be impacted by factors that lie outside the interconnection process. State and local siting requirements, environmental permitting schedules, financing, and project locations all influence how quickly a project moves from the study phase into construction and ultimately commercial operation.

Despite these challenges, the enhanced interconnection process is already delivering meaningful improvements. Developers have clearer expectations, the study process is more structured and transparent, and coordination across utilities and stakeholders continues to strengthen. These steps are essential to supporting both the pace and scale of New York's clean energy transition and ensuring that new projects can reliably deliver energy where and when it is needed.

Large energy-intensive economic development projects

Rapid growth in large, energy-intensive economic development projects is significantly changing future electricity demand. While data centers are often highlighted, the NYISO's interconnection queue includes a variety of proposals, such as semiconductor fabrication, advanced manufacturing, hydrogen production, and other high demand uses. These projects are a major source of potential statewide load growth, introducing new challenges for grid planning, infrastructure, and near-term reliability margins.

The number and diversity of large load proposals are rising, representing several thousand megawatts (MW) of possible new and incremental demand over the next decade. Many facilities will operate continuously, influencing local peaks and shifting traditional load patterns. In some regions, industrial growth may significantly affect both winter and summer system risks as electrification increases.

The NYISO studies the impact of these projects on the bulk power system but does not approve, site, or develop them. After completing its studies, the NYISO continues to monitor their progress for future reliability implications. Utilities conduct similar reviews for local distribution impacts.

This rapid load growth is occurring as reliability margins tighten. The *2025–2034 CRP* notes that large loads increase system sensitivity to infrastructure delays. Combined with extreme weather, renewable uncertainty, and aging thermal units, load growth reduces margins for unexpected events. Risks to winter resource adequacy can rise quickly, and transmission capability becomes more critical, especially where infrastructure needs reinforcement.

Not all large loads are alike. Some industries can be flexible, curtailing demand during system stress. Even small amounts of flexibility help maintain margins and reduce emergency actions. However, mission-critical operations like semiconductor fabrication and many data centers may have limited operational flexibility to support load reductions, so their full impact must be considered in planning.

As large load proposals increase, coordination among developers, utilities, regulators, and the NYISO is crucial. Efficient interconnection, timely information sharing, and alignment of upgrades and supply additions are needed to reliably accommodate growth. Without proper alignment, the system may need to rely more on expensive resources and emergency actions, placing upward pressure on electricity costs statewide.

Winter reliability is a growing concern

Winter conditions are emerging as one of the most significant reliability challenges facing New York's electric system. As electrification continues across the heating, building, and transportation sectors, winter peaks are rising more quickly than summer peaks, signifying New York's transition toward a winter-peaking system. This shift places new demands on both planning and operations, particularly as more households rely on electric heat during extended cold weather.

During periods of severe cold, system conditions can tighten quickly. Recent assessments show that while resources are sufficient under expected winter conditions, extreme cold weather events can push peak demand significantly higher than forecasted, narrowing operating margins and limiting the system's ability to absorb additional stress. Under these conditions, dual-fuel generators play an increasingly critical reliability role, as natural gas availability for power generation becomes constrained when residential heating demand surges. Even well-prepared generators can face fuel logistics challenges during prolonged cold snaps, underscoring the importance of fuel assurance and the need for accurate representation of winter fuel availability constraints in long-term models.

The state's aging fleet introduces additional risk. As older units contend with higher forced outage rates during periods of extreme weather, the system must rely more heavily on resources that can start quickly, run for extended durations, and remain available across consecutive days of high demand. This challenge is compounded by variability in renewable output during winter, when solar production is lower and wind patterns can fluctuate, affecting the system's ability to meet high, sustained load.

The *2025–2034 CRP* highlights how these pressures have already begun to manifest in real-time operations. In the winter of 2024-2025, a cold spell required operators to take multiple actions to maintain system stability, including increased reliance on demand response and other emergency measures typically used only sparingly. The growing reliance on demand response in the winter to avoid reliability concerns underscores the interplay between winter weather, fuel availability, and system reliability.

The planning outlook is clear: winter reliability risks will continue to grow without timely additions of firm, flexible, and fuel-secure capability. Ensuring adequate winter preparedness will require a system that can reliably serve demand across sustained cold weather events, maintain fuel availability for critical generators, and integrate resources that can deliver consistent performance when weather-dependent output dips. The combination of rising winter loads, fuel supply limitations, and the operational realities of a changing resource mix means that winter considerations now stand at the center of long-term reliability planning.

In this environment, New York's ability to maintain a reliable grid depends on continued investment in resources and infrastructure designed to withstand winter's most demanding conditions, ensuring that the grid remains reliable throughout the deep winter peaks expected in the decade ahead.

Summer and winter extremes present unique reliability challenges

Two recent weather events exemplify how shrinking supply margins, growing demand, and increased seasonal volatility are already impacting New York's electric grid.

A June 2025 heatwave pushed electricity demand to its highest level in nearly a decade, while Winter Storm Fern in late-January 2026 brought sustained cold that elevated winter demand and constrained fuel supplies.

In both cases, NYISO grid operators had to manage narrow margins and navigate challenges affecting generator availability, transmission flows, and fuel supply logistics.

While the grid has historically been a summer peaking system, Winter Storm Fern and similar prolonged cold-weather events underscore the need to better bolster the grid against extreme winter conditions.

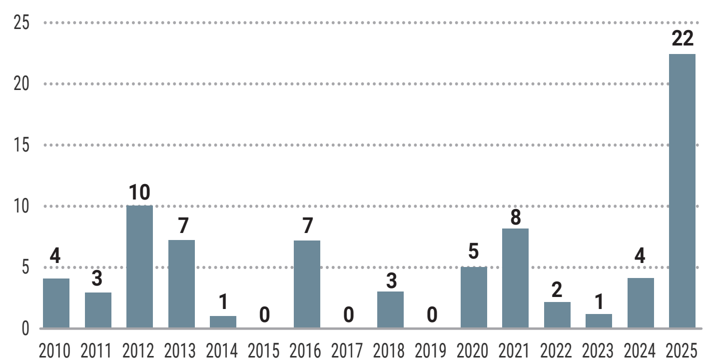
A growing reliance on emergency tools

The NYISO has warned of this moment in recent years, with reliability reports identifying near- and long-term potential shortfalls.

A growing reliance on emergency operating procedures, including demand response activations and emergency imports, has emerged during periods of extreme weather stress.

While these tools are essential for maintaining reliability in real time, their more routine use signals tightening operating margins and reduced system flexibility. As documented in NYISO planning assessments, frequent activation of emergency measures limits the options available when conditions further deteriorate and highlights structural challenges associated with generation availability, fuel availability constraints, demand growth, and increasing weather volatility.

FIGURE 4: DEMAND RESPONSE EVENTS, 2010-2025



A side-by-side comparison

Seasonal extremes stress the grid in distinct but overlapping ways, requiring different operational responses to maintain reliability. While summer conditions primarily tested the grid's ability to meet peak load, winter conditions tend to expose fuel availability and transmission limitations.

During the summer June 2025 heatwave, high temperatures drove electricity demand to near record levels, while variability in renewable output and reduced availability of conventional generators narrowed operating margins.

Winter Storm Fern produced sustained increase in winter demand alongside fuel supply constraints, particularly for natural gas, and snow-covered solar panels hampered renewable output.

The storm further demonstrated how transmission constraints can compound these challenges.

During the prolonged cold weather event, available generating capacity on Long Island could not be fully delivered to downstate load centers due to transmission bottlenecks, forcing operators to rely on more costly resources despite adequate capacity being available within the region.

The NYISO has identified the future Propel NY Energy transmission project as a key solution to address these limitations by expanding transfer capability by at least 3,000 MW between Long Island and the rest of the state. By strengthening the transmission system, projects like Propel NY Energy can reduce reliance on emergency operations, improve access to available generation during extreme conditions, and support a more reliable and efficient grid across seasons.

FIGURE 5: JUNE 2025 HEATWAVE BEHIND-THE-METER (BTM) SOLAR AND WIND ENERGY PERFORMANCE

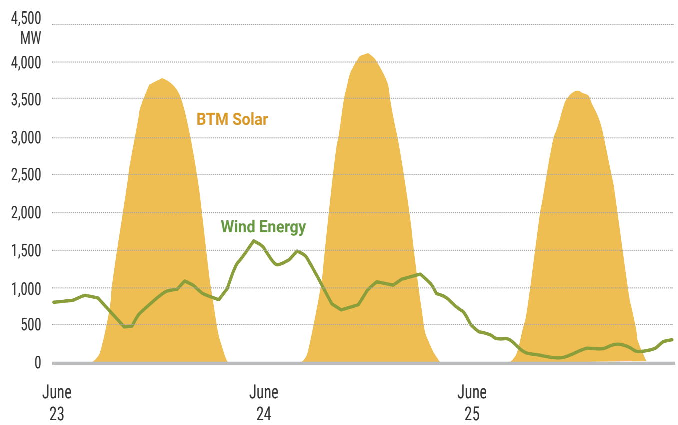
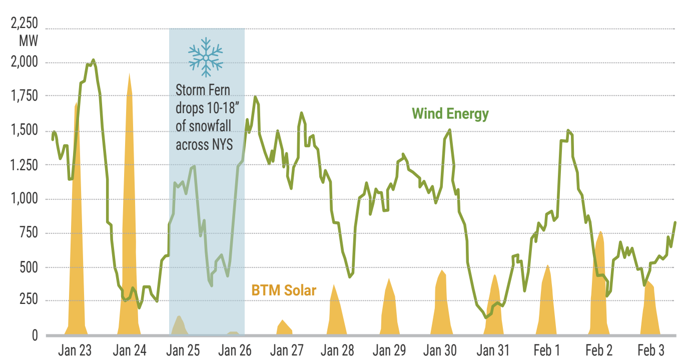


FIGURE 6: WINTER STORM FERN BTM SOLAR AND WIND ENERGY PERFORMANCE



Summer: June 2025 heatwave operational challenges

- Elevated peak electricity demand driven by sustained high temperatures, reaching the highest summer load observed in New York since 2016.
- Tight operating reserves, requiring the issuance of Energy Watches and an Energy Warning as reserve margins declined.
- Variability in renewable output, particularly a sharp drop in wind generation during peak conditions, increasing reliance on dispatchable resources.
- Reduced availability of conventional generation, including aging units that were forced offline during periods of highest demand.
- Dependence on imports, with generally higher cost emergency purchases needed as neighboring systems curtailed lower-cost exports to New York to manage their own peak conditions.

Winter: Storm Fern operational challenges

- Sustained high winter demand over multiple days as extreme cold increased heating load across the state.
- Fuel supply constraints, particularly for natural gas, as cold weather tightened regional fuel markets and limited generator flexibility.
- Reduced renewable performance, including minimal solar output due to snow covered panels and highly variable wind generation during the event.
- Increased reliance on oil-fired generation, reflecting gas availability limitations and highlighting energy-security considerations.
- Stress on aging infrastructure, with unavailability of transmission-constrained generation requiring sustained operator intervention to maintain reliability.

The growing value of Behind-the-Meter (BTM) solar

> New York has long relied on a diverse mix of power resources. That mix is increasingly supported by BTM solar, including rooftop systems and community solar projects. Since 2019, nearly 6,000 MW of BTM solar has been added across the state.

> By lowering and shifting peak demand, BTM solar reduces the need for higher-cost generation and helps lower emissions and consumer costs. The NYISO reflects these resources in its long-term and daily forecasts and estimates their real-time output using sampled solar data and detailed weather information.

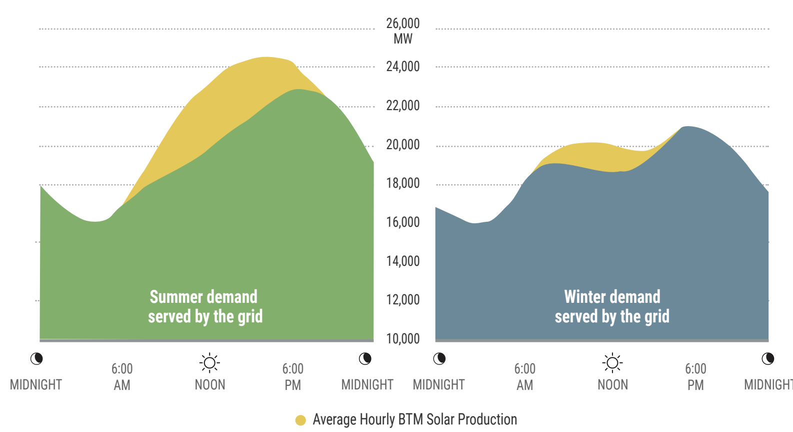
> Solar output is higher in the summer, when it helps reduce mid-day demand. In winter, it can still provide value by reducing the need for fossil-fueled generation and helping conserve limited resources such as oil and stored hydro for higher-demand hours after sunset. Overall, BTM solar provides clear environmental and economic benefits while supporting grid operations.

What an "all-of-the-above" energy strategy looks like and why it's essential

New York must deliver an energy system that is reliable, affordable, and clean, all while maintaining the diversity of resources needed to achieve those goals. The reality is that no single resource can meet all of these objectives on its own. As the *2025 New York State Energy Plan* makes clear, the state must pursue a balanced, disciplined, "all-of-the-above" strategy to resource development.

Renewable energy remains at the center of this transition, both for its economic and environmental value. Wind and solar resources have a defining advantage: their fuel is free. Once built, they produce electricity at low marginal cost, which allows them to be dispatched first in competitive markets and place downward pressure on wholesale electricity prices. Over time, this reduces exposure to volatile fuel markets and helps stabilize costs for consumers. Additionally, these resources are indispensable to achieving New York's climate goals. Continued and accelerated deployment of renewables is essential to reducing emissions and advancing the state's clean energy targets. Simply put, New York needs more renewable generation.

FIGURE 7: BTM SOLAR SEASONAL ENERGY PRODUCTION



At the same time, affordability and sustainability must be matched by reliability. The grid must perform every hour of every day, across all seasons and under a wide range of conditions. Today, reliability is being challenged by a fundamental shift in the resource mix. As generator retirements outpace the addition of new supply, reliability margins are narrowing as demand is growing. Without timely action, the risk of stress events and service interruptions increases.

Maintaining reliability requires resources that can respond to the system's needs in real time. Dispatchable, flexible generation remains essential to balancing variability in renewable output and ensuring that electricity is available when it is needed most. In the near term, this means continued investment in cleaner, more efficient natural gas technologies and the repowering and modernization of existing facilities.

These cutting-edge gas-fired resources are not only critical for reliability, they also play an important role in controlling costs. Modern, high-efficiency units convert fuel to electricity more effectively, requiring less fuel per unit of output and lowering overall production costs. By reducing fuel consumption and improving operational performance, they can help limit upward pressure on wholesale electricity prices while providing the flexibility the system requires.

In this way, advanced gas technologies and repowering old units can ensure the system remains reliable and cost-effective as it transitions.

The urgency of this moment cannot be overstated. New York's system is operating with less margin for error than in the past, and the imbalance between retiring dispatchable resources and slower replacement by new supply is increasing risk. Investment must occur now, not some time in the future, to reverse declining reserve margins and ensure adequate supply is in place before additional resources retire or demand rises further. Delaying these investments would increase system costs, drive greater reliance on emergency measures, and heighten risks to reliability and economic activity.

Looking to the future, New York is also taking steps to add new forms of zero-emission, reliable supply. The state's direction to pursue advanced nuclear development marks an important recognition of the need for firm, emissions-free baseload power. Nuclear energy operates regardless of weather conditions and can complement renewable resources by providing consistent supply when intermittent resources cannot. While nuclear development represents a longer-term solution, it will be an important component of a future system that must balance reliability, affordability, and decarbonization as traditional resources retire.

At the same time, the path forward must remain open to innovation. Emerging technologies such as advanced storage, hydrogen, and other new approaches to delivering dispatchable and flexible energy may play a critical role in the years ahead. These technologies have the potential to lower costs, improve system performance, and support climate goals, but they must be evaluated based on their ability to deliver real-world reliability and economic value. Maintaining flexibility in planning and policy will be essential to incorporating these solutions as they mature.

An all-of-the-above strategy is about ensuring the system has the right resources available at the right time. There is no single resource that can deliver affordability, reliability, and emissions reductions on its own. An all-of-the-above strategy recognizes that each resource plays a distinct and complementary role. Renewable energy lowers costs and reduces emissions. Flexible, dispatchable resources maintain reliability and efficiency during the transition. Advanced nuclear provides a long-term source of firm, zero-emission power. Emerging technologies like battery storage offer new pathways to strengthen the system over time. Together, these investments form a balanced portfolio capable of meeting New York's evolving needs.

As discussed in the *2025 State Energy Plan*, New York must continue to invest across a diverse set of resources and do so with urgency. A balanced, all-of-the-above approach is the most practical and effective way to ensure that the state can deliver a clean, reliable, and affordable energy future.

Competitive electricity markets: the role of state policy in enabling market efficiency

New York's competitive wholesale electricity markets remain one of the most effective tools for maintaining reliability while limiting costs to consumers. By promoting efficient investment and rewarding dependable performance, markets help align resource development with system needs, guide operational behavior during both normal and stressed conditions, and protect consumers from the risk of bad investment decisions. As energy affordability becomes an increasingly prominent policy priority, well-functioning markets play a central role in protecting consumers while supporting New York's clean-energy transition.

At the same time, markets are operating in an environment of growing strain. Policies designed to advance clean energy goals have accelerated generator retirements and, in some cases, discouraged investment in dispatchable generation capability. Concurrently, electrification and economic development initiatives are driving significant and often uncertain load growth. Together, these forces are reducing operational safeguards during periods of system stress.

Markets are a proven construct to attract needed investment, but they must work in alignment with public policies. As the resource mix becomes more weather dependent, demand grows due to electrification measures and large load growth, and generation capability becomes increasingly constrained during winter peaks, the role of markets as a reliability engine is growing. Transparent, locational price signals produced by the markets administered by the NYISO continue to guide investment decisions, support dependable operations, and enable the system to respond effectively under a wide range of conditions. Realizing the full value of these signals depends on market structures operating in alignment with state policy.

The NYISO continues to evolve its market design to better reflect the system's changing needs. This includes strengthening capacity accreditation to more accurately represent the reliability contribution of all resource types including limited-duration and weather-dependent resources, refining how resource adequacy requirements account for seasonal risk, and enhancing reserve and ancillary service products to value faster response, flexibility, and operational readiness. These efforts are intended to ensure that the services most critical during stressed hours are appropriately recognized and compensated.

Recent operations have underscored the growing importance of fuel security, particularly during extreme winter conditions when natural gas constraints can limit generator availability. Market incentives play a central role in encouraging operational preparedness across the fleet and shaping both supply- and demand-side behavior during critical hours. When properly integrated, flexible loads and price-responsive demand can help mitigate peak demand and reduce reliability risk.

Markets also play an important role in managing long-term uncertainty tied to the pace of renewable development, siting challenges, and the timing of major transmission upgrades. Strong market designs help ensure that investment decisions are driven by operational performance and system value. When market mechanisms are disrupted, investment decisions may be based on policy mandates rather than operational requirements. Mandates that prioritize certain technologies or impose additional requirements can discourage investment in reliable, dispatchable generation and hasten the retirement of existing resources, resulting in increased consumer costs and reduced system reliability.

When allowed to function without unnecessary constraints, competitive markets deliver tangible benefits for consumers and the grid. Efficient market designs encourage investment in resources that perform reliably during critical hours, regardless of technology type. Transparent price signals reward flexibility, support dependable operations, and foster innovation. This approach not only saves consumers money by limiting unnecessary costs, but also promotes emissions reductions by incentivizing clean, efficient generation. At a time when investment is urgently needed to meet clean-energy targets and ensure grid reliability, markets provide the best path forward for achieving these goals at the lowest possible cost.

The urgency for investment to address these challenges underscores the importance of markets as both a reliability engine and a shield for consumers against investment risk. When allowed to function effectively, market-driven solutions enhance reliability by ensuring that the right mix of resources remain available when needed. By valuing operational attributes and encouraging cost-effective participation from all resource types, markets can adapt to evolving risks such as weather dependence, electrification, and seasonal peaks.

Given the immediate need for new infrastructure, markets provide an optimal platform for timely, efficient investment that benefits consumers and the entire system. As New York transitions to a cleaner electricity system, the partnership between competitive markets and supportive state policy is increasingly vital. Markets provide a level playing field, foster innovation, and drive investment in resources that deliver when reliability is most needed.

By minimizing mandates and avoiding interference with market rules, policymakers can ensure that consumers benefit from a grid that is affordable, reliable, and clean. A coordinated approach will sustain New York's leadership in energy transformation, delivering lasting value to consumers and the broader economy, especially at this urgent time for investment.

The value of independence: why NYISO governance matters for reliability and consumers

When the NYISO was established in 1999, state and federal policymakers recognized that operating the electric grid and administering competitive electric markets required neutral, fact-based decision-making that is insulated from commercial and political pressures.

That foundational principle remains at the core of how NYISO operates today.

The NYISO was designed as an independent, not-for-profit entity overseen by the Federal Energy Regulatory Commission (FERC) with a mission to serve the public interest through reliable grid operations and competitive wholesale markets.

To protect the consumer, the NYISO was built upon a critical premise that no single entity, whether a utility, generator, large customer, advocate or government actor, should be able to influence grid operations or shape market outcomes to its own advantage.

The NYISO is a not-for-profit organization governed by an independent Board of Directors with no financial ties to market participants. The NYISO is overseen by state and federal regulators, beholden to the rules set by state and regional electric system reliability organizations, and supported by a transparent stakeholder process.

Together, these features ensure that no single entity or group of entities, whether commercial or political, can unduly influence how the electric system operates. The mandate is simple and strong: grid reliability at efficient cost.

The New York electric grid is not a political system. It is a physical and economic system built to support the economy and the health and safety of every New Yorker. Reliability decisions must be based on engineering standards, data, and evidence. Market outcomes must reflect real-time supply and demand and send signals for investment where and when it is needed. Long-term planning must consider decades of evolving system conditions. Introducing political pressure into that framework risks distorting decisions in ways that can increase costs, reduce efficiency, and undermine reliability.

The independent system operator model was created specifically to avoid these outcomes. Public policy at the time recognized that separating grid operation from ownership and political control is essential to ensure open access, fair competition, and consumer benefits. When the operator is neutral, wholesale markets function more efficiently, and investment signals are unbiased.

The NYISO's shared governance process brings together investor-owned utilities, public power authorities, generators, consumer advocates, environmental organizations, state and federal agencies and various other public interest groups to develop rules through open, transparent debate and technical review. Decisions require broad agreement, ensuring that proposals are vetted from multiple perspectives and grounded in evidence, not driven by a single interest or viewpoint. The NYISO's governance process enjoys a robust system of checks and balances, which has proven effective over time. Most changes to market rules are developed through stakeholder consensus and the vast majority obtain acceptance by FERC without the need for administrative or civil litigation.

At a time when the grid is facing rapid change, growing demand, and increasing complexity, the need for objective, data-driven decision-making and vigilant, independent market oversight to promote competition has never been greater. The NYISO governance model has proven its ability to deliver timely reliability solutions and competitive wholesale markets that benefit consumers.

That structure continues to serve the public interest today. Preserving this independence is essential to ensuring that the grid remains reliable, efficient, and fair for all New Yorkers.

NYISO Independence and Transparency

Regulatory and reliability organization oversight

> The NYISO serves New Yorkers under the oversight of the **Federal Energy Regulatory Commission,** the **New York Public Service Commission,** the **North American Electric Reliability Corp.,** the **Northeast Power Coordinating Council,** and the **New York State Reliability Council.**

Shared governance

> This process **engages suppliers, transmission owners, consumers, environmental and environmental justice interests, and state organizations** to facilitate the development of the rules and processes for a reliable and economically-efficient grid in New York.

Independence

> **The NYISO is transparent, open, and independent of its stakeholders.** We are a registered 501(c)3 not-for-profit corporation. NYISO and its directors, executives, and employees are prohibited from having financial interests in any company participating in New York wholesale competitive electricity markets.

Planning

for electric system reliability in an increasingly uncertain future

Planning for electric reliability has entered a new era. New York's power system is no longer shaped by a stable set of assumptions about demand growth, resource availability, or infrastructure development. Instead, planners must properly account for accelerating electrification, rapid large load growth, an evolving resource mix, the impacts of geopolitical upheaval, and increasing exposure to extreme weather, often unfolding simultaneously and at different speeds across the system.

In this era of rapid change and uncertainty, reliability cannot be determined based on a single forecast or assumed outcome. Small changes in assumptions for the forward planning horizon can materially alter projected system conditions and reliability margins. The question of when new resources enter service, how quickly demand grows, or whether key transmission projects proceed as scheduled, can factor heavily on planning and maintaining reliability. As a result, the range of plausible future grid conditions has widened considerably, highlighting the benefits of a planning approach that relies on multiple potential future cases.

The resource mix itself is shifting. As older dispatchable generation retires and new renewable and energy-limited resources are added, the operational characteristics of the system are changing. Reliability is now influenced not only by how much capacity exists, but by where resources are located, how they perform under stress, the duration over which they can supply the grid, and whether they are available during the conditions when the system is most constrained. These dynamics require planners to evaluate interactions across demand, generation, transmission, and policy in more integrated and forward looking ways.

The NYISO's reliability planning framework has evolved in response to these changing conditions, but more changes are necessary. Greater emphasis on scenario-based analysis reflects the need to understand not just what is expected to happen, but how reliability outcomes could change if key assumptions evolve differently year over year.

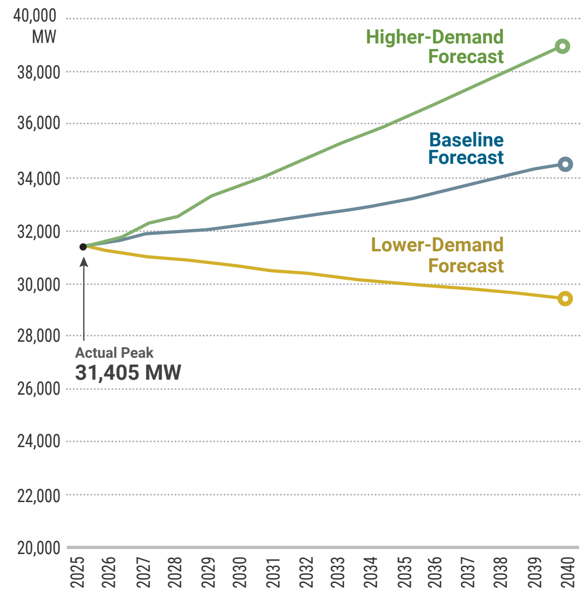
Ultimately, planning must provide the clarity needed to support timely and durable decisions in the face of uncertainty. As New York works to meet growing electricity demand, advance clean energy goals, and maintain reliability through a period of unprecedented transition, a planning framework that accounts for changing dynamics, uncertainties, and a shifting resource mix is essential to ensuring the grid remains reliable — today and in the decades ahead.

Reliability planning process

Planning for a reliable electric grid has become increasingly complex as New York's power system undergoes rapid and overlapping change, with demand growing, supply diminishing, and numerous transmission developments underway across the state at the same time. Ensuring reliability now requires more than forecasting demand and evaluating infrastructure needs; it requires planning tools that can account for a widening range of plausible future system conditions shaped by policy-driven electrification, evolving resource availability, and heightened exposure to disruptive events.

The NYISO's reliability planning processes are designed to reasonably account for these changes and identify emerging risks before they affect the reliable delivery of electricity.

FIGURE 8: ACTUAL AND FORECAST ANNUAL PEAK DEMAND, 2025-2040



The NYISO has been working with stakeholders to evolve those processes to place greater emphasis on scenario-based analysis, recognizing that reliance on a single baseline forecast is no longer sufficient. Small changes in key assumptions, such as the pace of electrification, the timing of large load additions, generator availability, or the in-service dates of major transmission projects, can materially alter reliability outcomes.

In the most recent planning cycle, a reliability need identified in the *2024 Reliability Needs Assessment* (RNA) under one set of assumptions was subsequently mitigated once those assumptions were updated with more current data in the *2025-2034 CRP*. The NYISO subsequently found different, but related, needs associated with the proposed deactivation of generators in its short-term quarterly assessments of reliability. Even prior to the 2024-2025 planning cycle, reliability modeling results were identifying rising concerns. The *2022 RNA*, for instance, preliminarily identified a reliability need that was subsequently mitigated by updates in demand assumptions as part of the process of finalizing the study.

The fluctuations in assumed future system conditions and associated risks across studies illustrate the need to advance the NYISO's planning approach to better capture the growing range of uncertainty around demand growth trajectories, the pace of resource additions and retirements, and the timing of critical infrastructure projects. As assumptions evolve, planning outcomes can shift repeatedly, making it more difficult to distinguish transient modeling results from underlying system risks and complicating the ability to plan and coordinate solutions that are timely, efficient, durable, and aligned with long development timelines.

Through its Comprehensive System Planning Process, the NYISO evaluates how forecasted changes in demand, generation, and transmission affect the reliability of the bulk electric system.

As highlighted in the *2025–2034 CRP,* public policy mandates, advancing technologies, and more frequent extreme weather events have expanded the range of plausible futures that planners must consider. Policies aimed at reducing emissions and accelerating electrification can drive rapid load growth and resource deactivations, while development schedules for new generation, large load customers, and transmission system upgrades have become increasingly difficult to predict. Scenario analysis allows planners to examine how different combinations of these factors could interact and result in reliability needs, even when baseline assumptions suggest the future system may be adequate.

In response to this changing environment, the NYISO is working to modify its planning framework to better account for the growing range of potential changes to future system conditions. By examining a range of future conditions, planning studies can identify where the reliability of the system is most vulnerable to shifts in demand, resource availability, or project timing. This approach helps distinguish between outcomes that appear adequate under baseline assumptions and those that could trigger reliability needs under alternative scenarios, providing a more informed foundation for planning decisions in an increasingly uncertain system.

Short-Term Assessment of Reliability (STAR)

Each quarter, the NYISO issues a *Short Term Assessment of Reliability* (STAR) to assess reliability over the next five years, reflecting changes such as generator deactivations, revised transmission plans, and updated demand forecasts.

Recent STAR findings underscore the importance of this short term reliability planning framework. The *2025 Quarter 3 STAR* identified reliability violations in New York City beginning in 2026 and on Long Island beginning in 2027, driven by a combination of proposed generator deactivations and rising consumer demand, transmission limitations, and risks associated with the availability of key future planned projects. The recently issued *2026 Quarter 1 STAR* reaffirmed these findings, concluding that near-term reliability risks in New York City continue to be observed. The identified needs are based on deficiencies in transmission security margins, or the system's ability to withstand disturbances such as short circuits or the unexpected loss of key system elements while continuing to deliver electricity during peak demand.

Champlain Hudson Power Express (CHPE) update

> **May 2026:** CHPE began delivering energy to the New York system in May 2026, with its full reliability contribution dependent on completing testing, market integration, and demonstrated performance during peak demand periods.

With respect to New York City, the *2026 Quarter 1 STAR* found that reliability margins remain deficient through the five-year horizon absent permanent solutions, with the need now beginning as early as summer 2026. While the Champlain Hudson Power Express (CHPE) transmission project is expected to materially improve delivery into New York City once fully in service and operationally integrated, the *2026 Quarter 1 STAR* found that energizing CHPE alone does not fully resolve the identified deficiency in New York City over the longer-term horizon. Instead, the assessment reflects that near-term reliability remains closely tied to the availability of resources.

The DEC peaker rule

> In 2019, New York took a bold step towards cleaner air and public health with the introduction of the "Peaker Rule" by the New York State Department of Environmental Conservation (DEC). This regulation targets the state's oldest, most inefficient power plants, requiring that they meet stringent emissions standards. These plants generally provide electricity during peak demand times — think sweltering summer days or frigid winter nights. The DEC rule mandated that these units make a choice: invest in cleaner technologies, cease operations for certain times of the year, or shut down.

> **Cost challenges:** As power plants navigate stricter emissions standards, the transition is steering New York towards a cleaner energy future but also bringing its share of cost challenges. Since the rule went into effect and affected units have shut down, noticeable increases in costs have been observed, particularly during the peak demand periods of winter and summer. The energy sector's adaptation to a cleaner mix of generation sources is introducing a period of market volatility as we move towards sustainability.

Consistent with these findings, the *2026 Quarter 1 STAR* concluded that continued operation of certain existing peaker resources seeking to retire, including the Gowanus and Narrows units, is necessary to maintain reliability. The *2026 Quarter 1 STAR* indicated that retaining these resources as planned projects enter service, including CHPE and other planned projects, improves margins in New York City substantially over the short-term horizon, but margins diminish again over the longer-term with demand growth and the risk of aging generation.

As it relates to Long Island, the *2026 Quarter 1 STAR* continued to find that bulk power system reliability margins would be deficient beginning in summer 2027 and continuing through the remainder of the five-year study horizon, driven primarily by the proposed deactivation of generators identified as necessary to serve reliability. The NYISO determined that the solutions proposed by Long Island Power Authority (LIPA) were viable and sufficient to address the identified needs. However, the solutions still need to be completed and, as with New York City, the *2026 Quarter 1 STAR* noted that interim measures may be required if permanent solutions are not available.

Beyond its formal five-year planning horizon, the *2026 Quarter 1 STAR* projects that, even under the planned system assumptions that include CHPE, reliability margins continue to erode and grow deficient in the outer years, with deficiencies exacerbated and accelerated under high-demand forecast conditions. These results reinforce the longer-term risks if the system does not evolve beyond currently planned resources.

Reliability Needs Assessment (RNA) and Comprehensive Reliability Plan (CRP)

The NYISO's RNA and CRP together assess the bulk power system over a ten-year horizon through a two-step cycle. In even years, the RNA identifies any actionable reliability needs, and in odd years, the CRP sets forth the plan to maintain reliability over the planning horizon, including resolving any actionable needs and evaluating key system risks.

The most recent planning cycle illustrates how this process must adapt to increasing uncertainty. The *2024 RNA* identified a reliability need in New York City that was expected to materialize later in the planning horizon, driven by forecasted demand growth, anticipated generator retirements, and constrained delivery into a dense load pocket.

In developing the subsequent *2025–2034 CRP,* the NYISO incorporated updated system assumptions, including a revised demand forecast for New York City. These updated assumptions mitigated the identified reliability need, obviating the need to issue a solicitation for solutions to resolve the previously identified need.

Importantly, the *2025–2034 CRP* did not treat this outcome as a signal that underlying risks had disappeared. Instead, it emphasized that reliability margins remain sensitive to changes in demand growth, resource availability, and future project timing. In particular, the *2025–2034 CRP* highlights that reliability needs are more likely to result from growing range and interaction of potential future conditions, such as accelerated load growth occurring alongside delayed transmission upgrades, reduced generator availability within constrained load pockets, or the clustering of resource retirements in areas with limited import capability. The reliability need identified by the *2024 RNA* remains an important marker of the pressures facing the system.

Most importantly, the *2025–2034 CRP* concluded that the NYISO must evolve its reliability planning methodology to allow for the identification of reliability needs under a broader range of system conditions as opposed to a single deterministic case. As long-range demand forecasts become more dependent on the pace of electrification and the timing of large load additions, and as project timelines for future generation and transmission projects become less predictable, the range of plausible future system outcomes has expanded. Examining how these factors interact, rather than evaluating them in isolation, allows planners to identify the conditions under which reliability margins erode and actionable needs may arise, even when baseline projections suggest adequate system performance. The *2025–2034 CRP* therefore placed greater emphasis on examining plausible combinations of demand, resource availability, and project timing to understand the range of future reliability outcomes.

Planning reports and studies

> **Short-Term Assessment of Reliability (STAR):** Conducted every quarter to assess reliability needs within a five-year horizon to determine whether the grid will be able to supply enough power to meet demand.

> **Reliability Needs Assessment (RNA):** Evaluates the reliability of the New York bulk electric system considering forecasts of peak power demand, planned upgrades to the transmission system, and changes to the generation mix over the next 10 years.

> **Comprehensive Reliability Plan (CRP):** Integrates STAR reports and the most recent RNA, resolves any identified reliability needs and develops a 10-year reliability plan.

> **System and Resource Outlook (Outlook):** The Outlook will provide a comprehensive overview of system resources and transmission constraints throughout New York, highlighting opportunities for transmission investment driven by economics and public policy over a 20-year period.

The case for scenario planning

Given the pace and complexity of change now shaping New York's power grid, reliability planning must account for a widening range of plausible system conditions driven by uncertain demand growth, evolving resource mixes, shifting infrastructure timelines, and increasing exposure to extreme weather. In this environment, scenario-based planning is a practical tool for ensuring that the grid remains reliable and capable of supporting public health, safety, and economic activity across a range of future outcomes.

Growing risks that threaten grid reliability

> Reliance on aging generation: New York's generation fleet is among the oldest in the country. Many fossil-fuel units that provide essential reliability services are nearing retirement. If these retirements outpace the addition of new resources, reliability margins could further decline, reducing operational flexibility and availability of essential grid services.

> Large loads and future demand: Electrification of heating and transportation, combined with new industrial projects, such as data centers and hydrogen production, will drive demand up significantly. The system is also expected to shift from summer-peaking to winter-peaking, adding complexity to planning and operations.

> Reliance on imports: New York has historically depended on imports from neighboring regions. As those systems also face significant changes, surplus energy for export will decline, increasing the need for in-state resources.

> Extreme weather and seasonal peaks: Weather-driven demand spikes and renewable energy production variability will challenge system operations. The expected transition to a winter-peaking system adds new reliability risks during cold-weather extremes.

> Delays in planned projects: New transmission and generation projects are essential to meeting policy goals. Delays in permitting or construction could create congestion and reliability shortfalls.

Reliability planning has traditionally evaluated the system under a defined set of expected conditions to determine whether there is a violation of reliability criteria. While that objective remains important, it is no longer sufficient on its own. As the system becomes more dynamic, plausible deviations from baseline assumptions, such as faster-than-expected electrification, delayed transmission projects, reduced generator availability, or the early arrival of large loads, can materially alter reliability outcomes. Planning for only a single expected future risks overlooking conditions under which reliability margins could erode quickly, leaving limited time and few options to respond.

Scenario-based planning addresses this challenge by explicitly examining multiple plausible futures rather than relying on a single expected future. By testing how the power system performs across different combinations of demand growth, resource availability, future project timing, and operational conditions, planners can better understand where reliability margins are most sensitive to uncertainty. This approach improves situational awareness by distinguishing between futures in which the system remains robust and those in which reliability becomes increasingly vulnerable.

Importantly, scenario planning does not assume that all modeled outcomes will occur, nor does it predetermine the need for specific solutions. Instead, it provides a structured framework for identifying risks early, when more mitigation options remain available, and for understanding the conditions under which those risks emerge. Early identification allows planners, policymakers, and stakeholders to evaluate trade-offs deliberately rather than reactively, reducing the likelihood that reliability challenges will need to be addressed through emergency measures or compressed timelines.

Scenario planning also reflects the realities of a shifting resource mix. As the system relies more heavily on renewable and energy-limited resources, reliability depends not only on installed capacity but on resource performance under stress, locational constraints, seasonal risk profiles, and fuel availability during extreme conditions. These factors interact in ways that cannot be fully captured through a single baseline case. Examining multiple scenarios allows planners to assess how different resource portfolios perform under a variety of conditions, providing insight into the reliability attributes that matter most as the grid modernizes.

From an economic and consumer protection perspective, scenario-based planning is equally important. Reliable electricity is foundational to public health and safety, economic development, and consumer confidence. Planning that anticipates a range of future conditions helps reduce the likelihood of unplanned outages, sudden infrastructure needs, or costly emergency interventions. By highlighting where reliability margins are most exposed to uncertainty, scenario analysis supports more orderly investment, better coordination across planning processes, and more efficient use of resources over time.

In an electric system characterized by accelerating change and incomplete information, careful planning means acknowledging uncertainty rather than attempting to eliminate it. Scenario-based analysis provides a disciplined way to do so, strengthening the reliability planning framework, improving transparency around system risk, and supporting informed decisions that protect consumers while enabling the grid to evolve.

As New York works to modernize its power system, support economic growth, and advance clean energy objectives, scenario planning is an essential element of responsible and forward-looking reliability planning.

Large load growth and reliability planning

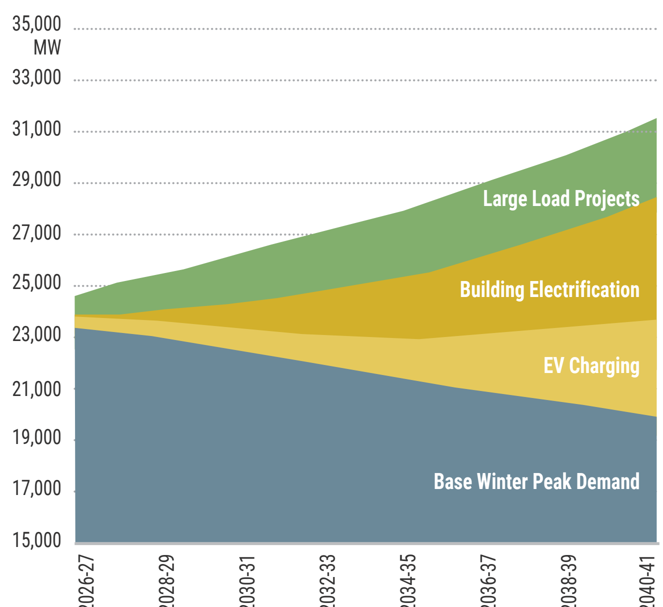
One of the most significant sources of uncertainty shaping future reliability outcomes is the rapid growth of large, energy-intensive electricity customers.

Recent planning studies reflect a marked increase in proposed large loads associated with data centers, advanced manufacturing, and other industrial uses whose scale, timing, and operating characteristics differ substantially from traditional demand growth. The size and pace of development of these projects present new challenges for reliability planning, particularly when they materialize on shorter timelines than the development of new generation or transmission infrastructure.

From a reliability perspective, large loads affect the system in ways that extend beyond their aggregate contribution to peak demand. Many proposed facilities are designed for continuous or near-continuous operation, increasing base load levels and reducing the system's ability to rely on load diversity to absorb stress during extreme conditions. In constrained areas, even a small number of large facilities can materially alter local reliability margins, heightening sensitivity to generator availability, transmission outages, or delays in planned infrastructure upgrades.

The uncertainty surrounding large load development further complicates planning.

FIGURE 9: IMPACT OF ELECTRIFICATION AND LARGE LOADS ON WINTER PEAK DEMAND



Potential growth of large loads

The number of new interconnection requests from large loads has grown dramatically in just a few years.

1,045 MW

In 2022, six large load projects in the interconnection queue accounted for 1,045 MW.

12,670 MW

As of May 1, 2026, there are 51 large load projects in the queue which would collectively add nearly 12,670 MW of load to the grid.

2,880 MW

Our load forecasters anticipate that as much as roughly 2,880 MW of that new demand will be on the system by 2040.

Not all proposed projects ultimately proceed, and those that do may advance more quickly or slowly than initially anticipated depending on permitting, financing, or commercial considerations. As a result, planning studies must account for a wide range of plausible load trajectories, including scenarios in which multiple large projects advance concurrently or enter service earlier than expected. When combined with uncertainties in resource availability and timing of future infrastructure upgrades, large loads can amplify reliability risks under certain conditions even if baseline assumptions suggest adequate system performance.

Large load growth also interacts with seasonal risk profiles. In several regions, projected industrial demand is large enough to influence the balance between summer and winter reliability risk, particularly as electrification takes root and winter peak load levels increase. Under cold-weather conditions, when generation availability and fuel supply may be constrained, additional large loads can reduce operating headroom and increase reliance on emergency actions if mitigating solutions are not yet in place.

Importantly, large loads are not uniform in their impact on reliability. Some facilities demonstrate the potential for operational flexibility, including the ability to reduce consumption during periods of system stress. Planning analyses show that even modest levels of load flexibility can help preserve reliability margins and limit the need for emergency procedures. However, load flexibility varies widely across sectors, and many of these facilities must be treated as firm demand for planning purposes. Distinguishing between flexible and inflexible load characteristics is therefore an increasingly important component of reliability assessments.

Taken together, the growth of large loads reinforces the need for reliability planning frameworks that evaluate a range of plausible future conditions rather than a single expected case. Scenario-based analysis allows planners to examine how different combinations of load growth, resource availability, and future infrastructure timing could interact, providing earlier visibility into conditions under which reliability margins may erode. As large load development continues, integrating these considerations into long-term planning will be essential to maintaining reliability while accommodating economic growth and an evolving demand profile.

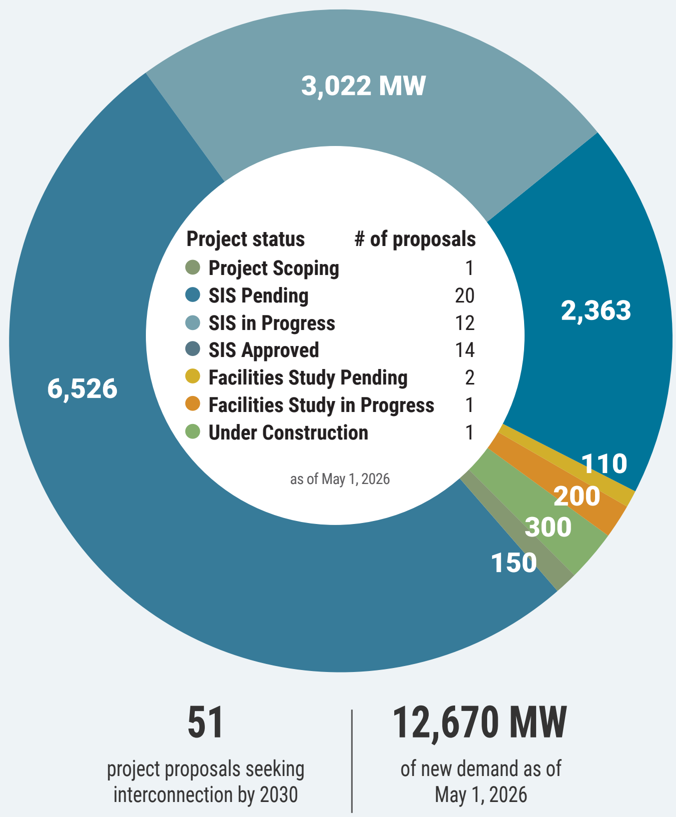
Interconnecting large loads

Rapid growth in large, energy-intensive facilities such as data centers and advanced manufacturing has become an increasingly important consideration in system planning. While these projects interconnect to the grid through NYISO-administered processes, large load interconnection differs fundamentally from generator interconnection.

Generator interconnection focuses on how new resources inject power into the grid and is evaluated primarily through a cluster study process, in which multiple projects are studied together to identify system impacts and required upgrades.

By contrast, large load requests are studied through individual System Impact Studies, reflecting the localized reliability and transmission impacts created by adding demand in a particular location on the grid. In light of the increasing volume and size of proposed large load projects, the NYISO has begun evaluating such requests in groupings based on their electrical proximity. The NYISO's role in this process is limited to assessing bulk system reliability impacts. Responsibility for identifying specific needed upgrades, cost assignment for those upgrades, and construction rests with the connecting utility company and load developer.

FIGURE 10: LARGE LOAD INTERCONNECTION STATUS



As with generation, not all large loads applying for interconnection ultimately proceed to construction, introducing uncertainty around timing and scale. Given the size and rapid development timelines of recent large load proposals, anticipating which projects are most likely to advance to construction is now a critical factor in reliability planning. Large loads introduce additional complexity for planners, requiring project-specific judgment, ongoing coordination, and scenario-based analysis rather than reliance on a single demand forecast.

Even before interconnection studies are complete, NYISO reliability planning studies must evaluate on a case-by-case basis which projects are sufficiently mature to be incorporated into planning scenarios, how rapidly their demand will grow, and to what degree they will be flexible (i.e., capable and willing to reduce demand) under strained system conditions.

Maximizing transmission

> To fully leverage the transmission system's capability as fossil generation retires, additional dynamic reactive power must be added to the grid.

> Dynamic reactive power will improve the delivery of electricity from renewable resources and help alleviate congestion.

> Potential technology options include various "grid-enhancing technologies" (GETs), such as power flow control devices, static synchronous compensators, and synchronous condensers.

> This is especially important to the Central East Interface which plays a key role in moving energy from upstate generation pockets to downstate load centers.

System and Resource Outlook (The Outlook)

In addition to reliability planning, the NYISO biennially produces the *System and Resource Outlook (the Outlook),* a long-term assessment designed to examine how New York's power system could evolve over multi-decade horizons under different assumptions.

While not a reliability assessment, the *Outlook* provides insight into structural trends, emerging risks, and the range of potential future outcomes that could influence investment and policy discussions. Previous *Outlook* studies found that meeting future demand while achieving state policy goals would require on the order of 100 to 130 gigawatts (GW) of installed capacity statewide by 2040. However, past *Outlooks* have consistently shown that long-term system outcomes are highly sensitive to assumptions about demand growth, technology availability, transmission development, and policy implementation.

Building on that foundation, the *2025-2044 Outlook* to be issued in summer 2026, strengthens the planning framework through expanded use of scenario-based analysis. The study examines 18 distinct scenarios, each producing different system outcomes based on varying assumptions about demand, resource availability, and policy attainment. Many of these scenarios are aligned with modeling efforts undertaken as part of the *State Energy Plan,* providing consistency across statewide planning efforts while enabling comparison across alternative futures.

The scenarios span a range of outcomes, from full compliance with state policy goals to varying levels of partial compliance. For benchmarking purposes, the *2025-2044 Outlook* also includes a "policy-limited" scenario, which assumes no additional policy-driven resource development beyond what has already been achieved. Examining this range of scenarios allows the NYISO, policymakers, and industry stakeholders to better understand how differing levels of policy attainment could shape future resource mixes, transmission needs, and system costs. These scenarios reveal a wide range of future capacity needs, from 10 to 30 GW of new generating capacity needed for scenarios that assume no further development of policy-driven resources to achieve compliance with the 2019 Climate Leadership and Community Protection Act (CLCPA) targets, to more than 100 GW of new resources needed by 2044 to realize full compliance with the CLCPA's zero-emissions grid requirements.

For all scenarios that assume full compliance with various CLCPA goals, the study deploys either nuclear capacity or hydrogen-based generation as zero-emissions technologies to support emissions reduction objectives. These resources are assumed to provide the dispatchability and flexibility needed to replace the energy and reliability services fossil-fuel based generation currently delivers to the grid. But the *2025-2044 Outlook* modeling highlights important economic trade-offs as well. In scenarios that allow fossil-fuel resources to operate beyond 2040, the models used in the study tend to select fossil generation over hydrogen-based alternatives, reflecting the higher relative costs associated with hydrogen under current assumptions. While all scenarios reinforce the need for resources that can deliver firm, flexible supply to the grid, these results help clarify the conditions under which emerging technologies may become competitive and the implications for long-term resource development pathways.

The *2025-2044 Outlook* continues the approach for prior *Outlooks* in evaluating a range of potential futures to identify, among other things, opportunities for transmission investment driven by economics and public policy in New York. This approach strengthens the ability to gain insights into uncertainty, evaluate tradeoffs, and inform long-term discussions about how reliability, affordability, and policy objectives may interact over time.

Interconnecting new resources: ensuring safe and reliable integration

Interconnecting new resources to the bulk electric system is a foundational responsibility of the NYISO and a critical component of maintaining reliability as the grid evolves. At its core, the interconnection process seeks to ensure that new facilities, whether they consume or produce electricity, do not create operating conditions that compromise the reliability of the grid, or shift inappropriate costs and risks onto consumers.

On the supply side, most proposed generation resources are required to undergo NYISO-administered interconnection studies. Large-scale generation in particular has the potential to significantly affect system operations, power flows, and fault levels across the bulk power system. At this scale, new generation can alter how electricity moves across the transmission network, influence reliability margins, and affect neighboring facilities.

The NYISO's interconnection studies for generation assess whether proposed facilities can connect and operate without creating reliability risks, and they identify any transmission upgrades needed to accommodate them safely. This includes evaluating:

- Thermal and voltage impacts under normal and contingency conditions.
- Short circuit contributions and protection system coordination.
- Interactions with other proposed and existing generation.
- The cumulative effects of multiple projects seeking to interconnect in the same area.

In recent years, the interconnection queue has been dominated by renewable and energy-limited resources aligned with New York's clean energy goals. While this reflects strong investor interest, experience has shown that many projects that successfully complete interconnection studies do not ultimately reach commercial operation. Development headwinds, including rising construction costs, supply chain constraints, financing challenges, and permitting delays, can significantly alter project viability after studies are complete.

This dynamic has important implications for reliability planning. A large interconnection queue does not guarantee near-term capability to support continued reliability, particularly when retiring resources provide services — such as fuel assurance, dispatchability, inertia, or sustained output — that new resources may not replace on a one-for-one basis. As a result, planners must distinguish between proposed projects and those that are likely to materialize and perform as needed.

Preparing the grid for a period of great change

Both load and generation interconnection processes are time intensive. They require detailed engineering analysis, coordination with transmission owners and developers, and evaluation of multiple operating conditions to ensure that new facilities do not create adverse reliability impacts to the system. These studies cannot rely on simplified assumptions without risking future operating problems that could manifest during periods of peak demand or system stress.

Importantly, the interconnection framework also serves a consumer protection function. The process generally allocates the cost of required system upgrades to project developers rather than spreading those costs broadly across ratepayers. This ensures that consumers are not asked to subsidize infrastructure needed solely to accommodate individual projects, while still enabling development to proceed when it can be achieved reliably.

Taken together, the interconnection of large loads and new generation reflects the scale and complexity of the transition underway in New York's electric system. On one side, demand is rising and becoming less certain and more dynamic. On the other, supply is changing in composition, location, and operational characteristics. Managing both pathways through a disciplined, reliability focused interconnection process is essential to ensuring that today's investment decisions do not become tomorrow's reliability challenges.

As the pace of change accelerates, interconnection studies provide a critical checkpoint — ensuring that the grid is prepared to accommodate new development while preserving reliability, shielding consumers from unnecessary costs, and supporting a modernized electric system capable of meeting future economic, environmental, and public health needs.

A new, improved interconnection process

Recognizing the need to advance projects more efficiently while maintaining rigorous reliability review, the NYISO implemented an improved "cluster study" framework for interconnection studies consistent with evolving federal expectations. This approach evaluates large groups of interconnection requests collectively rather than individually, which reduces study time and workload while preserving the thoroughness required to identify system upgrades and protect reliability.

Under the cluster study framework, the NYISO conducts a two-phase study process supported by a customer engagement window, including a physical infeasibility screen, to identify early in the interconnection process whether there are known issues that would prevent a potential project from feasibly connecting at its proposed location. The process also limits mid-stream modifications, includes commercial readiness deposits and withdrawal penalties to encourage viable projects to remain in the queue and speculative projects to withdraw, and establishes tariff-mandated study deadlines and associated consequences — features that are designed to accelerate timelines without sacrificing the completeness of the study work.

The inaugural cluster study advanced approximately 240 generation projects through Phase 1 as a key milestone toward integrating new generation facilities onto the grid. The NYISO currently anticipates completion of the ongoing cluster study work in August 2026, with the final decision period for interconnection customers running to October 2026, positioning projects to move to subsequent steps, such as interconnection agreement negotiation, which is critical to positioning the projects to commence final engineering, procurement and construction.

What's delaying the completion of energy projects in New York?

New York urgently needs incremental electric generation capability to meet rising demand. While the NYISO has made progress in streamlining its interconnection process, data shows that clearing interconnection studies does not guarantee projects move forward to construction.

Since 2019, more than 100 projects representing more than 14,000 MW of clean energy supply have completed the NYISO's interconnection process.

Of those approved projects, 14, accounting for 4,561 MW of capacity, are in active construction, reflecting the reality that many of the most significant challenges facing developers arise after interconnection requirements have already been resolved.

Interconnection studies evaluate how new resources interact with the transmission system during peak demand and other stressed operating scenarios.

The NYISO has recently streamlined its interconnection process, updating the interconnection portal, improving the application process and launching an enhanced "cluster study" framework that evaluates projects in groups to improve efficiency and transparency for all parties involved.

Reaching an executed interconnection agreement is a critical milestone that establishes how a project can reliably and safely connect to the bulk power system, including what system upgrades are required, how costs are allocated, and how the resource is expected to perform under a range of system conditions. As developers advance projects through the NYISO's interconnection process, they must also pursue project permits, financing, and negotiate arrangements for the equipment and labor necessary to build and operate

FIGURE 11: COMPLETED NYISO INTERCONNECTION QUEUE REQUESTS SINCE 2019

Resource Type	Capacity (MW)	Projects
Combined Storage/Solar	780	4
Energy Storage	2,059	24
Offshore Wind	1,740	3
Solar	5,461	64
Wind	1,695	8
DC Transmission	2,550	3
Total	**14,285**	**106**

projects. Recent experience shows that many of these factors outside of the scope of the interconnection process are ultimately dictating when or whether projects get built.

Developers must also navigate challenges associated with supply chain disruptions, access to project capital, and economic forces that can drive up the costs and extend development timelines.

State agencies are taking note of these challenges. In recent Clean Energy Standard (CES) Annual Progress Reports, the New York State Energy Research and Development Authority (NYSERDA) has noted that inflationary pressures, global supply-chain disruptions, elevated interest rates, permitting timelines, and transmission availability have contributed to slower-than-anticipated progress in advancing contracted renewable energy projects into construction.

Similar state reviews recognize that while interconnection is an essential prerequisite, delays are increasingly driven by forces outside of the interconnection process, particularly during later development and construction phases.

Rising tension between state and federal energy and environmental policies is adding further uncertainty for developers. Changes to federal trade policy, tax incentives, and regulatory frameworks are influencing equipment procurement, project economics, and long-term investment decisions. These cross-currents introduce additional risk at a point when projects are already navigating complex permitting, financing, and construction challenges, increasing the likelihood of delay even after interconnection milestones have been reached.

While interconnection constraints are often cited as a cause of project delays, the number of approved but unbuilt projects suggests that other factors play a significant role. Addressing these broader challenges will be essential to advancing new generation in New York.

Interconnection portal

The NYISO has also continued to improve its interconnection portal to streamline information sharing and increase transparency for developers and utilities. Enhancements are intended to make it easier to submit and track requests, provide improved visibility into project status, and support more efficient engagement during key decision periods in the cluster study process.

Beyond planning

Together, these planning efforts provide a disciplined framework for identifying emerging reliability risks and understanding how a wide range of plausible future system conditions could challenge the grid. Identifying those needs is only the first step. Ensuring that the resources required to maintain reliability are developed, retained, and operated when needed depends on how effectively the wholesale electricity markets translate planning insights into operational and investment signals.

As the system becomes more dynamic and uncertainty increases, competitive wholesale markets play an increasingly important role in responding to the conditions highlighted through planning.

Wholesale Electricity

Markets

supporting reliable power on a changing system and efficiency for consumers

Competitive wholesale electricity markets are the operational brains of New York's electric system, translating real-time and future system needs into operational decisions and price signals for private investment. Markets are sophisticated frameworks designed to protect reliability and inform investments that place financial risk on developers rather than consumers.

Recent periods of higher prices and volatility are not indicative of flaws in market design. They are the consequences of the conditions under which markets are increasingly being asked to operate: strict environmental requirements and policy objectives, tightening supply margins, rising demand from electrification and economic growth, and policies that deter needed investment in new or repowered dispatchable generation.

When the system is stressed, markets identify and surface those stresses. System performance during summer 2025 and winter 2025-2026 illustrates this dynamic clearly. Over the past several years, generator retirements have outpaced the entry of new resources, narrowing reserve margins and reducing operational flexibility. Despite these conditions, the system has remained reliable because wholesale markets accurately reflected periods of scarcity and sent clear signals about the need for new supply to maintain reliability. Higher prices during peak hours appropriately reflect the operational realities of the current grid — a system operating with less supply and reduced flexibility.

Protecting consumers

> The NYISO has a team of engineers and economists that review market performance to make sure that prices reflect market conditions, such as fuel costs to produce energy. The NYISO can modify market participant offers if they do not meet competitive market rules that require that offers appropriately reflect suppliers' costs.

> An independent market monitor evaluates the performance of the NYISO's markets each day to make sure market outcomes reflect strict market rules driving competition to serve customers. The market rules and how they are administered are also subject to review by the independent market monitor to make sure our market design is as efficient as possible.

> FERC's Office of Enforcement and the New York State Department of Public Service are active in evaluating markets and how they are administered. FERC can issue penalties to entities that violate wholesale market rules.

Winter 2025-2026 further underscored the value and limits of markets operating under constraint. Severe cold weather exposed fuel availability limitations and generator unavailability, requiring frequent operator intervention, activation of emergency demand response programs, and increased reliance on aging generation.

Wholesale prices rose sharply in response to limited supply, high natural gas prices, and the increased use of emergency tools to balance load with supply and maintain adequate energy reserves. These price outcomes accurately reflected actual system conditions and underlying supply constraints.

FIGURE 12: HISTORICAL NATURAL GAS AND WHOLESALE ELECTRICITY PRICES, 2000-2025

Rising wholesale prices over this period are best understood as the predictable result of current grid conditions as shaped in response to policies and other factors. The retirement of the Indian Point nuclear facility and large volumes of dispatchable generation, including peaking resources retired under DEC emissions regulations, combined with permitting impediments to repowering and new entry of fossil-based generation, has reduced available supply faster than it has been replaced. Markets do not create scarcity; they reveal it. When dispatchable capacity exits faster than it is replaced, prices rise to reflect increasing reliability risk and the cost of maintaining system security.

In recent years, several proposed repowering projects that would have preserved or upgraded existing dispatchable capacity have not advanced due to permitting outcomes shaped by state climate policy considerations. In 2019, Eastern Generation proposed to repower the Gowanus and Narrows generating stations in New York City with newer natural gas–fired technology but withdrew its application in 2021 after state air permit determinations concluded the project would be inconsistent with statewide greenhouse gas emission limits established under the CLCPA. Danskammer Energy similarly advanced a repowering proposal in 2018 for an approximately 536 MW natural gas–fired combined-cycle plant at its Newburgh facility. The required air permits were denied in 2021 on comparable CLCPA consistency grounds, and the company ultimately withdrew its permit applications in 2024. These cases illustrate how energy and environmental policies are shaping resource development outcomes and can result in impediments to the development of new generating capacity to help ease the current constrained supply conditions faced by the grid.

Competitive wholesale markets remain the most effective platform for:

- Balancing reliability, affordability, and emissions goals.
- Rewarding operating efficiency, dependable performance, and flexibility.
- Attracting private capital.
- Protecting consumers by allocating investment risk to those best positioned to manage it.

As the grid becomes more weather dependent, winter peaking, and operationally complex, the NYISO continues to strengthen market signals through targeted enhancements to reserve procurement, price formation, storage participation, and Capacity Market design.

However, markets cannot deliver their full value if policies operate in a contradictory rather than complementary fashion. Securing reliability, protecting consumers, lowering emissions, and attracting the investment required for New York's future grid depends on a clear division of roles: policymakers set objectives, and markets determine the most efficient, economical way to meet them. This ensures that markets serve to complement the achievement of policy objectives and deliver additive benefits of maintained reliability at the lowest cost available to consumers. Such a framework unlocks the full power of markets to drive the most efficient and cost-effective response to achieving policy objectives while maintaining grid reliability.

The experience of summer 2025 and winter 2025-2026 makes clear that competitive markets are still working but are being asked to do so within a policy framework that constrains solutions, contributing to increased costs over time. The question for New York is no longer whether markets work, but whether they will be allowed to succeed as a complement to achieving policy objectives while preserving reliability critical to successful transformation of the grid.

Market prices reveal system conditions

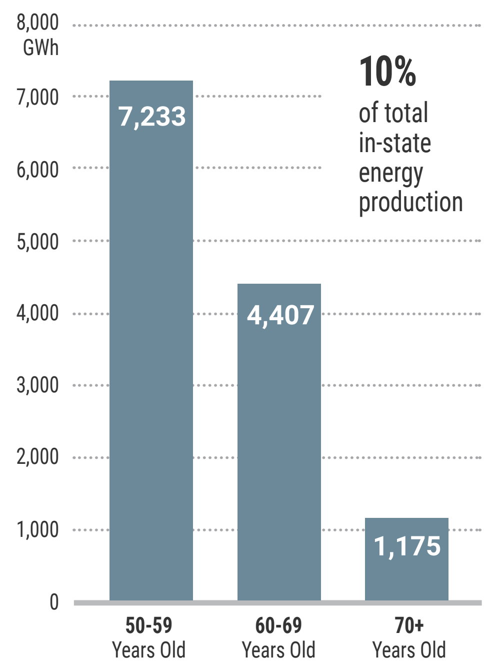
> Higher wholesale prices are reflections of actual grid conditions and not market design flaws or inadequacies. Such pricing outcomes underscore the constrained nature of supply availability in New York.

> The policy driven clean energy transition has accelerated supply retirements while limiting avenues for replacement, resulting in generator retirements outpacing new entry. Key state policies that have impacted supply in recent years include:

- The retirement of Indian Point, eliminating a significant amount of zero-emission, round the clock generation.
- Accelerated retirement of fossil generation (including peak supply resources) in response to emissions regulations.
- Permitting and policy barriers that limit investment interest in new or repowered dispatchable fossil resources.

The benefits of repowering

FIGURE 13: 2025 AGING FOSSIL GENERATION ENERGY PRODUCTION



To realize a reliable zero-emissions grid as envisioned by the CLCPA, the state must replace its fossil-fuel generation fleet with dispatchable, emissions-free generating technologies. But such technologies do not yet exist on a commercial scale, meaning the essential reliability services provided by fossil-fuel resources cannot be easily replaced if these resources leave the system.

Waiting for technologies with such capabilities to materialize is not a viable option for the state given the forecasted pace and growth in demand from proposed investments in data centers and economic development projects, as well as electrification. While uncertainty exists around the timing and magnitude of these new large loads, they can develop under much quicker timeframes than the generation or transmission investments that might be needed to support them.

In the short-term, repowering existing, older fossil-fuel power plants, or upgrading existing renewable generating facilities with new technologies offers a compelling solution.

Repowering is the process of retrofitting and modernizing existing power plants, often focusing on replacing older components with cleaner, more efficient and powerful equipment. This strategy can help stabilize the grid during this period of transition, support economic development, and achieve deep emissions reductions.

With many power plants in New York already beyond industry standards for their expected useful life, the NYISO has raised concerns about future reliability. Upgrading the existing fossil fleet not only can help with a stepped approach to carbon reductions by replacing older, higher emitting turbines with new, cleaner cutting-edge technology, it also holds the potential for helping avoid future generator breakdowns, thereby bolstering grid reliability.

Examples of repowering

- **Fossil plants:** Replacing older boilers or turbines with newer, cleaner, more efficient, cutting-edge technology.
- **Hydro power:** Replacing turbines, generators, automation systems, and hydraulic components to enhance the plant's performance.
- **Solar power:** Replacing older photovoltaic equipment and inverters with newer, more efficient generating equipment.
- **Wind power:** Replacing turbines with greater capacity or upgrading older blades with more efficient technology can improve energy yield.

The latest *State Energy Plan*, finalized in December 2025, echoes the NYISO’s call for repowering to extend the lifespan of existing power plants, lower emissions, and enhance grid stability during the clean energy transition. At the time of this publication, power producers are considering repowering select aging fossil-fuel generators in New York City and Long Island. The generators in questions have a combined capacity of approximately 3,500 MW.

Strengthening market signals

As the resource mix shifts and operational uncertainty grows, the NYISO continues to strengthen market signals through targeted enhancements, including:

- Dynamic and risk-responsive reserve procurement.
- Improved modeling and participation for storage and hybrid resources.
- Enhanced shortage pricing and congestion valuation.
- Capacity Market refinements that better reflect winter performance and reliability contribution.

These efforts improve price formation and investment clarity. But markets cannot perform optimally if policy constraints limit the range of investment opportunities and solutions. Securing reliability and affordability requires letting markets produce signals reflecting actual system conditions and allowing investors, developers, and consumers to determine and pursue the most efficient responses to such price signals.

Competitive markets naturally reward efficiency. Resources that use less fuel or otherwise produce lower-cost electricity, perform reliably, and operate flexibly are scheduled more often and earn revenue based on performance.

Investment challenge ahead

> New York faces rising demand from electrification, economic development, and large new loads at the same time that older resources are retiring and facing increased risk of age-related outages and unavailability. Meeting these needs will require massive private investment.

> Competitive markets can:

- Attract capital at the necessary scale.
- Allocate risk away from consumers.
- Adjust rapidly to changing technologies and system needs.

How New York’s wholesale markets function

The NYISO administers three interdependent markets that together balance load with supply and maintain reliability at least cost, based on system conditions and available resources:

- The **Energy Market** commits and dispatches the lowest-cost set of resources, every five minutes, to meet changing demand while respecting security constraints.
- The **Capacity Market** secures resource adequacy by compensating suppliers for being available to perform during peak and stressed conditions, complementing the Energy Market’s production payments.
- The **Ancillary Services Markets** procure services that maintain the frequency, voltage, ramping capability, and reserves needed to manage variability and contingencies.

The Energy Market: real-time efficiency across a changing resource mix

The Energy Market is designed to maintain reliability and cost discipline amid an increasingly dynamic resource mix. It continuously evaluates resource availability, transmission constraints, and forecasted conditions to select the least-cost portfolio of resources every five minutes. By valuing and procuring energy and operating reserves based on actual system conditions, the Energy Market provides:

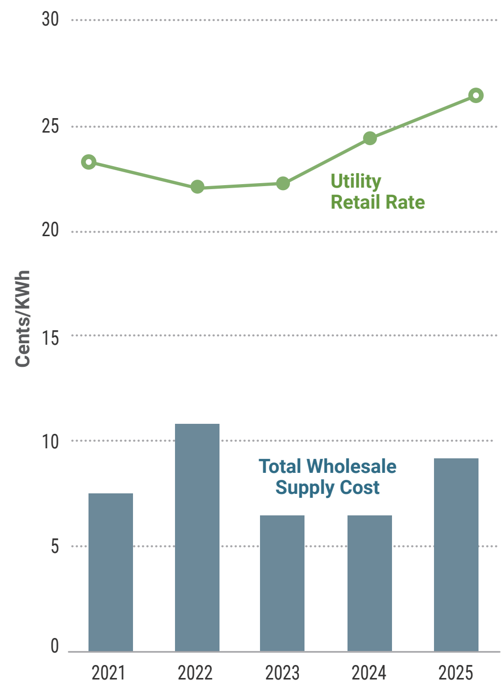
- Transparent operational signals that guide developer decisions and inform long-term planning.
- Efficient dispatch outcomes that minimize uplift and reduce systemwide operational costs.

- Improved alignment between market prices and underlying reliability needs, ensuring consumers pay for the services necessary to maintain a stable, reliable grid.

Wholesale energy prices reflect the marginal cost of serving demand, including fuel costs, operations and maintenance expenses, costs associated with emissions credits or allowances, and the operational constraints of the transmission system. Because natural gas–fired resources frequently set marginal prices in New York, the cost for this fuel is a primary driver of Energy Market outcomes.

When natural gas prices rise, the cost of generation increases, and those higher fuel costs are reflected directly in energy prices. As a result, the Energy Market is where consumers experience the effects of higher fuel prices, particularly during cold weather periods that elevate demand. However, to provide greater price stability for retail customers during the winter months, utilities procure about 70% of their supply through fixed-price contracts that are not impacted by volatile fuel costs. This reduces retail consumer exposure to fuel-driven price fluctuations while allowing the wholesale market to respond to real-time system conditions.

FIGURE 14: RESIDENTIAL RETAIL AND WHOLESALE PRICE TRENDS, 2021-2025



Source: Potomac Economics, NYISO 2025 State of Market Highlights

As weather-dependent resources grow and operational uncertainty rises, the Energy Market serves as an essential mechanism for maintaining both efficiency and reliability. The market increasingly must account for rapid swings in renewable output, steeper load ramps and changing demand patterns, regional forecast errors, and emerging winter risks.

Real-time prices reflect a broader set of system attributes, including flexibility, locational deliverability, and supply limitations, so operators and stakeholders receive clear indicators of when and where reliability services are most needed.

The Capacity Market: ensuring resources are available when needed

Reliability requires that enough supply be available to meet peaks under stressed conditions. New York's Capacity Market provides the financial and operational foundation necessary to ensure that enough resources are available to meet reliability needs under all expected conditions. As the grid evolves toward a more weather-dependent, policy-driven resource mix, the Capacity Market plays an increasingly important role in signaling the amount, location, and performance attributes needed to maintain resource adequacy.

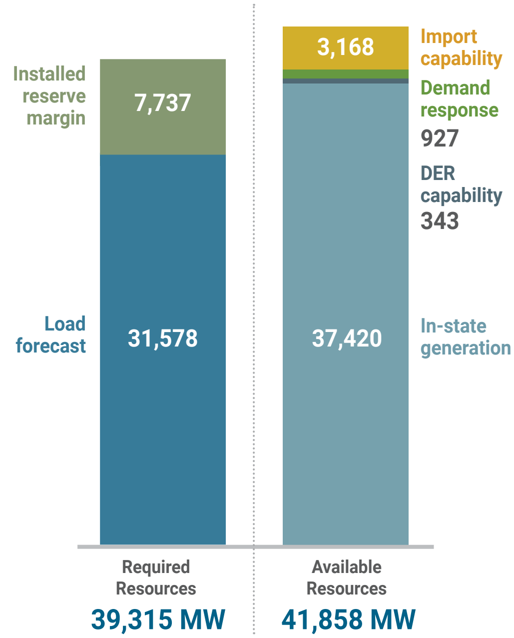
A framework designed for reliability under stress

The Capacity Market secures a sufficient margin of resources above forecasted peak load. The Installed Reserve Margin (IRM) is established annually by the New York State Reliability Council through rigorous reliability studies that evaluate expected load patterns, resource performance, and transmission capability. The IRM ensures that the system maintains sufficient capacity to comply with reliability criteria.

Besides the overall requirements for the state, certain regions have special rules to make sure enough electricity is available locally when transmission lines cannot bring in power from elsewhere. These locational requirements help focus investments in areas that need increased reliance on local resources.

As New York integrates higher levels of renewable generation and consumer demand rises in winter, the Capacity Market is adapting to reflect new operational challenges. Key areas of focus include:

FIGURE 15: SUMMER 2026 STATEWIDE CAPACITY ASSESSMENT



- **Winter reliability capabilities.** With electrification driving significant winter load growth, the Capacity Market is being evaluated for enhancements that more accurately reflect the ability of resources to perform during prolonged cold-weather events, when facing winter fuel availability constraints, and during other extended stress periods.
- **Performance-based accreditation.** The growing diversity of the resource mix, incorporating renewables, storage, and conventional units, requires updated approaches to valuing resource availability and dependability. Accreditation reforms aim to ensure that each resource type is compensated according to its expected contribution during critical hours.
- **Durable and predictable investment signals.** By providing transparent forward price signals, the Capacity Market supports financeable pathways for new entry while ensuring that consumers pay only for the level of reliability they need. This predictability is essential as developers face supply-chain pressures, evolving permitting processes, and increased cost uncertainty.

Ancillary Services: essential reliability functions procured efficiently

New York's Ancillary Services Markets provide the operational foundation needed to maintain reliability in a system increasingly shaped by variable renewables, shifting load patterns, and more frequent periods of operational uncertainty. Ancillary Services Markets ensure that adequate reserves, frequency response, and voltage support are available in real-time. These capabilities remain indispensable even as the energy supply becomes cleaner and more distributed.

Supporting real-time system stability

Ancillary Services, such as reserves and regulation service, are procured through the NYISO's markets to maintain grid stability during normal operations and unexpected system events. As New York integrates large quantities of weather-dependent generation, these services have grown in importance. Variability and forecast error associated with wind and solar output increase the need for rapid, flexible resources that can respond to abrupt changes in supply or demand.

A critical component of New York's clean energy transition

As the grid becomes more dependent on variable resources and more sensitive to weather-driven conditions, Ancillary Services remain essential to maintaining system reliability. By evolving procurement methods, improving modeling of new technologies, and enhancing price formation, the NYISO ensures that the system can respond quickly to unexpected changes in supply or demand. It also ensures new technologies, especially storage and hybrid resources, are integrated effectively and compensated for their reliability contributions and that consumers benefit from transparent, efficient market outcomes that reduce reliance on manual operational interventions.

California's experience with resource adequacy reform

Not all regions around the country rely on Capacity Markets to establish resource adequacy. California's approach to maintaining resource adequacy requires that utilities and other load serving entities procure sufficient resources to meet forecasted system, local, and flexible reliability needs. Compliance is demonstrated through bilateral contracts and regulatory filings. The California grid operator (CAISO) assesses deliverability and operates the system in real time but does not conduct a forward auction that produces a single, transparent capacity price.

This structure has presented operational and reliability challenges, particularly as the resource mix has shifted toward intermittent and energy-limited technologies. Because reliability obligations are met through bilateral procurement, the system operator may have limited advance visibility into the specific resources that will be available and capable of performing during stressed conditions. This can complicate real-time operations and increase reliance on manual or administrative interventions.

In response to these challenges, CAISO has pursued market enhancements such as the Extended Day Ahead Market (EDAM) to improve regional coordination and provide greater day ahead visibility into resource availability and system readiness. While EDAM enhances operational awareness and improves scheduling across a broader footprint, it does not replace a structured Capacity Market that produces transparent, long term investment signals to help ensure sufficient resources are developed to meet future reliability needs.

California's experience has included repeated use of Reliability Must Run (RMR) contracts — out-of-market agreements used to keep specific generating resources online when existing procurement mechanisms have not ensured their retention or development of sufficient replacements, and such resources are still needed for local or system reliability. RMRs have been used to address transmission-constrained areas, short-term procurement gaps, and mismatches between contracted portfolios and operational needs.

These outcomes illustrate key tradeoffs of procurement-based frameworks: while they offer policymakers greater control over resource selection, they can reduce transparency, weaken performance signals, and increase the likelihood of required reliance on administrative backstops when planning, procurement, and operations are not fully aligned.

The NYISO is working hard to evolve the markets to support a cleaner, lower-cost and more reliable future. To accomplish this, the NYISO's Market Design team is focused on the following:

- **Enhancing flexibility procurement.** As steeper load ramps appear in both morning and evening hours, the NYISO is evaluating opportunities to better signal and procure flexible ramping capability.
- **Integrating storage and hybrid resources.** There is a need for improved modeling of storage state-of-charge, duration, and performance characteristics to ensure these resources can effectively provide regulation and reserves. As storage participation expands, ensuring accurate compensation for their reliability value is essential.
- **Strengthening frequency control.** As inverter-based resources (IBRs), such as solar, wind, and battery storage, continue to displace conventional generators, the NYISO anticipates an increased need for fast frequency response and improved mechanisms for recognizing IBR contributions to system stability.
- **Addressing seasonal reliability needs.** With winter becoming the critical planning season, ancillary service requirements must ensure sufficient availability of resources capable of performing during cold-weather events, fuel supply constraints, and prolonged stress periods

Inverter-based resources

> Inverter-based resources are technologies such as: wind, solar, and battery storage that connect to the grid through power electronic inverters rather than through traditional rotating generators. While these resources can provide energy efficiently, they do not inherently supply system inertia or the same voltage and frequency support traditionally provided by conventional generation, and their performance during disturbances depends heavily on software settings, standards, and system conditions.

> At high penetration levels, this can increase sensitivity to faults, reduce system strength in certain locations, and complicate voltage and frequency management during stressed conditions.

> Following an April 2025 blackout affecting Portugal and Spain, system operators identified that high reliance on inverter-based resources, combined with limited availability of conventional generation, contributed to voltage instability and reduced the system's ability to stop a cascading event once disturbances began.

Key market enhancements underway to meet emerging challenges

The NYISO continues to lead the pivotal evolution to New York's wholesale electricity markets as system conditions become more dynamic, winter demand risks intensify, large loads enter the grid, and renewable penetration accelerates. The NYISO is advancing a suite of market enhancements that more precisely reflect operational realities, seek to strengthen reliability margins, and provide transparent, durable investment signals. These initiatives focus on enhancing flexibility, improving price formation, integrating limited-duration and intermittent resources more effectively, and ensuring that new generation and transmission can be effectively interconnected.

Energy efficiency and DSM

> Energy efficiency and Demand-Side Management (DSM) play a key role in reducing energy consumption, lowering costs, and mitigating environmental impacts.

> Energy efficiency programs offer customers incentives to decrease overall electricity demand. DSM focuses on managing energy use through various strategies to optimize grid operations during times of peak demand. By promoting energy-efficient technologies and behaviors, DSM initiatives help reduce overall energy consumption, which in turn lowers electricity demand.

> Energy efficiency measures and demand response programs can help individuals and businesses save money on energy bills. Reducing energy demand can lead to lower emissions.

> DSM also helps manage the flow of electricity on the grid, ensuring a stable and efficient power supply, especially with the increasing integration of renewable energy sources. By proactively managing demand, DSM can also minimize the need for costly infrastructure upgrades and promote a more efficient and sustainable energy system.

Key market initiatives include:

Dynamic reserves: managing uncertainty in real-time

As weather-driven variability, steep ramps, and resource uncertainty increase, static reserve requirements may no longer optimally capture the full spectrum of real-time operational risk. Dynamic Reserves introduce a framework in which reserve procurement adjusts based on shifting system conditions, including active generating resources, contingency exposure, and transmission constraints. This risk-responsive design ensures reserves are procured where and when they are needed, reflecting regional constraints and real-time grid conditions. It also strengthens incentives for flexible and fast-responding resources and improves price formation by aligning reserve demand with system conditions, reducing uplift and enhancing transparency. Dynamic Reserves help operators manage system conditions with sharper precision, supporting both reliability and economic efficiency.

Advanced storage modeling: optimizing limited duration resources

Energy storage will become central to managing renewable intermittency and evening ramps, but its finite duration and state-of-charge characteristics require sophisticated modeling. The NYISO is implementing advanced day-ahead and real-time storage modeling that more accurately represents:

- State-of-charge and charging/discharging limitations.
- Duration constraints under sustained stress conditions.
- Cycling costs and performance metrics.

Improved modeling enables storage to be deployed in the hours and locations where its reliability value is highest, supporting contingency coverage, ramping needs, frequency control, and balancing renewable output. These enhancements also help avoid inefficient or uneconomic dispatch, lowering overall system costs for consumers.

Shortage pricing and congestion valuation: strengthening price signals

Accurate price formation ensures that market outcomes reflect underlying system conditions.

NYISO DER program: A modern market innovation

As New York advances toward an ambitious clean energy future, the NYISO continues to adapt the state's wholesale electricity markets to reflect a rapidly evolving power system. One of the most significant recent milestones is the launch of NYISO's Distributed Energy Resources (DER) program, which is the first market of its kind in the nation to fully integrate aggregated DERs into competitive wholesale electricity markets.

What are Distributed Energy Resources

DERs are typically small, behind-the-meter assets that provide electricity production and/or load reduction close to where energy is consumed. These resources can, for example, include rooftop and community solar, battery energy storage systems, fuel cells, and demand response. Individually, these assets are modest in size. Aggregated together, they can function as a virtual power plant, capable of responding to grid needs in real-time.

The nation's first comprehensive DER market

In April 2024, following approval from the FERC, the NYISO launched the nation's first market allowing aggregations of DERs greater than 10 kilowatts (kW) to participate directly in wholesale Energy, Capacity, and Ancillary Services Markets.

This market design allows multiple DER technologies, such as solar, storage, and demand response participants, to be combined within a single aggregation and bid into the wholesale markets as one resource. By doing so, the NYISO can see, forecast, and rely on these resources in a similar manner as conventional generation, strengthening real-time grid operations and long-term planning.

Why the DER program matters

The growth of DERs is accelerating statewide as New York pursues its clean energy targets. The NYISO forecasts that distributed generation will roughly double over the coming decades, driven by electrification, renewable deployment, and customer investment in energy technologies.

The NYISO's DER program ensures this growth enhances grid reliability. Aggregated DERs provide operators with greater visibility, advanced telemetry, and performance data. This enables more precise forecasting, improves coordination with utility-scale resources, and supports efficient commitment and dispatch decisions — particularly during periods of high demand. At the same time, the opportunity for wholesale market participation creates new revenue streams for DER owners. Instead of being limited to a single market or service, eligible DERs can simultaneously provide energy, capacity, and ancillary services, creating stronger incentives for investment in flexible and responsive technologies.

Looking ahead

The NYISO views the DER program as a critical first step in a broader evolution of market design. Currently, approximately 350 MW of DERs are participating in the market. As participation grows and technologies mature, the program will continue to adapt — informed by operational experience, stakeholder engagement, and system needs. By integrating distributed resources into wholesale markets, the NYISO is building a platform that supports innovation, reliability, and reduced emissions.

Refinements to shortage pricing and congestion valuation strengthen the alignment between operational need and market incentives by:

- Making shortage-driven price outcomes more consistent with actual reliability risk.
- Highlighting locational differences in system conditions and deliverability.
- Improving incentives for investment in flexible capacity, transmission upgrades, and congestion relief projects.

These changes help direct new entry toward areas where reliability risks are most pronounced and ensure that prices more accurately reflect the cost of maintaining system security.

Capacity Market Structure Review

The Capacity Market Structure Review (CMSR) is part of the NYISO's broader efforts to ensure the Capacity Market continues to support resource adequacy as New York's power system undergoes significant change. In this effort, the NYISO and stakeholders are examining whether the existing Capacity Market framework should be enhanced to continue delivering transparent, efficient price signals that support bulk system reliability. Analysis conducted by Potomac Economics and FTI Consulting found that a competitive Capacity Market offers a cost effective way to ensure sufficient resources are available to meet reliability needs, compared to less market-driven approaches. The guiding objective of this effort is to ensure the Capacity Market accurately values resources based on their contribution to reliability, produces predictable and economically efficient outcomes, and works cohesively with energy and Ancillary Services Markets as the resource mix becomes more diverse and energy limited. The CMSR initiative has identified targeted enhancements to the current structure, rather than a wholesale redesign, to meet the grid's evolving needs over the coming decade.

NYISO shared governance

> The NYISO and its stakeholders utilize a shared governance process to establish wholesale market rules and processes associated with grid planning and operations.

> This process engages suppliers, transmission owners, consumers, environmental and environmental justice interests, and state organizations to facilitate the development of the rules and processes for a reliable and economically efficient grid in New York.

> As compared to the pre-NYISO years, when eight transmission utilities exercised near-exclusive control over the system, over 450 entities are now involved in an open process of shaping policies and protocols of the NYISO. Through an open governance process, market participants, regulators, policymakers, and consumer and environmental advocates help shape the rules that support the provision of efficient, reliable and clean electric service.

A market framework positioned for the future

New York's competitive wholesale electricity markets are evolving to meet the demands of a cleaner, more electrified, and more dynamic grid. By refining price formation, advancing dynamic reserves, optimizing storage participation, expanding Ancillary Services, modernizing the Capacity Market design, streamlining interconnection, and aligning with transmission planning, the market framework remains focused on delivering reliability and consumer value.

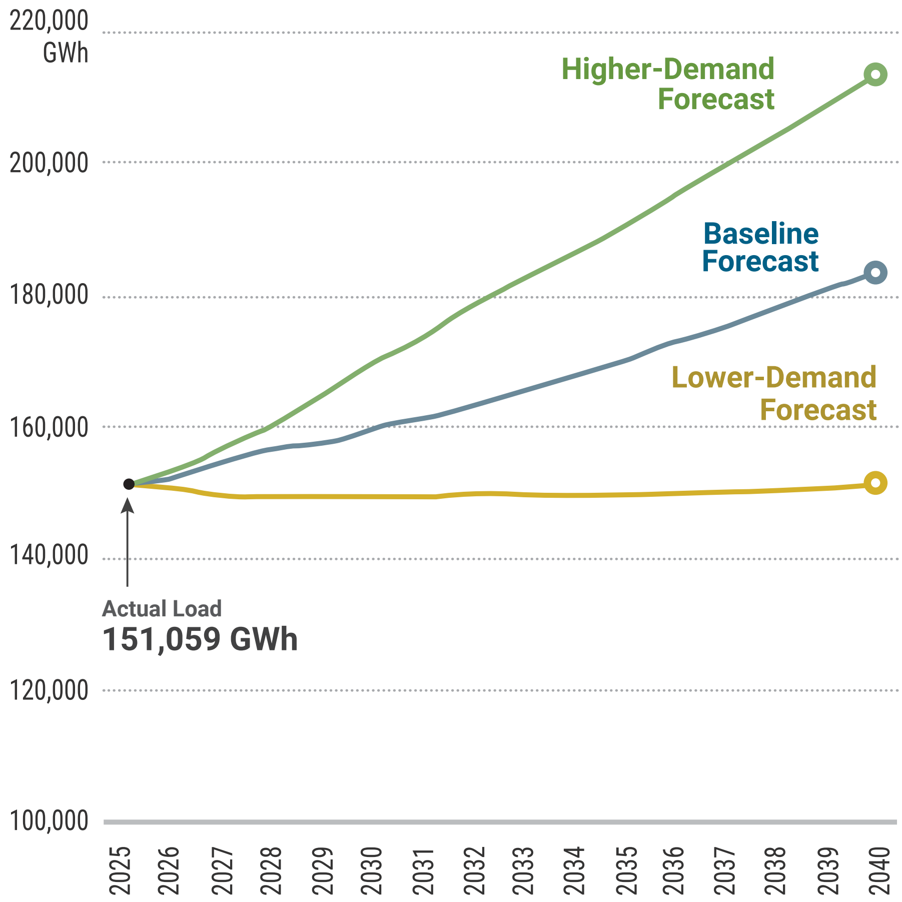
As these enhancements progress, competitive markets will continue to attract the right mix of resources, support innovation, and manage the uncertainties of the transition, keeping power reliable and less expensive for New Yorkers while incentivizing progress towards the state's long term climate and economic objectives.

Appendix

NYISO by the numbers

Demand Trends

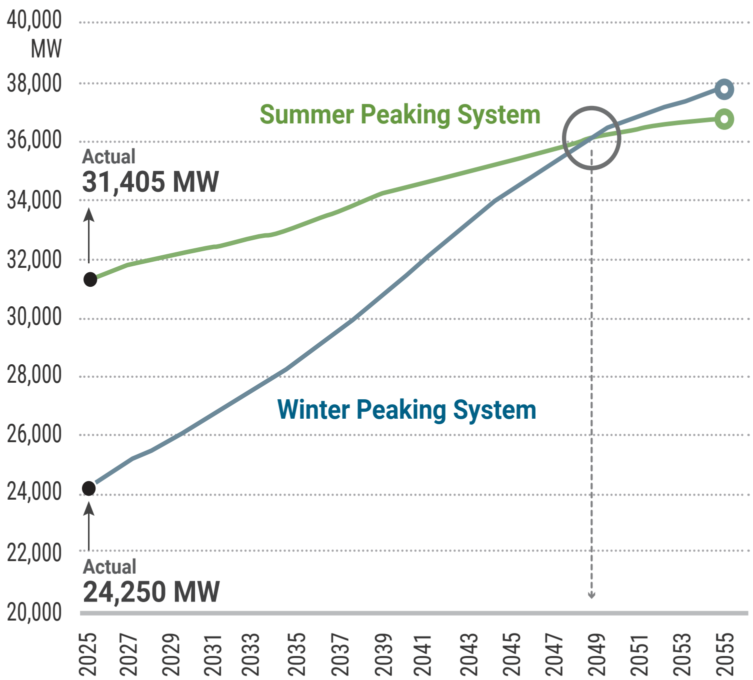
FIGURE 16: ACTUAL AND FORECAST LOAD, 2025-2040



> This figure presents three scenario forecasts: a baseline forecast that the NYISO assumes is the most likely outcome based on current observations and assumptions, and two scenarios that include differing assumptions about key inputs in the forecast, including economic activity and the adoption of electrification. These High-Demand and Low-Demand scenarios provide bounds around the baseline forecast.

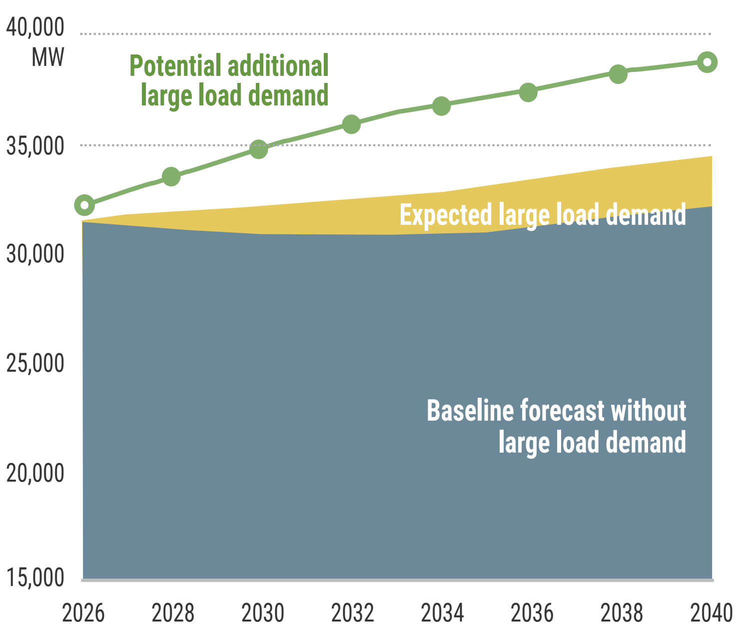
Demand Trends

FIGURE 17: SUMMER AND WINTER PEAK DEMAND FORECASTS



> While electrification will drive growth in winter peak demand, summer peak demand is not expected to grow as significantly, due largely to the saturation of electric-based air conditioning for cooling needs. The impact of large loads is expected to drive near-term demand increases while electrification measures will have more impact on longer-range forecasts.

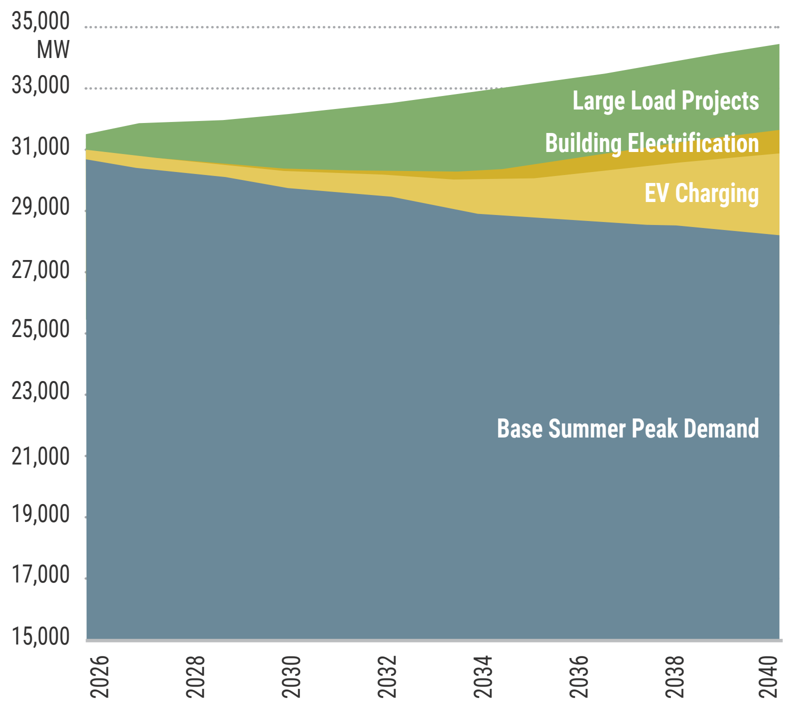
FIGURE 18: LARGE LOAD SUMMER DEMAND FORECAST UNCERTAINTY



> There is significant uncertainty about large loads seeking to connect to the grid, including the timing and operational characteristics of the new load. The NYISO base case forecasts include large loads that are expected to connect to the grid. However, numerous additional large load proposals could quickly advance and come online within the next 10 years, creating uncertainty about their impact on demand.

Demand Trends

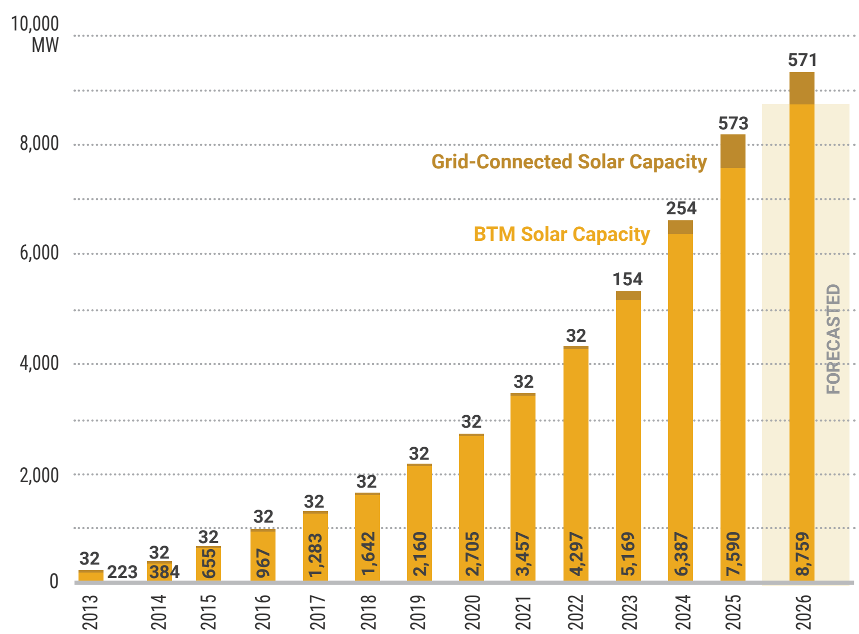
FIGURE 19: IMPACT OF ELECTRIFICATION AND LARGE LOADS ON SUMMER PEAK DEMAND



> While electrification will drive growth in winter peak demand, summer peak demand is not expected to grow as significantly, due largely to the saturation of electric-based air conditioning for cooling needs. The impact of large loads is expected to drive near-term demand increases while electrification measures will have more impact on longer-range forecasts.

Supply Trends

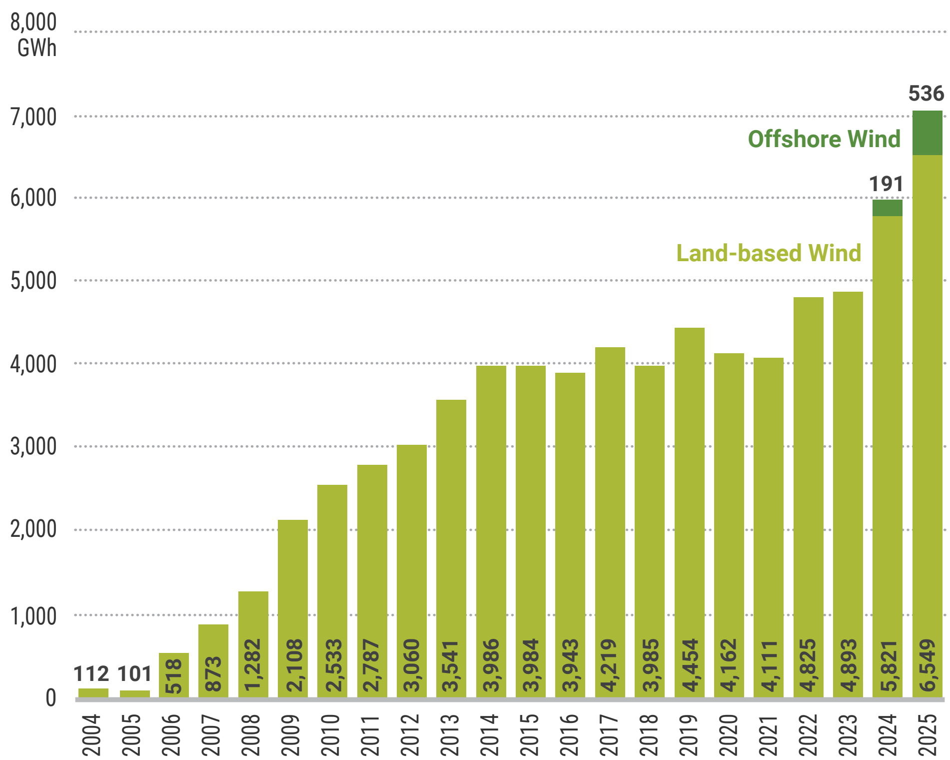
FIGURE 20: HISTORICAL SOLAR GENERATING CAPACITY



> New York's policy incentives have driven significant investment in BTM solar resources. By the end of 2025 there were more than 7,590 MW of BTM solar capacity supplying customers. BTM solar energy production reduces the amount of energy the NYISO must dispatch to supply the grid and has contributed significantly towards reducing peak demand in the state. More recently, the NYISO is seeing growth in grid-connected solar that the NYISO dispatches to supply the grid whenever the resource is available.

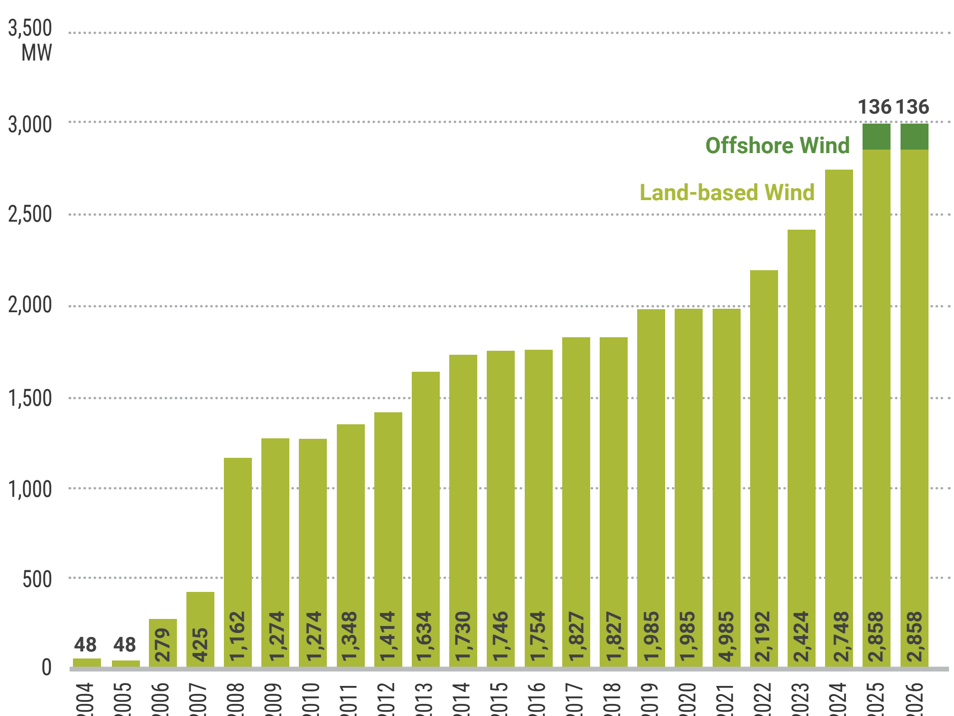
Supply Trends

FIGURE 21: HISTORICAL WIND AND OFFSHORE WIND ENERGY PRODUCTION



> 2024 marked the inaugural year for offshore wind energy production in New York State, with the integration of the 136 MW South Fork Wind project off the coast of Long Island.

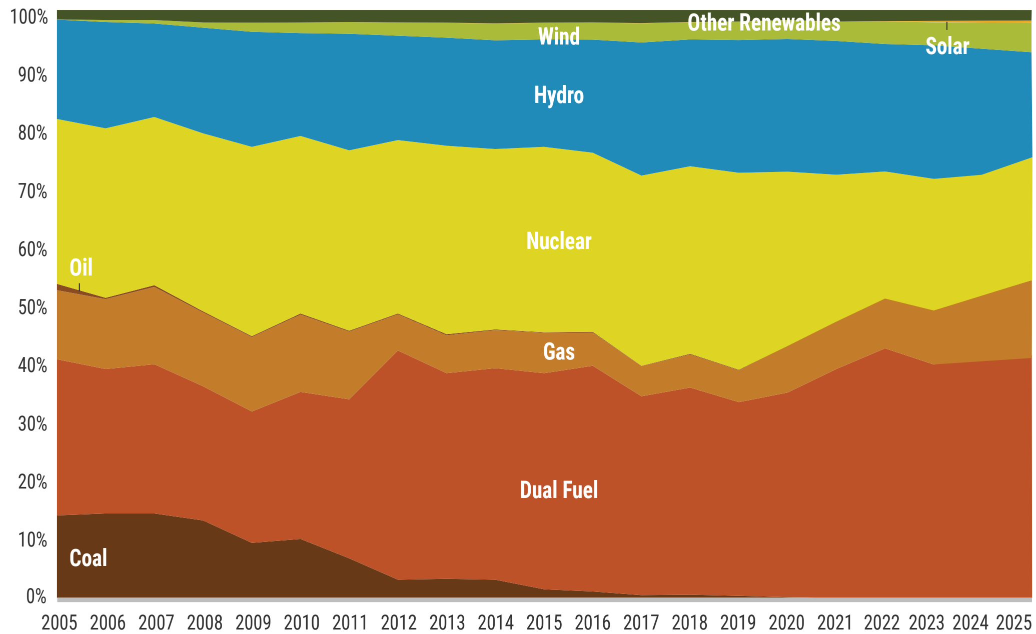
FIGURE 22: HISTORICAL WIND AND OFFSHORE WIND NAMPLATE CAPACITY



> Now starting to see wind farms built in the early 2000s retiring or repowering.

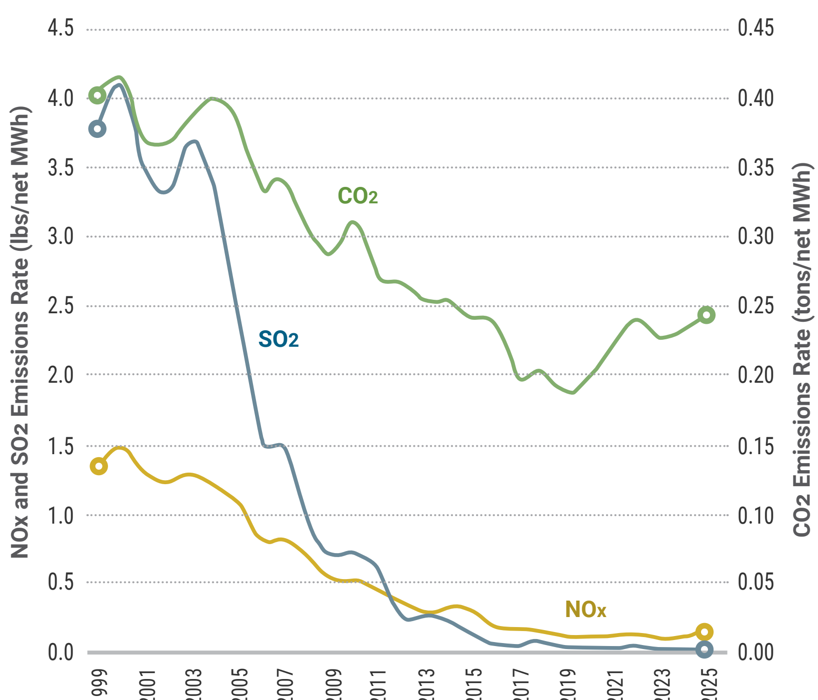
Supply Trends

FIGURE 23: HISTORICAL GENERATING CAPACITY FUEL MIX IN NEW YORK STATE, 2005-2025



> The fuel mix of the resources powering New York's grid has become cleaner over time, including the elimination of coal-fired power plants, the growth of wind, and the emergence of solar.

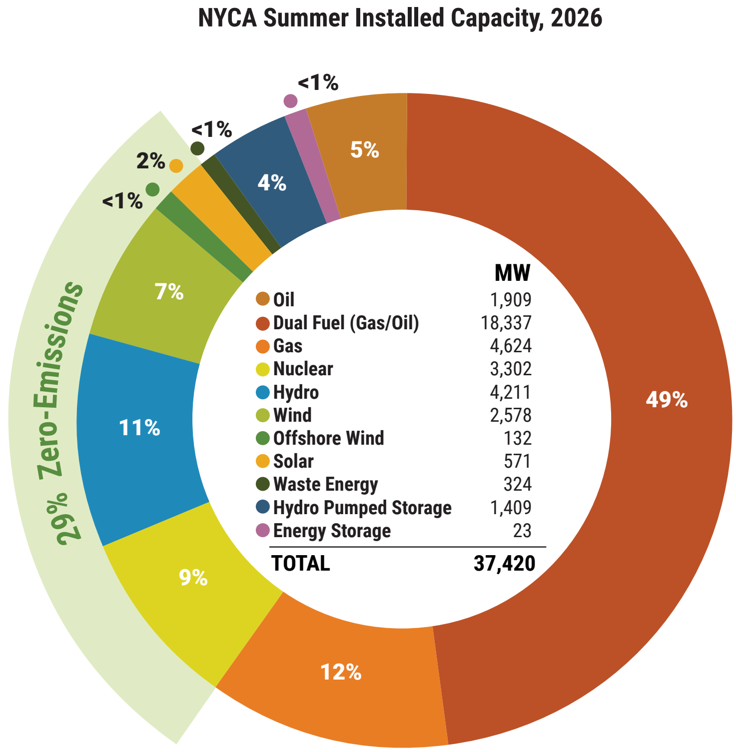
FIGURE 24: NYS POWER PLANT EMISSIONS, 1999-2025

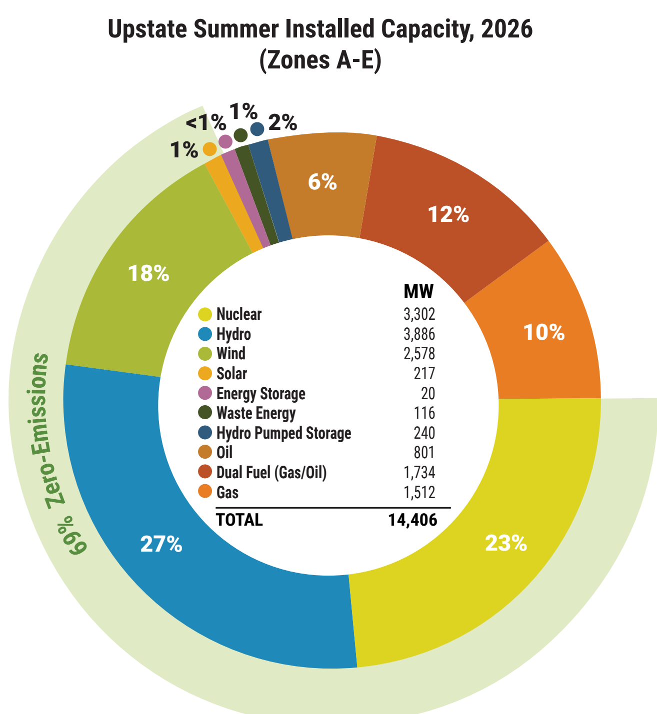


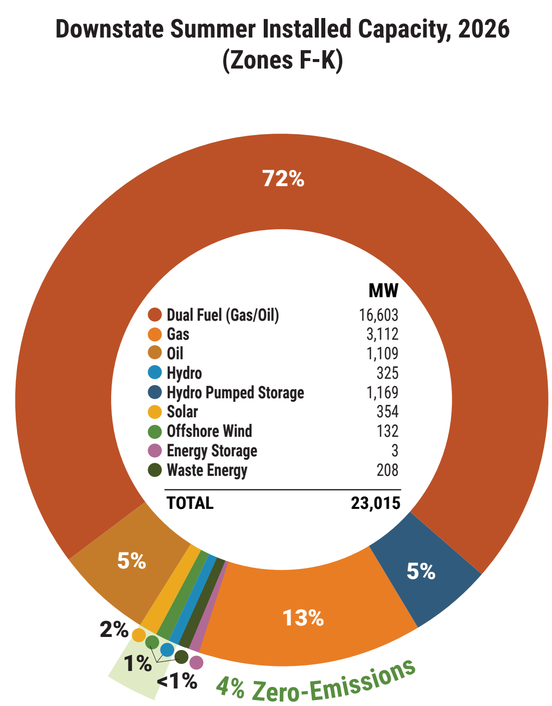
> Sulfur dioxide (SO_2) dropped 99%. Nitrogen oxides (NOx) dropped 89%. Carbon dioxide (CO_2) dropped 38%. Recent CO_2 increases coincident with closure of Indian Point.

Supply Trends

FIGURE 25: SUMMER 2026 INSTALLED CAPACITY BY FUEL SOURCE

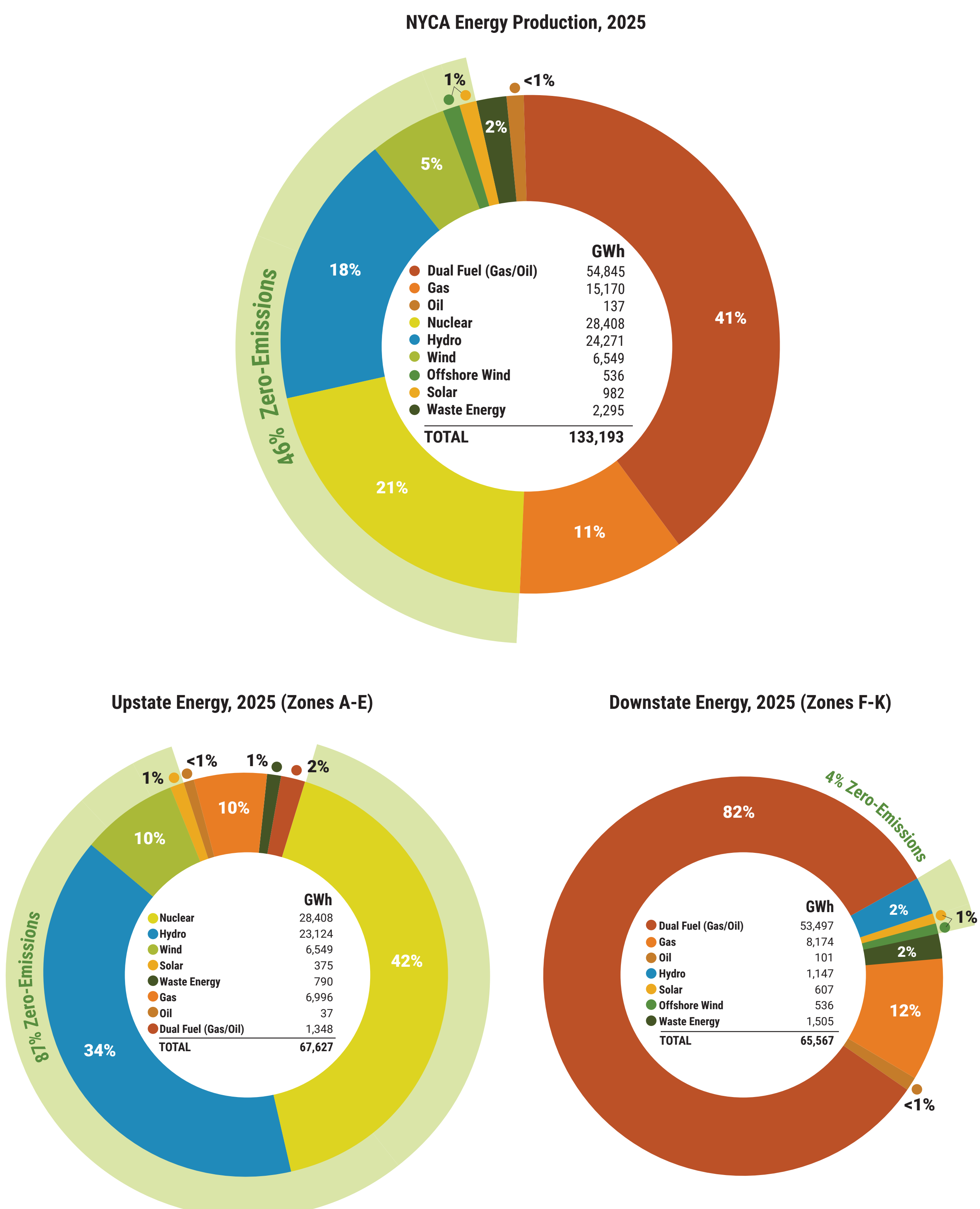






Supply Trends

FIGURE 26: 2025 ENERGY PRODUCTION BY FUEL SOURCE



Glossary

Definitions and explanations of terms and phrases

Ancillary Services: Services that support the reliable operation of the power system, which can include voltage support, frequency regulation, operating reserves, and blackstart capabilities.

Behind-the-Meter Generation: A generation unit that supplies electric energy to an end user onsite. An example is a rooftop solar photovoltaic system that primarily supplies electricity to the facility on which it is located.

Bulk Power System: The transmission network over which electricity flows from suppliers to local distribution systems that serve end-users. New York's bulk power system includes electricity-generating plants, high-voltage transmission lines, and interconnections with neighboring electric systems located in the New York Control Area (NYCA). Also referred to as "Bulk Electric system", "grid", or "power grid."

Capability Period: Lasting six months, the Summer Capability Period runs from May 1 through October 31. The Winter Capability Period runs November 1 through April 30 of the following year. A Capability Year begins May 1 and runs through April 30 of the following year.

Capacity: The electric output that a generator can produce. It is measured in megawatts (MW).

Climate Leadership and Community Protection Act (CLCPA): A law that requires New York to reduce economy-wide greenhouse gas emissions 40% by 2030 and no less than 85% by 2050 from 1990 levels. The law establishes technology-specific mandates for deploying clean energy technologies as well as a Climate Action Council charged with developing a scoping plan of recommendations to meet these requirements.

Cluster Study: is a streamlined approach to evaluating interconnection requests for new generation projects. Instead of assessing each project individually, it groups multiple requests into clusters, allowing for collective evaluation. This method improves efficiency, reduces study timelines, and ensures better coordination among developers, utilities, and stakeholders.

Comprehensive Reliability Plan (CRP): A study undertaken by the NYISO that evaluates projects offered to meet New York's future electric power needs, as identified in the Reliability Needs Assessment (RNA). The CRP may trigger electric utilities to pursue regulated solutions to meet reliability needs if market-based solutions will not be available to supply needed resources.

Dispatchable Emissions-Free Resource (DEFR): A resource designed to provide reliable, on-demand electricity without emitting carbon. Unlike intermittent renewable sources like wind and solar, DEFRs can be dispatched as needed to meet demand. Many of the potential technologies are still in development and may face challenges in terms of economic viability and scalability.

Distributed Energy Resource (DER): A broad category of resources that includes distributed generation, energy storage technologies, combined heat and power systems, and demand response. A DER is generally customer-sited, but may sell excess energy production and/or load reduction capability in wholesale energy, capacity and/or Ancillary Services Markets.

Electrification: Adopting technologies that support the transition of fossil-fuel-intensive sectors of the economy to electricity. Sometimes referred to as “beneficial electrification” due to its underlying goals of promoting societal benefits through emissions reductions.

Energy: Energy is the amount of electricity a generator produces over a specific period of time. It is measured in megawatt-hours (MWh). For example, a generating unit with a 1-megawatt capacity operating at full capacity for one hour will produce 1 megawatt-hour of electricity.

Energy Storage Resources (ESRs): Devices used to capture energy produced at one time for use at a later time. ESRs include technologies like batteries and pumped hydro resource.

Federal Energy Regulatory Commission (FERC): The federal agency responsible for regulatory oversight of the NYISO’s operation of the bulk power system, wholesale electricity markets, and planning and interconnection processes. The NYISO’s tariffs and foundational agreements are overseen and approved by FERC.

Gigawatt (GW): A unit of power or capacity equal to one billion watts.

Gigawatt-Hour (GWh): Equal to one gigawatt of power produced or consumed continuously for one hour.

Installed Capacity (ICAP): The capability of a qualifying resource to supply and/or reduce demand when directed by the NYISO.

Installed Reserve Margin (IRM): The level of capacity that must be secured, above projected system peak demand, to maintain resource adequacy after accounting for unplanned and scheduled outages as well as transmission capability limitations and load forecast uncertainties. The IRM requirement can be met through a combination of installed generation, import capabilities, and demand response. The IRM is established by the New York State Reliability Council (NYSRC) and designed to maintain specific resource adequacy criteria.

Interconnection Queue: A queue of load, transmission, and generation projects that have submitted a request to the NYISO to be interconnected to the state’s electric system.

Intermittent Resource: An electric energy supply resource whose output varies due to the fluctuating nature of its weather-dependent energy inputs. Examples include solar energy which is dependent upon sunlight intensity, or wind turbines where output is dependent on wind speeds.

Load: A consumer of electrical energy, or the amount of electrical energy consumed. Load can also be referred to as demand.

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Locational Capacity Requirement: A portion of the statewide installed capacity that must be physically located within a locality to meet reliability standards. Locational requirements have been established for the New York City (Load Zone J), Long Island (Load Zone K), and lower Hudson Valley (Load Zones G-J) capacity regions.

Megawatt (MW): A measure of electrical power that is the equivalent of 1 million watts. It is generally estimated that one megawatt provides enough electricity to supply the power needs of 800 to 1,000 homes.

Megawatt-Hour (MWh): Equal to one megawatt of electrical power produced or consumed continuously for one hour.

New York Control Area (NYCA): The area under the electrical control of the NYISO. It includes the entire state of New York, divided into 11 load zones.

North American Electric Reliability Corporation (NERC): The not-for-profit international regulatory authority whose mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid. NERC is the Electric Reliability Organization for North America, subject to oversight by FERC and governmental authorities in Canada. NERC's jurisdiction includes users, owners, and operators of the bulk power system.

Peak Load: The maximum average hourly load on the electric grid measured in megawatts (MW). Peak load, also known as peak demand.

Peakers: Fossil fuel-fired power plants, also known as peaker plants, that generally run only during periods of high demand and stressed system conditions.

Public Policy Transmission Planning: Part of the NYISO's Comprehensive System Planning Process. Public Policy Transmission Planning consists of two steps: (1) identification of transmission needs driven by Public Policy Requirements that should be evaluated by the NYISO; and (2) requests for specific proposed transmission solutions to address those needs, and the evaluation of those specific solutions. The NYPSC identifies transmission needs driven by Public Policy Requirements and warranting evaluation, and the NYISO requests and evaluates specific proposed transmission solutions to address such needs.

Reliability Needs Assessment (RNA): A report that evaluates resource adequacy and transmission system security over years four through 10 of a 10-year planning horizon and identifies future needs of the New York electricity grid.

Resource Adequacy: The ability of the electric system to supply electrical demand and energy requirements at all times, taking into account scheduled and unscheduled outages of system elements. A system is considered adequate if the probability of having sufficient resources to meet expected demand is greater than the minimum standard.

Short-Term Assessment of Reliability (STAR): The NYISO's quarterly process to examine reliability needs over a 5-year period, with a focus on the first three years, including the impact of generator deactivations.

Transmission Constraints: Limitations on the ability of a transmission facility to transfer electricity.

Transmission Security: The ability of the electric system to withstand disturbances, such as electric short-circuits or unanticipated loss of system elements.

ABOUT THE ISO

The NYISO is governed by a 10-member, independent Board of Directors and a committee structure composed of diverse stakeholder representatives. It is subject to the oversight of the Federal Energy Regulatory Commission (FERC) and regulated in certain aspects by the New York State Public Service Commission (NYSPSC). NYISO operations are also overseen by electric system reliability regulators, including the North American Electric Reliability Corporation (NERC), Northeast Power Coordinating Council (NPCC), and the New York State Reliability Council (NYSRC).

The members of the NYISO's Board of Directors have backgrounds in electricity systems, finance, information technology, communications, and public service. The members of the Board, as well as all employees, have no business, financial, operating, or other direct relationship to any market participant. The NYISO does not own power plants or transmission lines.

The NYISO's independence means that its actions and decisions are not based on profit motives, but on how best to enhance the reliability and efficiency of the power system, and safeguard the transparency and fairness of the markets. The NYISO is committed to transparency and trust in how it carries out its duties, in the information it provides, and in its role as the impartial broker of the state's wholesale electricity markets.

Power Trends is the NYISO's annual analysis of factors influencing New York State's power grid and wholesale electricity markets. Begun in 2001 as *Power Alert*, the report provides a yearly review of key developments and emerging issues.

New York ISO
Independent System Operator

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