STATE OF NEW YORK
State Energy Planning Board

Draft New York State Energy Plan

Comments of the New York Independent System Operator on the Draft State Energy Plan

The New York Independent System Operator, Inc. ("NYISO") hereby submits written comments in response to the Draft New York State Energy Plan ("Draft Plan").[1] The NYISO values the opportunity to provide feedback to the New York State Energy Research and Development Authority ("NYSERDA") and the State Energy Planning Board (the "Board") on the Draft Plan.

The top objectives of the State Energy Plan are to improve the reliability of New York State's energy systems and to protect consumers from market price volatility and minimize the cost of energy services.[2] These objectives entirely align with the NYISO's mission to ensure power system reliability and administer competitive wholesale electricity markets for New York. The NYISO is committed to reliable operation of the electric system 24 hours a day, 365 days a year, administering wholesale electricity markets that reflect grid reliability conditions, and planning a reliable electric system for the future. The NYISO submits these comments to highlight electric system reliability concerns and to offer approaches that support ongoing electric system reliability through competitive markets for consideration as part of the final State Energy Plan.

[1] The Draft Plan as approved for public comment by the State Energy Planning Board is available at https://energyplan.ny.gov/Plans/Draft-2025-Energy-Plan.

[2] *See* Section 1.1 of the Summary for Policymakers, Draft New York State Energy Plan, July 2025 ("Summary for Policymakers").

New Yorkers have long enjoyed reliable electric service and will expect the same, or better, service to continue as societal preferences and public policies drive greater dependence on electricity to heat our homes, to power our vehicles, and to protect our health, safety, and welfare. Reliable, dispatchable, and dependable electric generation resources support every aspect of New Yorkers' daily lives and are vital to the state's economy.[3] Maintaining system reliability is paramount. A diverse resource mix promotes grid resilience by minimizing the risk of power disruptions. The resources supporting this diverse mix rely on various fuels and integrate sufficient levels of dispatchable, reliable generators, with capabilities to provide the energy and reliability attributes the electric system requires. The resilience stemming from a diverse resource mix is increasingly important as the Climate Leadership and Community Protection Act ("CLCPA") drives profound changes to New York's electricity sector and numerous other factors impact the electric system.

The New York grid is at an inflection point, driven by the convergence of three structural trends: the aging of the existing generation fleet, the rapid growth of large loads, and the increasing difficulty of developing new dispatchable resources. These trends are not isolated, they are compounding. Generators in New York are among the oldest in the country. Large energy-intensive economic development projects, such as semiconductor manufacturing plants and data centers, are driving up demand for electricity significantly after relatively flat demand trends over the last decade. Collectively, all these elements create uncertain conditions today, in the near term, and in the longer term, and each uncertainty has the real potential to cause major

[3] These electric generation resources must be able to come online when required and to operate based on system needs.

impacts on electric system reliability. All electric industry stakeholders, including the state agencies involved, must be aware of and factor these concerns into their planning and strategy.

Progress towards the CLCPA goals, other public policies, and supplying the electricity that New Yorkers demand requires the State Energy Plan to support a well-functioning, reliable electric power sector. Reliable electric power is the foundation of the State's plans to electrify other aspects of the economy and to reduce emissions. The NYISO urges the Board and NYSERDA to consider these comments and prioritize electric system reliability in the final State Energy Plan.

I. Electric Grid Concerns Exist Today

The fossil-fuel-based generation fleet currently provides many of the essential services necessary to maintain electric system reliability. The pace of retirement and the age of these resources, combined with delays in building new resources and increasing load, raise immediate concerns about electric system reliability.

A. Reliability Margins are Eroding

Reliability margins are eroding as traditional fossil-fuel-based generation deactivates in response to decarbonization goals and tighter emissions regulations, without comparable replacement resources coming online. Robust reliability margins enable the electric system to meet peak demand, respond to sudden disturbances, and avoid outages. They also support the grid's ability to respond to risks associated with extreme weather conditions. As these margins narrow, consumers face greater risk of large-scale electricity outages if resources are unavailable to meet demand or to provide the services necessary to keep the entire electric system operational.

The Draft Plan accurately points out that:

> the State will need to be strategic about the pace of combustion unit retirements and/or replacements as it works towards its clean energy goals and to meet reliability needs as quickly and cost-effectively as possible. Combustion generating units will remain essential parts of electric grid reliability and affordability, and retirement of these units will not be able to occur until resources that provide the same grid reliability attributes are put in place. New York will seek to carefully manage the retirement of existing assets and evaluate whether there is a need for new generation that is compatible with long-term policy targets.[4]

This theme continues in the Electricity chapter of the Draft Plan.

> Combustion generating units will remain essential parts of electric grid reliability and affordability. Retirement of these units will not be able to occur until resources that provide the same grid reliability attributes are put in place. Additionally, there are specific considerations with respect to the small clean power plants, or "peaking units", owned and operated by NYPA. By 2030, NYPA will cease production of electricity at its peaking units unless the closure of any specific facility would result in increased emissions in a DAC or the facility is needed for reliability. With these strategic and statutory considerations, New York will seek to carefully manage the retirement of existing assets and evaluate whether there is need for new generation that is compatible with long-term policy targets.[5]

These observations are critical to shaping decisions by all interested parties around keeping fossil-fuel-based generation available until sufficient other resources are online. Since 2021, NYISO reliability reports have noted that reliability margins are declining. In July 2023, the NYISO issued a Quarterly Short-Term Assessment of Reliability ("STAR") report that identified a reliability violation in New York City beginning in the summer of 2025, when several generation facilities (commonly referred to as "peaker plants") were slated to exit the

[4] *See* Section 5.1.6 of the Summary for Policymakers at p. 44.

[5] *See* Section 4.1.1 of the Electricity Chapter, Draft New York State Energy Plan, July 2025 at p. 65 ("Electricity Chapter").

market due to stricter emissions requirements imposed by the state Department of Environmental Conservation ("DEC"). The NYISO is currently preparing the 2025 Q3 STAR report, which examines the planned deactivation of 875 MW in Southeast NY (*i.e.*, 203 MW in Long Island, and 642 MW in New York City). The report is scheduled for release by mid-October 2025 and will identify any potential reliability needs arising from planned generation deactivations and latest system changes.

Despite the NYISO's various reliability assessments and reports, the pace of generator deactivations continues to exceed the development of new generating resources. As of June 2025, 4,315 MW have left the system while only 2,274 MW have been added since the passage of the CLCPA. This loss of generating capacity is already impacting electric system operations and grid reliability. During the summer of 2025, the NYISO was forced to declare several energy emergencies[6] due to tight supply conditions as heat waves affected much of the Eastern Interconnection and real-time demand approached the seasonal 90/10 forecasts.[7] Electric supply conditions became so tight that New York State did not have enough generating capacity available to meet operating reserve requirements, despite total load reductions following successful demand response activations.[8] The electric supply shortages largely resulted from hot

[6] *See* Operations Performance Metrics Monthly Report, A Report by the New York Independent System Operator, June 2025 ("A Mid-June heat wave occurred on 6/23-6/25 affecting much of the Eastern Interconnection. Real-time loads approached the seasonal 90/10 forecasts. NYISO declared Emergency Energy Alert Level 1 on 6/24 due to tight capacity conditions and purchased emergency energy from neighboring control areas in real-time." "A Major Emergency was declared on 6/24 from 18:13-19:58 for shortages of total operating reserve." "EDRP/SCR resources activated statewide on 6/23-6/25 HB14-21."), available at https://www.nyiso.com/documents/20142/52760293/Operations_Report_202506_v1.pdf/3b61fe7f-c761-ed0e-3724-dd58096e3617.

[7] 90/10 forecasts are for heatwave conditions, the 90th percentile summer peak forecast represents a warmer than expected summer peak day with the daily maximum temperature being 95 degrees.

[8] Operating reserve requirements mandate that Capacity is available to provide Energy, based on the need to prepare for generator and transmission contingencies, in accordance with all applicable requirements of the NYISO, NERC, NPCC and New York State Reliability Council.

weather, high energy demand, and tight supply conditions across the mid-west United States, eastern Canada, New England, and the PJM states. As a result, imports into New York from neighboring regions were limited due to their own tight conditions and nearly all generating resources in New York were needed to provide energy. These conditions prevented the system from having enough resources available to provide operating reserves.[9]

The Draft Plan's discussion of the need for combustion generators, the NYISO's planning reports, and the NYISO's real-world operational experience all coalesce on the conclusion that while continuing to build out clean energy infrastructure, fossil-fuel-based generation must remain online and barriers to repower and replace aging generation must be removed. Fossil-fuel-based generation is and will continue to be necessary to meet consumer demand and to maintain electric system reliability. The final State Energy Plan must include a recommendation consistent with the Draft Plan observations that combustion generating units "remain essential parts of electric grid reliability and affordability, and retirement of these units will not be able to occur until resources that provide the same grid reliability attributes are put in place."[10]

B. New York's Generators are Among the Oldest Generators in the Nation

A growing number of fossil-fuel-based generators in New York are reaching an age at which similar units across the country have been deactivated. New York's statewide fleet of fossil-fuel-based generation includes more than 10,000 MW that has been in operation for more than 50 years. In New York City, the average age of the fossil-fuel-based steam turbines is 65

[9] *See* Discussion of Market Outcomes for the June Heatwave (6/23 - 6/25), NYISO presentation to the Business Issues Committee, August 13, 2025, available at https://www.nyiso.com/documents/20142/52931186/June%202025%20Market%20Discussion.pdf/1eb216c4-a536-9b79-7174-c13275945c31.

[10] *See* Section 5.1.6 of the Summary for Policymakers at p. 44.

years. Fossil-fuel-based generation accounts for roughly 25% of the state's total generating capacity and produced approximately 7% of the in-state electric generation in 2024, much of which provides necessary electricity downstate within significant load centers, *e.g.*, New York City, or during critical periods.

As these fossil-fuel-based generators age, they are experiencing more frequent and longer outages. For instance, owners have greater difficulties in maintaining and finding replacement parts for older equipment. In New York, owners are also faced with these maintenance difficulties while considering the impact of policies to restrict or eliminate emissions. These factors may drive aging generators to deactivate or be more susceptible to catastrophic failure and, in turn, may exacerbate the NYISO's trend of declining reliability margins. Reliability concerns associated with the age and condition of New York's fossil-fuel generation fleet were underscored this past winter by the number of units that became unavailable and incapable of providing Energy to the electric system.[11]

The NYISO supports and emphasizes the Draft Plan's observations around aging generation:

> A primary challenge for New York's energy system is its advancing age, which creates unique risks for reliability. The NYISO has reported, for example, that by 2028 a quarter of the state's combustion generators (by capacity) will reach an age at which most such facilities are retired. For several utilities serving the Hudson Valley and Upstate New York, 60 percent to over 95 percent of transmission structures are 70 years old or older. The oldest still operational natural gas pipeline in New York dates to the Centennial, turning 150 years old next year. This aging infrastructure is more prone to failure, requiring more costly repairs, and results in a greater environmental impact than newer technologies.[12]

[11] *See* Generator Status Updates, available at https://www.nyiso.com/ny-power-system-information-outlook .

[12] *See* Section 4.1 of the Summary for Policymakers at p. 29.

The final State Energy Plan must require action to address aging generation in addition to observations of the age and associated risks to electric system reliability. The Draft Plan correctly notes that "[c]ombustion generating units also will remain essential parts of electric grid reliability and energy affordability, and New York will seek to carefully manage the retirement of existing assets and evaluate whether there is need for new generation that is compatible with long-term policy targets."[13] The NYISO is confident that new generation with the same grid reliability attributes as fossil-fuel-based generators is required to maintain electric system reliability.

Simply maintaining the existing fossil-fuel-based generation fleet and carefully managing the requirement of these resources over the next fifteen years is not enough to maintain electric system reliability. The electric system needs all existing generation resources ***and*** needs new generation resources before the current fleet suffers a catastrophic failure that jeopardizes the health, safety, and welfare of New Yorkers. The final State Energy Plan must include a recommendation removing barriers to new resources to address the age of the generation resources that are critical to maintaining electric system reliability.

C. Energy Intensive Development is Driving Up Demand for Electricity

Large energy-intensive economic development projects are driving up demand for electricity. Over the last decade, annual electricity demand growth in New York has been relatively flat as energy efficiency programs counterbalanced an increase in demand from homes and businesses across the state. Now, development projects, such as microchip fabrication and data centers, are projected to be major drivers of load growth, in addition to the electrification of the building and transportation sectors.

[13] *See* Section 4.1.1 of the Summary for Policymakers at p. 31.

Beyond the expected growth from electric vehicles, building electrification, and economic trends, the surge in large semiconductor manufacturing plants and data center projects is reshaping the demand outlook. At the end of 2024, the NYISO interconnection queue included roughly 4,000 MW of large load projects, averaging 175 MW per project. By September 2025, that figure has more than doubled to over 10,000 MW to be in service prior to 2031, with projects averaging in size of 285 MW. Upstate New York in particular appeals to these economic development projects due to the region's strength, such as accessibility to high-quality labor, land, and promotion of job creation. The increase in forecasted demand poses a major challenge to grid reliability in New York.

Large load projects can also be added to the system at a much faster pace than the new generation projects required to serve them. In the short term, this i) increases the pace required for constructing new renewable generation projects and ii) increases the reliance on existing fossil-fuel-fired generators, which thereby increases CO_2 emissions. The coordination of new large load additions, new generation capacity, and retention of existing generators is very important to support economic development, maintain adequate generation capacity, and protect electric system reliability.

Some large load projects also present opportunities to the electric grid with expected flexibility in the amount and timing of their demand for electricity from the grid. More specifically, demand from certain large loads can be reduced during peak periods, which provides an important reliability benefit. The ability to shift load from times of greater system demand to times with lower demand or higher renewable energy production could significantly reduce the amount of non-renewable generation required to serve demand.

There could also be additional, significant development projects in New York coming to light in the next decades. Interconnecting large load development projects requires an extensive assessment that best leverages and develops a region's strength and reinforces its value proposition, such as accessibility to labor and land, promotion of job creation, and achievement of environmental mandates. Access to renewable generation resources, sufficiency of overall generation available, and a robust transmission network should increasingly be an integral part of the consideration of where to locate large load projects. The NYISO has been and continues to analyze siting large load as discussed in the Outlook study published in 2024, "[s]iting large loads in electrical proximity to renewable resources, or siting resources near large loads, may benefit both the loads and the resources, particularly if located upstream of known constraints."[14] The Draft Plan and Pathways analysis consider the potential impacts of large load interconnection over the next decade, and this topic must be included in the final State Energy Plan for further study.

II. Repowering Existing Generation and Introducing New Generation Will Prove Critical to Maintaining Electric System Reliability

To achieve the CLCPA targets, new, emission-free generating technologies must ultimately replace aging fossil-fuel-based generation. However, these new technologies are not yet available on a commercial scale. At the same time, economic development investments, the likes of which New York has not seen in decades, are driving a need for additional electric generation resources.

Repowering existing generation can offer a bridge between old and new, the past and the future. Currently, the only readily accessible technology capable of providing the necessary

[14] *See* 2023-2042 System & Resource Outlook ("The Outlook"), A Report of the New York Independent System Operator, July 23, 2024, at pp. 33-36.

attributes at scale to the electric system is fossil-fuel-based generation. The state must permit new fossil-fuel-fired generators to come online to protect electric system reliability and serve the daily needs of all New Yorkers. Today, the combination of the CLCPA's zero emission grid by 2040 and the denial of the air permits that new electric generators need has eliminated all fossil development. Integrating new efficient fossil-fuel-based generation (which may be capable of operating with lower- or zero-emissions fuels in the future) will immediately improve electric system reliability and reduce total emissions. Such new, efficient resources would also position the electric system to serve large loads and continue to reduce run times and emissions from combustion generation as more renewable resources, energy storage resources, and transmission projects are brought online.[15]

The core planning scenario of the Draft Plan acknowledges that "the combustion generation fleet remains critical" through 2040.[16] Using natural gas as the basis for combustion units for the foreseeable future necessitates improving and upgrading the aging generation fleet. Upgrading the existing fleet not only can help with a stepped approach to emissions reductions by replacing older, higher emitting turbines with new, low-emissions cutting-edge technology, it also holds the potential for avoiding future generator failures and improves generating flexibility that allows for more renewable energy generation, therefore bolstering grid reliability and further reducing emissions.

The age of the existing generation fleet and the lack of viable alternative technologies require steps to use the best technology currently available. The final State Energy Plan must

[15] *See* Section 4.1.2 of the Summary for Policymakers at p. 31 ("Substantial investment will be needed in New York's energy systems to modernize aging infrastructure and address a range of risks and hazards, including those posed by climate change, and to meet new demands for energy that come from economic development opportunities.").

[16] *See* Section 3.2 of the Summary for Policymakers at p. 23.

include a recommendation to facilitate development of natural gas-fired combustion generation to immediately support electric system reliability and be available until new, dispatchable, emission-free generating technologies are commercially available to support electric system reliability, *e.g.*, hydrogen and advanced nuclear.

III. Existing Nuclear Generation is Critical to Meeting the Demands of New Yorkers

In parallel with the existing fossil-fuel-based generators, the existing fleet of nuclear-powered generation provides significant contributions to meeting statewide resource adequacy requirements. Four nuclear generators in upstate New York account for 9% of total statewide installed capacity with a combined nameplate capability of over 3,500 MW but supplied 21% of the energy produced in the state in 2024 that is zero-emission. Nuclear generators provide reliable, continuous, predictable, emissions-free supply and must remain online to maintain electric system reliability.

Nuclear resources can operate at a high annual capacity factor, produce great amounts of power most of the time, and have the lowest outage rates among New York's diverse fleet of generators. These resources provide predictability for NYISO grid operators who must balance load with supply to meet demand as it fluctuates. The licenses for three of the four nuclear units in New York are scheduled to expire before 2035. Additionally, Nine Mile Point 1 and Ginna are the two oldest operational nuclear units in the country. NYISO's Comprehensive Reliability Plan ("CRP") will include an assessment if the relicensing is not approved.[17] In addition to the significant capacity and energy contribution from these nuclear units, NYISO's Outlook study also identified that the ability to transfer power across the state (*i.e.*, over the Central East

[17] The final 2025 CRP will be released later this year. A Draft of the 2025 CRP is available at https://www.nyiso.com/documents/20142/54068970/Draft_2025-2034-Comprehensive-Reliability-Plan_ESPWG_092525.pdf/caa6e5df-3a82-2688-038a-33892667c4f6.

interface) depends on the reliability attributes currently provided by three nuclear and four fossil-fuel generators surrounding the transmission path. Without the dynamic voltage support services of these key resources the electric system could not transmit power generated by emission-free resources in Western NY to serve load statewide.[18]

The Draft Plan recommends continuing the evaluation of the extension of the Zero Emissions Credit ("ZEC") program "to ensure the continued operation of the existing nuclear fleet to contribute to climate goals and help maintain fuel diversity and fuel security."[19] Nuclear resources are a critical component of fuel diversity and fuel security in New York as nuclear generation provides more than one-fifth of the annual electricity produced in New York.[20]

The reliability attributes and overall energy production that nuclear resources provide to the electric system unquestionably demonstrate the need for these resources to remain available in New York. The final State Energy Plan must include the recommendation from the Draft Plan to complete the ZEC program "evaluation prior to any federal relicensing application deadlines, to ensure the continued operation of the existing nuclear fleet to contribute to climate goals and help maintain fuel diversity and fuel security."[21]

IV. Emerging Technologies and Other Resource Development

The Draft Plan accurately recognizes that:

> [t]he State will need to be strategic in identifying and integrating clean firm technologies that have the attributes necessary to support the achievement of a zero emissions electric grid by 2040. Results from the study described in Section 4.3 will be leveraged

[18] *See* 2023-2042 System & Resource Outlook ("The Outlook"), A Report of the New York Independent System Operator, July 23, 2024, at pp. 62-65.

[19] *See* Section 5.1.3 of the Summary for Policymakers at p. 42.

[20] *See* Section 5.1.3 of the Summary for Policymakers at p. 42 ("Nuclear energy provided 22 percent of in-state bulk electrical generation in 2023"). *See also* 2025 Power Trends, The New York ISO Annual Grid and Markets Report, at p. 45 (In 2024, Nuclear generation contributed 21 percent of the total NYCA Energy production.).

[21] *See* Section 5.1.3 of the Summary for Policymakers at p. 42.

> to identify and propose pathways for the deployment of those technologies that have the greatest potential to solve the reliability needs expected to arise with the energy transition. The State will also pursue continued support for innovation and demonstration projects, as appropriate. These efforts will be critical, as many of the technologies under consideration to meet system needs for firm, dispatchable capacity (e.g., combustion of alternative fuels, nuclear, long-duration energy storage, etc.) are not commercially available at scale today.[22]

The NYISO fully supports identifying and developing technologies that have the greatest potential to support electric system reliability and the needs that will arise throughout this energy transition. As noted in the Draft Plan, many of the technologies necessary to meet system needs for firm, dispatchable capacity are not yet commercially available at scale. The development of these technologies must start now as these technologies need to be proven and deployed to the electric grid before the resources that currently supply the energy that consumers demand and the reliability attributes needed to support the grid can be retired.

The resources the electric system will require must include sufficient reliable, dispatchable, and dependable supply resources to maintain the level of service New Yorkers expect. The electric generation fleet must collectively maintain a balance of the attributes listed below:[23]

1. **Zero-emission/carbon free** (*i.e.*, the qualification criteria for the Zero-Emissions by 2040 Target);
2. **Dependable Fuel Sources** that allow these resources to be brought online when required and to operate based on system needs;
3. **Non-Energy Limited** and capable of providing energy for multiple hours and days regardless of weather, storage, or fuel constraints;
4. **Dispatchable** to follow instructions to increase or decrease output on a minute-to-minute basis;
5. **Quick-Start** to come online within 15 minutes;
6. **Flexibility** to be dispatched through a wide operating range with a low minimum output;

[22] *See* Section 4.3 of the Electricity Chapter at p. 68.

[23] *See* 2023-2032 Comprehensive Reliability Plan, A Report of the New York Independent System Operator, November 28, 2023, pp. 75-79.

7. **Fast Ramping** to increase or reduce energy injections based on changes to net load which may be driven by changes to load or intermittent generation output;
8. **Multiple starts** so resources can be brought online or switched off multiple times through the day as required based on changes to the generation profile and load;
9. **Inertial Response** and frequency control to maintain power system stability and arrest frequency decline post-fault;
10. **Dynamic Reactive Control** to support grid voltage; and
11. **High Short Circuit Current** contribution to ensure appropriate fault detection and clearance.

Recent NYISO studies project that 20 to 40 GW of new capacity will be needed to replace the current 25 plus GW fossil-fuel-fired generation fleet to support electric system reliability and the achievement of CLCPA mandates.[24] As discussed in the Draft Plan, hydrogen-powered generators or fuel cells, advanced nuclear facilities, and demand side programs all warrant further investigation in the final State Energy Plan. Emerging nuclear technologies, in particular, hold promise for added flexibility and dispatchability, but the commercial availability remains uncertain in the near future. Demand side programs already help manage summer and winter peaks and should continue to be pursued to incentivize reduced or flexible usage of energy, among other benefits, and in parallel with generation resource development.[25] Given the significant need for resources demonstrated by the Outlook and contemplated in the Draft Plan, the final State Energy Plan should explore all emerging technologies, while focusing on promising technologies that will be readily available sooner and continuing to invest in current technologies including repowering fossil-fuel-fired generation to support fuel diversity and overall electric system reliability.[26]

[24] *See* The Outlook at pp. 9 and 48. While battery storage offers dispatchability and dependability and should be part of the resource mix, it also is energy-limited because batteries can typically only supply the grid for limited durations before needing to be recharged.

[25] *See* Section 5.3.1 of the Summary for Policymakers at p. 49.

[26] *See* Grid Performance Gaps Study, Prepared for NYSERDA, April 2025, available at https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/Publications/Research/Electic-Power-Delivery/25-23-

V. Key Risk Factors Shaping the Grid

NYISO commends the inclusion of scenario analysis in the Draft Plan and encourages further analysis considerations in the final State Energy Plan. By evaluating a broad spectrum of scenarios, the Draft Plan thoughtfully explores the potential impacts of numerous and significant uncertainties bearing down on the energy sectors in New York. Scenario analyses reflect a deliberate and comprehensive effort to incorporate and consider the uncertainty of key variables in long-term planning processes and are critical to forecast the future.

The grid is at an inflection point, driven by the convergence of three structural trends that could impact reliability: the aging of the existing generation fleet, the rapid growth of large loads, and the increasing difficulty of developing new dispatchable resources. These trends must be at the forefront of the final State Energy Plan and the NYISO's reliability planning studies. Aging thermal plants, volatile demand driven by electrification and large industrial loads, and the potential for delays in major renewable and transmission projects all contribute to a more complex and less predictable operating environment. The range of possible outcomes based on variations in evolving data are no longer theoretical—they are materializing now, and their combined impact could challenge the reliability of the New York grid if not addressed proactively. The final State Energy Plan must include significant further analysis of the risks associated with these key risk factors and consider additional recommendations related to the impact of federal policy shifts.[27]

Grid-Performance-Gaps-Study.pdf. The study includes a baseline scenario where fossil remained online in a 2040 system and resulted in production of ~90% zero emissions generation.

[27] *See* Section 1 of the Summary for Policymakers at p. 3 ("The federal administration's energy and unpredictable tariff policies bring additional political and regulatory uncertainty, which threatens critical federal support for clean energy development and creates barriers to private investment. This includes the rollback of tax credits provided under the Inflation Reduction Act, planned denial of permits for wind generation, and attempts to remove state-based clean car and clean truck rules.").

Supply chain issues are currently driving long lead times for the delivery of equipment needed to construct energy infrastructure and delays in receiving necessary permits to build projects increase risk for planned projects to meet their proposed in-service dates. Projects facing these uncertainties could include key transmission projects like Champlain Hudson Power Express ("CHPE") and Propel NY Alternate Solution 5, which are expected to be necessary to improve and maintain overall electric system reliability. Transmission Owner Local Transmission Plans ("LTPs") and additional resources planned through the NYISO interconnection process may also be faced with delays.

The NYISO's Reliability Planning Process currently assumes that more than 4,400 MW of new resources will be in service by the end of 2028, a majority of which are comprised of solar resources and offshore wind resources. Recent actions taken by the federal government have drastically impacted the prospective development and construction of offshore wind and other renewable resources.[28] Potential delays for these types of projects have become more likely since the Draft Plan was prepared and issued. Any delay or cancellation of these resources coming into service will have adverse effects on system reliability.

The recent increase in interconnection requests for large load projects poses a risk to reliability as the magnitude and speed of these requests are far exceeding that of additional supply resources that would be needed to serve their demand for power.[29] Given the NYISO's

[28] *See e.g.*, U.S. Department of Transportation withdrew or terminated funding for 12 offshore wind projects across America, https://www.transportation.gov/briefing-room/trumps-transportation-secretary-sean-p-duffy-terminates-and-withdraws-679-million and Executive Order, Ending Market Distorting Subsidies for Unreliable, Foreign Controlled Energy Sources, available at https://www.whitehouse.gov/presidential-actions/2025/07/ending-market-distorting-subsidies-for-unreliable-foreign%e2%80%91controlled-energy-sources/.

[29] *See* Section 4.1 of the Summary for Policymakers at p 29 ("In the electricity sector, demand is projected to grow significantly through 2040 due to the addition of new large loads such as manufacturing facilities alongside growing customer preferences for electrification of buildings, transportation, and industry. This expected load growth combined with aging infrastructure means that planning approaches and the build out of energy infrastructure will need to become more nimble.").

approach to develop demand forecasts and how the forecasts consider large load interconnection requests, the forecasts used in reliability planning process do not and cannot account for all of the large load projects seeking to interconnect to the system. As of early September 2025, there are over 8,000 MW of additional requested large load interconnection projects in the NYISO interconnection queue compared to the load projects the NYISO studied in 2024. Similar to generator interconnection requests, not all of the load interconnection projects will move forward, and various large loads could have significantly different impacts on the electric system. For example, data centers potentially have very different operating characteristics depending on the individual use case for cloud computing, AI, or crypto mining. Therefore, the NYISO and the State must examine different assumptions for the large load interconnection requests to plan for the uncertain demands on and impacts to the reliability of the electric system.

Reliability studies have shown that current and future electric system reliability in New York is, in part, dependent on scheduled imports and emergency assistance from neighboring control areas. New York's eroding statewide reliability margins assume that all firm scheduled imports from neighboring systems are available when needed.[30] However, these neighbors are experiencing tighter margins for many of the same reasons as New York and may not be able to deliver power to New York due to their own system needs. This situation drives a growing concern that the NYISO may not be able to depend on imports when needed most and must plan for alternative options to maintain electric system reliability. The final State Energy Plan should consider the uncertainty around imported electricity under high demand conditions.

[30] The NYISO expects to receive a net total of 3,094 MW from neighboring systems during summer peak conditions and assumes that 734 MW is available to the NYCA during winter peak conditions, as determined by the Eastern Interconnection Reliability Assessment Group's annual processes.

Weather is a separate variable in forecasting demand from the policy and economic development considerations mentioned in the previous sections. Winter and extreme weather reliability risks continue to evolve and require scenario analyses in reliability studies to evaluate the uncertainty. The NYISO supports the Draft Plan recommendation:

> For the electricity system, continue to incorporate the impacts of climate change into future reliability planning scenarios. Further consider whether the current reliability-related metrics should be supplemented given the evolving nature of the grid and the increased risks of high-impact reliability events. Establishing criteria for metrics like effective unserved energy (EUE) may help supplement traditional criteria based on loss of load expectation (LOLE) by providing information about risks of long-duration outages.[31]

Metrics such as Expected Unserved Energy ("EUE") or Loss of Load Hours ("LOLH") can be applied to the probabilistic resource adequacy simulation results to quantify reliability impacts under normal conditions and provide a more holistic view of system performance than just considering the LOLE after the use of all emergency procedures. There is a clear correlation between decreasing the deterministic statewide margin, which is a good indicator of the tight conditions seen in the transmission security analysis, and increasing potential LOLH, without other protective actions being invoked.

By evaluating resource adequacy through the lens of EUE or LOLH, the NYISO can identify scenarios where the system appears adequate but fails to meet reliability expectations without relying on emergency interventions. It also supports better alignment with operational realities and market participant expectations, ensuring that emergency tools remain reserved for true emergencies rather than routine reliability management. The final State Energy Plan should include the related recommendations discussed in the Electricity Chapter of the Draft Plan:

[31] *See* Section 5.2.1 of the Summary for Policymakers at p. 45.

> Consider whether the current reliability-related metrics should be supplemented given the evolving nature of the grid and increased risks of high-impact reliability events. New York should consider whether the current reliability-related metrics (i.e. loss of load expectation) should be supplemented given the evolving nature of the grid and the increased risks of high-impact reliability events. Establishing criteria for metrics like expected unserved energy (EUE) may help supplement traditional LOLE-based criteria by providing information about risks of long-duration outages. As fuel availability will be incorporated into the NYISO's capacity accreditation framework, additional consideration should be given to whether this adjustment to capacity accreditation provides sufficient incentives and compensation to resources for attributes needed to ensure energy adequacy and resilience to extreme weather events from both a planning and operational perspective (e.g. compensation for fuel storage capabilities).[32]

As discussed above, the Draft Plan considers some of these uncertainties, but not all. New York's electric grid is entering a period of heightened reliability risk, driven by the convergence of three structural trends: the aging of the existing generation fleet, the rapid growth of large loads, and the increasing difficulty of developing new dispatchable resources. These trends are not isolated, they are compounding. As older combustion generators deactivate, the system loses firm capacity and operational flexibility. At the same time, new demand from data centers, industrial facilities, and electrification is accelerating, placing additional stress on the grid. Meanwhile, the development of new reliable resources is not keeping pace due to permitting challenges and policy uncertainty.

The NYISO encourages the Board and NYSERDA to undertake further scenario analysis of the plausible risks driving potential electric system reliability impacts. These conditions must be continuously assessed for New York's energy future. The final State Energy Plan and ongoing reliability analysis are critical to understanding and planning a reliable electric system.

[32] *See* Section 4.6 of the Electricity Chapter at p. 74.

VI. The NYISO serves as an independent and authoritative source of information for policymakers, regulators, investors, stakeholders, market participants, and the public.

The electric system planning process is crucial for ensuring a reliable, safe, and affordable electricity supply. It involves planning for generator retirements, forecasting future demand, planning new generation, transmission, and distribution infrastructure, and coordinating these plans to meet economic, reliability, and environmental objectives. This process is continuous and essential for adapting to changes in energy sources, technologies, and consumer needs.

The NYISO's Comprehensive System Planning Process ("CSPP") focuses on the impacts of forecasted changes in supply, identifying future system needs and opportunities proactively, before a possible impact to reliability occurs. It has taken on even greater importance and complexity in recent years as the grid is impacted by a confluence of public policy mandates, advancing technology and more frequent extreme weather. The NYISO is an independent expert in this area, and its studies should be leaned on to support State Energy Plan recommendations to continue strengthening "collaboration between State agencies, NYISO and Utilities to enhance Coordinated Grid Planning Process (CGPP) in future cycles and improve the coordination of distribution and transmission planning under CGPP."[33]

The NYISO's biennial Outlook study evaluates the performance of and identifies potential challenges presented to the New York power system under multiple future scenarios over 20 years. Each scenario considers varying uncertainties for the future system with primary adjustments in energy demand profiles, generation capacity mixes, approved proposed transmission and distribution projects, and policy objectives. Each scenario is independently

[33] *See* Section 5.2.2 of the Summary for Policymakers at p. 46.

evaluated to inform on various potential future system outcomes. This Outlook highlights how the system is evolving through time to accommodate the anticipated energy transition over the next two decades. In the 2023-2042 Outlook, the scope was expanded to evaluate five scenarios (as compared to four in the prior Outlook) to accommodate an additional set of modeling assumptions from state entities for further use in the CGPP.

The biennial long-term reliability planning process is performed in two steps, where the even-year *Reliability Needs Assessment* ("RNA") identifies any reliability needs and the subsequent odd-year CRP identifies the plan for the planning horizon, including appropriate solutions to needs. Both planning processes evaluate the New York transmission system's ability to meet established transmission security and resource adequacy criteria and have procedures for identifying solutions in their respective timeframes.

Every two years, the NYISO conducts a Reliability Planning Process that examines the reliability of the State's bulk power system over a 10-year planning horizon. The NYISO identifies reliability needs by applying mandatory and enforceable rules established by international, national, regional, and New York State-specific reliability standards organizations. The standards examine two key aspects of reliability:

a. Resource Adequacy: Analysis of whether the bulk power system has enough resources to reliably serve the forecasted demand if some resources or facilities are unavailable.
b. Transmission Security: Evaluation of the bulk power system's ability to operate reliably over a broad spectrum of system conditions and following a wide range of probable system events.

The NYISO continues to evaluate the reliability of the system in each quarterly STAR study. Quarterly STAR studies analyze the impacts of near-term generator deactivations and new supply additions on electric system reliability.

Electric system reliability, the current condition of the electric system, changes in supply and load, and the impacts of uncertainties must be analyzed continuously through the NYISO's Reliability Planning Process.

For the *2025 Q1 STAR*, the NYISO evaluated the impact of updated forecasts and uncertainties in potential system changes or study assumptions. The following factors were evaluated in the sensitivity analyses: updated New York City demand forecasts, CHPE unavailability, heatwave conditions, accelerated deactivations of the certain NYPA fossil-fuel-based generators, unplanned failures or outages of aging fossil-fuel-based generators, and different methods for determining the expected availability (or "derating factors") of thermal generation units. An updated analysis, conducted for *2025 Q3 STAR*, will be released on October 14, 2025, and should be considered as the final State Energy Plan is prepared.

Consistent with the 2025 STAR studies, the NYISO plans to build on key uncertainties identified in 2024 RNA as part of the CRP this year.[34] The CRP will review the reliability margins forecasted from previous CRPs to identify the historical trends and further investigate a variety of risk factors and plausible ways the system could change over the next ten years. In consideration of increasing uncertainty about key system trends over the next ten years, the CRP will also consider and analyze the key uncertainty factors discussed above. The results of the CRP analysis should be considered in the final State Energy Plan if the report is available, or the final State Energy Plan should point to the forthcoming CRP report when discussing electric system reliability over the next ten years.

[34] *See* Draft CRP at https://www.nyiso.com/documents/20142/54068970/Draft_2025-2034-Comprehensive-Reliability-Plan_ESPWG_092525.pdf/caa6e5df-3a82-2688-038a-33892667c4f6. The final 2025 CRP will be released later this year.

VII. Recommendations for the Final SEP

The NYISO applauds the Draft Plan's efforts to holistically consider the multiple goals and long-range planning objectives around New York's energy systems. The NYISO maintains that a reliable electric system supported by competitive wholesale markets must serve as the cornerstone to meet New Yorkers' daily needs and advance broader economic objectives. The final State Energy Plan must focus on energy system reliability and acknowledge that both the near- and long-term future of the electric system are subject to numerous uncertainties. These uncertainties must be continually reevaluated through impactful, independent analysis, and planning processes like the NYISO's Reliability Planning Process.

VIII. Conclusion

The NYISO appreciates the Board's and NYSERDA's consideration of these comments and looks forward to a final State Energy Plan that recommends the steps necessary to support electric system reliability. The NYISO-administered competitive wholesale electricity markets continue to serve as a critical mechanism for efficiently attracting and retaining the resources needed to maintain reliability. Strategic coordination between market design, planning, and policy will be essential to address emerging risks and maintain a reliable electric system. A reliable electric system is the only way to protect our health, safety, and welfare, and to meet the demands of societal preferences and public policies driving greater electricity usage. Reliable, dispatchable, and dependable electric generation is critical to every aspect of New Yorkers' daily lives and is vital to the state's economy.

Sincerely,

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Dated: October 6, 2025