New York ISO
Independent System Operator

2022 Draft RNA Key Findings

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NYSRC EC
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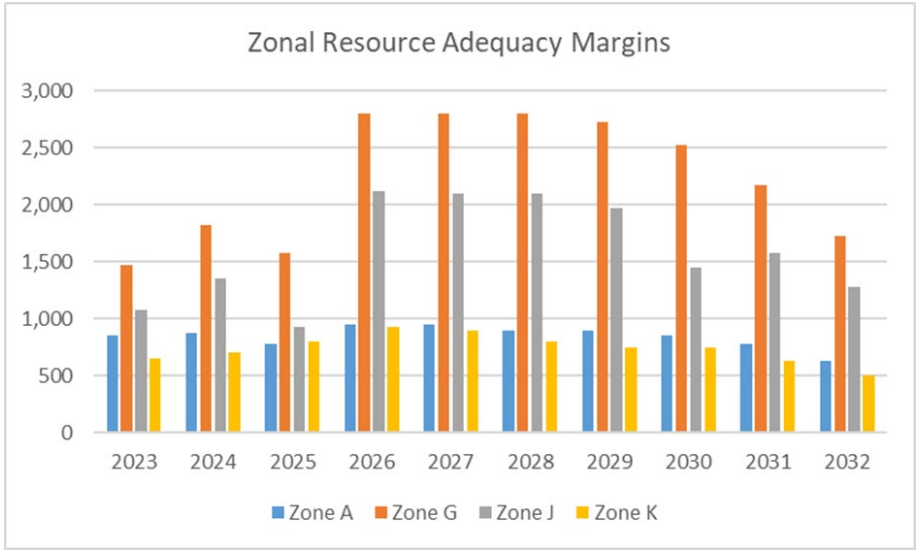
Narrowing Reliability Margins

Key Findings – Resource Adequacy Margins

- **Resource adequacy margins are tightening across the New York grid over time**
- **A growing reliance on assistance from neighboring regions outside New York increases the risk of loss of load**
  - Without emergency assistance from neighboring regions, there would not be sufficient resources to serve demand within New York throughout the planning horizon.
  - In 2032, a minimum of 1,200 MW of emergency assistance is necessary to maintain resource adequacy.



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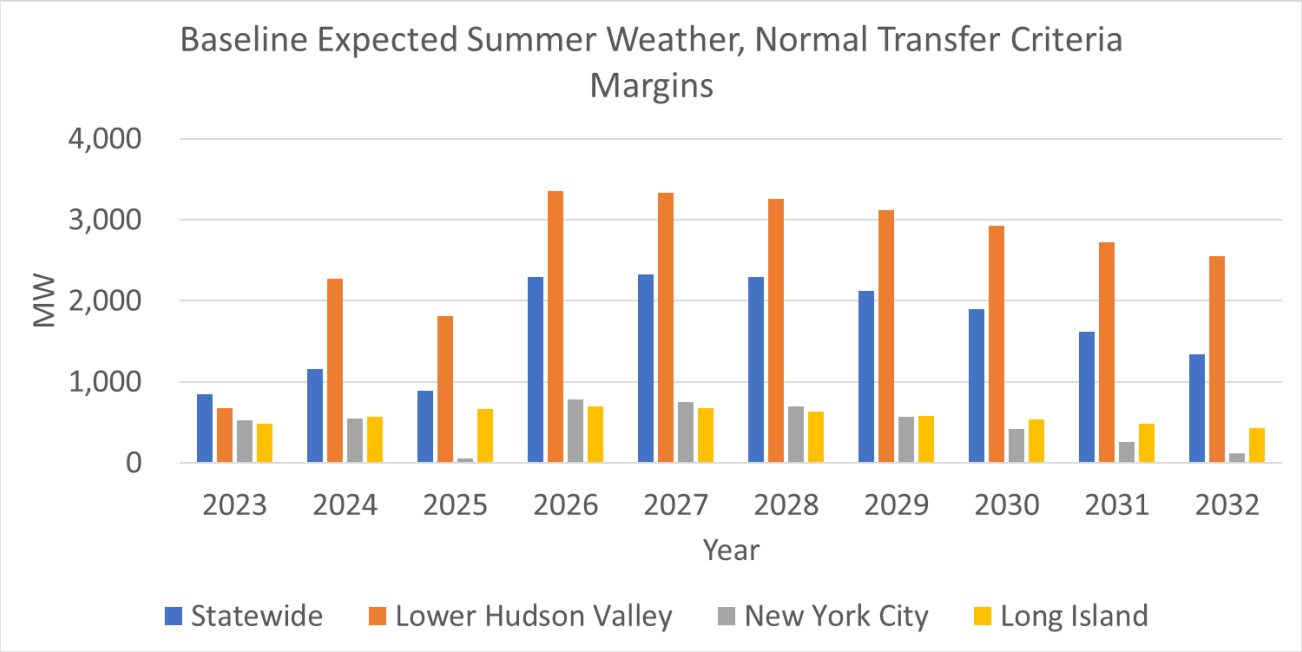
Key Findings – Security Margins

- Transmission security margins are tightening across the New York grid over time.



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Key Findings – NYC Security Margin

- While transmission security within New York City is maintained through the ten-year period in accordance with current design criteria, the margins are very tight and decrease to approximately 50 MW by 2025.
- With the addition of Champlain Hudson Power Express (CHPE) project in 2026, the margin improves but reduces to near 100 MW by 2032.
- The New York City grid is exposed to significant risks until CHPE enters service. Some generation affected by the DEC Peaker Rule may need to remain in operation to address:
  - The risk of a significant delay in the CHPE project,
  - Higher-than-forecasted demand, and
  - Additional generator deactivations beyond what is already planned.

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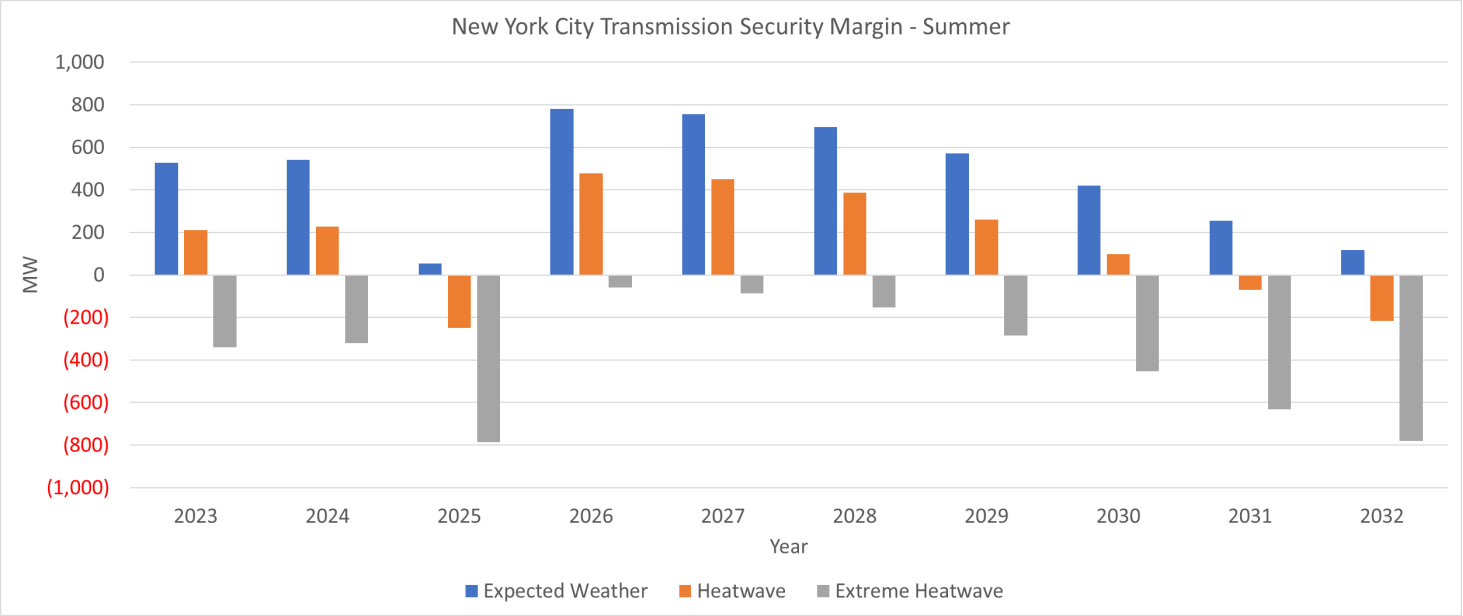
NYC Security Margins

- Extreme events, such as heatwaves or storms, could result in transmission security deficiencies in New York City



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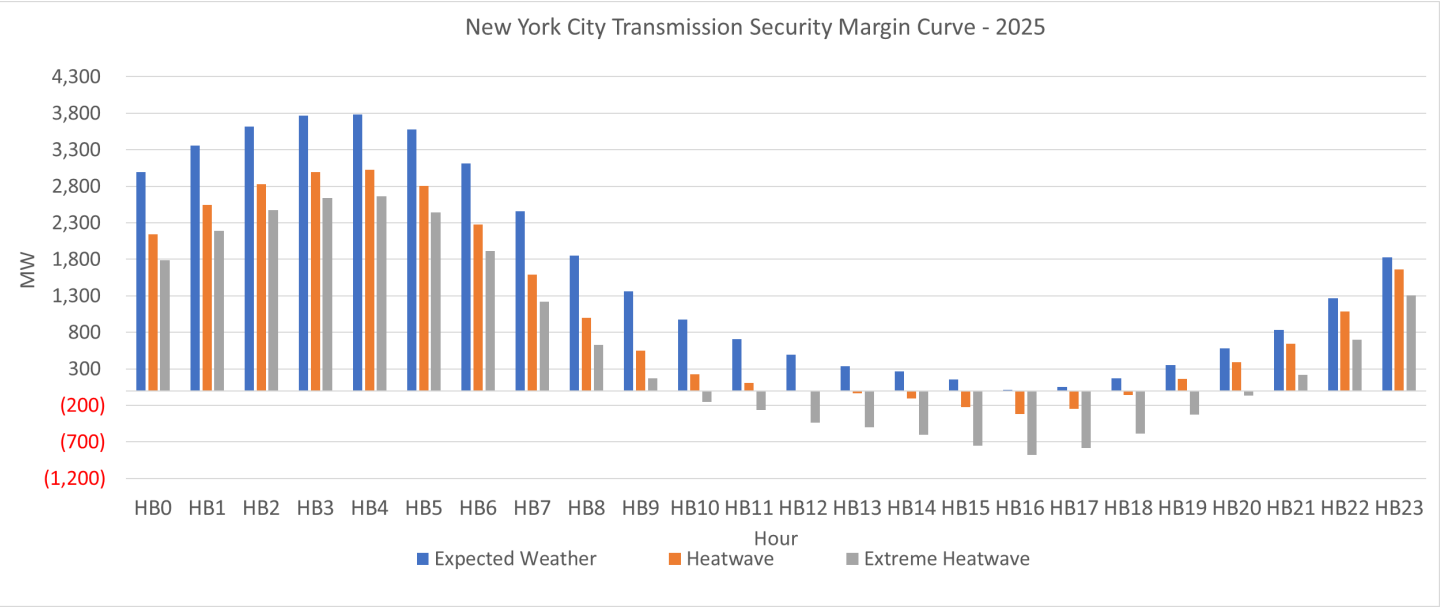
NYC Hourly Security Margins

- Within New York City the margins are very low for several hours of the mid-afternoon under expected weather conditions
- For heatwaves, the New York City transmission security margin is deficient in 2025 and may last for nearly half of the day



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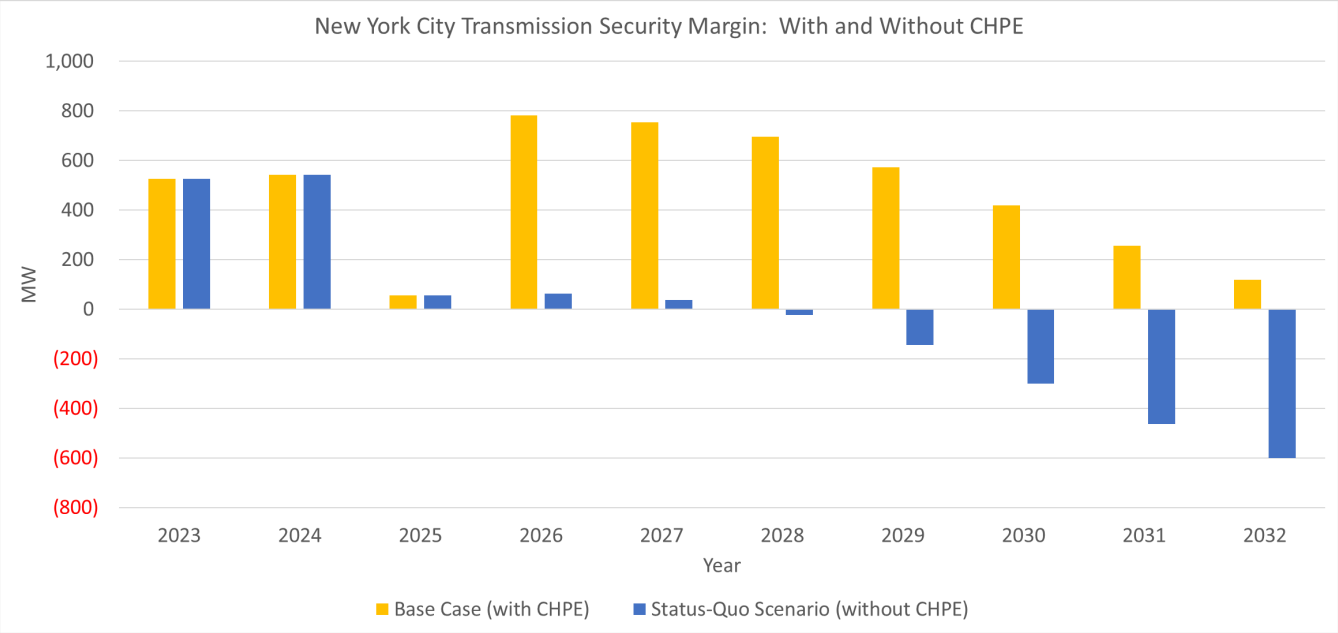
NYC Security Margin without CHPE

- Margins increase in 2026 with the planned addition of Champlain Hudson Power Express (CHPE) project
- Without CHPE, razor-thin margins would become a deficiency in 2028



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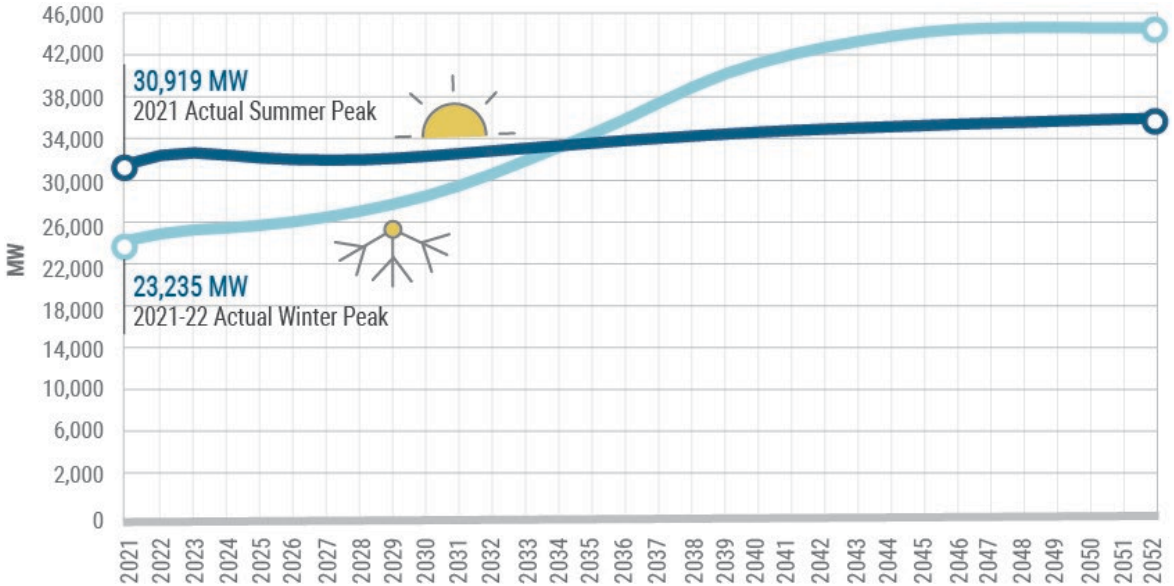
Reliability Risks Increasing in Winter

Key Findings – Winter Demand

- New York is projected to become a winter-peaking system in the mid-2030s, primarily driven by electrification of space heating systems (*e.g.*, installation of heat pumps and other potential electric heating systems).
- While no reliability violations were found, it is important to note several upstate zones are projected to become winter peaking within the 10-year period.



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Key Findings – Gas Supply Shortage

- With input from NYISO's ongoing Fuel & Energy Security initiatives, approximately 6,300 MW of existing gas-fueled generation was identified as potentially at-risk under gas shortage conditions during winter peak conditions. This is classified as a beyond-design-criteria "extreme condition" by the New York State Reliability Council.
- If that at-risk generation is unavailable for December through February in winter 2031-2032, reliability would be diminished but still within loss of load expectation (LOLE) criterion.
- However, this gas shortage condition would not meet statewide system reliability margins based on deterministic design criteria (N-1-1).

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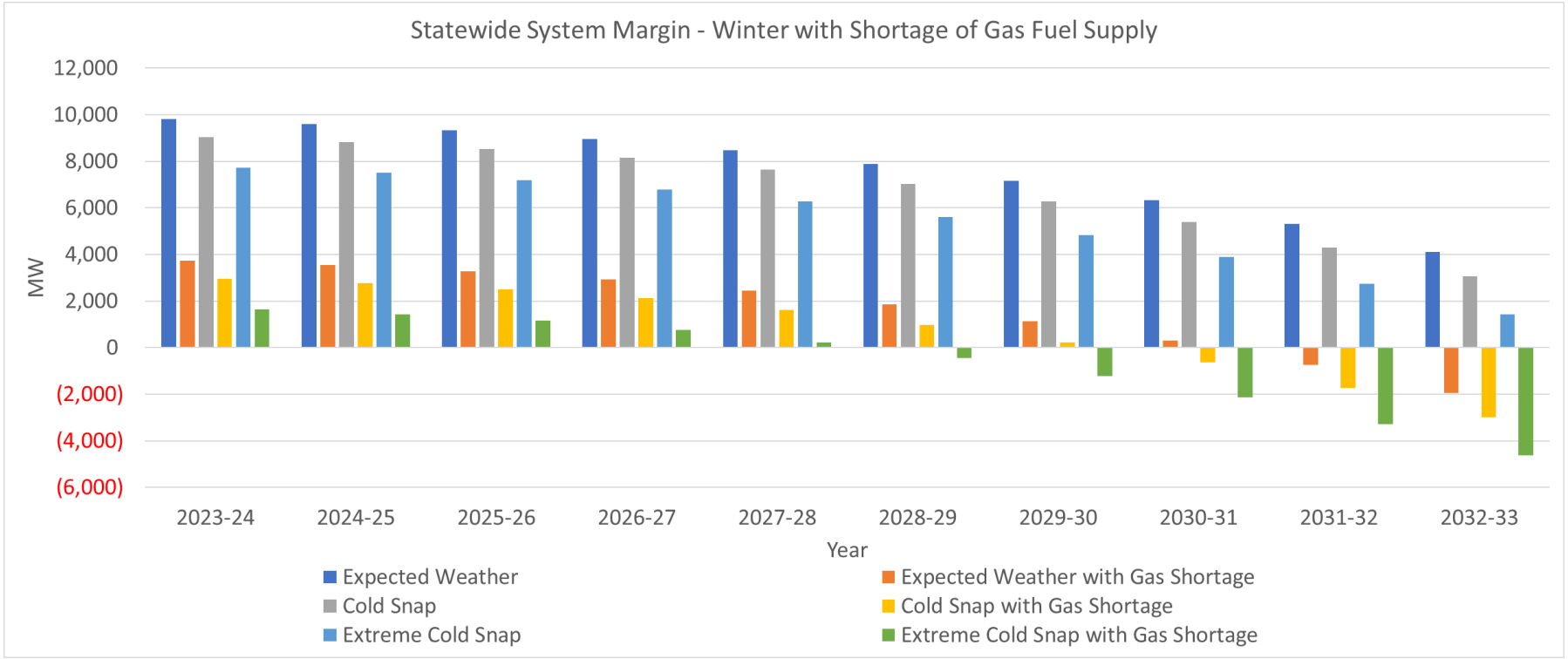
Winter Gas Supply Shortage



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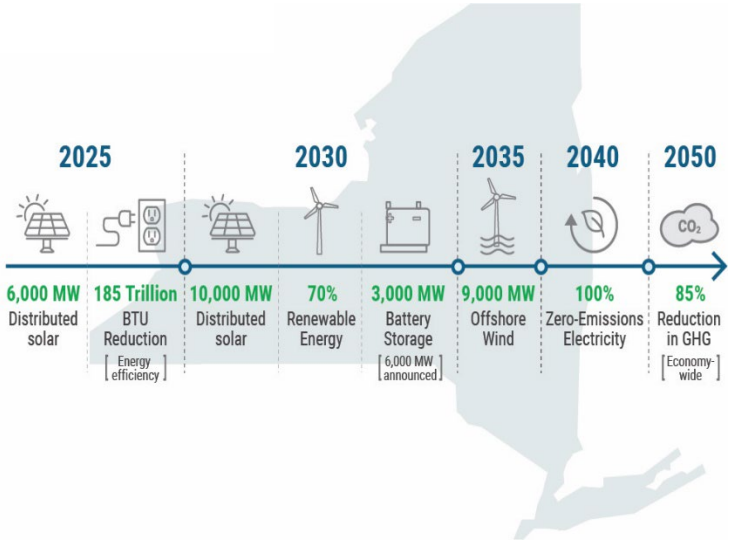
Road to 2040

Road to 2040 – Reliability and Resiliency Challenges

- The Climate Leadership and Community Protection Act (CLCPA) establishes resource targets driving a major transition in the New York grid.
- As part of the *2021-2040 System & Resource Outlook* (the Outlook), the NYISO assessed several policy-driven futures. This 2022 RNA builds upon the findings with an analysis of the postulated 2030 system conditions and provides further insight focusing on system reliability aspects, such as resource adequacy.



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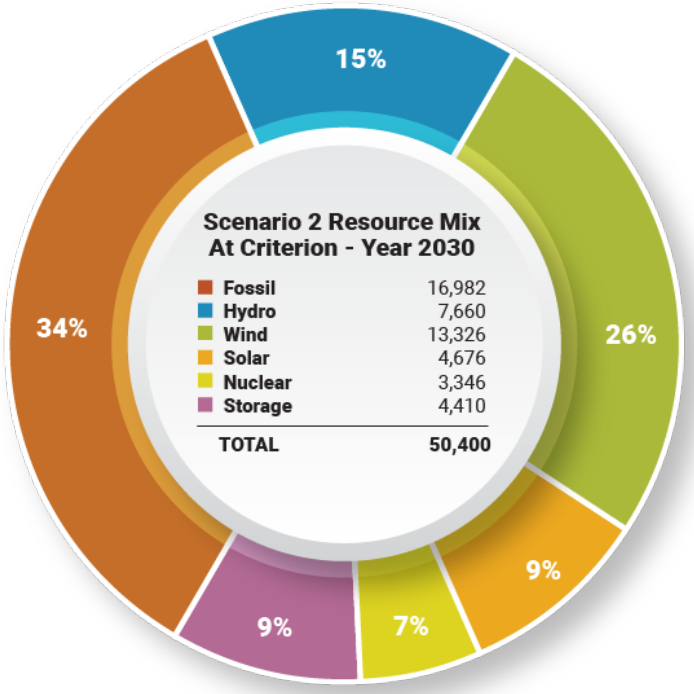
Key Findings – 70x30 Policy Case

- The Policy Scenario shows that approximately 17,000 MW of existing fossil generation must be retained to have an adequate system in 2030 for a net peak demand of 26,700 MW.
- If the higher RNA base case peak demand materializes, additional existing fossil generation will be needed.
- With high penetration of renewable intermittent resources, dispatchable emissions-free resources (DEFRs) will be needed beyond 2030 to balance intermittent supply with demand.



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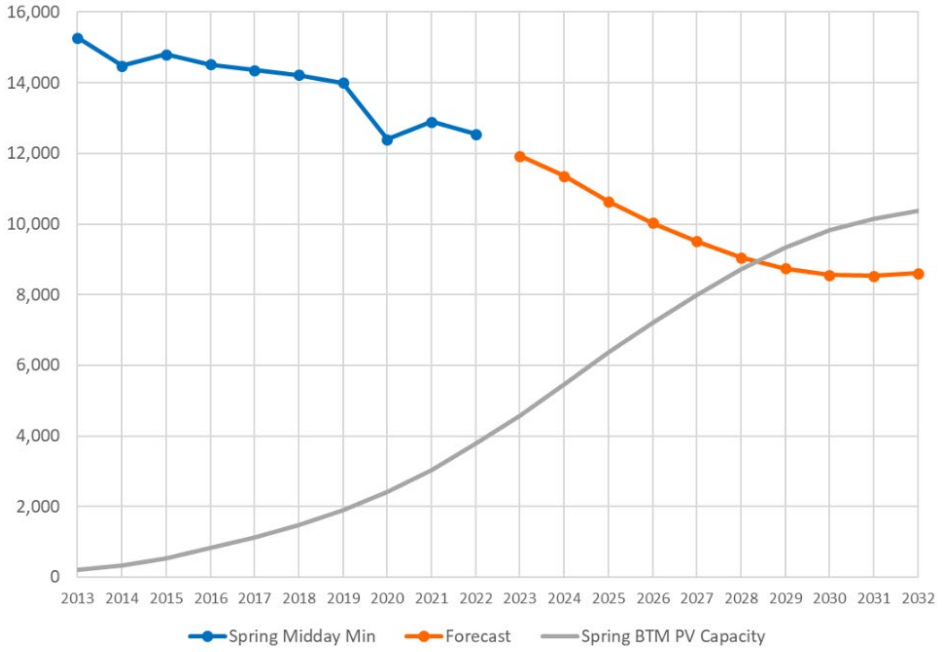
Key Findings – Light Load Demand

- During spring daytime conditions when the load is very light and behind-the-meter solar output could be near its maximum output capability, the amount of other generating resources needed to serve load in these hours may be significantly reduced.
- While no reliability violations were found, the stability of the grid under light load conditions will be important to assess as the amount of behind-the-meter resources increasingly serve a significant amount of the load.



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Next Steps

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- October: Operating Committee and Management Committee votes
- November: Board approval of final RNA report, publication
- 2023: Preparation of 2023-2032 Comprehensive Reliability Plan (CRP)
- Ongoing Quarterly: any needs identified in the Short-Term Reliability Process in years 1 through 3 will be addressed in the applicable quarterly Short-Term Assessment of Reliability (STAR)

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Questions?

Roles of the NYISO

- **Reliable operation of the bulk electricity grid**
  - Managing the flow of power on 11,000 circuit-miles of transmission lines from hundreds of generating units
- **Administration of open and competitive wholesale electricity markets**
  - Bringing together buyers and sellers of energy and related products and services
- **Planning for New York's energy future**
  - Assessing needs over a 10-year horizon and evaluating projects proposed to meet those needs
- **Advancing the technological infrastructure of the electric system**
  - Developing and deploying information technology and tools to make the grid smarter

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Our Mission & Vision

Mission

Ensure power system reliability and competitive markets for New York in a clean energy future

Vision

Working together with stakeholders to build the cleanest, most reliable electric system in the nation

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