

*Welcome*

# NYISO's 2024 State of the Grid Webinar

January 17, 2023



**Kevin Lanahan**  
NYISO Vice President  
External Affairs & Corporate  
Communication

*Presented by:*



# About the Municipal Electricity and Gas Alliance (MEGA)

## The Power of Partnership



Local Development Corporation serving an alliance of over **270 New York counties and municipalities**. Governed by its members for its members.



The **power of collective buying** to **minimize and stabilize the cost of energy** for members.



Reduces administrative burden by sponsoring **competitive bids in compliance with all NY Municipal Procurement Laws**.



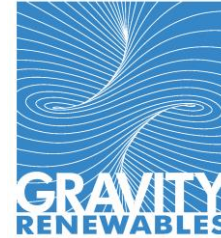
Offers **technical assistance and pre-negotiated contracts for electricity, natural gas, renewable energy, and other energy products**. Pay only for the power you use.



Members have saved over **[\$15 million]** since 1998.

# About the Municipal Electricity and Gas Alliance (MEGA)

The Power of Partnership



**NYSAC**  
— NEW YORK STATE —  
ASSOCIATION OF COUNTIES



Get a customized pricing quote in three easy steps at [MEGAenergy.org](https://MEGAenergy.org)

# 2024 State of the Grid

A Balanced Approach to a Clean and Reliable Grid

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# Delivering the #gridofthefuture

We are engineers, operators, analysts, economists and technologists  
dedicated to a reliable & sustainable power grid

595

Dedicated  
employees

760

Power generation units

1 of 9

ISO/RTOs in  
North America

440

Wholesale  
energy market  
participants

11,000

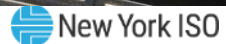
Circuit miles of  
transmission managed  
and monitored

150,198 GWh

Delivered to  
New York  
consumers in 2020



FOLLOW US



# 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



# A Powerful Purpose

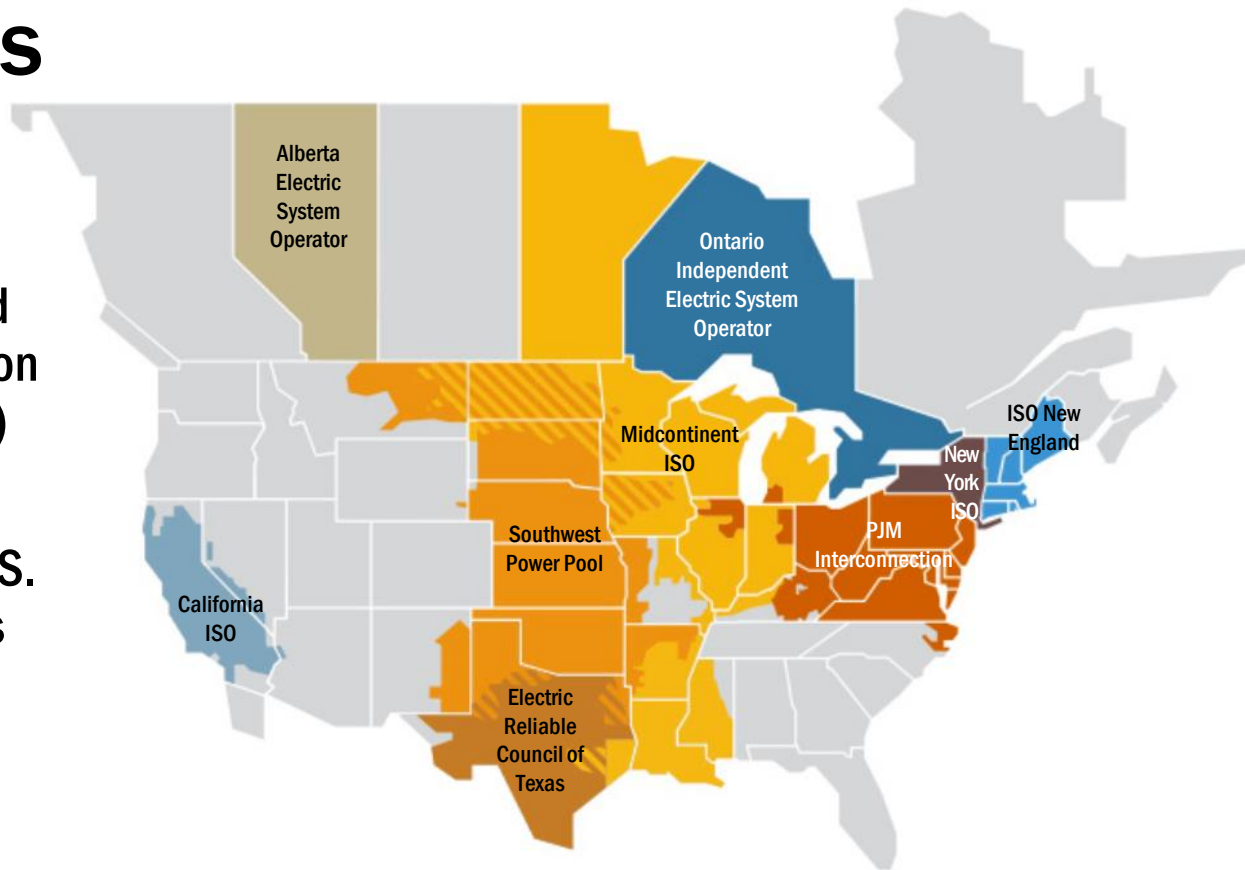
We are dedicated to a reliable, sustainable power grid and competitive markets.

- ✓ **Maintaining** and enhancing regional reliability
- 💰 **Operating** open and fair wholesale electricity markets
- 👁️ **Planning** the bulk power system for the future
- 🔍 **Providing** factual information to policymakers, stakeholders and investors.



# ISOs & RTOs

- NYISO is one of nine Independent System Operators (ISOs) and Regional Transmission Organizations (RTOs) in North America
- ISOs serve 2/3 of U.S. electricity customers & more than 1/2 of Canadian consumers





# Reliability and Regulatory Oversight

- **Federal Energy Regulatory Commission**
- **New York State Public Service Commission**
- **North American Electric Reliability Corporation**
- **Northeast Power Coordinating Council**
- **New York State Reliability Council**

# Presentation Source Materials

- **2023 Comprehensive Reliability Plan (CRP)**
  - Annual reliability report
- **2021-2040 System & Resource Outlook report**
  - Multiple cases and scenarios over 20-year time horizon
  - Identified transmission investment and generation needs required to achieve the CLCPA while maintaining electric system reliability
- **Short Term Assessments of Reliability (quarterly)**
  - Study period of the next five years.

# Power Trends 2023: A *Balanced Approach to a Clean and Reliable Grid*

## Key Themes

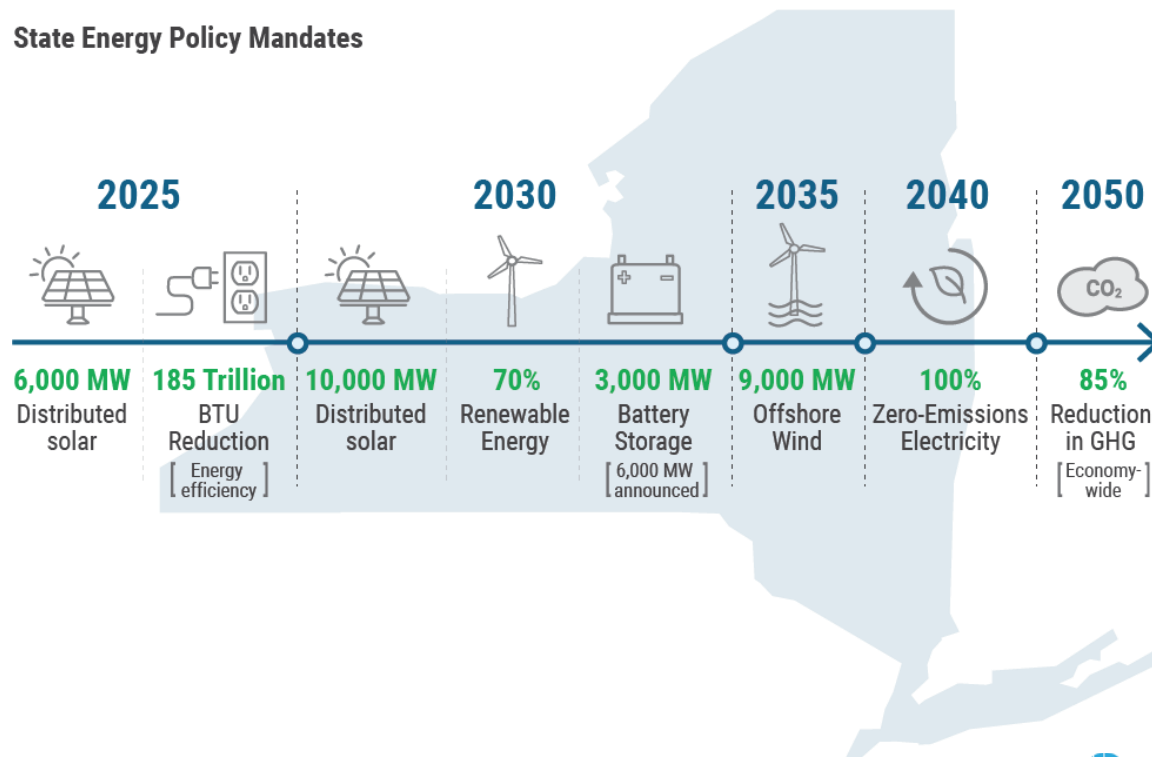
- **Public Policies** are driving rapid change in the electric system.
- Electrification of buildings and transportation sectors is **driving demand for electricity higher**.
- New economic development projects (large loads) are also expected to drive demand for power higher.
- **Generators are retiring** at a faster pace than new renewable supply is entering service.
- **Reliability margins are shrinking**, creating a growing imbalance in load and supply.

# State of the Grid

# Public Policy Influence on Resource Mix

- Public policies, most notably the CLCPA, are shaping investment on the grid and fundamentally altering society's consumption of electricity
- Competitive markets incentivize investment to achieve these goals while maintaining reliability at the lowest possible cost

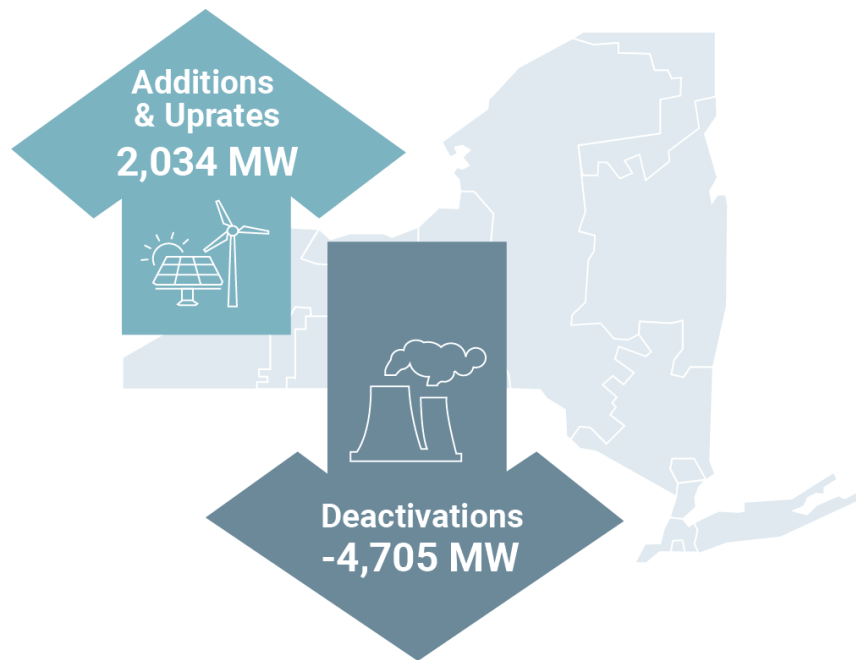
## State Energy Policy Mandates



# Additions, Upgrades & Retirements

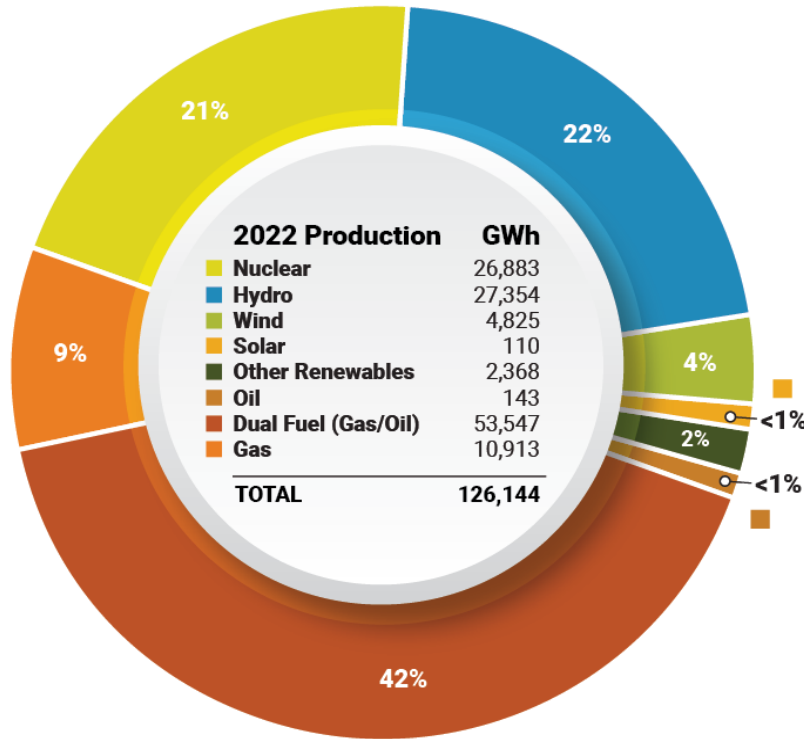
- Growing imbalance between generator deactivations and additions is contributing to shrinking reliability margins
  - Deactivating resources tend to be dispatchable and located downstate
  - Generator additions are largely renewable resources located upstate
  - New resources do not provide the same reliability services as exiting resources

## Nameplate Capacity: 2019-2022

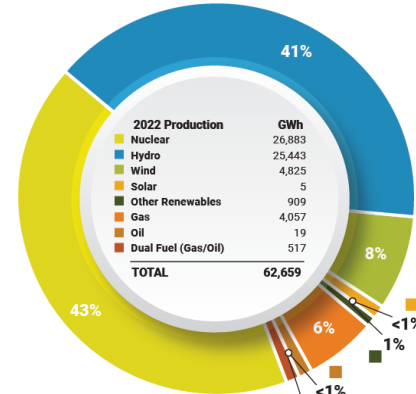


# Energy Production by Fuel Source: 2022

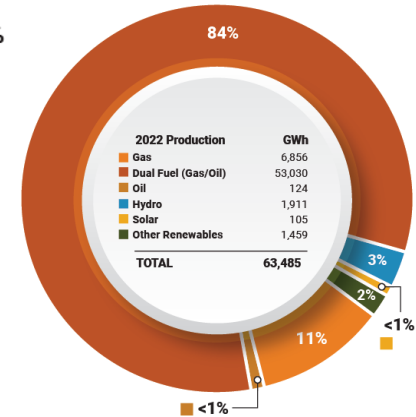
## NYCA Energy Production by Fuel Source: 2022



Energy is the amount of electricity a generator produces over time



Upstate (Zones A-E) Energy Production by Fuel Source: 2022



Downstate (Zones F-K) Energy Production by Fuel Source: 2022

# Generation investment required to meet the CLCPA reliably

**2023**



**37.4 GW today**

- Existing generating capacity

**2030**



**20 GW of new  
renewables needed**

- 20 GW of new generation must be in service in 7 years to meet 70% renewable by 2030

**2040**

**111-124 GW needed**

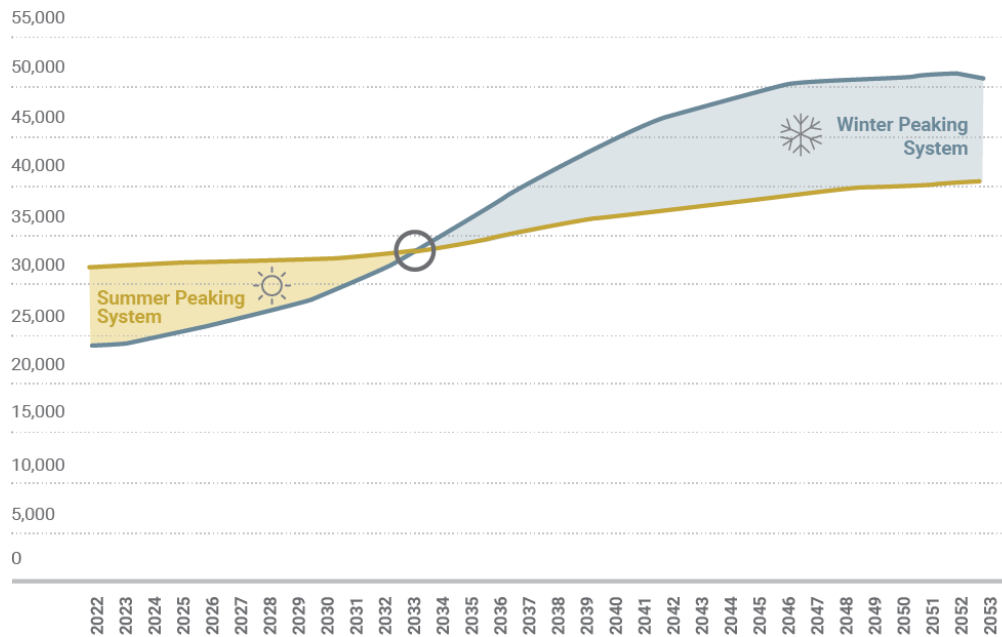
- 95 GW of new or modified generation must be in service
- 3X increase from today



# Demand Trends: Peak Demand Forecast

- The NYISO winter and summer peak load forecasts suggest that electrification will drive a shift in NY from a summer-peaking to a winter-peaking system.
- The timing and degree of this shift will be influenced by EV and heat pump technology adoption.

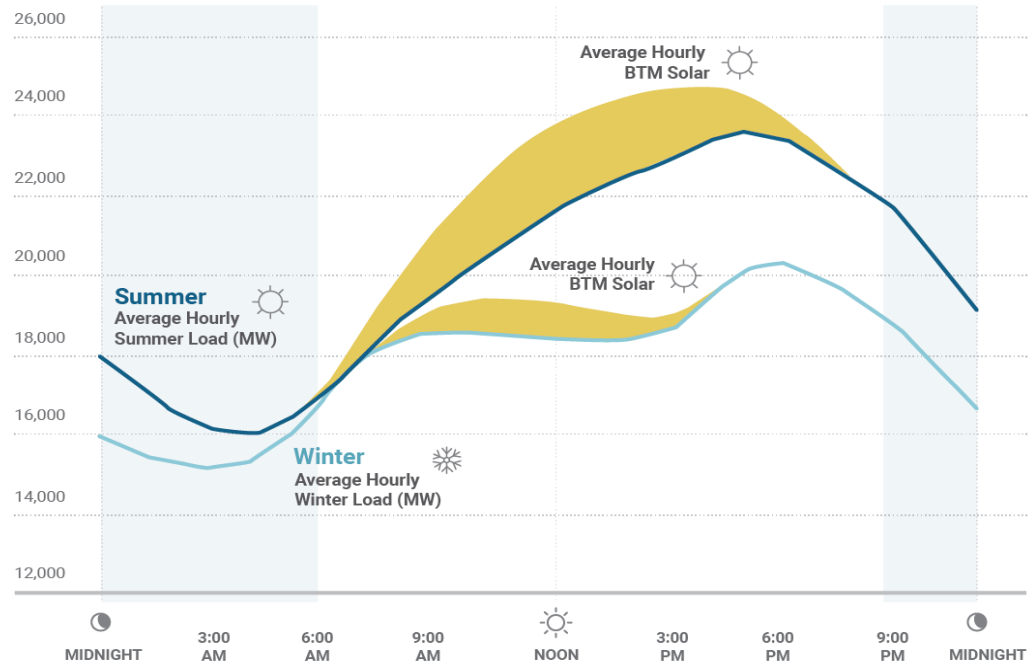
## Electric Summer & Winter Peak Demand: 2022-2053



# Behind-the-Meter Solar

- 10,000 MW goal for BTM solar by 2030
- More than 4,200 MW of BTM solar installed in 2022
- BTM solar resources reduce demand and lower the amount of energy delivered by the bulk power system
- BTM solar has shaved the daily peak and pushed the peak forward 2 hours

## Average Hourly Behind-the-Meter Solar Production: Summer

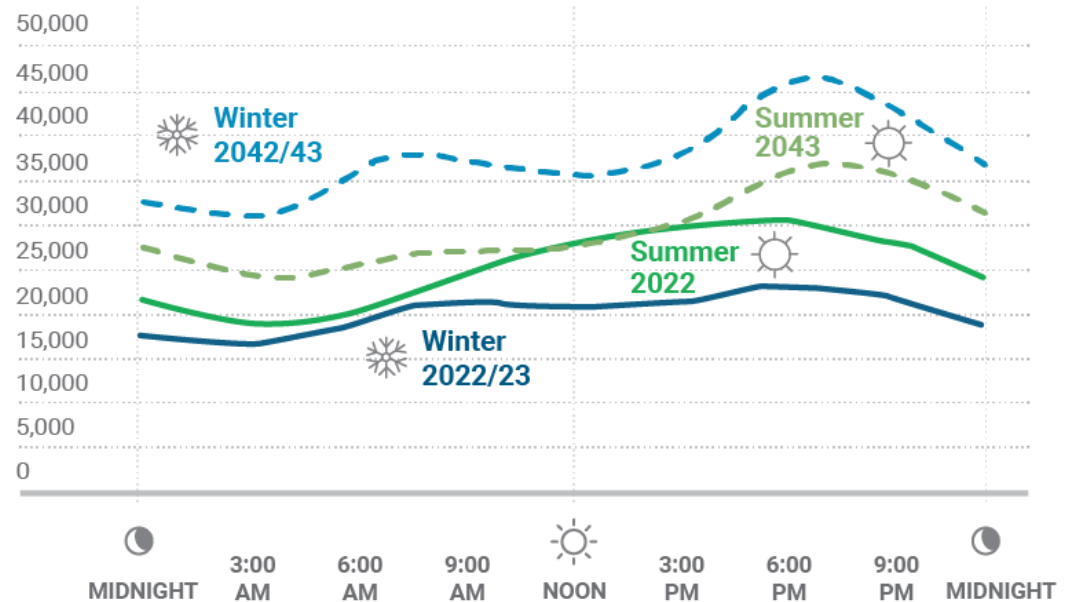


# High-Demand Patterns: Current & Forecast

Load shapes for high-demand days are expected to shift in the future

- Electrification of heat will lead to increased overall demand
- Currently, 10% of residential households rely on electric heat
- BTM solar resources will likely push peak demand to the evening

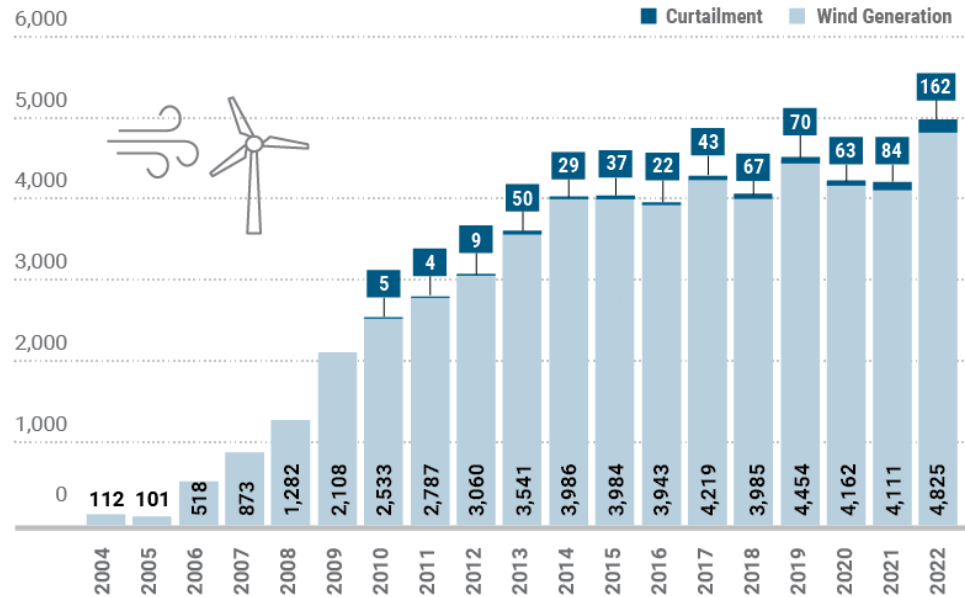
Actual & Projected Hourly Demand: Winter-Summer



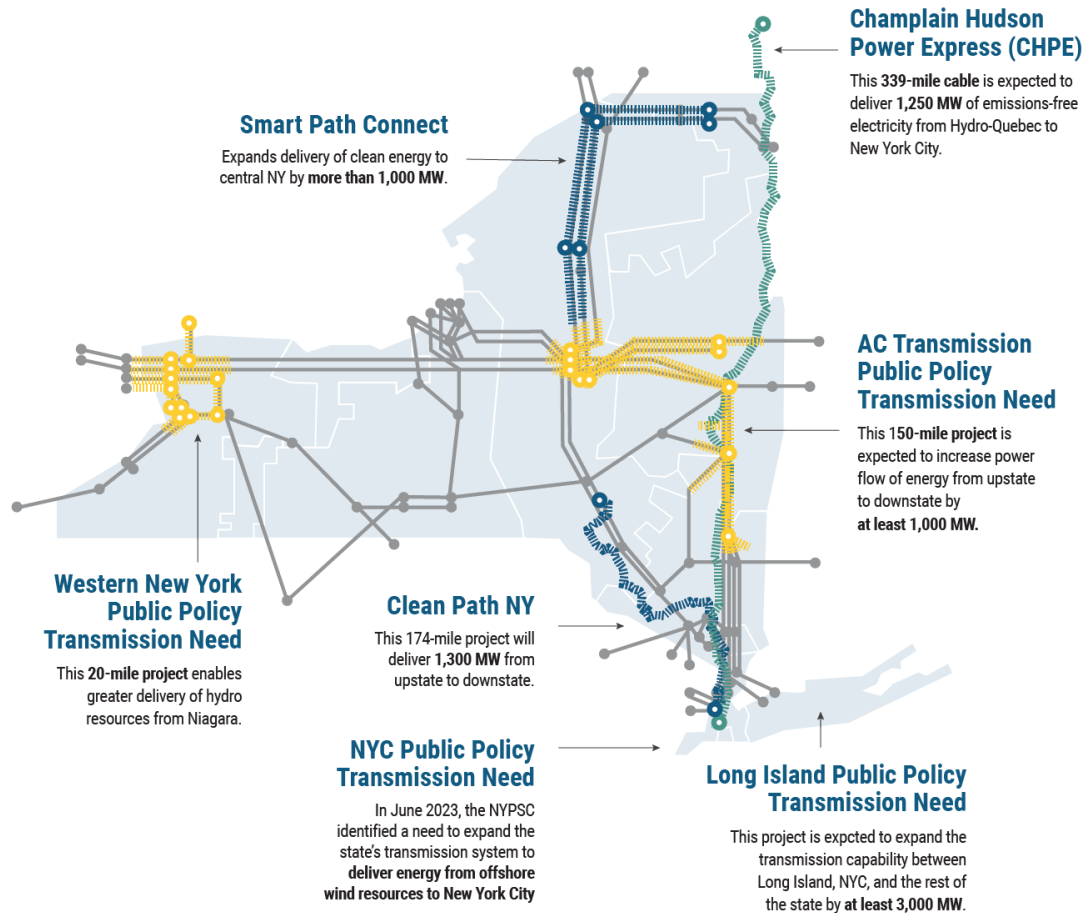
# Wind Energy Generation

- Wind output is higher and more consistent in winter than summer
- Wind lulls (5-10% of capacity) of three days or more have been observed up to three times a year
- Additional transmission capability is necessary to alleviate constraints that lead to curtailments of wind

## Wind Generation in New York – Energy Produced: 2003-2022



# Ongoing Transmission Planning and Construction

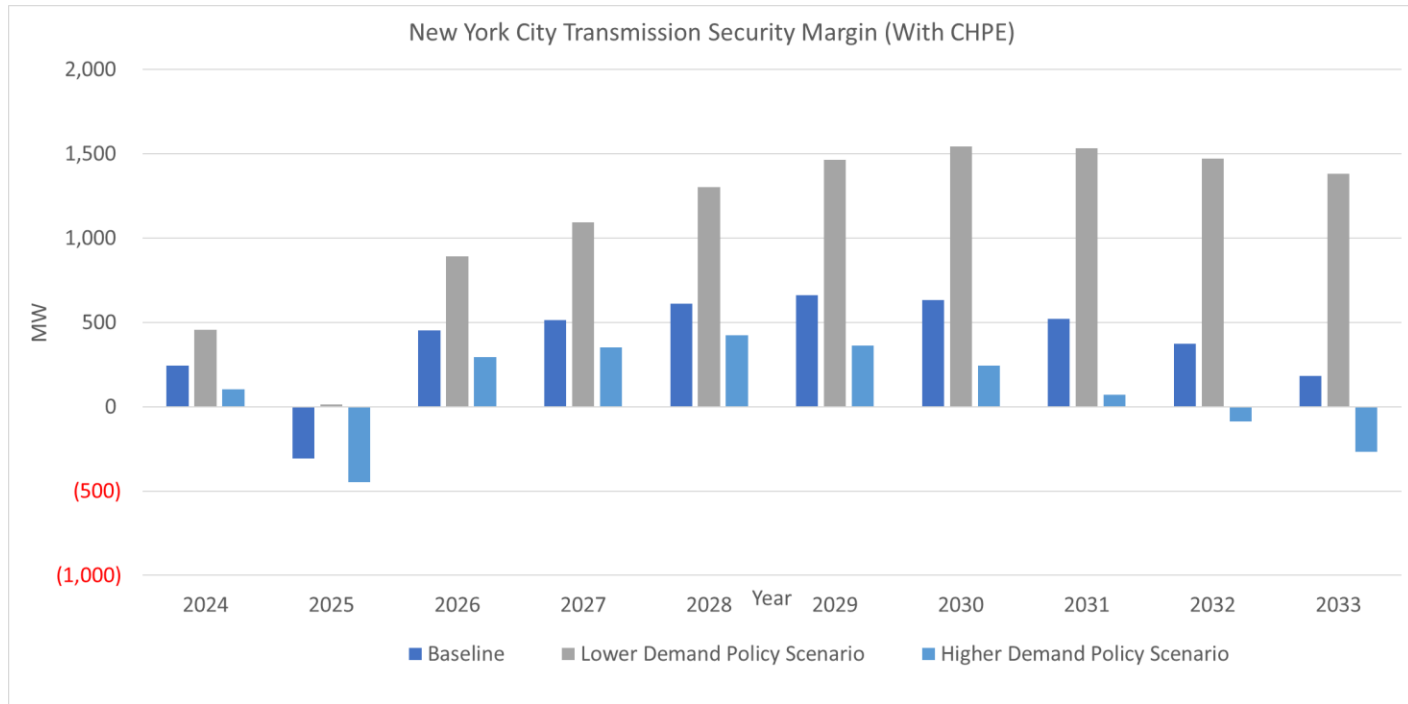


# NYISO's Short-Term Assessment of Reliability (STAR)

# Q2 2024 STAR Reliability Findings

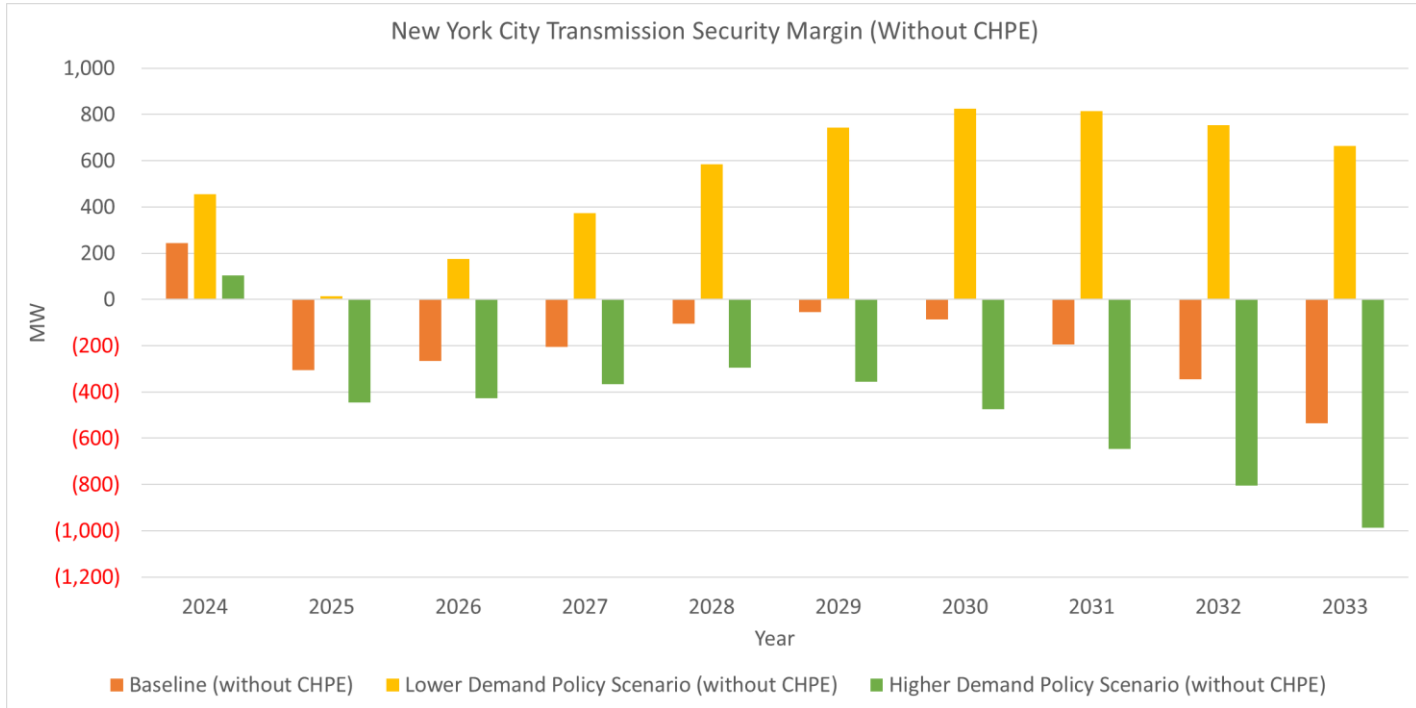
- **Beginning in summer 2025, the transmission security margin within New York City is deficient by up to 446 MW under expected weather conditions with baseline demand**
  - “Transmission Security” refers to the ability of the electric system to withstand disturbances, such as electric short-circuits or unanticipated loss of system elements
- **Beyond 2025, the reliability margins within New York City may not be sufficient if**
  - The Champlain Hudson Power Express (CHPE) project experiences a delay from Spring 2026, and/or there are additional generator deactivations beyond what is already planned, or demand is greater than forecasted.
- **The statewide system margin is projected to be deficient by nearly 150 MW by 2025 when accounting for large economic development projects**
  - Depending on the nature of the solution to the New York City need identified in this STAR, that solution may also address the statewide system margin deficiency.

# New York City Transmission Security Margin (With CHPE)





# New York City Transmission Security Margin (Without CHPE)



# How the NYISO Solves a Reliability Need

## Timeline

1

July 14, 2023



### NYISO RELEASES Q2 “STAR” REPORT; DECLARES A RELIABILITY NEED

The NYISO’s report identifies a reliability need for New York City beginning in summer 2025 driven by forecasted increases in peak demand and the expected retirement of generation units in response to NYS DEC’s “Peaker Rule.”

2

July 2023



### NYISO CALLS FOR SOLUTION FROM CON EDISON TO ADDRESS RELIABILITY NEED

In response to the NYISO’s declaration, the local utility (Con Edison) will be called upon to propose a transmission solution. The NYISO will work closely with the local utility to evaluate proposals.

3

August - October 2023



### NYISO SOLICITS MARKET-BASED SOLUTIONS

Solutions proposed by developers may include generation and demand response offerings. Parties will have 60 days to submit proposals in response to the solicitation.

4

October – November 2023



### NYISO REVIEWS PROPOSED MARKET-BASED SOLUTIONS

The NYISO reviews Con Edison’s transmission solution and proposed market-based solutions to determine if any are viable to meet the need within the required timeframe.

5

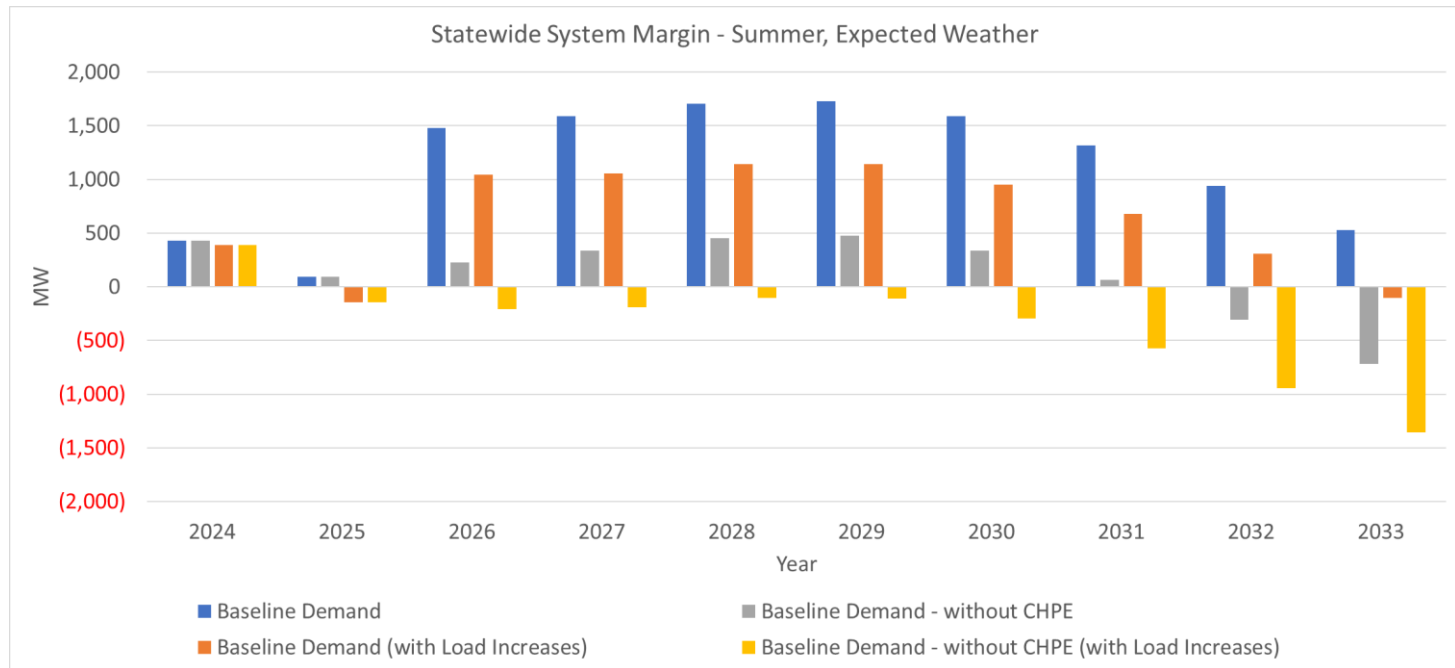
November 2023



### NYISO DETERMINES VIABLE SOLUTION

The NYISO selects viable solution(s). If solutions are not sufficient to addressing the need within the necessary timeframe, the NYISO would submit a letter to the NYS DEC designating which “peaker” generators may be needed to maintain reliability until solutions are in place.

# Statewide Margins with New Demand Driven by Economic Development



# Questions?

Visit our Power Trends page to view or download:

- *2023 Power Trends Report*
- Summary Fact Sheet
- Video
- Figures & Graphics

The screenshot shows the New York ISO website's 'POWER TRENDS 2023' page. The header includes the New York ISO logo and navigation links for About Us, Grid of the Future, Careers, Calendar, Support, and Login. Below the header, the main title 'POWER TRENDS 2023' is displayed, followed by the subtitle 'Annual State of the Grid and Markets Report'. The page features a main content area with a section titled 'A Balanced Approach to a Clean and Reliable Grid', which includes a brief description of the report and a 'GET THE REPORT' button. Below this is a 'Key Takeaways Fact Sheet' section with a 'DOWNLOAD FACT SHEET' button. The 'Downloads and Resources' section offers access to all figures and assets, with a 'VIEW NOW' button. Finally, there is a 'Media Briefing Video' section with a 'WATCH NOW' button. A right-hand sidebar contains social media links for Facebook, LinkedIn, and Twitter, along with a 'Learn More' section for policymakers.

Open camera, place QR code in frame. Tap pop-up window to visit page.

