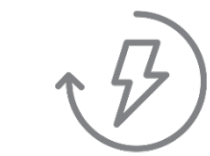


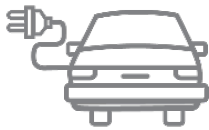
# 20-Year Outlook Forecasts Transmission & Resources Needed to Meet Policy Objectives

The NYISO evolved its planning processes to produce the first-ever System & Resource Outlook. This new study includes a 20-year forecast that examines multiple cases and scenarios that identify transmission investment opportunities and project resource mixes for achieving 2030 and 2040 policy mandates while maintaining reliability. The Outlook will be updated every two years.

## Key Findings



✓ **State climate mandates** are driving the need for unprecedented levels of investment in new generation to achieve decarbonization and maintain system reliability.



✓ **Electrification of buildings and transportation** required by state policies will rapidly increase peak and annual energy demand.



✓ **Extensive transmission investment** will be necessary to deliver renewable energy and address new constraints that appear across the electric system.



✓ **To achieve an emission-free grid**, Dispatchable Emission-Free Resources (DEFERs) must be developed and deployed at scale well before 2040 to ensure reliability and meet climate mandates.



“ The Outlook shows that unprecedented levels of transmission and generation investment will be necessary to achieve clean energy goals while continuing to meet grid reliability needs. ”

– Zach G. Smith, VP System & Resource Planning, New York ISO

## Generation Required to Meet CLCPA Mandates

**+20 Gigawatts  
New by 2030**



**Estimated 20 GW of New Renewable Generation Needed for 70% by 2030 Goal.** Roughly seven years from now, an estimated 20 GW of additional renewable generation must be in-service to support the energy policy target of 70% renewable generation by 2030. For reference, 12.9 GW of new generation has been developed since wholesale electricity markets began more than 20-years ago in 1999.

**111-124 Gigawatts  
Total by 2040**

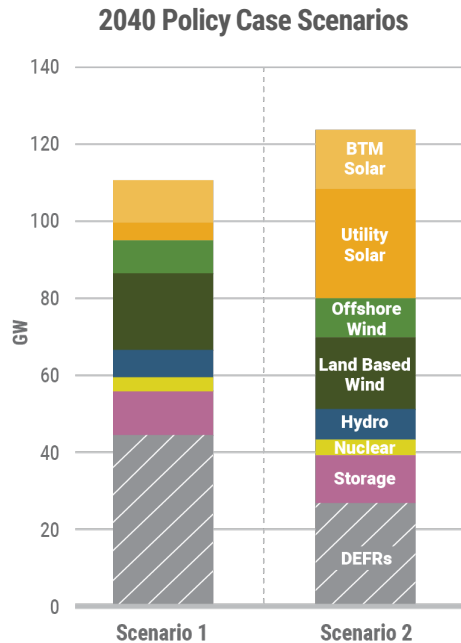


**Total Installed Capacity Must Triple for 100% by 2040 Goal.** At least 95 GW of new generation projects and/or modifications to existing plants will be needed. Over the past five years, 2.6 GW of renewable and fossil-fueled generators came on-line while 4.8 GW of generation deactivated. New York currently has approximately 37 GW of generating capacity.

# 2021-2040 System & Resource Outlook: Key Findings

## DEFRs are Critical for a Reliable Future Grid

» As more wind, solar, and storage plants are added to the grid, **Dispatchable Emission-Free Resources (DEFRs) must be developed and added to the system at scale** to reliably serve demand when intermittent generation is unavailable. The lead time necessary for research, development, permitting, and construction of DEFrs will require action well in advance of 2040 if state policy mandates under the CLCPA are to be achieved. Fossil generation will likely need to be retained past the 2040 mandates to keep the system reliable if DEFr technology is not in operation.



## Modeling Cases Used In The Outlook

The NYISO examined three reference cases for the report.

- 1 Baseline Case:** This is a “business-as-usual” type scenario looking at the electric system as it performs today, aligning with the NYISO’s Comprehensive Reliability Plan to define the demand, generation, and transmission assumptions.
- 2 Contract Case:** This case builds upon the Baseline Case by adding incremental renewable generation projects that have received project awards and financial contracts with the state.
- 3 Policy Case:** Assumptions in this case reflect the federal, state, and local policy mandates that impact the New York power system, such as the Climate Leadership and Community Protection Act and the Accelerated Renewable Energy Growth and Community Benefit Act. Scenarios 1 and 2 project different approaches to achieve these policies.

## The NYISO Commits To

- ✓ **Identify Needs & Opportunities.** Continue to assess the evolving system and identify the challenges and opportunities associated with achieving state policies in an economic and reliable manner.
- ✓ **Review Its Wholesale and Reliability Rules** to facilitate the orderly transition of replacement resources.
- ✓ **Solicit Stakeholder Feedback** on public policy transmission needs.



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There will be a great need for dispatchable emission-free resources to meet the flexibility and energy supply needs of the future system.

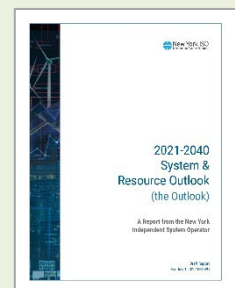
Until these technologies are commercially available at the necessary scale, existing emitting generation may need to be retained.



– Yachi Lin, Director Transmission Planning, New York ISO



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