

Overview of 2020 Planning Studies

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Key Drivers

Climate Leadership and Community Protection Act

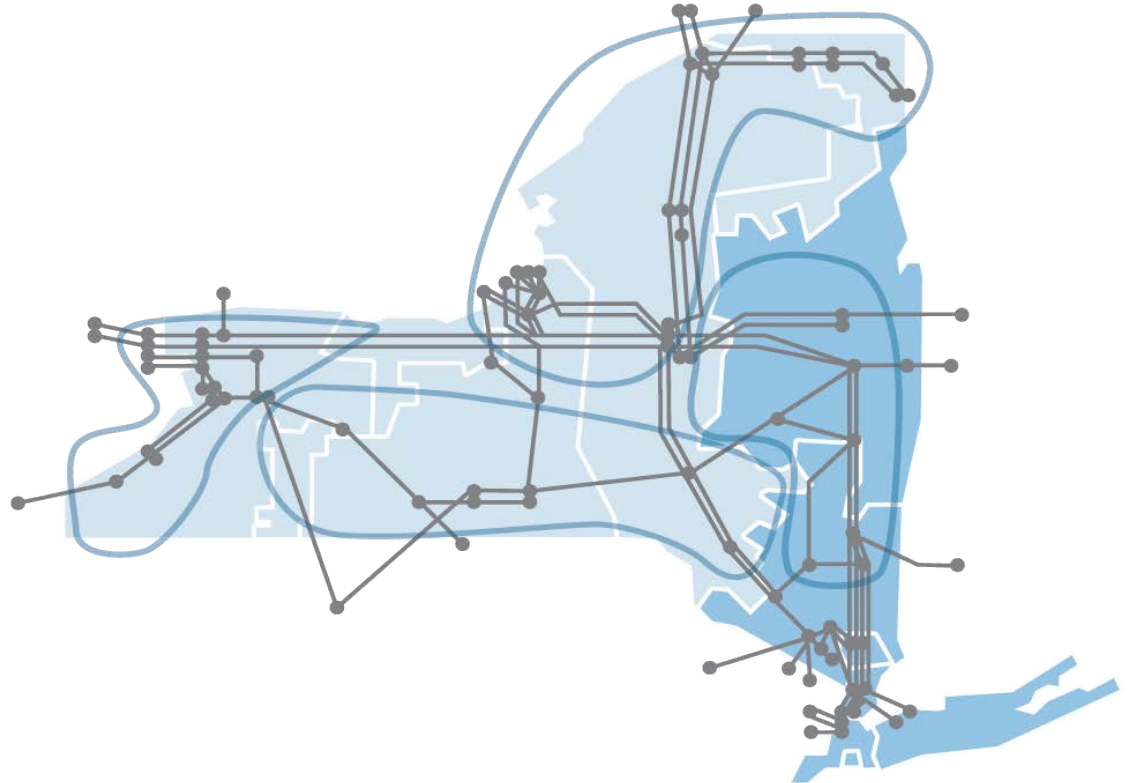
- **“70 by 30”**: 70% of electricity from renewable resources by 2030
- **6,000 MW of distributed solar by 2025**
- **3,000 MW of energy storage by 2030**
- **9,000 MW Offshore Wind by 2035**
- **“100 by 40”**: “by the year 2040, the statewide electrical demand system will be zero emissions”
- **Greenhouse gas emissions across all sectors reduced by ~20% in 2030 and ~80% in 2050**
 - Expected to require significant electrification of transportation and heating

Climate Change

- In 2019, NYISO began a multi-year project to evaluate the potential impacts from climate change on load forecasting and system reliability to inform future market design and policymaking.
- Climate Change Study Phase I concluded that weather trends across the state show a statistically significant increase in average temperatures of 0.5 to 1.1 degree per decade
 - Temperatures on the coldest days are increasing faster than temperatures on the hottest days
 - Trend likely to continue through the future and could be worse depending on long-term greenhouse gas path
 - Warming trend will contribute to increase in summer peak demand and lower winter peak demands. Increase in cooling energy requirements will partially be offset by declining heating related requirements.

Renewable Generation Pockets

- In 2018, to inform policymakers, the NYISO conducted a transmission system study that identified constraints in four regions based on expected development of renewables in response to the Clean Energy Standard
- These constraints would limit the ability to deliver renewable energy from those regions
- Additional transmission will be needed to allow additional renewable energy to reach consumers from these constrained regions



DEC “Peaker Rule”

- **New York State Department of Environmental Conservation (DEC) has established new NO_x emission limits for simple cycle combustion turbines (“Peaking Units”) during the summer ozone season:**
 - By May 1, 2023, Peaking Units will have to achieve 100 ppm NO_x
 - By May 1, 2025, Peaking Units will have to achieve 25 ppm NO_x for gaseous fuels and 42 ppm NO_x for oil or other liquid fuel
- **Approximately 3,300 MW nameplate generation could be impacted by this regulation.**
 - Compliance plans due to the DEC in March 2020
- **The 2019-2028 Comprehensive Reliability Plan identified potential deficiencies in New York City and Long Island if all impacted generation retired**

2020 Planning Studies: A Common Purpose

2020 Planning Studies

■ CARIS Economic Planning Study

- Simulation of “70 by 30”; identify potential transmission constraints, renewable curtailments, and operational limitations

■ 2020 Reliability Needs Assessment

- Base case: peaker unit retirements could result in reliability needs
- Continue “70 by 30” scenario analysis to identify potential reliability issues with high penetration of intermittent generation

■ Climate Change Impact and Resilience Study

- Impact of climate change on system reliability and resilience
- Assessment of system impact of 100% emission-free grid by 2040

Objectives

- Further explore issues flagged in the “Grid in Transition” paper to understand how the behavior of the New York electric grid may change over the next 20 years and to inform market design and policy decisions
- Determine the system and resource attributes that are necessary to reliably and efficiently operate the grid
- Identify transmission bottlenecks that may prevent delivery of renewable and emission-free energy in the future
- Provide information to developers and policymakers to aid in the development of efficient solutions

Our mission, in collaboration with our stakeholders, is to serve the public interest and provide benefit to consumers by:

- Maintaining and enhancing regional reliability
- Operating open, fair and competitive wholesale electricity markets
- Planning the power system for the future
- Providing factual information to policymakers, stakeholders and investors in the power system

