

Reliability and Market Considerations For

A Grid in Transition

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A Grid in Transition

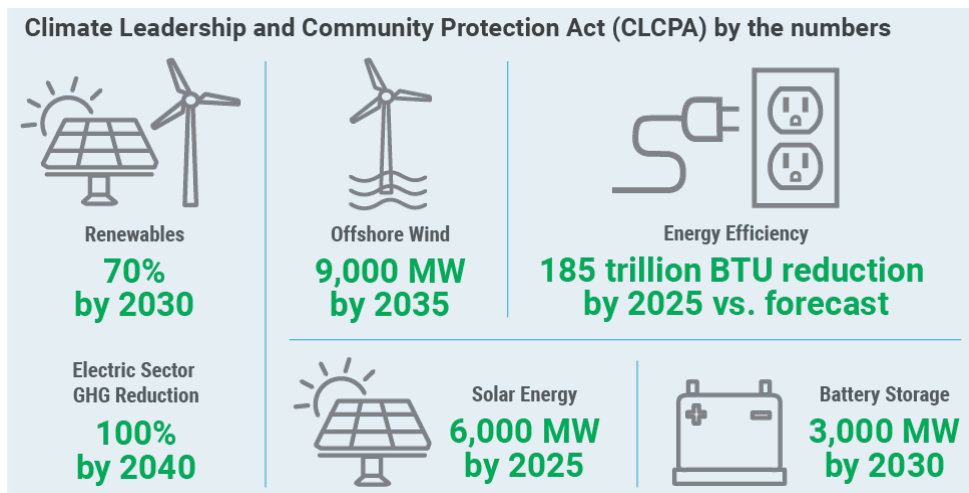
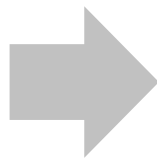
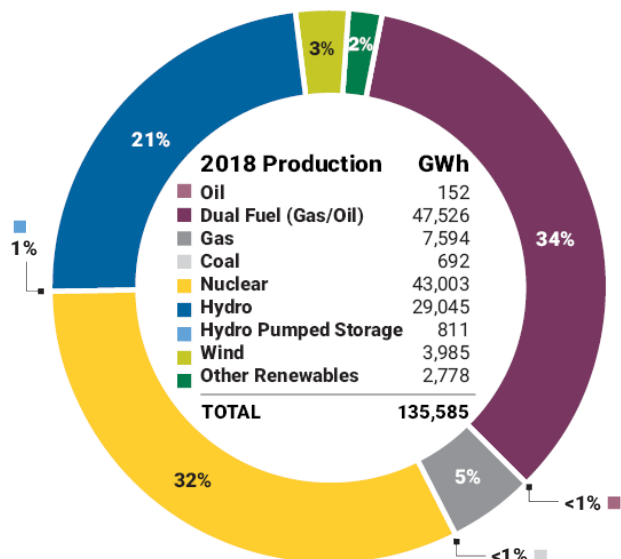
- The NYISO's competitive wholesale markets provide a framework for a changing grid
- The NYISO's Grid in Transition Report:
 - Describes emerging reliability and economic challenges facing New York's electricity sector
 - Identifies gaps to address
 - Proposes a path forward



The Reliability and Market Considerations for a Grid in Transition report was published on December 20, 2019, and can be viewed here: <https://www.nyiso.com/documents/20142/2224547/Reliability-and-Market-Considerations-for-a-Grid-in-Transition-20191220%20Final.pdf/61a69b2e-0ca3-f18c-cc39-88a793469d50>

A Grid in Transition - Clean Energy Goals

- New York's clean energy goals are reshaping the grid.



A Grid in Transition - Reliability Considerations

- New York's decarbonization policies are creating new challenges to meet NYISO's mission to support a reliable and economically efficient electric system.

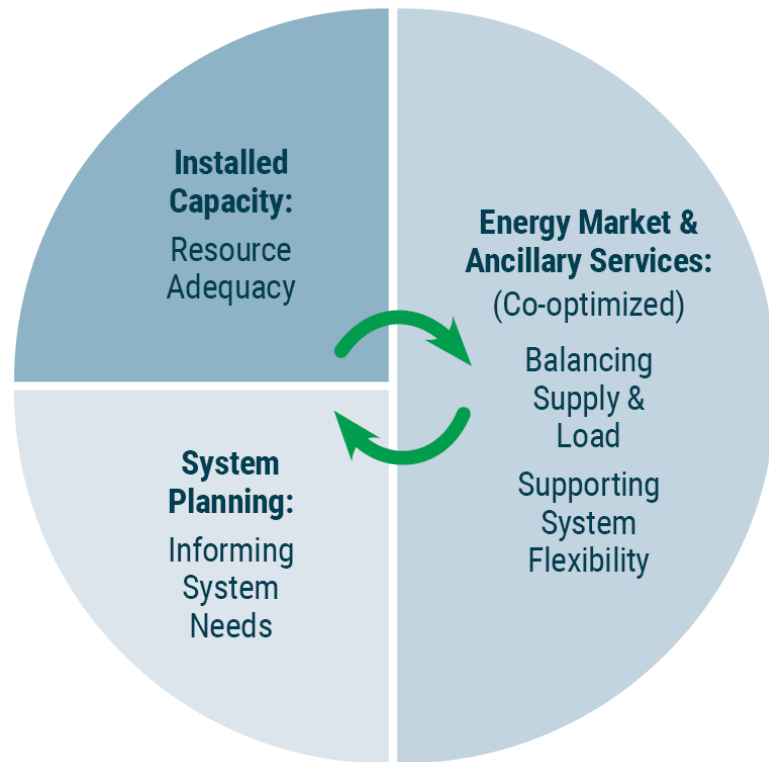


Reliability Challenges

- Balance Supply & Demand
- Maintain Ten-Minute Operating Reserves
- Maintain Total Thirty-Minute Operating Reserves
- Manage Daily Energy Needs
- Secure Transmission Operations with Congestion Management
- Coordinate System Restoration and Black Start
- Manage Voltage Support
- Maintain Frequency Response
- Maintain Resource Adequacy
- Coordinate Supply Outages

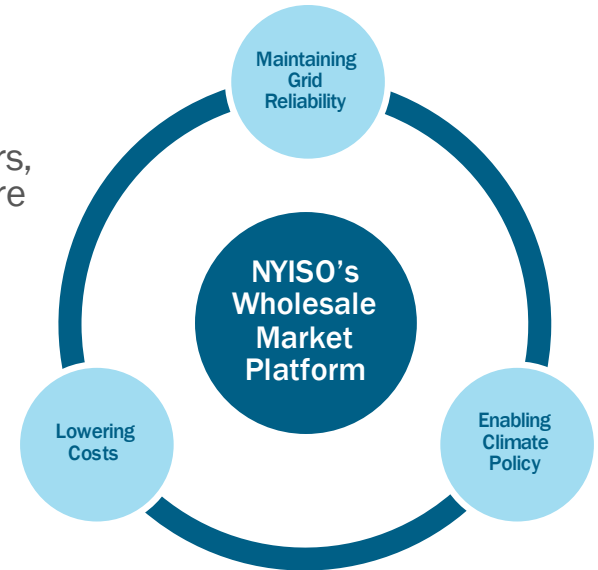
A Grid in Transition - Role of Markets

- **The NYISO supports reliability through three complementary markets for energy, ancillary services, and capacity.**
 - Each addresses distinct reliability needs through competitive market pricing that benefit New York consumers while reducing costs.
 - Together, energy, ancillary services, and capacity market revenues provide economic signals for new investment, retirement decisions, and participation by demand response providers.



A Grid in Transition – Path Forward

- **The NYISO’s wholesale markets can serve as an effective platform for achieving New York State environmental objectives.**
 - Through active engagement with stakeholders and policymakers, the NYISO is developing design improvements to meet the future challenges expected to arise with high levels of intermittent renewable and distributed energy resources.
- **The plan includes a set of market design enhancements that work together coherently and efficiently to satisfy New York’s changing grid reliability needs.**
 - Nine areas of market design opportunities across three main points of focus (discussed on the next slide) require immediate attention and are recommended for implementation in the next five years, through 2024.



A Grid in Transition – The Plan

- Carbon Pricing
- Comprehensive Mitigation Review
- DER Participation Model
- Energy Storage Participation Model

Aligning Competitive Markets and New York State Clean Energy Objectives



- Enhancing Energy & Shortage Pricing
 - Ancillary Services Shortage Pricing
 - Constraint Specific Transmission Shortage Pricing
 - Enhanced Fast Start Pricing
- Review Energy & Ancillary Services Product Design
 - More Granular Operating Reserves
 - Reserve Enhancements for Constrained Areas
 - Reserves for Resource Flexibility

Valuing Resource & Grid Flexibility



- Enhancements to Resource Adequacy Models
- Revise Resource Capacity Ratings to Reflect Reliability Contribution
 - Expanding Capacity Eligibility
 - Tailored Availability Metric
- Capacity Demand Curve Adjustments

Improving Capacity Market Valuation



Next Steps

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- **In response to stakeholder requests to continue the discussion of topics in the Grid in Transition report, the NYISO will be conducting a series of stakeholder discussions throughout 2020 as part of the Grid in Transition Discussion project**
 - The NYISO will provide a forum to address individual topics, allowing stakeholders to provide their perspectives, including presentations that describe the concern and potential 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

