

THE NEW YORK ISO ANNUAL
GRID & MARKETS REPORT

Executive Summary

Power Trends 2020

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Perspectives

The New York Independent System Operator (NYISO) is a not-for-profit corporation responsible for operating New York’s bulk power system, administering wholesale electricity markets, and conducting system planning. It is subject to the oversight of the Federal Energy Regulatory Commission (FERC) and regulated in certain aspects by the New York State Public Service Commission (NYSPSC). NYISO operations are also overseen by electric system reliability regulators, including the North American Electric Reliability Corporation (NERC), Northeast Power Coordinating Council (NPCC), and the New York State Reliability Council (NYSRC).

The NYISO is dedicated to serving the energy needs of New Yorkers. The NYISO is unaffiliated with any federal or state agency, and independent of any market participant. The NYISO serves the energy industry, policymakers, and the public through skilled and experienced grid operation, innovative market design, and expert system planning. The NYISO also serves as a trusted source of authoritative, independent information on the state power system. Since our inception in 1999, the NYISO’s markets have worked to improve system efficiency, supporting a shift toward cleaner sources of generation while upholding the nation’s most stringent reliability rules.

2020 began with a focus on New York’s energy policy objectives, as exemplified by the New York State Climate Leadership and Community Protection Act (CLCPA). The CLCPA seeks to advance the adoption of clean energy technologies across the economy while promoting the transition to a zero-emissions power grid by 2040.

The COVID-19 outbreak has levied a terrible toll in human life and health, with New York a focal point of the pandemic. As New York acts to address this historic health and economic crisis, we and our colleagues in the electric supply, transmission, and distribution sectors have demonstrated an unwavering commitment to serving the citizens of this state. The NYISO took steps to protect grid reliability and protect the health and safety of employees. The NYISO’s proactive steps on pandemic planning poised the organization to seamlessly

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



transition to working remotely and continue to fulfill our mission. Further, a 37-person team volunteered to enter a sequestration program, completely isolating themselves from their families to ensure uninterrupted grid operations.

In the midst of this unprecedented pandemic response, the NYISO continues to engage with policymakers and stakeholders to prepare for the grid of the future. In order to achieve the transformation envisioned by the CLCPA, the NYISO and its stakeholders are providing the leadership and expertise to build the grid of the future on the three foundations of reliable operations, economically efficient markets, and forward-looking transmission system planning. To deliver on our mission, the NYISO firmly believes that we must continue to enhance the benefits of our wholesale markets and planning while maintaining grid reliability and delivering economical energy to industry and consumers.

State of the Grid

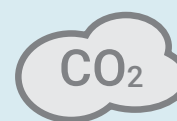
The NYISO's competitive wholesale electricity markets have delivered economic and environmental benefits for New York. Working in tandem with state environmental and energy policies, the carbon dioxide emissions rate from the power sector has declined by 55% since the inception of NYISO markets 20 years ago. Further, average annual wholesale energy prices in the NYISO's market reached a record low of \$32.59/MWh in 2019.

Forecasting energy consumption trends is a complex task, accounting for historical demand patterns, anticipated economic activity, and increasingly, the effects of energy efficiency programs and the expansion of Distributed Energy Resource (DER) technologies. **Adding further complexity and uncertainty to this year's forecasting efforts are the impacts of the COVID-19 pandemic. The implementation of guidelines under Governor Andrew Cuomo's New York PAUSE executive order to combat the pandemic had an immediate impact on daily energy consumption levels and patterns. To reflect the economic impacts of the pandemic, the NYISO revised its annual overall energy consumption forecasts downward for both 2020 and 2021.**

Integrating renewable resources into grid operations presents new challenges and opportunities for the NYISO's markets to address. For instance, the NYISO's existing market rules seek to optimize the performance of wind generation, while simultaneously seeking to avoid overloading transmission capability in constrained portions of the system. The NYISO continuously monitors and reports publicly on economic curtailment of wind energy production. Curtailment of wind energy production is an important signal for developers to consider in decisions they make about siting resources on the grid. It also signals that transmission system upgrades would maximize the production from existing and planned wind resources.

Public Policy & the Grid

At the federal, state, and local levels, public policy initiatives are shaping the grid of the future. How the grid is operated to maintain reliability and economic efficiency, while achieving the objectives of these policies, requires careful and informed operations, market design, and planning. The NYISO is examining these policy initiatives and is fully engaged with stakeholders



55% ↓

drop in rate of carbon dioxide emissions from the power sector since the inception of NYISO markets 20 years ago



and policymakers to identify the challenges and opportunities these initiatives may present to bulk power system reliability and efficiency.

Competitive Markets for a Grid in Transition

Competitive wholesale electricity markets provide a framework to facilitate change in the power system. The NYISO's wholesale electricity markets will continue to successfully fulfill the mission and goals of reliability and economic efficiency, while also incenting the economic behaviors required to achieve state policy goals. The NYISO is actively engaging stakeholders and policymakers to prepare for the changes on the grid expected from higher levels of renewable energy, energy storage, and DERs.

► **More on carbon pricing:**
Visit our website, www.nyiso.com/carbonpricing for an informational factsheet, an FAQ blog, a Podcast and more on how the proposal benefits NY's economy & public health

The NYISO's *Carbon Pricing Proposal*, which seeks to reflect a "social cost" of carbon dioxide emissions in our wholesale energy market, is at the forefront of this effort. The NYISO continues to see the implementation of carbon pricing as a more effective means to directly reflect the public policy goals. However, other energy and ancillary services market enhancements to support a grid in transition are also under consideration.

Energy, ancillary service, and capacity market design changes intended to facilitate the growth of DERs and expand utilization of energy storage resources are bringing the grid in transition to reality. Engagement with stakeholders and policymakers on a comprehensive review of market mitigation measures to evaluate future grid conditions is underway, as are efforts to develop new market rules to better align grid operational needs with

capacity market incentives. As technologies change and the asset mix evolves, continued assessment and ongoing market improvements will continue to occur.

Planning for a Grid in Transition

The NYISO's planning processes provide independent and authoritative information to investors, stakeholders, and policymakers. Over the years, the NYISO has evolved these planning processes to align the reliability and efficiency of the electric grid with public policy goals.

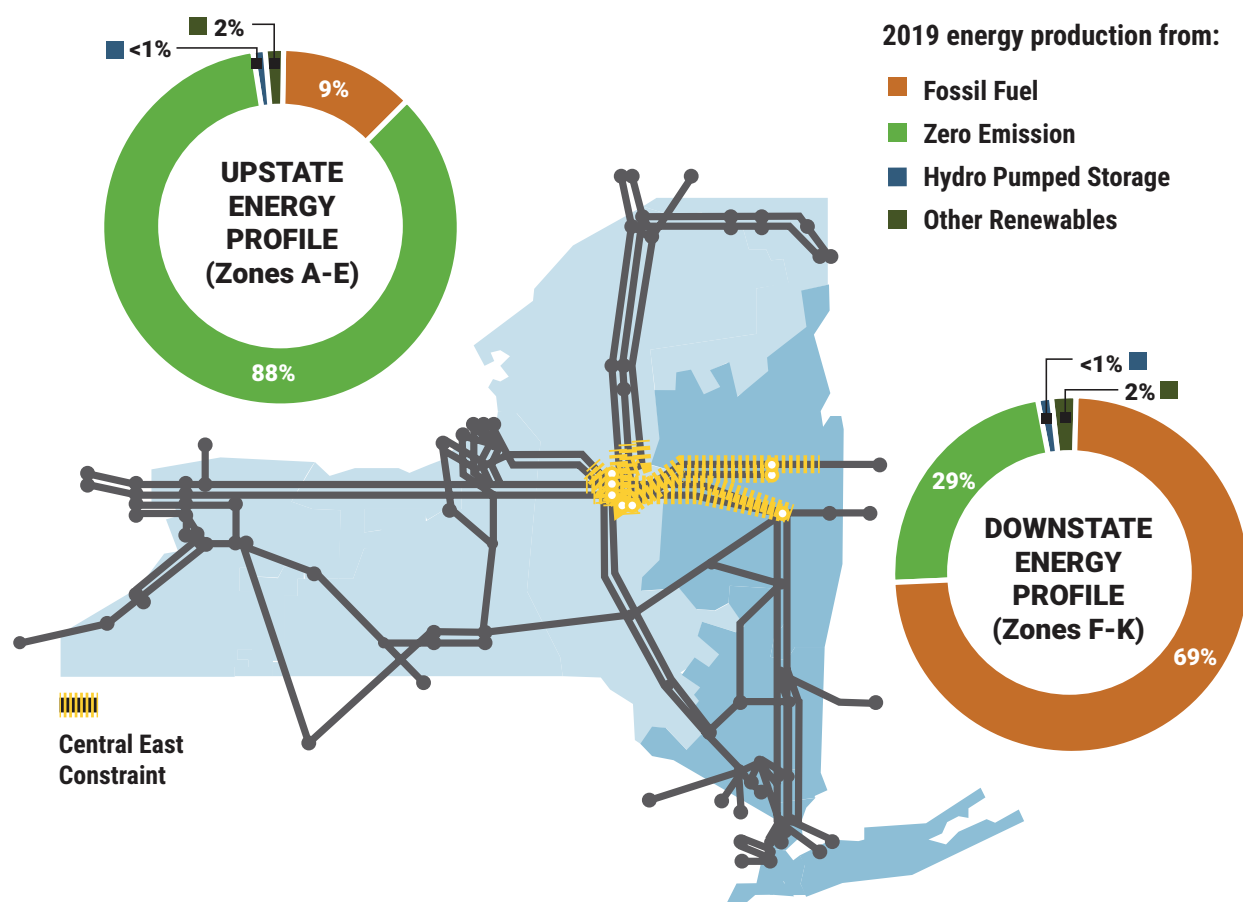
Transmission planning is evolving to address infrastructure needs in a rapidly changing power system. As the composition of the power grid changes and the pace of new technology development and investment accelerates, the NYISO interconnection process is evolving to facilitate new entry.

Combined with additional reforms, new interconnection processes being put into place will provide developers with more frequent opportunities and flexibility to obtain certainty over their interconnection costs and obligations and subsequently accelerate the interconnection of new resources to the grid.

The NYISO is conducting a number of important studies to inform future market, planning and operational enhancements. Among these studies are the *Congestion Assessment and Resource Integration Study (CARIS)*, which includes a scenario analyzing the CLCPA's 70% renewable energy production by 2030 goal, and a *Reliability Needs Assessment (RNA)*. The NYISO is also undertaking a multi-phase *Climate Change Impact & Resilience Study* to inform future market, planning and operational enhancements that might be

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► Tale of Two Grids



necessary to meet system needs and conditions as demands on, and conditions faced by, the grid change over time.

Enhancing Grid Resilience

In 2019, the NYISO's *Fuel & Energy Security Initiative* examined potential reliability challenges associated with the risk of possible fuel disruptions. The assessment did not identify any reliability risks that warrant the development of immediate market rule enhancements. The NYISO will continue to monitor New York's evolving fuel security needs.

The NYISO has a comprehensive program for addressing cyber and physical security risks. This program draws from mandatory and other industry standards and guidelines. The NYISO implements its compliance with mandatory cyber and physical security requirements as part of a layered, defense-in-depth strategy that relies on processes, state-of-the-art technology, and skilled staff to protect its critical infrastructure assets from incursion. The NYISO has also established a comprehensive organizational business continuity and disaster recovery program that safeguards business information systems and provides contingency plans in the event of a significant disruption of NYISO systems or facilities.

