

**STATEMENT OF BRADLEY C. JONES
PRESIDENT AND CHIEF EXECUTIVE OFFICER
NEW YORK INDEPENDENT SYSTEM OPERATOR, INC.**

**Before the
U.S. House of Representatives
Committee on Energy and Commerce
Subcommittee on Energy**

July 26, 2017

My name is Bradley C. Jones. I serve as the President and Chief Executive Officer of the New York Independent System Operator, Inc. ("NYISO"). I have over 30 years of experience in the electric industry, including power system operations and planning and wholesale electricity markets. Prior to assuming my position at the NYISO, I served as Senior Vice President and Chief Operating Officer at the Electric Reliability Council of Texas ("ERCOT"), which is the system operator responsible for electric system operations across most of Texas. In this position, I was responsible for Operations, Grid Planning, and Commercial Operations. My comments address the interaction between New York State energy policies and the NYISO-administered wholesale electric markets.

On behalf of the NYISO, I would like to thank Chairman Upton, Vice Chairman Olson, Ranking Member Rush, members of the Energy Subcommittee, and staff for your invitation to discuss the challenges and opportunities faced by the electric energy industry and the important roles that Independent System Operators and Regional Transmission Operators play in providing reliable and cost effective electricity to consumers.

The NYISO is an independent, not-for-profit organization that began operation in 1999. It is regulated as a public utility by the Federal Energy Regulatory Commission ("FERC") under the Federal Power Act and as an electric corporation by the New York State Public Service Commission under the New York State Public Service Law. As the independent operator of New York's bulk electric system, the NYISO, its directors, and its employees have no financial interest in its market participants or the outcomes of the energy markets it oversees. The NYISO has a legal obligation to provide open, non-discriminatory access to the electric system. We do not advocate for or against any electric industry entity, and we maintain a balanced, unbiased perspective on generation, transmission and demand-side resources.

Technological, social, economic, and policy trends have combined to make this a time of exciting innovation for America's electric system. In the Empire State, the NYISO is at the heart of those changes, serving the needs of consumers, addressing public policy goals, and ensuring that the power to drive New York's economy is where it is needed, when it's needed.

I would like to highlight three of the NYISO's critical functions. First, the NYISO operates New York's bulk electric system in accordance with mandatory national, regional, and state reliability requirements. Second, the NYISO administers competitive wholesale markets enabling generators and other resources to sell power to utilities and other load serving entities which,

in turn, supply it to New York consumers. Third, the NYISO conducts comprehensive system planning to maintain the long-term reliability of the State's bulk electric system. In that capacity, the NYISO participates as a non-voting member of the New York State Energy Planning Board.

Since 1999, the NYISO's competitive markets for wholesale electricity have maintained reliability, increased efficiency, and supported the secure operation of the grid. NYISO markets saved an estimated \$7.8 billion in fuel costs for New Yorkers, increased the operational efficiency of New York's grid by 300% over the national average, and saved nearly \$613 million by reducing energy reserves needed to maintain reliability. In the period since competitive wholesale markets have been in place, New York's power sector has reduced Carbon Dioxide emissions rates by 43%, Nitrogen Oxide emissions rates by 87%, and Sulfur Dioxide emissions rates by 98%.

CULTIVATING CLEANER, GREENER POWER

New York State continues to be a national leader on clean power and environmental quality initiatives. The Regional Greenhouse Gas Initiative, and New York's Clean Energy Standard and Reforming the Energy Vision initiatives will shape the future emission profiles of the state's electric generation and the mix of resources used to produce power.

NYISO's competitive markets have a proven track record of adapting to changes in technology, demand, fuel supply economics, and public policy while supporting New York's economy and providing savings to consumers. Markets will continue to be the platform for achieving progress, meeting policy goals, advancing technology, and maintaining reliability.

Specifically, competitive wholesale electricity markets have complemented environmental efforts to expand and integrate renewable power resources and have fostered efficiencies that have reduced emissions. NYISO's markets and open access to the transmission system have a clear track record of facilitating the development of renewable resources. These markets have been refined to address the unique characteristics of wind power. The NYISO's systems enabled wind power resources in New York to grow from 48 MW of supply in 2005 to 1,827 MW today. Energy produced from wind is up from 101 GWh in 2005 to 3,943 GWh in 2016. Looking ahead, the NYISO has another 4,807 MW of wind projects in its interconnection queue.

The NYISO is applying its experience with wind generation to solar resources. The NYISO's 2015 Solar Study developed and tested solar forecasting tools and prepared 15-year forecasts of solar capacity in each region of the state. The NYISO will soon integrate behind-the-meter and grid-connected solar forecasts into its real-time generator dispatch and commitment process. In terms of growth, in March 2016, there were 233 MW of grid-scale solar projects in the interconnection queue. By March 2017, the NYISO had 35 grid-scale solar projects representing 881 MW of capacity seeking to interconnect. Since March, the number of proposed solar projects in the interconnection queue has increased rapidly to more than 1,600 MW.

TALE OF TWO GRIDS

As the NYISO looks to a cleaner energy future in New York, the NYISO sees the emerging story of New York's electric system as one of a grid characterized by stark regional differences that

can be thought of as a tale of two grids. New York has an abundance of renewable energy resources and generation capacity in upstate, yet relatively low demand. In contrast, the downstate region has a higher concentration of fossil fuel generators and significantly higher demand, using 66 percent of the state's electric energy annually. In fact, nearly 75 percent of the electricity generated in the downstate region last year was produced by fossil fuel resources, while about 85 percent of electricity generated upstate came from nuclear, hydro, and wind resources with no carbon emissions.

The NYISO's recently-released Power Trends report highlights a fundamental burgeoning challenge for New York: longstanding transmission constraints prevent more clean energy produced in the upstate grid from reaching the downstate grid. Energy from growing clean resources is unable to reach downstate load centers, suppressing upstate wholesale prices to the point where the economic viability of generation needed for reliability is jeopardized.

TRANSMISSION EXPANSION TO MEET PUBLIC POLICY NEEDS

A cleaner, greener, integrated grid – one that includes both central power station and distributed resources will depend on a modernized, upgraded, and expanded transmission system. Well planned transmission investments will enable upstate resources to better serve a broader market– providing benefits such as a more resilient grid, access to more diverse energy resources and more efficient market competition. Upgraded transmission capability is vital to meeting the state's renewable public policy goals and efficiently moving power to address regional power needs.

New York State and the NYISO are working together to make progress on the transmission front through the Public Policy Transmission Planning Process. This process, embedded in the NYISO's FERC-regulated tariff, provides an opportunity for the State of New York to identify transmission expansion needs based upon public policy needs. The NYISO administers this public policy process with stakeholders, developers, the New York Public Service Commission, and the Federal Energy Regulatory Commission to select transmission projects that will be built and paid for through NYISO's tariffs. Two such public policy planning processes are currently well underway, while a third effort is in the early stages of development.

First, the NYISO is in the final stages of a detailed evaluation of ten projects that will address public policy needs in western New York State identified by the New York State Public Service Commission. Specifically, these transmission projects are expected to relieve congestion in western New York to allow access to increased output from the Niagara Power Project and additional imports of renewable energy from Ontario. The NYISO has issued a draft Western New York Public Policy Transmission Planning Report for review by developers and our stakeholders, and we expect Board action on a final report in early autumn 2017.

Second, the New York State Public Service Commission has identified a public policy need for transmission to relieve congestion between western and northern New York state and southeastern New York. Referred to as the "AC Transmission" public policy initiative, these projects are expected to improve the flow of power from upstate renewable resources to meet downstate demand. The NYISO is conducting detailed evaluations of thirteen projects designed

to provide additional transmission capacity to move power from upstate to downstate. A final report is expected to be ready for consideration by the NYISO Board in the first quarter of 2018.

While progress on the western New York and AC Transmission proceedings is good news, there is still more work to be done if we are going to meet the state's public policy goals. In the current cycle of Public Policy Transmission Planning, stakeholders have stated that the Clean Energy Standard, in combination with New York's Reforming Energy Vision initiative and the New York State Offshore Wind Master Plan will drive the need for more transmission to bring renewable energy from constrained regions in upstate, Canada and from offshore wind to New York City and Long Island. These potential needs are actively being reviewed by state policy makers.

CYBERSECURITY

As the systems that control and monitor the power grid become more advanced and interconnected, the scope of physical and cyber security concerns expands. Mandatory federal reliability standards for owners and operators of the bulk electric system include Critical Infrastructure Protection (CIP) standards. Developed by NERC and approved by FERC, these standards cover a wide range of risk areas, including identification and classification of cyber assets to physical security, personnel and training, event monitoring and communication, incident response, protection and isolation of network architecture, access and change control, and system recovery.

The NYISO implements the cyber and physical security standards as part of a layered "defense in depth" posture that seeks to defend its critical infrastructure assets from incursions. The NYISO actively participates in the development of standards and remains engaged in enhancing cyber and physical security practices to address evolving risks. We actively collaborate with various New York State and federal government agencies, other ISOs and RTOs, and other industry entities, to maintain rigorous security protections. For just one example, we conduct annual desk-top Grid-Ex cyber attack simulations to test our coordinated response capability with other grid operators and our partners in national security and law enforcement.

PRESERVING THE COMPETITIVENESS AND EFFICIENCY OF WHOLESALE MARKETS

The NYISO markets have proven to be an effective partner in achieving the State's environmental goals. Building upon that success, the NYISO is exploring opportunities to further harmonize wholesale energy markets with New York State clean energy policies.

At the request of its stakeholders, the NYISO commissioned the Brattle Group to explore whether New York State environmental policies may be pursued within the existing wholesale market structure at a reasonable cost to consumers. The Brattle Group is investigating a method to incorporate the social cost of carbon into generation offers and reflect that cost in energy clearing prices. Generating units that emit carbon would incur a penalty based on their level of carbon emissions and the social cost attributed to carbon. The penalties collected by the NYISO would then be returned to customers in some equitable manner.

The NYISO is in the initial stages of exploring that potential with the Brattle Group, our market participants, and New York State. The NYISO will collaborate with stakeholders and New York State to examine the feasibility of modifying NYISO's market design to complement New York's ambitious environmental policies.

CONCLUSION: LIGHTING THE WAY

Together, we are transforming the power grid to achieve the goals of cleaner energy, improved efficiency and strong economic growth. However, these goals will be difficult to achieve if we do not address the physical limitations of our transmission system.

The NYISO will continue to adapt to the rapidly changing energy landscape while ensuring continuity and reliability. Working closely with utilities, generators, regulators, and industry stakeholders, the NYISO is confident that we can transform New York's power grid for the better – both upstate and downstate. Together we will maximize the potential of renewable and distributed energy resources to benefit our economy and consumers.