



New York Independent System Operator

# STRATEGIC PLAN

2017-2021



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**NYISO markets “deliver significant benefits by coordinating the commitment and dispatch of generation to ensure that resources are started and dispatched each day to meet the system’s demands at the lowest cost.”**

*2015 State of the Market Report for the New York ISO Markets*  
Potomac Economics, May 2016

# MESSAGE FROM THE PRESIDENT & CEO

The energy industry is in the midst of an exhilarating period of innovation. With unprecedented pace, new technology is pushing the boundaries of how electricity is produced, delivered, and consumed.

The NYISO is at the heart of that change in New York: meeting consumers' power needs, addressing public policy goals, and sustaining electricity's fundamental contributions to economic vitality. Change is constant, that is clear, but sustained reliability continues to be the hallmark of excellence in the NYISO's operations.

While the system continues to meet the physical demands for electricity, societal demands for how that electricity is produced and delivered are taking on a more significant role than in the past. Today, we are challenged to meet rigorous reliability requirements in the context of cleaner energy and greater customer choice.

We see opportunities arising from this shifting paradigm. The NYISO's markets have a proven track record of pioneering changes to keep pace with technology, demand, fuel supply economics, and public policy. The NYISO is committed to providing real benefits to consumers, the environment, and the economy as we lead the way in addressing future challenges and opportunities.

More clean energy resources are coming to the grid, and these resources will shift the manner in which the grid functions. The NYISO's innovative market design and groundbreaking work in wind integration established New York as a leader in wind power, and we are now applying that success to solar energy. The 2017–2021 Strategic Plan outlines initiatives intended to enhance the NYISO's markets, operations, and planning activities in ways that will enable the NYISO to efficiently and reliably meet the new demands on the grid.

New York's Reforming the Energy Vision (REV) initiative also represents a significant shift in our industry. The NYISO is actively engaged with stakeholders in crafting a roadmap to a future where empowered consumers and advanced technologies support more optimized grid utilization. Our Strategic Plan embraces this future and commits the NYISO to developing the tools needed to operate the system in an environment that includes more distributed energy resources. It envisions changes in market design to support the integration of new resources and establish the rules of the road at the intersection of wholesale markets and local distribution systems.

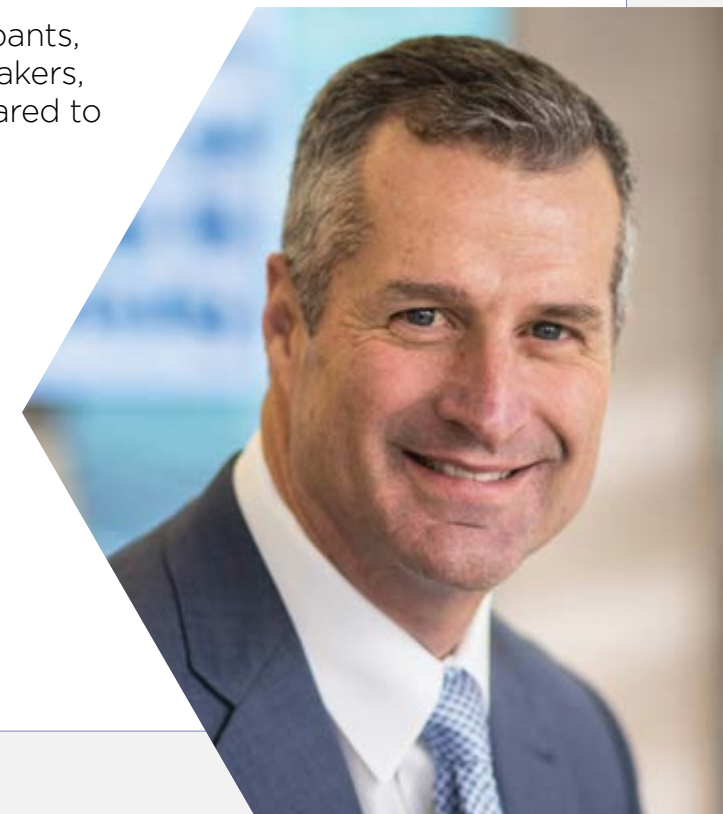
The NYISO is committed to being a leader in grid reliability, market design, system performance, and technological innovation. Defining future success for the NYISO depends on our ability to deliver on these objectives.

Our Strategic Plan identifies and prioritizes those issues where the NYISO will take a leadership role to address the changing energy landscape and achieve its objectives while reflecting the priorities of our stakeholders.

Working together with market participants, stakeholders, regulators, and policy makers, I am confident that the NYISO is prepared to meet these challenges.

## **BRADLEY C. JONES**

President & CEO





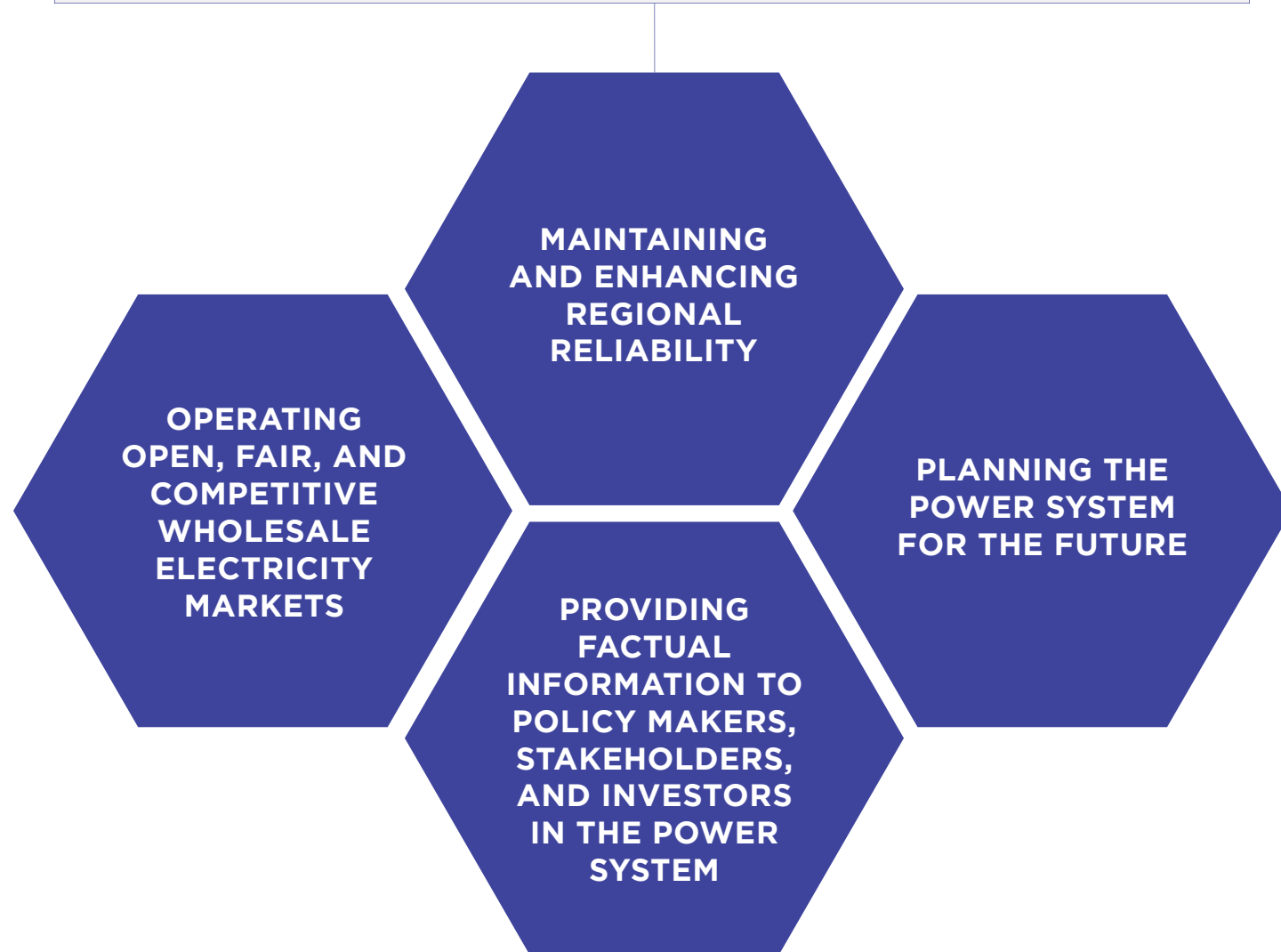
## PURPOSE

The purpose of the Strategic Plan is to establish the strategic direction for the organization and create a foundational strategy that balances long-term objectives, operational priorities, and financial discipline. The plan reflects the perspectives of the NYISO's Board of Directors, NYISO's senior management, customers, and other stakeholders. It serves as a communications tool for the NYISO Board of Directors, employees, and stakeholders.

The plan outlines the Mission, Guiding Principles, and Core Values under which the NYISO will operate over the next five years, and defines the company's strategic objectives and initiatives for that time period.

# MISSION

THE MISSION OF THE NEW YORK INDEPENDENT SYSTEM OPERATOR, IN COLLABORATION WITH ITS STAKEHOLDERS, IS TO SERVE THE PUBLIC INTEREST AND PROVIDE BENEFIT TO CONSUMERS BY:



# GUIDING PRINCIPLES



# CORE VALUES

The Core Values of the NYISO establish the foundation from which all our responsibilities and accountabilities are delivered:

**ACCOUNTABILITY:** Taking responsibility to do what needs to be done

**OPERATIONAL EXCELLENCE:** Commitment to excellence in all our processes, systems, and products

**INTEGRITY:** Commitment to honest, ethical, and transparent actions

**TEAMWORK:** Working together, succeeding together, respecting each other

**CUSTOMER FOCUS:** Understanding the customer perspective

**INNOVATION:** Pursuing creative and sound solutions

**ENTHUSIASM:** Having a passion for our work and our interaction with our customers, stakeholders, and policy makers

# STRATEGIC OBJECTIVES

## A LEADER IN RELIABILITY

Promote resource adequacy and transmission security now and in the future.

Sustain and enhance reliable operation of the bulk electricity grid and the wholesale electricity markets.

## A LEADER IN MARKET DESIGN AND PERFORMANCE

Develop enhancements to the wholesale electricity markets that increase reliability and market efficiency and create value for consumers.

Foster a market environment conducive to new investments in the wholesale electricity markets that attract and retain resources needed in the state.

## EXCELLENCE IN EXECUTION

Sustain a culture that promotes and strives for flawless performance in all that we do and engenders customer confidence in our operations, markets, and planning.

## SUSTAIN AND ENHANCE ROBUST PLANNING PROCESSES

Strengthen planning capabilities to effectively implement the Comprehensive System Planning Process (CSPP), which includes reliability, economic and public policy planning studies, and other planning initiatives in New York.

Coordinate with Market Participants, State and Regional Planning Agencies, and other key Stakeholders to complete studies and to analyze reliability, operations, and market impacts of a broad range of energy-related federal and state-level policy goals, including environmental, fuel diversity, energy efficiency, and renewable integration.

## A LEADER IN TECHNOLOGY INNOVATION

Work with Regulators and other Stakeholders to coordinate Smart Grid standards and protocols and implementation.

Develop innovative market products and information architecture for integrating renewable resources and other new technologies needed for reliable grid operations.

## AUTHORITATIVE SOURCE OF INFORMATION ON KEY ISSUES

Take a proactive leadership role in providing an independent, unbiased source of information on the operation of the bulk power system and wholesale market in New York, and identifying future needs by analyzing the reliability, environmental, and cost attributes of policy and technology choices.

Conduct stakeholder outreach activities in leadership forums and national and international conferences, as well as professional and standard-setting groups.

# STRATEGIC INITIATIVES FOR 2017–2021

In order to achieve our strategic objectives, NYISO key initiatives between 2017 and 2021 include:

## TECHNOLOGY AND INFRASTRUCTURE INVESTMENT

- **Infrastructure Lifecycle Management**
  - Transmission Outage Application (TOA) Platform Upgrade Phase II
  - Public Website Refresh
  - Storage Infrastructure Redesign
  - Database Platform Upgrade
  - Telephony System Upgrade
  - Laptop Refresh
- **Information Technology Strategy**
  - Energy Management System/Business Management System (EMS/BMS) System Upgrade
  - Application Testing Improvements
  - New Business Capabilities
  - Advanced Phasor Measurement Unit (PMU) Applications
- **Cybersecurity and Physical Security**
  - Identity and Access Management
  - Security Operations
  - Threat and Vulnerability Improvements
- **Application Enhancements**
  - Enterprise Information Management

## INTEGRATION OF DISTRIBUTED ENERGY RESOURCES

- **Reforming the Energy Vision (REV) Market & System Integration**
  - NYISO Pilot Framework as Contemplated in DER Roadmap
  - Joint Utility Group Collaboration
- **DER Integration**
  - DER Roadmap—Distributed Energy Resource Program Design
  - Granular Pricing and Market Price Delivery
  - Meter Data Policy



*“The NYISO’s Strategic Plan is a roadmap charting our course toward the future grid. The Energy Management System/Business Management System that helps us to operate our markets is the navigator that will get us there in the most efficient and effective manner possible. We’re undertaking a multi-year effort to develop and deploy a new EMS/BMS system that will build upon our capabilities and create the platform to integrate more sophisticated tools for renewables and distributed resources, and regional coordination.”*

### Emilie Nelson

Vice President—Market Operations

On Energy Management System/Business Management System

*“Technology trends are making distributed energy resources more economic and responsive to customer energy needs. Solar panels, fuel cells, and other emerging technologies are enabling customers to supplement their use of the grid with local resources that reflect the trend toward cleaner energy technologies. The NYISO will coordinate closely with policy makers, utilities, and other stakeholders to ensure the value of distributed resources is captured and realized in our markets.”*

### Rana Mukerji

Senior Vice President—Market Structures

On Integrating Distributed Energy Resources



## INTEGRATION OF PUBLIC POLICY

### • Expansion of Renewables and Clean Power

- Solar Forecasting Initiatives
- Integrating Public Policy into Markets
- Energy Storage Integration and Optimization

### • Evolution of Transmission Planning

- Interconnection Process Improvements
- Public Policy Transmission Planning Process Acceleration

## SUSTAINABLE BUSINESS MODEL

### • Enterprise Cost Management

- Improve Resource Management, Allocation, and Planning
- Rate Schedule 1 Analysis
- More Granular and Consistent Cost Allocation and Management
- Opportunistic Cost Allocations Aligned with Cost Causation
- Financial Reporting Tools

## RELIABILITY THROUGH MARKETS

### • Fuel Assurance & Gas/Electric Coordination

- Performance Assurance

### • Capacity Market Enhancements

- Reliability Must Run (RMR) Cost Recovery
- Installed Capacity Automated Market System (ICAP AMS) Redesign and Testing Improvements
- Treatment of Capacity Exports
- Demand Curve Reset and Annual Updates
- Elimination of Capacity Zones (State of the Market Report recommendation)
- Alternative Methods for Determining LCRs (State of the Market Report recommendation)
- On Ramps and Off Ramps for Zones

### • Energy Markets and Price Formation

- Con Ed/PSEG Wheel (State of the Market Report recommendation)
- Real-Time Commitment/Real-Time Dispatch (RTC/RTD) Forward Horizon Coordination Improvements (State of the Market Report recommendation)
- Transmission Congestion Contract Balance-of-Period (TCC Automated Market System, TCC Automated Validation System & Credit Management System)
- Model 100+ kV (kilovolt)



*“Since their inception, NYISO markets have proven to be an effective vehicle for delivering value to New Yorkers. The NYISO believes its competitive markets can continue to be the platform for achieving that progress. That’s why we’re launching an ‘Integrating Public Policy’ initiative that will create natural incentives for deployment of clean energy technologies and improved efficiencies at fossil fuel-based power plants.”*

### Rich Dewey

Executive Vice President

On Integrating Public Policy

*“The NYISO’s Sustainable Business Model initiative requires that we continuously examine our staffing needs, budgeting and financing practices, and organizational funding and cost allocation mechanisms to ensure that we can continue to deliver reliability and value to New York customers in a cost-effective manner.”*

### Cheryl Hussey

Vice President & CFO

On Sustainable Business Model







## COMMITMENT TO COLLABORATION

The NYISO strives to achieve its strategic objectives with the direct involvement of market stakeholders and the guidance of policy makers, regulators, and other stakeholders.

As it serves the greater interest of the state and the people of New York, the NYISO's efforts are most visible in the forum it provides to share ideas on how to solve problems and resolve issues.

With hundreds of market participants, the NYISO engages voices from all sectors of the electric industry. The NYISO's achievement of its objectives is directly assisted by the involvement of participants in the shared governance committee process. By maintaining this open process, the various elements of the NYISO's mission are understood by all who participate. This interdependent system and commitment to collaboration are invaluable assets as the NYISO moves forward to address the challenges to come.

# ABOUT THE NYISO

The New York Independent System Operator (NYISO), which began operating in 1999, is a not-for-profit corporation primarily regulated by the Federal Energy Regulatory Commission (FERC). The governance, structure, and mission of the NYISO comply with the guiding principles in the FERC's open access regulations. The NYISO is governed jointly by an independent Board of Directors and Market Participants (transmission owners, generation owners, other electric power suppliers, end-use consumers, public power, and environmental sectors). In accordance with a rigorous code of conduct, NYISO board members and staff are required to be independent from the interests of market participants.

The NYISO serves the public interest and provides benefit to consumers by fulfilling an array of essential responsibilities, which include:

- Reliable operation of New York's bulk electricity grid;
- Fair and open administration of competitive wholesale electricity markets;
- Planning for the future of New York's power system; and
- Advancing the technological infrastructure of the electric system serving New York.

## Reliable Operations

On a second-to-second basis, the NYISO economically and reliably balances the electricity needs of consumers with an equal supply of energy from available generation and other resources. Private, investor-owned utilities and public power authorities own the 11,016 miles of bulk electricity transmission lines that comprise the electric grid in New York State. The NYISO controls and coordinates access to the bulk power flow over these lines in accordance with the federal policy of open and nondiscriminatory access to the grid. The NYISO works with transmission owners, the New York State Reliability Council (NYSRC), the Northeast Power Coordinating Council (NPCC),



and the North American Electric Reliability Corporation (NERC) in meeting the nation's most rigorous standards for the reliable planning and operation of the bulk electric power system, including nearly 1,000 unique reliability requirements to deliver reliable transmission service to all New Yorkers. In its history of operating the transmission grid, independent audits have found the NYISO to be in full compliance with all reliability requirements.

## Efficient Markets

As market administrator, the NYISO conducts a continuous series of auctions, in which load-serving entities bid to purchase electricity offered for sale by suppliers. Similarly, the NYISO administers markets to purchase balancing requirements and various operating reserves needed to maintain system reliability. These competitive auctions are designed to promote price signals for market participants that reflect the real-time needs of the system and promote the most efficient solutions as suppliers strive to minimize costs in order to be competitive. The NYISO estimates that, since 2000, competitive markets have contributed to improved generation efficiency and lower reserve requirements that produced \$7.7 billion in cost reductions.

The NYISO also operates markets that allow market participants to purchase the installed capacity needed to meet adequacy and, therefore, reliability requirements. Together, these markets have supported the growth of renewable resources in New York State as well as other forms of supply. Nearly nonexistent prior to the formation of competitive markets, wind energy suppliers now produce enough electricity each year to supply nearly 500,000 homes in New York. At the same time, energy service companies and end-use consumers can provide demand response resources and compete with suppliers in several of these markets.



The NYISO maintains credit requirements to see that all market participants enter into transactions with a reasonable assurance that they will be protected from a payment default. The NYISO's independent market monitor and internal market monitoring and performance group watch the markets for attempts at manipulation, identify potential market improvements, and report any violations of the tariffs to the FERC.

### **Comprehensive Planning**

The NYISO's Comprehensive System Planning Process (CSPP) is a unique, "all source" planning process that evaluates transmission, generation, and demand response on a comparable basis. It is the primary tool for the NYISO to inform transmission expansion and electric infrastructure investment decisions in the New York Control Area. Developed through its stakeholder governance process, the CSPP establishes that the NYISO will identify reliability and economic needs and administer a process whereby solutions are proposed, evaluated, and implemented in order to maintain the reliability of the bulk electric power system. To date, markets have always responded to reliability needs identified by the NYISO, providing a mechanism to attract private investment to meet system needs and minimizing risk to ratepayers.

Pursuant to FERC Order 1000, the NYISO is evolving its CSPP to evaluate transmission expansion investments driven by public policy requirements in addition to those driven by reliability and economic needs. This Public Policy Planning process will assist state policy makers in identifying and evaluating proposals to achieve various public policy objectives. The NYISO will be able to use these processes to select the more efficient or cost-effective transmission projects that will be eligible for cost allocation and cost recovery under its tariff.



### **Stakeholder Engagement**

The NYISO strives to achieve its strategic objectives with the guidance of government policy makers and regulators, and the direct involvement of market sector stakeholders. As it serves the greater interest of the state and the people of New York, the NYISO's efforts are most visible in the forum it provides to share ideas on how to resolve issues and solve problems.

With hundreds of market participants, the NYISO engages an array of interests, including representatives from public power and environmental parties, end-use consumers, transmission owners, generation owners, and other suppliers. The governance structure includes three standing committees—the Management Committee, the Business Issues Committee, and the Operating Committee. Each committee oversees its own set of working groups and/or subcommittees. The NYISO's achievement of its objectives depends on the active involvement of participants in the shared governance committee process.



# NYISO BOARD OF DIRECTORS

## **MICHAEL B. BEMIS, BOARD CHAIR**

Former President of Exelon Power and President of Energy Delivery for the Exelon Corporation, Chief Executive of London Electricity, and Executive Vice President for Entergy Corporation.

## **AVE M. BIE**

Partner in the law firm of Quarles & Brady and former Chair of the Wisconsin Public Service Commission.

## **BERNARD W. DAN**

Former Chief Executive Officer of Sun Holdings, LLC. Former President and CEO of the Chicago Board of Trade. Former President and CEO of Cargill Investor Services.

## **DANIEL C. HILL**

Former Senior Vice President and Chief Information Officer of Exelon Corporation.

## **ROBERT A. HINEY**

Former Executive Vice President for Power Generation of the New York Power Authority (NYPA).

## **ROGER B. KELLEY**

Former President and CEO of the New York Power Authority, former President and CEO of Peregrine Midstream Partners, LLC., and former President and CEO of Fortistar Renewables.

## **JAMES V. MAHONEY**

President and CEO of Energy Market Solutions, Inc. and former President and CEO of DPL Inc., a regional energy and utility company.

## **THOMAS RYAN, JR., BOARD VICE CHAIR**

Former President and Chief Operating Officer of the American Stock Exchange.

## **JANE SADOWSKY**

Managing Partner at Gardener Advisory LLC.

## **BRADLEY C. JONES**

President and CEO, New York Independent System Operator.

# NYISO CORPORATE OFFICERS

## **BRADLEY C. JONES**

President and CEO

## **RICHARD DEWEY**

Executive Vice President

## **RICK GONZALES**

Senior Vice President and Chief Operating Officer

## **RANA MUKERJI**

Senior Vice President, Market Structures

## **DOUGLAS CHAPMAN**

Vice President, Chief Information Officer

## **DIANE L. EGAN**

Board Secretary and Corporate Secretary

## **ROBERT E. FERNANDEZ**

General Counsel

## **CHERYL HUSSEY**

Vice President and Chief Financial Officer

## **KEVIN LANAHAN**

Vice President, External Affairs

## **EMILIE NELSON**

Vice President, Market Operations

## **ZACHARY G. SMITH**

Vice President, System and Resource Planning

## **JOSETTE VALENTI**

Vice President, Human Resources

## **WESLEY YEOMANS**

Vice President, Operations



The New York Independent System Operator (NYISO) is a not-for-profit corporation responsible for operating the state's bulk electricity grid, administering New York's competitive wholesale electricity markets, conducting comprehensive long-term planning for the state's electric power system, and advancing the technological infrastructure of the electric system serving the Empire State.

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