



# NYISO Strategic Plan 2021-2025

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Emilie Nelson

EXECUTIVE VICE PRESIDENT, NYISO

**Management Committee Meeting**

December 16, 2020

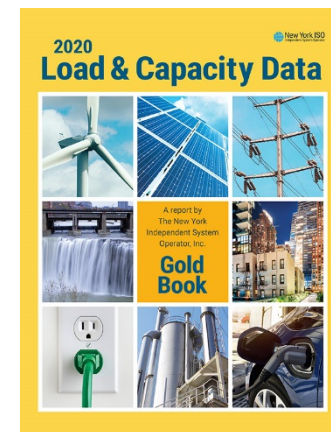
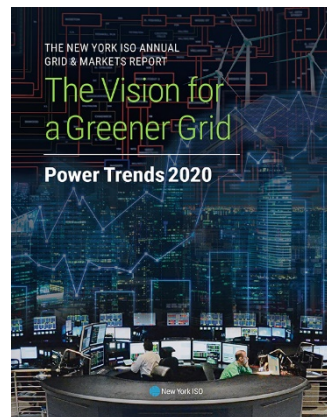
# Agenda

- **Key Accomplishments**
- **Strategic Planning Process**
- **State and Sector Perspective**
- **Strategic Plan 2021-2025**

# Key Accomplishments

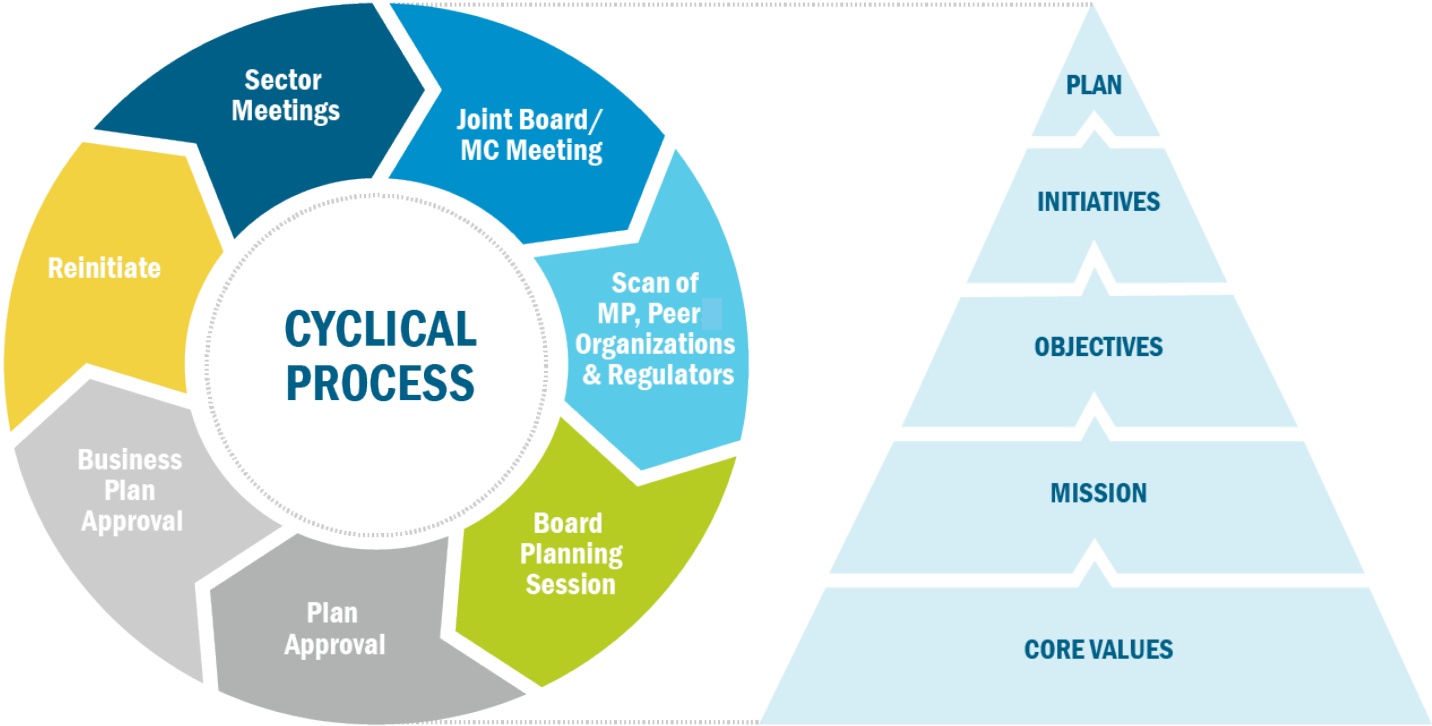
# Key 2020 Accomplishments

- Pandemic response
- Key studies
- Carbon Pricing
- Energy Storage Participation Rules
- Comprehensive Mitigation Review
- DER Participation Model – FERC Acceptance
- Hybrid Co-Located Model
- Reserves for Resource Flexibility and Ancillary Shortage Pricing Designs
- EMS/BMS Implementation
- Demand Curve Reset
- Class Year 2019



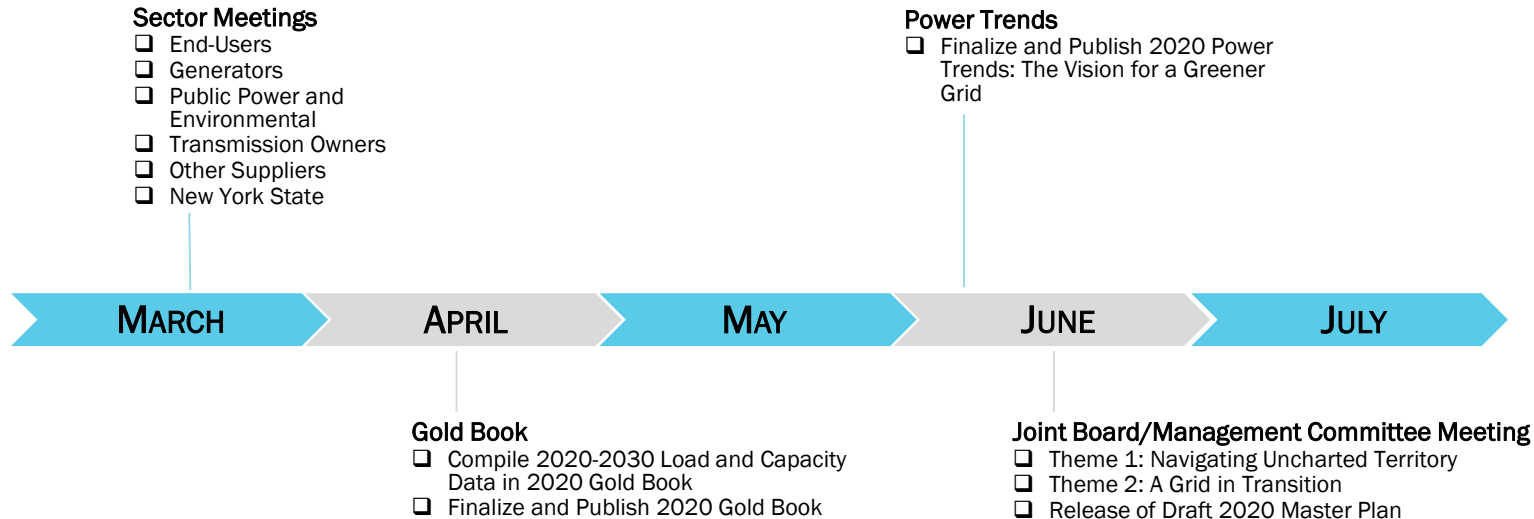
# Strategic Planning Process

# Process Overview



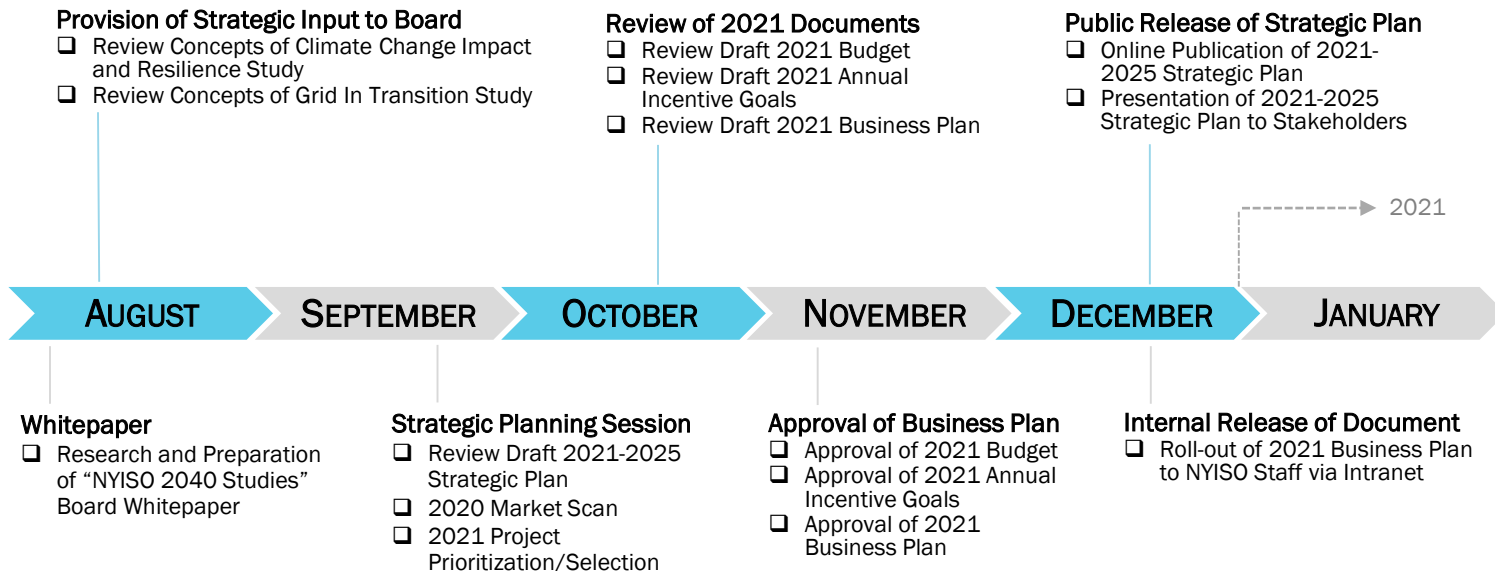
# 2020 Planning Timeline

## Aligning Strategic Planning, Project Prioritization and Power Trends



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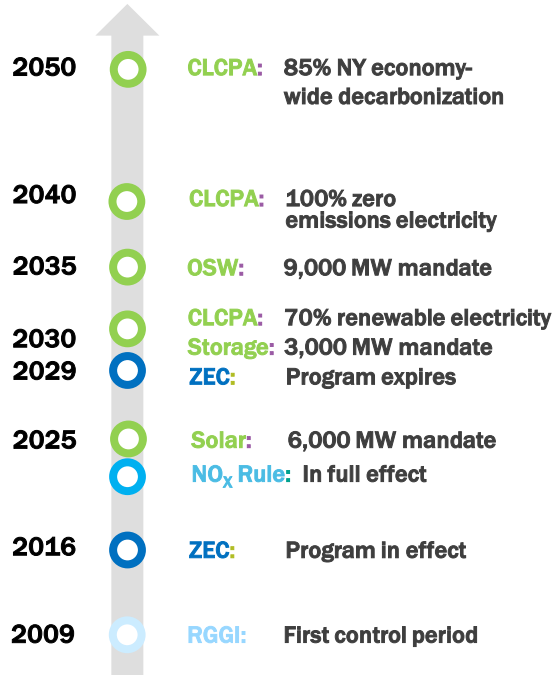




# Strategic Perspectives

# Expansion of NYS Clean Energy Policies

## Public Policy Timeline



## Key Policies

CLCPA	<ul style="list-style-type: none"> <li>Renewable generation: 70% of NY annual electricity supplied from renewables (solar, wind, hydro) by 2030</li> <li>100% zero emissions by 2040</li> <li>Solar: 6,000 MW distributed solar by 2025</li> <li>Offshore wind: 9,000 MW by 2035</li> <li>Storage: 3,000 MW by 2030</li> <li>Economy-wide emissions: 85% reduction by 2050 and 40% reduction by 2030 from 1990 levels</li> </ul>
DEC NO <sub>x</sub> rule	<ul style="list-style-type: none"> <li>DEC rule to reduce NO<sub>x</sub> emissions from peakers</li> <li>Peakers built pre-1986 will likely retire or retrofit to meet emissions requirements</li> </ul>
ZEC Program	<ul style="list-style-type: none"> <li>Zero emission credit payments to New York nuclear plants</li> <li>Program expires March 2029</li> </ul>
RGGI	<ul style="list-style-type: none"> <li>Northeast regional cap-and-trade program</li> <li>Avg. 2019 price: \$5.4/ton; expected to reach \$12.6 by 2030</li> </ul>

Sources: RGGI Auction Allowance Price and Volumes Results; New York Public Service Commission Order Adopting a Clean Energy Standard, August 1, 2016; New York DEC Adopted Subpart 227-3; New York Senate Bill S6599

# 2020 Sector Meetings Feedback

## Prevalent topics cited by multiple sectors:

- CLCPA and Climate Action Council
- Demand Curve Reset
- Buyer-Side Mitigation
- Carbon Pricing
- Hybrid Storage
- Grid in Transition Studies/Climate Change Studies

# 2020 Joint Board/MC Meeting Takeaways

## Topic 1: Navigating Uncharted Territory

- ❑ Impact of pandemic underscores the importance of maintaining focus on long-term strategic priorities to evolve markets given changes to the grid that CLCPA is driving
- ❑ Recognize the possibility of long-term shifts in load; leverage forecasting work from the Climate Study to consider electrification, among other things, and update models and forecasts periodically
- ❑ Reliability is always of paramount importance; the cost of electricity and consumer impact are also deep concerns
- ❑ Continued market enhancements are necessary, however, shelter consumers from investment risk and be cautious that new constructs do not compromise reliability and benefits
- ❑ Consider future role of capacity markets and the issue of buyer-side mitigation (BSM); left unchanged BSM could lead to extra cost without discouraging out-of-market incentives
- ❑ Continue to pursue energy and ancillary market (EAS) changes, hybrid resource market efforts and the Comprehensive Mitigation Review effort, with careful consideration of how the respective efforts fit together
- ❑ Generate bold ideas across the markets, but only implement ideas with merit following careful deliberation with stakeholders

## Topic 2: A Grid in Transition

- ❑ Prioritize market enhancements that recognize the changing nature of future requirements and effectively incentivize attributes most beneficial to reliability
- ❑ Balance price signals by not overpaying for resources that do not contribute much to reliability
- ❑ Work with the state to consider key issues impacting the Grid in Transition to quickly identify and approve public policy transmission needs
- ❑ Critical importance of NYISO role as authoritative source of information for stakeholders and policymakers
- ❑ Continue valuable study work identifying reliability and market design needs; continue thinking outside of the confines of the tariff regarding what studies are needed
- ❑ Broad sentiment that NYISO's work and communication on carbon pricing is industry-leading and an effective means to align the markets with environmental policy
- ❑ Carbon pricing an important mechanism to address the BSM concerns, attract new technologies and innovative solutions, however, concern expressed about how carbon pricing will work with mechanisms that exist outside of the market and its possible impact to consumers

# Strategic Plan 2021-2025

# Core Values of the NYISO

## Integrity

Commitment to honest, ethical, and transparent actions

## Innovation

Pursuing creative and sound solutions

## Enthusiasm

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



## Customer Focus

Understanding the customer perspective

## Operational Excellence

Commitment to excellence in all our processes, systems and products

## Accountability

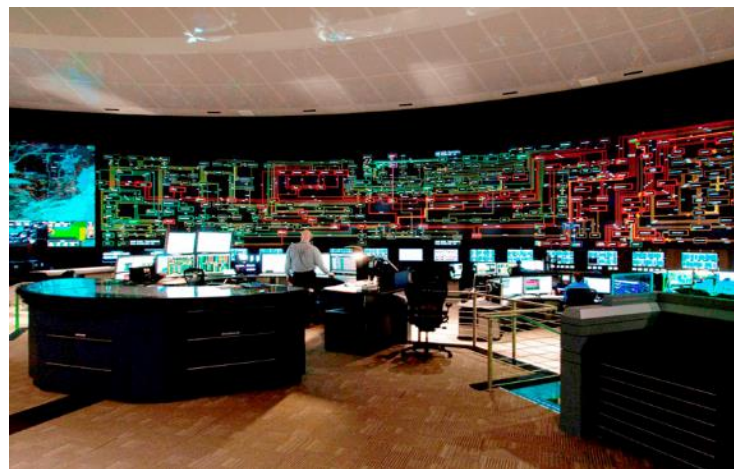
Taking responsibility to do what needs to be done

## Teamwork

Working together, succeeding together, respecting each other

# 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:

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









# Strategic Overview





# Strategic Initiatives

NYISO's Strategic Initiatives address the evolving nature of New York's electricity grid as large scale renewables and distributed energy resources place new demands on electricity markets and grid operations.

							
Initiatives		<b>Grid Reliability and Resilience</b>	<b>Markets for a Grid in Transition</b>	<b>New Resource Integration</b>	<b>Integration of Public Policy</b>	<b>Technology and Infrastructure Investment</b>	<b>Efficient and Flexible Business Model</b>
Key Project Areas		<ul style="list-style-type: none"> <li>Operational Enhancements</li> <li>Planning Enhancements</li> <li>Strategic Studies</li> </ul>	<ul style="list-style-type: none"> <li>Price Formation Initiatives</li> <li>Grid Flexibility Products</li> <li>Ancillary Market Enhancements</li> <li>Capacity Market Enhancements</li> <li>Renewable Resource Integration</li> </ul>	<ul style="list-style-type: none"> <li>DER Integration</li> <li>Storage Integration</li> <li>Introduction of New Technologies</li> </ul>	<ul style="list-style-type: none"> <li>Carbon Pricing</li> <li>Evolution of Transmission System</li> <li>Renewable Resource Integration</li> <li>Planning Enhancements</li> </ul>	<ul style="list-style-type: none"> <li>Transforming Capabilities through IT Strategy</li> <li>Technology Lifecycle Management</li> <li>Strategic Solution Investments</li> </ul>	<ul style="list-style-type: none"> <li>Future-Focused Business Model</li> <li>Organizational Planning</li> <li>Enhanced Value Proposition</li> </ul>

# Appendix

## Strategic project timeline

# Anticipated Projects Supporting Strategic Initiatives

Strategic Initiative	2021 Projects	2022 Projects	2023 Projects	2024 – 2025 Projects
<b>Grid Reliability and Resilience</b>	<ul style="list-style-type: none"> <li>▪ Climate Change and Grid in Transition</li> <li>▪ Large-Scale Solar On Dispatch</li> <li>▪ Reserves for Resource Flexibility</li> <li>▪ Enhancements to Resource Adequacy Models</li> <li>▪ Grid Services from Renewable Generators</li> </ul>	<ul style="list-style-type: none"> <li>▪ Climate Change and Grid in Transition</li> <li>▪ Operational Situational Awareness</li> <li>▪ Enhancements to Resource Adequacy Models</li> </ul>	<ul style="list-style-type: none"> <li>▪ Operational Situational Awareness</li> <li>▪ Enhancements to Resource Adequacy Models</li> </ul>	<ul style="list-style-type: none"> <li>▪ Operational Situational Awareness</li> <li>▪ Enhancements to Resource Adequacy Models</li> </ul>
<b>Efficient Markets for a Grid in Transition</b>	<ul style="list-style-type: none"> <li>▪ Ancillary Services Shortage Pricing</li> <li>▪ Constraint Specific Transmission Shortage Pricing</li> <li>▪ Reserve Enhancements for Constrained Areas</li> <li>▪ Demand Curve Reset</li> <li>▪ Expanding Capacity Eligibility (ECE)</li> <li>▪ Tailored Availability Metric (TAM)</li> <li>▪ Expanding Peak Hour Forecasts</li> <li>▪ BSM Renewables Exemption Study</li> </ul>	<ul style="list-style-type: none"> <li>▪ Constraint Specific Transmission Shortage Pricing</li> <li>▪ Reserve Enhancements for Constrained Areas</li> <li>▪ More Granular Operating Reserves</li> <li>▪ ECE and TAM Capacity Value Studies</li> <li>▪ Capacity Demand Curve Adjustments</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reserve Enhancements for Constrained Areas</li> <li>▪ More Granular Operating Reserves</li> <li>▪ ECE and TAM Capacity Value Studies</li> <li>▪ Capacity Demand Curve Adjustments</li> <li>▪ Demand Curve Reset</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reserve Enhancements for Constrained Areas</li> <li>▪ More Granular Operating Reserves</li> <li>▪ Demand Curve Reset</li> </ul>

# Anticipated Projects Supporting Strategic Initiatives

Strategic Initiative	2021 Projects	2022 Projects	2023 Projects	2024 – 2025 Projects
<b>New Resource Integration</b>	<ul style="list-style-type: none"> <li>▪ DER Participation Model</li> <li>▪ Engaging the Demand Side</li> <li>▪ Hybrid Co-Located Model</li> <li>▪ Hybrid Aggregation Model</li> </ul>	<ul style="list-style-type: none"> <li>▪ DER Participation Model</li> <li>▪ Engaging the Demand Side</li> <li>▪ Hybrid Aggregation Model</li> </ul>	<ul style="list-style-type: none"> <li>▪ Engaging the Demand Side</li> <li>▪ Hybrid Aggregation Model</li> </ul>	<ul style="list-style-type: none"> <li>▪ Engaging the Demand Side</li> <li>▪ Hybrid Aggregation Model</li> </ul>
<b>Integration of Public Policy</b>	<ul style="list-style-type: none"> <li>▪ Carbon Pricing</li> <li>▪ Comprehensive Mitigation Review</li> <li>▪ CRIS Expiration Evaluation</li> <li>▪ NextEra Transmission Owner Integration</li> <li>▪ Public Policy Transmission Expansion</li> <li>▪ Economic Planning Process</li> </ul>	<ul style="list-style-type: none"> <li>▪ Carbon Pricing</li> <li>▪ CRIS Expiration Evaluation</li> <li>▪ Public Policy Transmission Expansion</li> <li>▪ Economic Planning Process</li> </ul>	<ul style="list-style-type: none"> <li>▪ Public Policy Transmission Expansion</li> <li>▪ Economic Planning Process</li> </ul>	<ul style="list-style-type: none"> <li>▪ Public Policy Transmission Expansion</li> <li>▪ Economic Planning Process</li> </ul>

# Anticipated Projects Supporting Strategic Initiatives

Strategic Initiative	2021 Projects	2022 Projects	2023 Projects	2024-2025 Projects
<b>Technology and Infrastructure Investment</b>	<ul style="list-style-type: none"> <li>▪ Enterprise Information Management – Data Integration</li> <li>▪ Gurobi (MIP) Migration and Upgrade</li> <li>▪ Cloud Computing</li> <li>▪ Cybersecurity Protection Strategies</li> <li>▪ IT Infrastructure Automation</li> <li>▪ IT Service Management Improvements</li> <li>▪ Database Upgrade</li> <li>▪ Transmission &amp; Generation Scheduling System Replacement</li> <li>▪ Load Forecasting System Upgrade and Build Out</li> <li>▪ Network Infrastructure Upgrades</li> <li>▪ Linux and Storage Infrastructure Refresh</li> <li>▪ Windows System Upgrade</li> <li>▪ Application Platform Upgrades</li> </ul>	<ul style="list-style-type: none"> <li>▪ Cloud Computing</li> <li>▪ Cybersecurity Protection Strategies</li> <li>▪ IT Infrastructure Automation</li> <li>▪ IT Service Management Improvements</li> <li>▪ Database Upgrade</li> <li>▪ Transmission &amp; Generation Scheduling System Replacement</li> <li>▪ LFDR (Load Forecast Data Repository) Upgrade and Enhancements</li> <li>▪ Network Infrastructure Upgrades</li> <li>▪ Windows System Upgrade</li> <li>▪ Application Platform Upgrades</li> <li>▪ ACC Control Room Renovation</li> <li>▪ SCUC Performance Enhancements</li> </ul>	<ul style="list-style-type: none"> <li>▪ MIP Upgrade</li> <li>▪ Cloud Computing</li> <li>▪ Cybersecurity Protection Strategies</li> <li>▪ IT Infrastructure Automation</li> <li>▪ Database Upgrade</li> <li>▪ Application Platform Upgrades</li> <li>▪ Enterprise Storage Refresh</li> <li>▪ ACC Control Room Renovation</li> <li>▪ SCUC Performance Enhancements</li> </ul>	<ul style="list-style-type: none"> <li>▪ Cloud Computing</li> <li>▪ Cybersecurity Protection Strategies</li> <li>▪ IT Infrastructure Automation</li> <li>▪ Database Upgrade</li> <li>▪ Load Forecasting System Upgrade</li> <li>▪ Application Platform Upgrades</li> <li>▪ Enterprise Storage Refresh</li> </ul>
<b>Efficient and Flexible Business Model</b>	<ul style="list-style-type: none"> <li>▪ TCC Credit Enhancements</li> <li>▪ Accounting and Settlement Integration</li> <li>▪ FERC Form 1 Redesign</li> </ul>	<ul style="list-style-type: none"> <li>▪ Transaction Modifications &amp; Confirmation Tool</li> <li>▪ Working Capital Application Enhancements</li> <li>▪ Credit Management System &amp; Consolidated Invoice Data Integration</li> <li>▪ Credit Management System Enhancements</li> </ul>	<ul style="list-style-type: none"> <li>▪ Settlement Systems Redesign</li> <li>▪ Budget Management &amp; Reporting Tools</li> <li>▪ Oracle Financials &amp; Settlement System Data Integration</li> <li>▪ Electronic Payments</li> <li>▪ Credit Management System Enhancements</li> </ul>	<ul style="list-style-type: none"> <li>▪ Settlement Systems Redesign</li> <li>▪ Procure to Pay Enhancements</li> <li>▪ Oracle Financials &amp; Settlement System Data Integration</li> <li>▪ Electronic Payments</li> <li>▪ Credit Management System Enhancements</li> </ul>

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.