

**2018 Joint Board of Directors & Management Committee Meeting – June 11,12 2018
The Otesaga Resort, Cooperstown, NY**

Session 1: Wholesale Markets for the Grid of the Future

The grid is evolving away from historical patterns of supply and demand, and towards emerging trends that reflect dramatic advances in how electricity is generated and consumed. The convergence of new technologies, changing economics and compelling public policy are precipitating growth of renewable and distributed energy resources to levels which may require significant modification of wholesale market practices. The goal of this session is to elicit feedback from stakeholders to help assess if the types of wholesale market changes and adjustments the NYISO is evaluating are adequate to provide the necessary resource flexibility and grid resilience that will be required in the future.

Table Discussion: Seed questions

1. What types of wholesale market enhancements could best provide incentives for resource flexibility?
 - a. How can evolving the wholesale ancillary service markets improve resource flexibility?
 - b. What other wholesale market improvements should be considered for promoting resource flexibility?
 - i. How do these other wholesale market improvements complement the proposed ancillary service improvements currently being evaluated?
 - c. Are there any “no regrets” initiatives or market enhancements that the NYISO should consider that would promote resource flexibility?
 - d. What new kinds of entities or categories of market participants and resources might emerge as wholesale markets respond to future needs for resource flexibility?
 - e. What market changes may need to be considered as more and renewable resources, distributed resources, and energy storage facilities participate in the wholesale markets?
2. What must the grid and resources connected to the grid be prepared for to ensure the power system remains resilient?
 - a. How can the NYISO help inform stakeholders on potential threats to grid resilience?
 - i. Should the NYISO study its fuel security needs?
 - ii. Should climate shifts be considered when assessing the resilience of the grid?
 - b. How can transmission support grid resilience?
 - i. What types of transmission planning process changes could help support enhancing grid resilience?
 - ii. Should the NYISO be evaluating carbon emissions impacts as an economic value for transmission?
 - c. How can wholesale markets support grid resilience?

- i. What types of grid resilience attributes could the wholesale markets address?
 - d. What technologies, resources or other assets could be deployed to help improve grid resilience?
 - i. What improvements could increase flexibility and resilience of transmission system operations?
 - ii. What improvements could increase flexibility and resilience of supply resource operations?
 - iii. How could distribution system resources and operational improvements assist in resilient operation of the transmission system, and vice versa?
- 3. As the needs of the grid evolve, what mechanisms would best incent necessary resource development?

Session 2: The Role of Carbon Pricing in Wholesale Markets

The NYISO is working with its stakeholders, the New York State Department of Public Service, and the New York State Energy Research and Development Authority through the Integrating Public Policy Task Force (IPPTF) to determine how a carbon price could be integrated into wholesale markets. The NYISO's objective is to harmonize the NYISO-administered wholesale markets and New York State's goal of reducing carbon dioxide emissions 40% by 2030 and 80% by 2050 (relative to 1990 levels).

The IPPTF has developed a proposal for a highly transparent market design mechanism to incorporate the cost of carbon emissions into the wholesale markets. Low carbon-emitting resources, including efficient fossil units, renewables, hydropower and nuclear generators would benefit from higher net revenues under the proposal. The goal of this session is to gain a better understanding of the concerns our stakeholders have about the viability of incorporating the cost of carbon into wholesale markets to contribute to achieving public policies, while providing the greatest benefits at the least cost to consumers and appropriate price signals to incentivize investment and maintain grid reliability.

Table Discussion: Seed questions

1. Can carbon pricing reconcile the state's decarbonization and renewable investment objectives with the NYISO's objective of administering efficient competitive wholesale markets?
 - a. Considering that carbon pricing's success will be based on some level of co-operative federalism, how can we improve the chances that both New York State and Federal Energy Regulatory Commission will support any carbon pricing mechanism?
 - b. When would carbon pricing need to be in place to ensure the wholesale markets attract and retain necessary resources and characteristics?
 - i. How aggressively should the NYISO pursue enhanced market mechanisms and carbon pricing?
 - c. A potential benefit of carbon pricing is revealing the true cost of marginal carbon emissions in various locations and encouraging the siting of low/none carbon-emitting sources in high carbon emitting locations or the construction of transmission to link low carbon-emitting sources to high carbon locations. The challenges of building transmission are not primarily economic. Do the policies supporting transmission planning need to be reformed to address the non-economic barriers to transmission development so that the carbon price signal can be effective?

- d. Could the imposition of a carbon price make fossil fuel fired resources, which are required to maintain secure winter operations or are important to provide contingency response, uneconomic?
 - i. Should the ISO take action to retain these resources? If so, how?
- 2. If a cost of carbon is not incorporated into the wholesale energy markets, what alternative market changes should be considered to maintain efficient price signals that support bulk system reliability and revenue adequacy?