

# Consumer Impact Analysis: 2021 Project List

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# Analysis Guidelines

- Anticipated net production cost impact of \$5 million or more per year;
- Expected consumer impact from changes in energy or capacity market prices is greater than \$50 million per year;
- Incorporates new technology into NYISO markets for first time;
- Allows or encourages a new type or category of market product; or
- Creates a mechanism for out-of-market payments for reliability

# Identification of 2021 Projects

- **Projects Identified in this Analysis**
  - Significant market design concepts identified in the 2021 project prioritization process
- **Additional Projects that May Be Analyzed**
  - FERC directives where the NYISO has implementation flexibility
  - Emergent stakeholder issues

# 2021 Proposed Projects

- Reserve Enhancement for Constrained Areas
- Constraint Specific Transmission Shortage Pricing
- Large Scale Solar on Dispatch
- Grid Services from Renewable Generators
- Time Differentiated TCCs

# Reserve Enhancement for Constrained Areas

- **Description:** The New York State Reliability Council (NYSRC) rules require that the NYISO not load transmission facilities above their Long-Term Emergency (LTE) rating, post-contingency. In some cases, within NYC, the NYISO is permitted to operate transmission facilities above LTE, using generating capacity not otherwise scheduled to provide energy and phase angle regulator actions to quickly secure the transmission facilities, post-contingency. This offers opportunities to reduce production costs by relaxing the transmission limits of facilities that feed New York City load pockets. Today, the NYISO procures fixed quantities of operating reserves in specified regions across the state. Under this structure, the static modeling of reserve regions and their associated requirements does not reflect the flexibility of the grid to respond to system needs by utilizing the transmission system to import capacity into generation-constrained regions. As reserve regions become smaller, this static modeling can potentially lead to market inefficiencies and unnecessary price volatility. The NYISO recently proposed to introduce a Zone J reserve region with 10 and 30-minute reserve requirements beginning in late-June 2019. The Zone J reserve region will provide region-specific market signals consistent with reliability needs in New York City.  
The NYISO is also exploring the potential implementation of more granular reserve requirements within certain New York City load pockets that would better represent the value of short-notice resources in desirable locations. As the potential implementation of load pocket reserve requirements is considered, a dynamic reserve procurement methodology that does not exist today could be useful to improve market efficiency, better aligning market outcomes with how the power system is operated, and avoid the potential for unnecessary price volatility.
- **Expected Benefit:** A dynamic reserve procurement methodology could improve market efficiency by scheduling reserves in a less expensive region using available transmission capability to import power into a more constrained region post-contingency, rather than hold reserves in the more expensive reserve area. By scheduling reserves dynamically, reserves could be shifted to resources in lower cost regions as transmission capacity is made available or shifted to resources that are not export constrained. Dynamic reserves present opportunities to enhance grid resilience, incentivize resource flexibility, lower total production costs, and increase efficiency in meeting applicable reserve requirements.
- **Screen:** Emergent stakeholder issue

# Constraint Specific Transmission Shortage Pricing

- **Description:** Transmission facility and line ratings limit the amount of energy that can flow from one location to the next on the bulk electric system. As transmission constraints arise, the NYISO's energy market software prices the quantity of energy that would be necessary to alleviate them. The existing transmission constraint pricing logic applies a single graduated pricing mechanism to all facilities assigned a non-zero constraint reliability margin (CRM) value. Under the current pricing logic, some transmission constraints are relaxed without being resolved by the graduated mechanism.

In 2018, the NYISO's Constraint Specific Transmission Demand Curves study concluded that certain enhancements to the current logic would be beneficial and should be further explored with stakeholders. Based on this study, the NYISO proposes to utilize a revised and more graduated transmission demand curve mechanism that better accounts for the various non-zero CRM values assigned to facilities. Under this new construct, transmission demand curve prices would increase proportionally with the severity of transmission overloads. The NYISO also proposes to eliminate most occurrences of constraint relaxation by instead seeking to resolve constraints for internal facilities through use of a graduated transmission demand curve mechanism that includes pricing values for shortages that exceed applicable CRM values.

- **Expected Benefit:** The transmission constraint pricing logic enables the NYISO's market software to re-dispatch suppliers efficiently in the short term to alleviate constraints, and incentivizes long-term investment in locations where suppliers could provide the greatest benefits.
- **Screen:** Emergent stakeholder issue

# Large Scale Solar on Dispatch

- ***Description:*** Large scale solar installations are just beginning to enter the New York Control Area (NYCA). While solar technology can offer many benefits, it can also pose challenges to reliable grid operation due to its variable nature. As higher levels of intermittent resources like solar connect to the grid, it is important to have appropriate market mechanisms to manage this variability with flexible resources that can follow a dispatch signal. Solar resources have a demonstrated ability to reduce their output in response to a dispatch signal, and the NYISO seeks to implement this capability within its energy markets.
- ***Expected Benefit:*** Large scale solar resources are capable of contributing to system reliability due to their flexibility. The implementation of a market construct that allows the NYISO to send an economic market basepoint signaling a solar resource to reduce its output in response to system needs has the potential to increase system reliability while decreasing total production cost.
- ***Screen:*** Allows or encourages a new type or category of market product

# Grid Services from Renewable Generators

- **Description:** According to two recent studies by CAISO, NREL, GE, Avangrid Renewables, and First Solar, wind and solar resources equipped with inverter controls can provide grid services, including regulation, voltage control, frequency response, and ramping. The required upgrades are minimal, if any, and result in the provision of services at the same or better levels of performance as compared to traditional generators, while simultaneously easing the integration of additional renewables onto the grid.
- **Expected Benefit:** Renewable generators have the ability to provide grid services, thereby decreasing the cost of renewable integration while decarbonizing the provision of many essential reliability services. Given that significant quantities of renewable generation will be required to meet the targets in the CLCPA, removing barriers that prevent renewables from providing these services will decrease the costs of grid operation and overall emissions.
- **Screen:** Allows or encourages a new type or category of market product



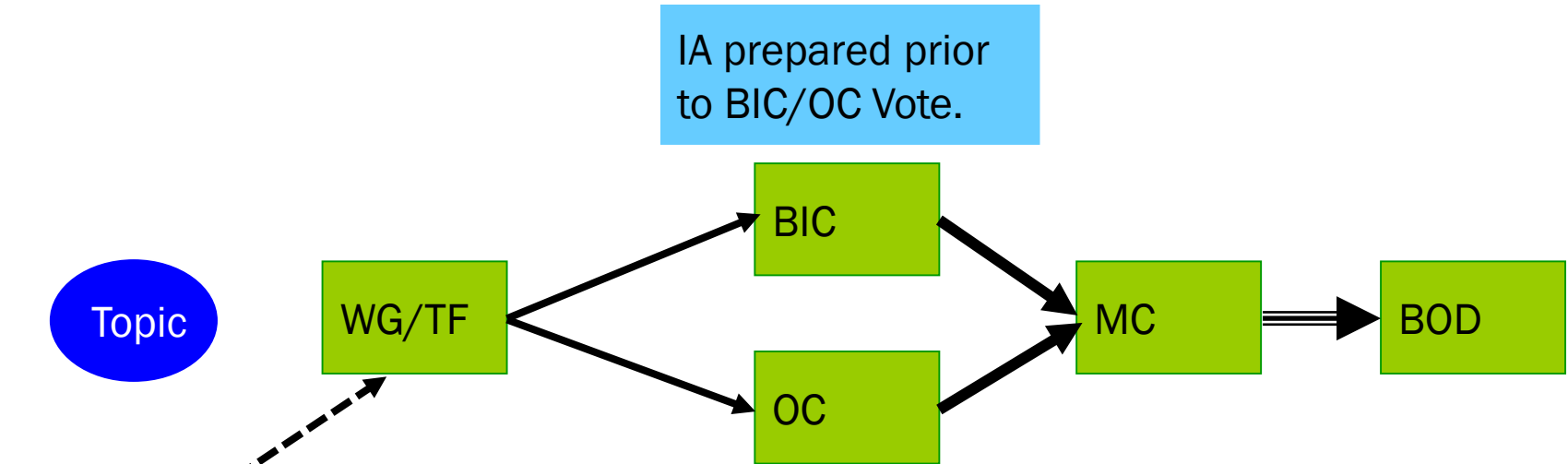
# Time Differentiated TCCs

- **Description:** Currently, Transmission Congestion Contracts (TCCs) are only available as a 24-hour product, which is limited in its effectiveness in serving as an efficient forward hedging mechanism against congestion for certain Market Participants' (MP) interests. The project seeks to include additional, more granular TCC products covering shorter timeframes. This enhancement is intended to improve the commercial function and forward congestion price transparency. More granular TCC products could potentially help some MPs to tailor portfolios to better hedge congestion costs during different periods of the day or week. This additional flexibility could be especially beneficial to MPs in an emerging grid with increased levels of intermittent resources, which have notable variations in output in daytime hours versus nighttime hours. Additionally, defining more granular TCCs may make other market design improvements possible.
- **Expected Benefit:** Breaking out the TCC product into time differentiated products may: (1) improve the commercial functionality of TCCs to provide tailored congestion hedges for all MPs, including intermittent generation; (2) reduce the cost of congestion hedging for MPs; (3) improve forward congestion price signals from TCC auctions to distinguish between weekly and daily time periods where congestion patterns can vary; and (4) permit other market design improvements
- **Screen:** Significant market design concepts identified in the 2021 project prioritization process

# Impact Analysis - Process Map

## NYISO SHARED GOVERNANCE PROCESS

IA prepared prior to BIC/OC Vote.



Present Impact Analysis while the topic is in the Working Group or Task Force.

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# Feedback?

- Email additional feedback to:
- [deckels@nyiso.com](mailto:deckels@nyiso.com)

# Questions?

We are here to help. Let us know if we can add anything.

# The Mission of the New York Independent System Operator, in collaboration with its stakeholders, is to serve the public interest and provide benefits 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



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