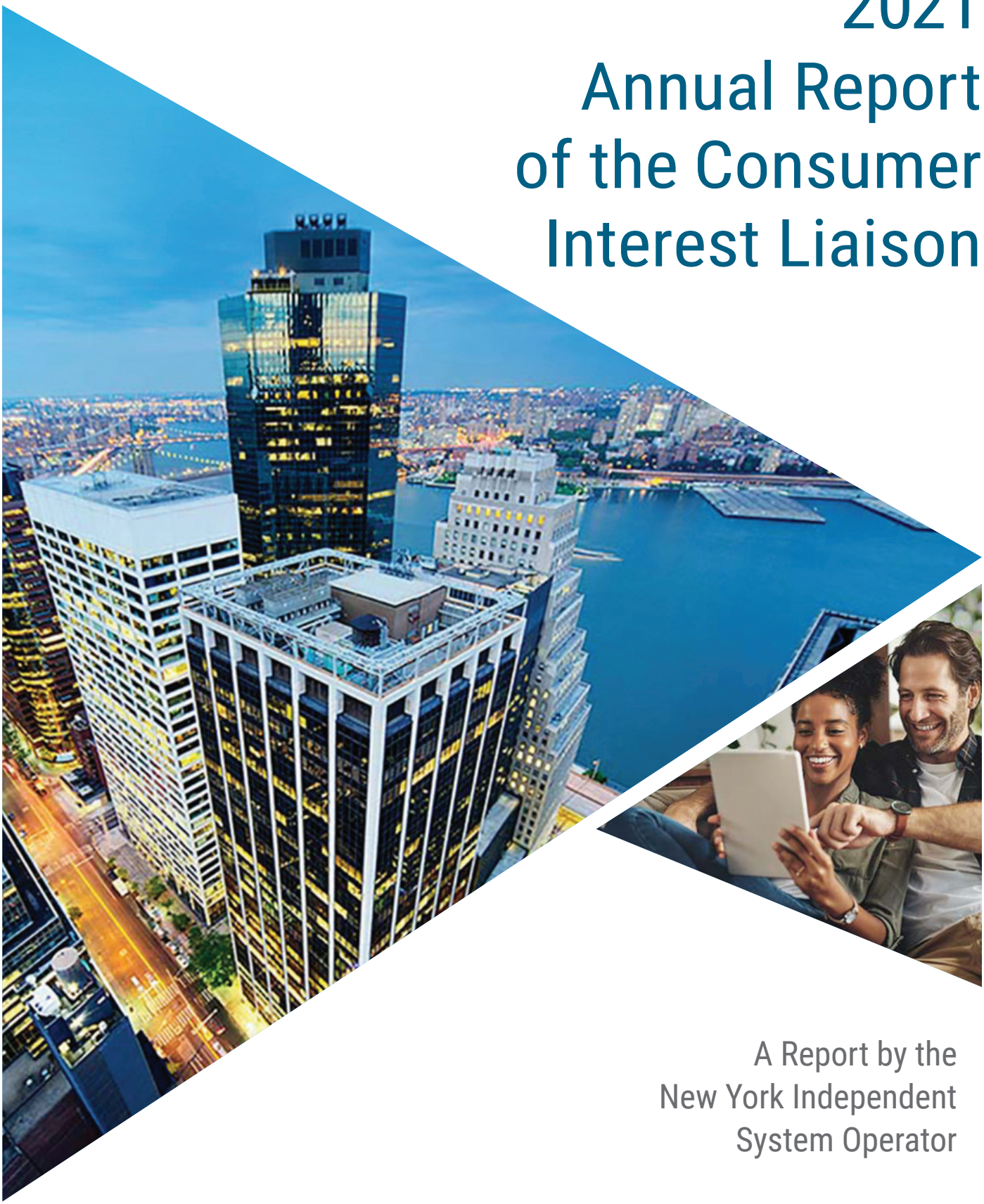
New York ISO

2021 Annual Report of the Consumer Interest Liaison



A Report by the
New York Independent
System Operator

MARCH 2022

Mission & Vision

The mission of the NYISO establishes the foundation from which all our responsibilities are delivered, and the vision describes a future that we strive to achieve. Together, they provide the basis for the NYISO's Strategic Objectives and Strategic Initiatives, as well as a reference to guide decision making and action at all levels of the organization.

Mission

Ensure power system reliability and competitive markets for New York in a clean energy future.

Vision

Working together with stakeholders to build the cleanest, most reliable electric system in the nation.

Table of Contents

Message from the President and CEO

The year 2022 began with multiple challenges for New York and the energy grid. But while the pandemic still impacts our state, the dedicated staff at the NYISO continues to maintain system reliability at the least cost while supporting efforts to meet New York's unprecedented clean-energy targets.

As always, our shared governance provides openness and accessibility for stakeholders to take part in vital energy grid decisions. NYISO Consumer Interest Liaison Tariq Niazi and his team continue to exemplify this access by providing a forum for the end-use sector and other stakeholders to engage in our processes and help build the grid of the future.

The process of transitioning to a grid with zero carbon emissions under the state's Climate Leadership and Community Protection Act began a few years ago and continues today. Last year our focus shifted from Distributed Energy Resources and Hybrid Storage, delivered in 2020, to the next stage of projects. We worked on projects like Grid Services from Renewable Generators, Constraint Specific Transmission Shortage Pricing, Comprehensive Mitigation Review Proposal, and Reserve Enhancements for Constrained Areas (Dynamic Reserves), which will further prepare us for this transition. I am glad to report that we successfully delivered on those commitments and included a comprehensive consumer impact analysis for all those projects.

At the Aug. 27, 2021, Budget and Priorities Working Group meeting, we identified the projects that warrant a consumer impact analysis for 2022. We will complete the consumer impact analyses for those projects and present them over the course of this coming year.

The NYISO remains committed to the work done by this office and the unique role it serves. As I pledged to you last year, we will continue to devote time and resources to conducting consumer impact analyses, as it is an integral part of the project completion process.

Despite the challenges ahead, I remain optimistic that, with the support and collaboration of our highly dedicated stakeholder group, we will continue our work successfully designing and implementing the grid of the future while keeping the lights on for all New Yorkers.

I look forward to working with you as we continue to serve the best interests of New York consumers.

Richard Dewey

President and CEO

Message from the Consumer Interest Liaison

This is the 11th *Annual Report of the Consumer Interest Liaison*. The objective of this report is to update stakeholders on the activities of the consumer interest liaison over the past year. The core of these activities are consumer impact analyses of major market design changes that are presented to stakeholders as part of the project development process.

During 2021, we analyzed four major projects: Grid Services from Renewables Generators, Constraint-Specific Transmission Shortage Pricing, Comprehensive Mitigation Review Proposal, and Reserve Enhancements for Constrained Areas (Dynamic Reserves).

On June 3, we presented the Grid Services from Renewables Generators methodology, which focused on the impact of renewable generators providing regulation "down" service in the future. The initial concept was limited to only the potential consumer impact of renewable generator participation in the regulation market, but in July was expanded to include a more comprehensive analysis in response to stakeholder feedback. On Aug. 10, findings were presented to a Joint ICAP/MIWG meeting.

Constraint-Specific Transmission Shortage Pricing methodology was presented on Aug. 19, followed by the analysis presentation on Sept. 14. The NYISO's focus was using its market software to re-run select Day-Ahead Market (DAM) days as the basis of conducting its impact analysis. In response to stakeholder feedback, the NYISO performed and expanded additional analysis to estimate the potential energy cost impact of the NYISO's proposal due to changes in real-time prices. This was posted on Oct. 11.

The Comprehensive Mitigation Review Proposal methodology was presented at the Oct. 18 joint ICAP/MIWG meeting, followed by the analysis presentation on Nov. 2. The presentation was updated with data from the Analysis Group Final BSM Report on Nov. 8.

The methodology for Reserve Enhancements for Constrained Areas (Dynamic Reserves), was presented on Nov. 8 to a joint ICAP/MIWG meeting, followed by the analysis on Dec. 14.

We continued to support the end-use sector in other important ways. For instance, we provide a detailed summary of all stakeholder committee and working group meetings to the end-use sector weekly. We also held monthly calls with end-use sector representatives and state Department of Public Service staff, responded to consumer inquiries and questions, and provided training and information sessions.

As we transition to a zero-emissions grid, we expect another very busy year. We look forward to continuing supporting the end-use sector in all respects.

Tariq Niazi

Consumer Interest Liaison

Role of the Consumer Interest Liaison

The role of the Consumer Interest Liaison was created in 2011 to fill a need in the participation of end-use consumers in the NYISO governance process. The function of the Consumer Interest Liaison is to enhance the market participation of end-use consumer representation. The NYISO realized that the complexity of the markets presents challenges for consumers, and groups representing consumers, to effectively participate in the NYISO governance structure. It was a burden on consumers to develop or contract for the expertise to perform the analyses necessary to confidently advance their position. The NYISO took several initiatives to "level the playing field" for consumer representation to engage in its governance process. The Office of Consumer Interest Liaison was created to:

- Assist end-use consumers in gaining valuable insight into proposed system changes.
- Provide consumers a communication link with the NYISO Board of Directors and senior management.
- Provide consumers with the short-term and long-term impact of NYISO initiatives and changes.
- Improve the education and outreach with end-use consumers.
- Improve overall transparency of NYISO actions and processes.

The NYISO continues to devote all necessary resources for improving the participation of end-use consumers. End-use consumer representation has frequently validated the work of the Consumer Interest Liaison and used the several channels of communication and detailed consumer impact analyses to enhance the effectiveness of their participation in the NYISO's shared governance process.

Below are some examples of services the NYISO uses to provide this assistance to keep end-use consumers informed.

Consumer Interest Liaison/Sector Meetings

The electric markets are constantly evolving to meet new goals and adapt to new technologies. Annually, the Consumer Interest Liaison endeavors to meets with each of the stakeholder sectors participating in the NYISO's shared governance process. These meetings provide the opportunity for the Consumer Interest Liaison to understand each sector's view of market changes that are proposed and developed through the stakeholder meetings. Consumer impact analyses are discussed and reviewed with stakeholders to assure that all aspects of the process provide useful and relevant information to the market participants.

Knowing the differing perspectives of each sector participating in the market helps the Consumer Interest Liaison more fully understand different aspects of the developing issues. Feedback gained through this process assists the Consumer Impact Liaison in conducting more comprehensive impact analyses to address the concerns of all sectors involved.

Weekly Summaries

The Consumer Interest Liaison produces a summary of governance activity and sends it to the End-Use Consumer mailing list each week. Committee and working group meetings are summarized to keep consumer stakeholders informed of relevant issues and their progress through the governance process. FERC filings and Orders for each week are included for stakeholder reference. Relevant notices are also highlighted such as meeting reminders, deadlines for feedback, and NYISO manual and guide revisions, along with other important information. In the appendix of this document, you will find an example of the weekly summaries for your perusal. The summaries are then posted on the Consumer Interest Liaison page of the NYISO website for further stakeholder reference.

Monthly End-Use Consumer Conference Calls

A conference call is conducted on a monthly basis with the End-Use Consumer stakeholders and the Consumer Interest Liaison to help keep the lines of communication open. Every month, the Consumer Interest Liaison meets with NYISO Product and Project Management to review project development for the upcoming meeting and working group schedules. This information is then conveyed to the End-Use Consumer group during this call to assist in tracking issue progress and milestones. This communication channel also provides stakeholders the opportunity to discuss relevant projects, current issues, and training topics on a re-occurring basis.

Email Reminders

Due to the complexity of the markets, the NYISO sends out several emails through a variety of email databases daily. The NYISO Technical Information Exchange (TIE) email list is the primary list for notices, but there are also individual mailing lists for each specific committee and working group, as well as several specialized mailing lists such as “Generator Operators”, “Demand Response”, “Main Contacts”, etc. The Consumer Interest Liaison monitors these mailing lists to summarize and resend relevant and pertinent emails to the End-Use Consumer email list. Although this acts as a duplicate mailing, it safe-guards end users with the security of not missing important information.

Consumer Inquiries

End-Use Consumers regularly have questions and inquiries for the NYISO. These inquiries are frequently questions on NYISO policy, meeting activity, or relating to Consumer Impact Analyses. The Consumer Interest Liaison is in a unique position to answer these inquiries directly or seek the assistance of a subject matter expert to clarify issues consumers may face.

Training and Information Sessions

Through discussion with the End-Use Consumer group, the Consumer Interest Liaison determined there was an ongoing need for a better understanding of specific areas of the NYISO markets. By providing additional information on the complex NYISO markets and processes, End-Use Consumer stakeholders would be better informed on current market issues and, therefore, able to make better decisions on issues concerning the markets.

In recent years, there have been several instances where the End-Use Consumer group expressed the need to understand the structure of markets more fully in order to arrive at an informed decision on the issue. The Consumer Interest Liaison arranged for Subject Matter Experts (SMEs) to meet with the consumer group and provide background on the market. In recent years, the Consumer Interest Liaison has arranged for sessions for issues such as:

- Exporting Installed Capacity to an external control area
- Potential market problem related to the current implementation of its graduated Transmission Shortage Cost
- NYISO orientation session for new employees with little or no experience in the energy industry who had recently join their organizations
- Modelling changes to the representation of 115kV transmission lines in the bidding and scheduling software
- TCC Market Operations

Through the arrangement of these informational sessions, the End-Use Consumer group was better equipped to fully understand the issues to represent their clients' interest.

NYISO Governance

The NYISO has a shared governance structure where issues are debated and voted on by stakeholders, then sent to the NYISO Board of Directors for approval and the FERC for acceptance. All sectors of the NYISO shared governance structure, including end-use consumer representatives, play a significant role in the decision-making process. Stakeholders participate in the NYISO's governance through three standing

committees: the Management Committee (MC), the Business Issues Committee (BIC), and the Operating Committee (OC). Each of these committees oversees their own working groups, task forces and subcommittees. These committees provide stakeholders the forums to discuss, debate and vote on issues regarding the administration of the markets, the operation of New York's bulk power system, and the planning for system reliability, among other topics.

Like previous years, in 2021 the NYISO conducted more than 200 meetings, including monthly sessions of the three standing committees and near-daily meetings of subcommittees, working groups, and task forces.

The NYISO's three standing stakeholder committees perform their responsibilities in accordance with their bylaws and in coordination with work performed by NYISO management and staff. The NYISO's governing agreements establish their specific responsibilities. Stakeholders are responsible for a range of duties in the shared governance process, including:

- Reviewing and recommending candidates for Board vacancies.
- Developing and reviewing technical guidelines for the operation of the bulk power system.
- Developing and reviewing enhancements to market design.
- Developing and reviewing system planning reports.
- Reviewing the preparation of and approving the NYISO's annual budget.

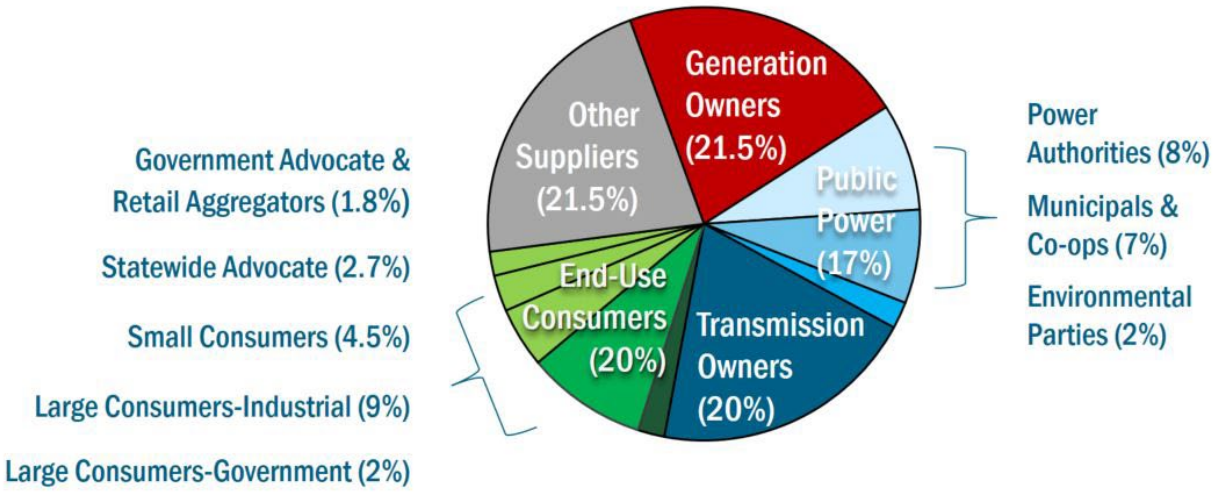
The NYISO stakeholders and the NYISO Board of Directors share responsibility for developing and approving proposed changes to the NYISO's governing documents and federally accepted tariffs. The Management Committee must endorse any proposed change to the NYISO's governing documents before they can be approved by the Board of Directors and filed for review by FERC under Section 205 of the Federal Power Act. FERC noted the collaborative results of the NYISO's shared governance system, stating in 2008, "The Commission commends NYISO and the stakeholders for working together to resolve many issues…"[1]

Upon acceptance as a voting member, stakeholders enter a voting sector. Sector representatives, including transmission owners, generation owners, other suppliers, end-use consumers, and public power/environmental interests, vote in the stakeholder committees. Each stakeholder's vote in a committee contributes to the voting percentage allocated to its sector. Actions by the committees require a 58% vote of approval to pass.

[1] New York Independent System Operator, Inc., 122 FERC ¶ 61,064 (2008) (January 29, 2008, Order).

The voting shares in all three standing committees are allocated among the sectors and subsectors as follows:

Stakeholder voting sectors



In addition to stakeholders with voting rights, entities with significant interests in the NYISO markets may join the shared governance process as non-voting members. Further, staff of the Public Service Commission (PSC) and FERC regularly participate in, and monitor issues addressed by the NYISO committees.

Consumer Impact Analysis Process

The foremost responsibility of the Consumer Interest liaison is to evaluate the impact of major market design changes on consumers. Consumer Impact Analyses are conducted for all major projects and presented to stakeholders. These analyses look at how a new market rule will impact reliability of the bulk power system, the impact on the competitiveness and efficiency of the market, the impact on transparency, and the impact of the market rule change on the environment.

The Consumer Impact Analysis is a formal process for systematically assessing a new market rule, designed to include qualitative and quantitative metrics for each of the areas analyzed. The analysis reviews the impacts of new rules under four evaluation areas: reliability, cost impact/market efficiencies, environment/new technology, and transparency. Each study area's impact is described below:

- **Reliability** analyzes how a new project improves the reliability of the current system. A project would not be implemented if it caused reliability issues or concerns.
- **Cost Impact/Market Efficiencies** analyzes the overall costs and benefits of implementing a project. It also reviews whether the project improves market operations and produces proper price signals to help spur investment.
- **Market Transparency** assesses the extent to which the project will impact the transparency and clarity of market rules.
- **Environment/New Technology** reviews how the project may affect the environment, focusing primarily on emission levels.

The list of projects selected for Consumer Impact Analysis are a subset of all NYISO projects chosen during the annual Budget Project Prioritization Process. The list of projects identified for Consumer Impact Analysis is presented annually to both the Budget and Priorities Working Group (BPWG) and

Business Issue Committee (BIC) for stakeholder input. This occurs during the annual Budget Project Prioritization Process. The process typically begins in May and ends in the fourth quarter with the NYISO Board of Directors approval of the annual budget.

Prior to the NYISO Board's approval, NYISO staff and stakeholders discuss the proposed projects and budgetary costs for the year during BPWG meetings. The projects that are included on the Consumer Impact Analysis Project list generally meet one or more of the following analysis guidelines:

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

Consumer Interest Liaison Presentations During 2021

- Consumer Impact Analysis Methodology: Grid Services from Renewable Generators
  (Joint ICAP/MI/PRLWG, June 3, 2021)
- Consumer Impact Analysis: Grid Services from Renewable Generators
  (Joint ICAP/MI/PRLWG, August 10, 2021)
- Consumer Impact Analysis Methodology: Constraint Specific Transmission Shortage Pricing
  (Joint ICAP/MI/PRLWG, August 19, 2021)
- 2022 Consumer Impact Analysis Project List
  (BPWG, August 27, 2021)
- Consumer Impact Analysis: Constraint Specific Transmission Shortage Pricing
  (Joint ICAP/MI/PRLWG, September 14, 2021)
- Consumer Impact Analysis: Constraint Specific Transmission Shortage Pricing (updated)
  (Joint ICAP/MI/PRLWG, October 12, 2021)
- Consumer Impact Analysis Methodology: Comprehensive Mitigation Review Proposal
  (Joint ICAP/MI/PRLWG, October 18, 2021)
- Consumer Impact Analysis: Comprehensive Mitigation Review Proposal
  (Joint ICAP/MI/PRLWG, November 2, 2021)
- Consumer Impact Analysis Methodology: Reserve Enhancements for Constrained Areas
  (Joint ICAP/MI/PRLWG, November 8, 2021)
- Consumer Impact Analysis: Reserve Enhancements for Constrained Areas
  (Joint ICAP/MI/PRLWG, December 14, 2021)

Grid Services from Renewable Generators: Consumer Impact Analysis

Background

Some recent industry studies indicated the ability of renewable generators to potentially provide additional grid services such as fast frequency response, inertial response, and ramping services.[2][3] Based on the findings of those studies, stakeholders (NYSERDA) requested that the NYISO study the potential of renewable generators to provide grid services in New York by including Grid Services from Renewable Generators as a 2021 project.

The NYISO conducted a study that investigated the ability of renewable generators to provide the Ancillary Services that it currently procures. NYISO also looked at other services renewable generators could potentially provide in the future. The study conducted by the NYISO was presented at the May 19, 2021, ICAP/MIWG meeting. The results of the study indicated that the only additional grid service that renewable generators could potentially provide is regulation "down" service. The creation of separate regulation "up" and "down" products would increase accessibility for renewable generators since it would be easier to qualify and provide regulation "down" than the current bi-directional product.

Based on the study results, NYISO conducted a consumer impact analysis of bifurcating the regulation market. Currently, regulation "up" and "down" is a single service. The NYISO expects that creating separate regulation "up" and "down" products would decrease consumer costs, as this market change would increase supplier eligibility. Not only would renewable generators have greater ability to participate in a regulation "down" market, but other resources that are currently precluded from receiving regulation schedules due to inability to move both up or down could now be able to provide regulation service in only one direction. For example, a Generator sitting at MinGen (Minimum Generation — would not be able to provide Regulation Service today) might become able to provide regulation "up".

[2] Demonstration of Essential Reliability Services by a 300-MW Solar Photovoltaic Power Plant. https://www.nrel.gov/docs/fy17osti/67799.pdf.

[3] Avangrid Renewables Tule Wind Farm: Demonstration of Capability to Provide Essential Grid Services. 11 March 2020. https://www.caiso.com/Documents/WindPowerPlantTestResults.pdf

Consumer Impact Analysis (IA) Evaluation Areas

Figure 1 below provides the summary of potential impacts of the Grid Services from Renewable Generators proposal on the four evaluation areas that were studied:

Figure 1: Potential Impacts of the Grid Services from Renewable Generators

RELIABILITY Increased participation by suppliers who are unable to move in both the "up" and "down" directions may reduce the frequency of regulation shortages and improve system reliability.	**COST IMPACT/MARKET EFFICIENCIES** Average Annual Consumer Savings Ranging from $0.09M to $1.0M.
ENVIRONMENT/NEW TECHNOLOGY More renewable resources providing regulation would potentially decrease the cost of renewable integration while decarbonizing the provision of essential reliability services.	**TRANSPARENCY** Separate "up" and "down" products would result in prices that more accurately reflect when a shortage or tradeoff occurs in the provision of each product respectively.

Regulation Market

The NYISO regulation market is relatively small. Requirements are static for the year and vary both hourly and seasonally, typically ranging between 150MW to 300MW with roughly 1,000MW of suppliers offering in the current market. Average annual costs of the regulation market are on the order of $15M-$20M, compared with annual energy and capacity market costs on the order of $5B.[4]

Consumer Impact Proposed Approach and Assumptions

To estimate the consumer impact of bifurcating the regulation market, the NYISO calculated the potential savings resulting from lower prices during "high-priced" regulation intervals. The NYISO expects that the increase in regulation suppliers enabled by separating regulation into "up" and "down" products will potentially result in lower prices during "high-priced" regulation intervals, and therefore lower consumer costs. To conduct the analysis, the NYISO considered the 3-year period from June 2018 through May 2021 and looked at the following scenarios:

- Status quo annual regulation market costs

[4] Information on costs of NYISO markets can be found in the monthly Market Operations Reports presented at the Business Issues Committee. Meeting materials can be found at: https://www.nyiso.com/business-issues-committee-bic-

- Annual regulation market cost with a 5% reduction in "high-priced" regulation intervals, and
- Annual regulation market cost with a 20% reduction in "high priced" regulation intervals

The analysis focused on the savings from procuring regulation capacity and assumed that the quantity of regulation capacity procured will remain the same or will be similar to the existing requirements. Savings from payments for regulation movement were not estimated in this analysis, as the amount of movement required by the system to control Area Control Error (ACE) is not expected to change. These payments have been approximately $4M over the 3-year period considered in this analysis. There were no expected capacity market consumer impacts for this project since the ICAP demand curve proxy unit does not provide regulation service.

Energy Market Methodology

The NYISO examined historic real-time regulation prices from June 2018 through May 2021. Several possible levels of price reductions were assumed during "high-priced" regulation intervals to provide multiple estimates of consumer impact rather than focus on a single estimate:

- Observed historic regulation costs
- -5% during "high-priced" regulation intervals
- -20% during "high-priced" regulation intervals

In the first step of the process, price deltas were determined for each high-priced interval. Next, the annual consumer impact was estimated by multiplying the regulation clearing price deltas by the actual regulation capacity procured during the historic three-year period. The NYISO used two methods for identifying "high-priced" regulation intervals in order to provide a range of potential impacts:

- Method 1: Regulation shortage intervals
  - Intervals identified by a regulation capacity clearing price $\geq$ $25/MWh
- Method 2: Pricing intervals in the top 10% of regulation capacity prices
  - Intervals identified by a regulation capacity clearing price $\geq$ $13.87/MWh
  - Based on observations that the majority of regulation capacity bids are low, prices in this range are more likely to reflect limited supply or tradeoffs with energy and other products

Cost reduction estimates were calculated based on historic regulation data:

- Price delta = Historic regulation capacity price ($/MWh) x Percentage reduction (-5% or -20%)
- Interval cost reduction = Price delta ($/MWh) x Historic regulation capacity procured (MW) x Interval duration (h)

- Example
  - Price delta = $15/MWh x -5% reduction = -$0.75/MWh
  - Interval cost reduction = -$0.75/MWh x 225 MW x 1 h = -$168.75 cost reduction

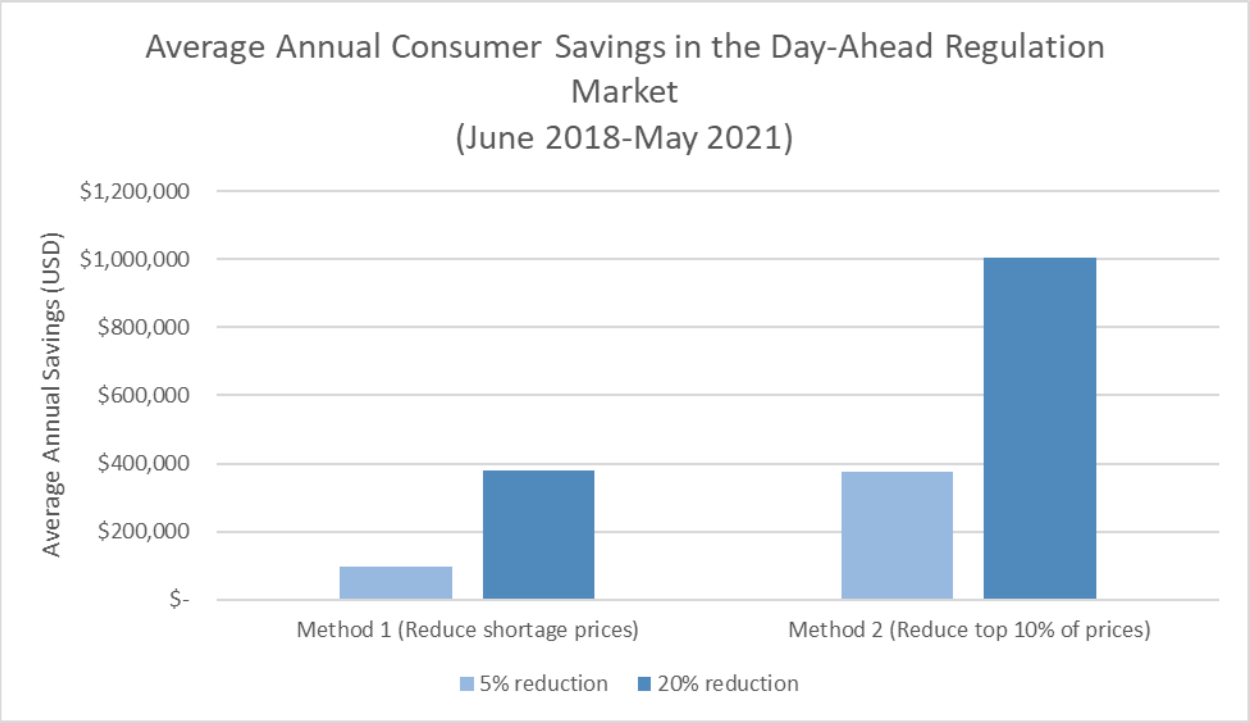
Cost reductions for "high-priced" intervals were summed to determine total annual savings. The NYISO expects the majority of consumer savings to be seen in the day-ahead market. Therefore, this analysis focuses on day-ahead regulation capacity prices.

Annual Savings (Day-Ahead Market)

Figure 2: Day-Ahead Regulation Capacity Prices

		Year 1 (June 2018-May 2019)	Year 2 (June 2019-May 2020)	Year 3 (June 2020-May 2021)	Average
Historic regulation capacity market cost		$22,012,226.38	$12,581,316.02	$12,916,088.84	$15,836,543.75
Method 1 Savings (from reducing shortage prices)	5% reduction	$241,199.05	$23,076.61	$19,010.75	$94,428.80
	20% reduction	$964,796.20	$92,306.44	$76,042.99	$377,715.21
Method 2 Savings (from reducing top 10% of prices)	5% reduction	$586,769.27	$73,684.51	$93,680.65	$377,067.21
	20% reduction	$2,347,077.09	$294,738.02	$374,722.60	$1,005,512.57

Figure 3: Average Annual Consumer Savings



Summary of Consumer Cost Impact

The NYISO expects consumer savings to occur during "high-priced" day-ahead regulation intervals:

- $0.09M to $0.38M average annual savings (or 0.48% to 1.9% average annual reduction in DAM regulation capacity costs) from reducing prices in shortage intervals
- $0.38M to $1.0M average annual savings (or 1.4% to 5.3% average annual reduction in DAM regulation capacity costs) from reducing the top 10% of pricing intervals
- Overall, these savings range from 0.002% to 0.02% of annual energy and capacity market costs

Actual savings might be greater based on the possibility for an increase in regulation suppliers to reduce prices during "low-priced" intervals. The NYISO has observed that tradeoffs between regulation and other products may also occur during low-priced intervals.

Additionally, further consumer savings could potentially result from a reduction in energy market prices which reflect tradeoffs with regulation. Creating separate "up" and "down" regulation products reduces the need to move generators at MinGen or UOL off their economic energy schedule in order to provide bi-directional regulation and could therefore result in lower energy prices.

Additional Impacts

Reliability Impacts

Increased participation from suppliers who are unable to move in both the "up" and "down" directions may reduce the frequency of regulation shortages and improve system reliability. Further benefits could result from the ability to establish different "up" and "down" regulation requirements based on system needs.

Environmental Impacts

Expanding the opportunity for renewable resources to provide regulation could decrease the cost of renewable integration while decarbonizing the provision of essential reliability services.

Impact on Transparency

Bifurcating the regulation market into distinct "up" and "down" products would result in prices that more accurately reflect when a shortage or tradeoff occurs in the provision of each product respectively.

Consumer Impact Analysis: Constraint Specific Transmission Shortage Pricing

Background

Transmission facility ratings limit the amount of energy that can flow from one location to the next on the bulk electric system. The NYISO assigns a non-zero constraint reliability margin (CRM) to most facilities and interfaces to help manage transmission modeling uncertainty. The CRM value represents a reduction to the otherwise applicable transmission facility rating or interface limit that is used to set the effective limit in the market software. A zero value CRM is applied to facilities that accommodate flows out of generation pockets, as well as external interfaces.

The existing transmission constraint pricing (TCP) logic applies a single graduated pricing mechanism to all facilities assigned a non-zero CRM value. The NYISO is proposing to utilize a revised and more graduated transmission shortage pricing mechanism that better accounts for the various non-zero CRM values assigned to facilities. The NYISO's proposal is intended to better align the transmission shortage pricing mechanism with the severity of transmission constraints. As part of the revised transmission shortage pricing mechanism, the NYISO is also proposing to eliminate most occurrences of constraint relaxation by including pricing values for shortages that exceed the applicable CRM value and assigning a non-zero CRM value to internal facilities currently assigned a zero value CRM.

Current Transmission Shortage Pricing Mechanism

The following limits on shadow prices are applied in instances of transmission shortages (implemented on June 20, 2017):

Figure 4: Shadow Pricing Limits

Facility Type	Shortage (MW)	Shortage Price ($/MWh)	Shadow Price Cap
Non-Zero CRM Value	Up to 5	$350	$4000
	>5 to 20	$1175	
Zero Value CRM	N/A	N/A	$4000

Summary of NYISO's Proposal

The NYISO is proposing to implement a revised approach to the current TCP logic consisting of the following components: (Refer to the June 17, 2021 ICAPWG/MIWG meeting materials for additional details regarding the NYISO's proposal)

1. Establish a revised six-step transmission shortage pricing mechanism for facilities currently assigned a non-zero CRM value (see Figure 5 below for additional details)
    a. Each step corresponds to a specified percentage of the applicable CRM value. The final step will price all shortages in excess of the applicable CRM value
2. Apply a non-zero CRM value (*e.g.*, 5 MW) to internal facilities currently assigned a zero value CRM, with a separate two-step transmission demand curve mechanism for such facilities
    a. First step is valued at $100/MWh. This step would price transmission shortages up to the proposed CRM value.
    b. Second step is valued at $250/MWh. This step would price all shortages in excess of the proposed CRM value.
3. Maintain the current single value $4,000/MWh shadow price capping method for external interface facilities (zero value CRM) permitting the continued use of constraint relaxation for external interfaces.

NYISO'S Proposal for Non-Zero CRM Value Facilities

The proposed 6-step transmission demand curve structure for various non-zero CRM values is represented in the table below:

Figure 5: Proposed Non-Zero CRM Values

	Proposed Transmission Shortage Pricing Curve Steps											
CRM Value (MW)	Step 1 (MW)	Step1 ($/MWh)	Step 2 (MW)	Step2 ($/MWh)	Step 3 (MW)	Step3 ($/MWh)	Step 4 (MW)	Step4 ($/MWh)	Step 5 (MW)	Step5 ($/MWh)	Step 6 (MW)	Step6 ($/MWh)
10	<=2	$200	>2-4	$350	>4-6	$600	>6-8	$1,500	>8-10	$2,500	>10	$4,000
20	<=4	$200	>4-8	$350	>8-12	$600	>12-16	$1,500	>16-20	$2,500	>20	$4,000
30	<=6	$200	>6-12	$350	>12-18	$600	>18-24	$1,500	>24-30	$2,500	>30	$4,000
50	<=10	$200	>10-20	$350	>20-30	$600	>30-40	$1,500	>40-50	$2,500	>50	$4,000
60	<=12	$200	>12-24	$350	>24-36	$600	>36-48	$1,500	>48-60	$2,500	>60	$4,000
65	<=13	$200	>13-26	$350	>26-39	$600	>39-52	$1,500	>52-65	$2,500	>65	$4,000
100	<=20	$200	>20-40	$350	>40-60	$600	>60-80	$1,500	>80-100	$2,500	>100	$4,000

Consumer Impact Analysis (IA) Evaluation Areas

Figure 6 below provides a summary of the potential impacts of Constraint Specific Transmission Shortage Pricing proposal on the four evaluation areas that were studied:

Figure 6: Potential Impacts of the Grid Services from Renewable Generators

RELIABILITY The proposed enhancements are intended to facilitate efficient re-dispatch by the NYISO's market software to alleviate transmission constraints. The proposal is intended to facilitate appropriate trade-offs between transmission constraints and reserve products.	**COST IMPACT/MARKET EFFICIENCIES** A short run annual energy cost impact ranging from a potential savings (reduction) of approximately $1.6 million statewide to a to an increase of approximately $5.8 million. No expected material capacity market impact in the short run.
ENVIRONMENT/NEW TECHNOLOGY No direct short-term benefit is expected to result from the proposed enhancements.	**TRANSPARENCY** The proposed enhancements should improve the predictability/understandability of market outcomes.

Summary of Potential Cost Impact

The NYISO estimated a potential short run annual energy cost impact for the Constraint Specific Transmission Shortage Pricing proposal ranging from a savings (reduction) of approximately $1.6 million statewide (represents ~0.03% of ~$4.7 billion total energy market transactions in 2019[5]) to an increase of approximately $5.8 million (represents ~0.12 % of ~$4.7 billion total energy market transactions in 2019). This estimate does not include impacts due to changes in reserves and regulation prices. The range of the potential impacts is derived from two different approaches to estimating the potential impact of the proposal on energy costs:

- One approach is based solely on impacts to day-ahead prices (see pages 25-28 below)
- An alternative approach seeks to account for the impacts from potential changes to real-time prices on day-ahead prices (See pages 31-33 below)

The NYISO does not expect the proposal to have a material capacity market impact in the short run. The studied energy market impacts are relatively small compared to the market size and therefore not expected to result in material changes to the net EAS offset values and resulting reference point prices for the ICAP Demand Curves.

[5] Note: The total quantity of energy transactions is derived from the 2019 average monthly LBMP and load data.

Cost Impact Methodology – Day-Ahead Pricing Impact

Using the NYISO's market software, select Day-Ahead Market (DAM) days were re-run. The following revisions were included in the market software re-runs:

- Incorporated the proposed six-step transmission demand curve mechanism for facilities currently assigned a non-zero CRM value
  - See Figure 5 for additional details
- Assigned a 5 MW CRM value to internal facilities currently assigned a zero value CRM, and incorporated the proposed two-step transmission demand curve mechanism for such facilities
  - For details, see proposal summary above

Note: Consistent with the NYISO's proposal, the re-runs maintained the current single value $4,000/MWh shadow price capping method for external interface facilities

Approach Used to Select Days for Re-Runs:

Selected multiple days based on actual historical DAM transmission constraint costs during recent months (June through mid-July 2021) to ensure the simulations are based on updated software and market rules. The proposed shortage pricing values for the revised six-step transmission demand curve mechanism were used as the basis for selecting the appropriate days.

The actual historical binding transmission constraints for each hour were segmented into pricing ranges ("categories") to determine the total number of binding transmission constraints for each category for each hour, as further described below. The segmented counts were summed for all hours of each day to determine the total count of binding transmission constraints occurring within each category for each day. For any given hour, it is possible for binding transmission constraints to occur in more than one category. The days selected for use in conducting the re-runs represented the day with the highest number of transmission constraint pricing values identified for each category, provided that separate days were utilized for each category.

Categories and selected days are identified below:

- Category 1: Constraint cost <=$200 /MW for two or more hours in the day
  Day selected for re-run: 7/8/2021
- Category 2: $200/MW < Constraint cost <= $350/MW for two or more hours in the day
  Day selected for re-run: 6/28/2021
- Category 3: $350/MW < Constraint cost <= $600/MW for two or more hours in the day
  Day selected for re-run: 7/7/2021
- Category 4: $600/MW < Constraint cost <= $1,500/MW for two or more hours in the day
  Day selected for re-run: 6/29/2021

- Category 5: $1,500/MW < Constraint cost <= $2,500/MW for two or more hours in the day
  No day was found to represent this category
- Category 6: $2,500/MW < Constraint cost <=$4,000/MW for two or more hours in the day
  No day was found to represent this category

The price delta values calculated using re-run prices and original prices were applied to days in a one-year period to estimate the potential annual consumer impact. The NYISO used DAM prices and load values from 2019 for the purpose of this analysis. 2019 DAM days were reorganized into different categories based on similar logic as adopted for selecting days for re-runs as described above. Days were categorized as follows:

- "Category 6" day: two or more transmission constraint costs of $2,500/MWh - $4,000/MWh
  - No 2019 DAM days were identified as falling within this category
- "Category 5" day: two or more transmission constraint costs of $1,500/MWh - $2,500/MWh
  - No 2019 DAM days were identified as falling within this category
- "Category 4" day: two or more transmission constraint costs of $600/MWh - $1,500/MWh
- "Category 3" day: two or more transmission constraint costs of $350/MWh - $600/MWh
- "Category 2" day: two or more transmission constraint costs of $200/MWh - $350/MWh
- "Category 1" day: two or more transmission constraint costs of less than $200/MWh

Additional details regarding categorization methodology for 2019 DAM days

It is possible for a day to have sufficient variation in binding transmission constraint costs to qualify for more than one category. In such instances, the day was generally assigned to the category that had the highest constraint count. For example, if a day had four "Category 2" constraints and two "Category 3" constraints, the day was deemed a "Category 2" day. Since most days during the historical period had the highest number of "Category 1" constraints, this category was applied only if the day did not qualify for any other category. For example, if a day had forty "Category 1" constraints and three "Category 4" constraints, the day was deemed a "Category 4" day. If a day had an equal number of constraints in two categories, it was assigned the highest value category applicable for such day. For example, if a day had four "Category 2" constraints and four "Category 3" constrains, the day was deemed a "Category 3" day

Price delta values calculated from re-runs in each category were applied to the days in the respective category. For example, the applicable price delta values corresponding to the re-run for Category 1 was applied to all days in 2019 that fell into that category.

The NYISO compared LBMPs from re-run cases to the original LBMPs to determine percent delta in zonal LBMPs. Percent delta values were determined for each hour of the day for each Load Zone.

The percent delta values were used to estimate the consumer impact due to potential changes in DAM energy prices. The price deltas corresponding to the different categories were applied to days in the historical one-year period that fell in those categories. The LBMP delta ($/MW) for the different categories were multiplied by the corresponding hourly actual real-time load during the historical one-year period to determine the impact due to the change in Energy prices.

The NYISO also compared reserve and regulation prices from re-run cases to the original prices to determine a delta in Ancillary Services prices.

Potential Energy Cost Impact – Day-Ahead Pricing Impact

The estimated short run annual energy market impact from the NYISO's proposal is a reduction in energy cost of $1.6 million statewide. This estimate was derived by applying the hourly zonal price deltas from four re-run days to one year of historical data. The actual results may vary from the potential impact estimated by this methodology.

The NYISO recognizes that there may be additional impacts on energy prices due to changes in real-time prices. Factors like possible changes in bidding behaviors due to changes in real-time prices have not been considered when calculating the estimated potential impact determined by this analysis.

In response to stakeholder feedback, the NYISO did conduct re-runs for a limited number of real-time (RTD) intervals to provide information regarding potential impacts of the proposal on real-time transmission constraint costs and zonal LBMPs. Results from this analysis are further described later in the presentation.

In response to stakeholder feedback at the September 14, 2021, ICAPWG/MIWG, the NYISO conducted an additional analysis that seeks to assess the potential impacts to energy costs resulting from changes in real-time prices being reflected in DAM price. Results from this analysis are also further described later in the presentation.

Potential Impacts on Ancillary Services Prices

The NYISO observed a small impact on DAM reserve and regulation prices for the re-runs conducted as part of this analysis. The observed delta (re-run–original) in reserve and regulation prices ranged from -$1.6/MWh to $1.4/MWh and was generally limited to only a few hours across the days that were re-run. Additional information is provided in the Appendix.

The observed price deltas were developed for informational purposes but were not used to calculate a

potential estimate of the impact on annual reserve and regulation costs. Price differences are a result of the redispatch and are highly dependent upon the specific units scheduled for these services during a given day. Therefore, using re-runs from 4 days to calculate an impact for an entire year would not provide an accurate representation.

Informational Real-Time Analysis

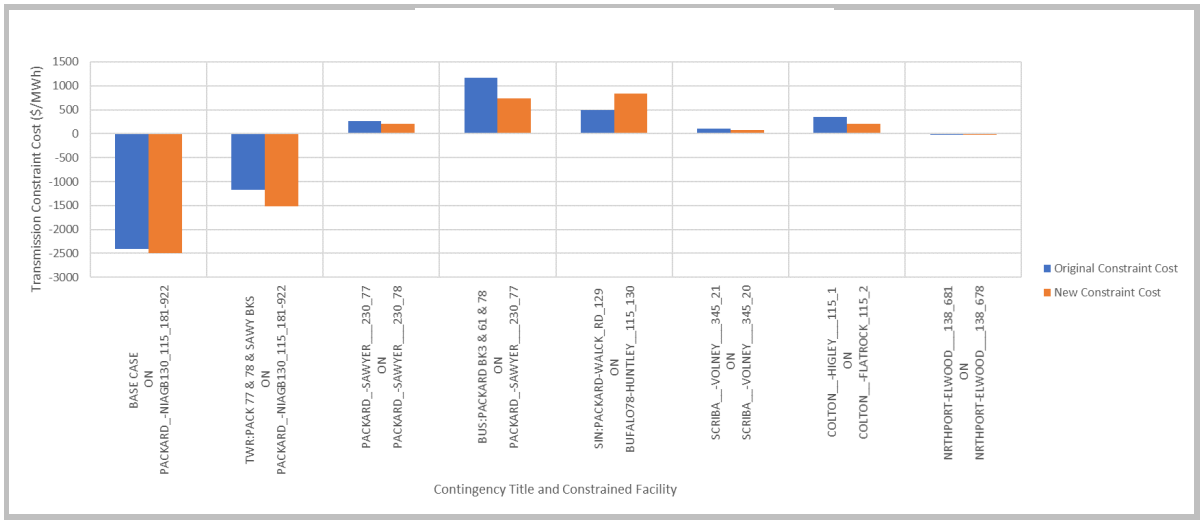
The NYISO re-ran select RTD intervals to provide information regarding the potential impacts of its proposal on real-time transmission constraint costs and zonal LBMPs. Two RTD intervals were selected for the re-runs. The selection of these intervals was based on the transmission constraint costs observed in the actual historical data.

- 6/29/2021 at interval 15:40
  - Contains multiple transmission constraints with higher constraint costs (> $1,175/MWh)
- 6/29/2021 at interval 15:55
  - Contains multiple transmission constraints with lower constraint costs (between $200/MWh and $350/MWh)

Transmission Constraint costs and zonal LBMPs were compared across the original and re-run cases. Only those transmission constraints that were common across both cases were used for comparison.

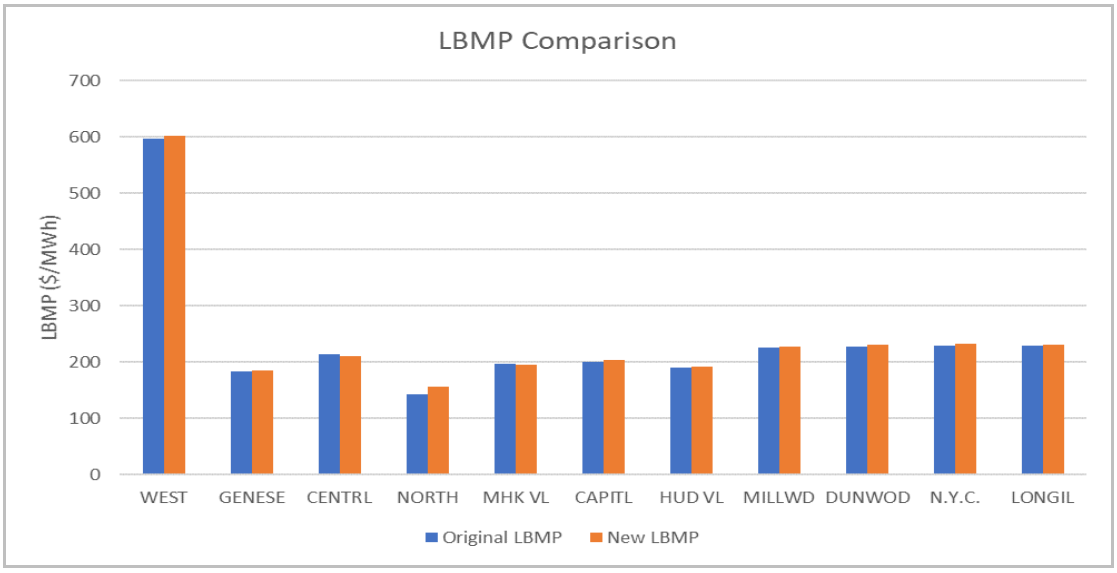
The proposed enhancements resulted in the transmission constraint costs increasing on some facilities while decreasing on others as shown in the RTD re-run for 6/29/2021 at interval 15:40. See Figure 8 below:

Figure 8: Transmission Constraint Cost Comparison



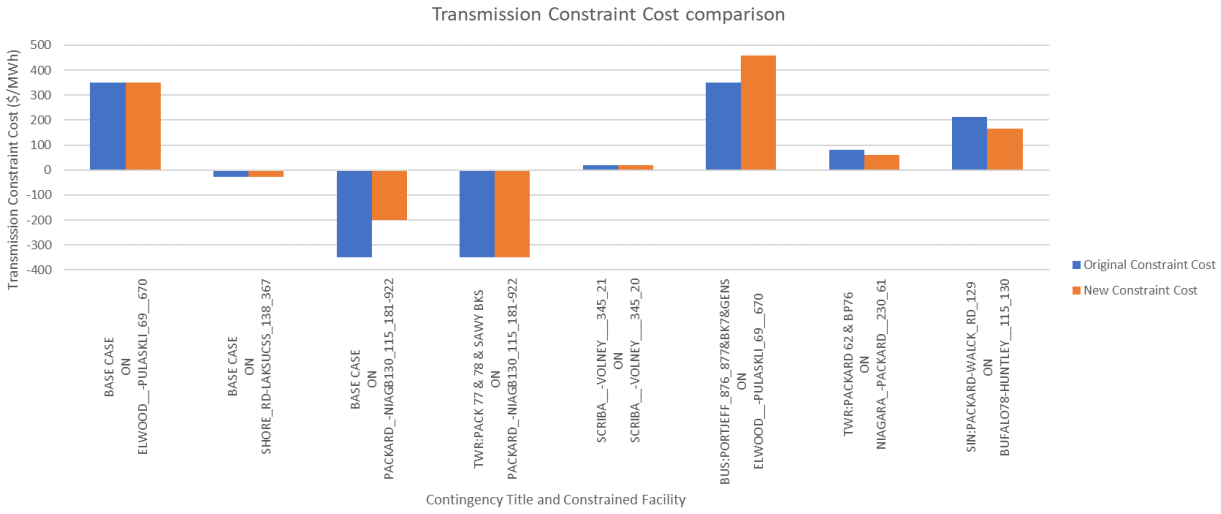
The proposed enhancements resulted in limited changes to zonal LBMPs. The range of impact for this interval across all Load Zones was -1.9% to 9.5% as seen in the RTD re-run for 6/29/2021 at interval 15:40. See Figure 9 below:

Figure 9: Comparison of the Original and New Zonal LBMPs



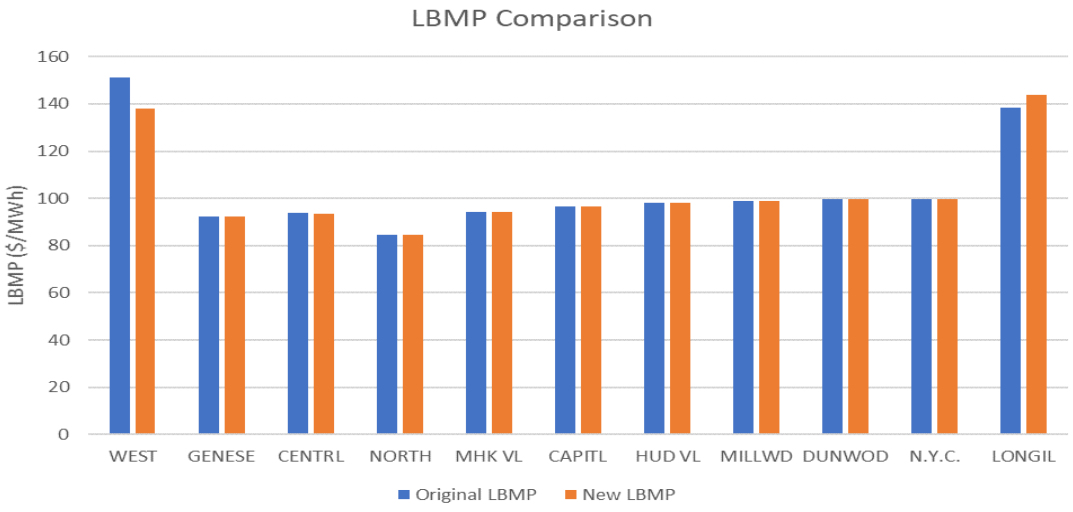
Consistent with the results for the other RTD re-run (15:40), the proposed enhancements resulted in the transmission constraint costs increasing on some facilities while decreasing on others as seen in RTD re-run for 6/29/2021 at interval 15:55.

Figure 10: Cost Comparison of Transmission Constraints



The impact of the proposed enhancements on zonal LBMPs was limited to only two zones (Load Zone A [West] and Load Zone K [LI]) as seen in the RTD re-run for 6/29/2021 at interval 15:55. Change in the zonal LBMP for West was -9% and 4% for LI, while zonal LBMPs in other Load Zones were unchanged as shown below in Figure 11 below:

Figure 11: Comparison of the Original and New Zonal LBMPs



Additional Energy Market Cost Impact Analysis

Summary of Additional Cost Impact Analysis

The energy market impact analysis presented at the September 14, 2021, ICAPWG/MIWG meeting was based on changes in Day-Ahead Market (DAM) prices. In response to stakeholder feedback, the NYISO performed this additional analysis presented over the next few pages to estimate the potential energy cost impact of the NYISO's proposal due to changes in real-time prices. This analysis was requested by certain stakeholders at the September 14, 2021, ICAPWG/MIWG meeting. In this analysis, the potential for changes to DAM energy prices due to changes in real-time prices are estimated and used to calculate a potential short run annual cost impact.

Based on the assumption that real-time market impacts translate directly to the DAM market impacts, the NYISO estimated the potential for a short run annual energy cost increase of approximately $5.8 million (represents ~0.12 % of ~$4.7 billion total energy market transactions in 2019[6]) based on its estimate of potential impacts to real-time prices. This estimate assumes perfect foresight in terms of how potential changes in real-time prices would impact DAM prices. The NYISO recognizes that, in actuality, foresight may not be perfect and therefore expects the actual impact to be lower than estimated by this alternative assessment methodology. This estimate is derived by applying the zonal LBMP deltas from 7 re-run RTD intervals to an entire year of DAM energy prices and load data. The actual results may vary from the potential impact estimated by this alternative methodology.

Cost Impact Methodology – Real-Time Pricing Impact

Using the NYISO's market software, a few Real-Time Dispatch (RTD) intervals were re-run. The following revisions were included in the market software re-runs (these are the same revisions made for purposes of the initial impact analysis based solely on potential changes in DAM prices):

- Incorporated the proposed six-step transmission demand curve mechanism for facilities currently assigned a non-zero CRM value
  - See Figure 5 above for additional details
- Assigned a 5 MW CRM value to internal facilities currently assigned a zero value CRM, and incorporated the proposed two-step transmission demand curve mechanism for such facilities
  - See proposal summary above for additional details

Note: Consistent with the NYISO's proposal, the re-runs maintained the current single value $4,000/MWh shadow price capping method for external interface facilities.

Approach used to select RTD intervals for re-runs:

[6] The total quantity of energy transactions is derived from the 2019 average monthly LBMP and load data.

- Selected multiple intervals based on actual historical real-time transmission constraint costs during recent months (June through mid-July 2021) to ensure the simulations are based on updated software and market rules:
- Selecting multiple RTD interval ensures that intervals with high as well as low transmission constraint costs were captured
- The actual historical binding transmission constraints for each RTD interval were segmented into pricing ranges ("categories") as further described below to determine the total number of binding transmission constraints for each category for each RTD interval.
- For a given interval, it is possible for binding transmission constraints to occur in more than one category
- The interval selected for use in conducting the re-runs represents the interval with the highest number of transmission constraint pricing values identified for each category, provided that separate RTD intervals were utilized for each category
- Approach used is substantially similar to the approach used to select DAM days to re-run for the initial impact analysis based solely on potential changes in DAM prices

An RTD interval was selected to represent each category as identified below:

- Category 1: Interval with two or more transmission constraint costs<= $50/MW
  - RTD interval selected to re-run: 7/9/2021 17:35
- Category 2: Interval with two or more transmission constraint costs between $50/MW and $100/MW
  - RTD interval selected to re-run: 7/15/2021 17:15
- Category 3: Interval with two or more transmission constraint costs between $100/MW and $200/MW
  - RTD interval selected to re-run: 6/27/2021 14:35
- Category 4: Interval with two or more transmission constraint costs between $200/MW and $350/MW
  - RTD interval selected to re-run: 6/27/2021 16:10
- Category 5: Interval with two or more transmission constraint costs between $350/MW and $600/MW
  - RTD interval selected to re-run: 6/30/2021 17:15
- Category 6: Interval with two or more transmission constraint costs between $600/MW and $1,500/MW
  - RTD interval selected to re-run: 7/7/2021 17:50
- Category 7: Interval with two or more transmission constraint costs > $1,500/MW
  - RTD interval selected to re-run: 7/7/2021 18:00

The price delta values calculated for different "Categories" using re-run prices and original prices were applied to all RTD intervals in a one-year period. The steps involved in the calculation are discussed below. All binding transmission constraints in 2019 RTD intervals were categorized using a similar

methodology as adopted for the selection of intervals to re-run. Transmission constraints were categorized as follows:

- "Category 1" constraint: A transmission constraint with cost less than $50/MW
- "Category 2" constraint: A transmission constraint with cost between $50/MW and $100/MW
- "Category 3" constraint: A transmission constraint with cost between $100/MW and $200/MW
- "Category 4" constraint: A transmission constraint with cost between $200/MW and $350/MW
- "Category 5" constraint: A transmission constraint with cost between $350/MW and $600/MW
- "Category 6" constraint: A transmission constraint with cost between $600/MW and $1,500/MW
- "Category 7" constraint: A transmission constraint with a cost greater than $1,500/MW

A percent price delta for each RTD interval was calculated using a weighted average approach. The calculation was based on the count of different constraints in each category for that interval and the applicable price delta for those categories. For example, suppose an RTD interval had two "Category 4" constraints and one "Category 5" constraint, and the percentage price delta for a particular Load Zone is -0.02% for "Category 4" constraints and 0.1% for "Category 5" constraints.

$$Weighted\ average\ price\ delta\ for\ the\ Load\ Zone\ for\ the\ RTD\ interval = \frac{2*(-0.02\%)+1*(0.1\%)}{2+1} = 0.02\%$$

Percent price delta values for all hours in 2019 were calculated from the percent price delta values for each RTD interval. Hourly percent price delta values were applied to 2019 DAM energy prices to estimate the annual consumer impact. The hourly percent LBMP delta for each Load Zone was applied to corresponding DAM zonal LBMPs to calculate a change in the hourly zonal DAM prices for 2019. This hourly delta in DAM prices was multiplied by corresponding real-time load during the historical one-year period to estimate a potential impact due to the change in energy prices.

Additional Impacts

Reliability Impacts

The proposed enhancements are intended to facilitate efficient re-dispatch by the NYISO's market software to alleviate transmission constraints. The proposal is intended to facilitate appropriate trade-offs between transmission constraints and reserve products.

Environmental Impact

No direct short-term benefit is expected to result from the proposed enhancements.

Impact on Transparency

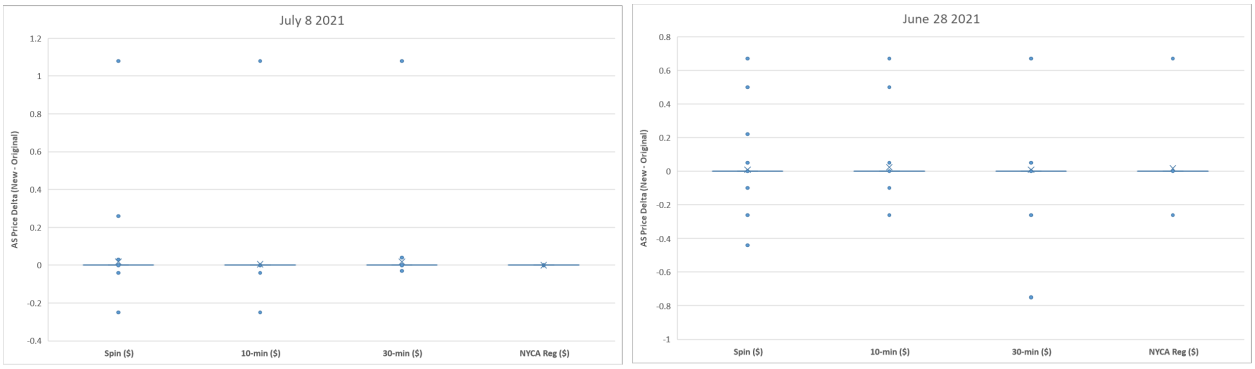
The proposed enhancements contemplate: (1) eliminating the use of constraint relaxation for all internal transmission facilities, and (2) better aligning transmission constraint costs with the severity of the constraint. These objectives should improve the predictability/understandability of market outcomes.

Appendix

Delta in Ancillary Service Prices

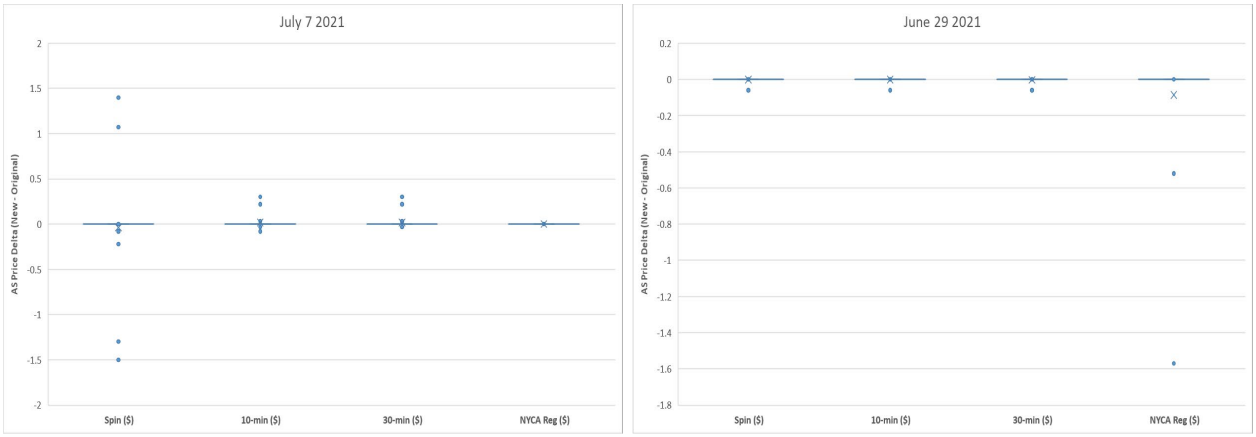
The box and whisker plots below show the reserve and regulation price deltas observed for two of the re-runs (6/28/2021 and 7/8/2021)

Figure 12: Reserve and Regulation Price Deltas Observed for Two of the Re-runs



The box and whisker plots below show the reserve and regulation price deltas observed for the other two days that were re-run (6/29/2021 and 7/7/2021)

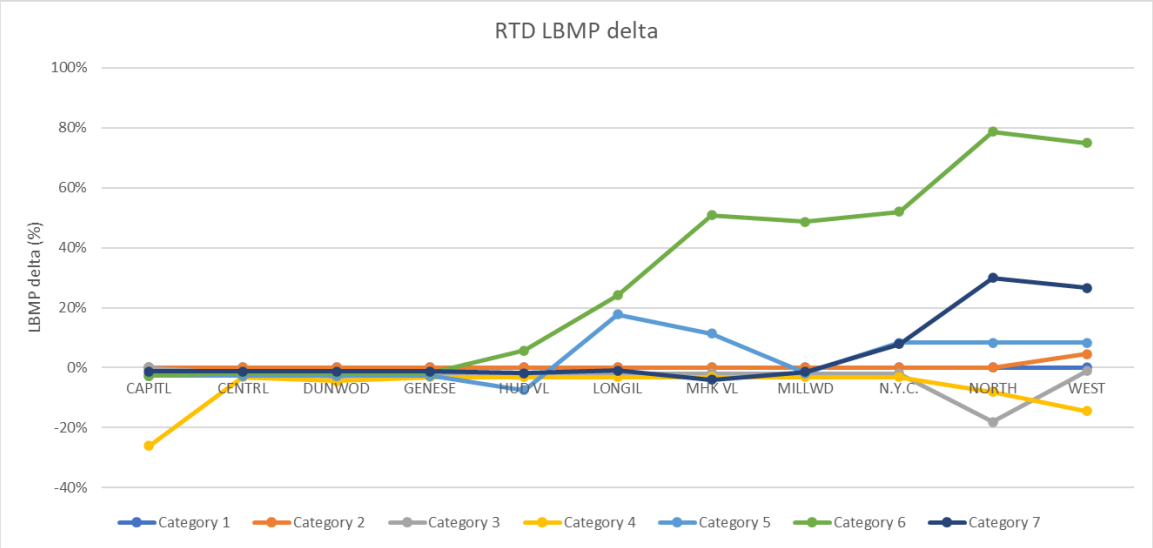
Figure 13: Reserve and Regulation Price Deltas Observed for Two of the Re-runs



RT Pricing Impact Analysis

The RTD re-runs show higher impact on zonal LBMPs for intervals that had high transmission constraint cost

Figure 14: Higher Impact on Zonal LBMPs for Intervals that had High Transmission constraint Cost



Consumer Impact Analysis: Comprehensive Mitigation Review

Background

The current Buyer Side Mitigation (BSM) rules when applied to state supported resources are increasingly viewed by both state and federal regulators as costly to consumers, resulting in inefficient outcomes that are ultimately counterproductive. The NYISO believes that any modification of BSM rules must support just and reasonable Installed Capacity (ICAP) Market rates, continue to allow the ICAP Market to attract and retain resources to maintain resource adequacy, be supported by stakeholders and the FERC, and be legally durable. Therefore, the role of accurately valuing installed capacity resources' contribution to resource adequacy is extremely important when considering BSM reforms. The NYISO has adjusted the schedule for Improving Capacity Accreditation accordingly. The premise of the new approach aims to:

- Eliminate BSM risk for CLCPA resources
- Simplify currently complex and administratively burdensome BSM process

Comprehensive Mitigation Review Proposal

The NYISO's Comprehensive Mitigation Review proposal includes the following:

- **BSM Reforms**
  - New resources that are required to satisfy the goals specified in the CLCPA will not be subject to review by the NYISO under the BSM rules or otherwise subject to an offer floor as discussed at the September 9, 2021 ICAPWG
- **Capacity Accreditation**
  - The NYISO is currently working with stakeholders to establish a framework proposal to reexamine the capacity accreditation of all resource types in the NYISO's ICAP Market
  - For details on the current proposal, please see the materials posted to the September 28, 2021 ICAPWG
- **ICAP/UCAP Reference Price Translation**
  - The NYISO is proposing to adopt Potomac Economics' recommendation to translate the ICAP Reference Price to a UCAP Reference Price using the derating factor of the peaking unit underlying the relevant ICAP Demand Curve

- For details on this part of the proposal, please see the materials posted to the August 31, 2021 ICAPWG

The NYISO believes that all aspects of this proposal and supporting analyses are necessary to ensure that ICAP Market remains competitive and effective and continues to provide just and reasonable outcomes.

Figure 15 below provides a summary of the potential impacts of the Comprehensive Mitigation Review proposal on the four evaluation areas that were studied:

Figure 15: Summary of the Potential Impacts of the Comprehensive Mitigation Review

RELIABILITY By more accurately valuing each resource's contribution to reliability, Marginal Capacity Accreditation ensures an efficient and well-functioning ICAP Market that supports reliability and the achievement of public policy goals.	**COST IMPACT/ MARKET EFFICIENCIES** Capacity Market Procurement costs in 2026 will be approximately $31 million lower compared to the status quo using the Average Accreditation approach, while procurements cost will be $118 million lower using the Marginal Accreditation approach proposed by the NYISO.
ENVIRONMENT/ NEW TECHNOLOGY The use of marginal accreditation also results in the most economically efficient resources needed to reduce carbon emissions and help guide future state and LSE procurement decisions to achieve the CLCPA.	**TRANSPARENCY** The Marginal Accreditation approach is critical in informing efficient public and private investment decisions by properly signaling which resources are best suited to support grid reliability.

Consumer Impact Methodology and Assumptions

The NYISO analysis compared the status quo to:

- the CMR Proposal,
- an average accreditation approach, and
- a marginal accreditation sensitivity with additional fossil derates

The analysis focused on impacts for a 2026 resource mix comparing capacity market procurement costs of the CMR proposal, an average accreditation approach and a marginal accreditation sensitivity with additional fossil derates with the status quo. The analysis also provided other information such as utilized capacity accreditation values.

Assumptions:

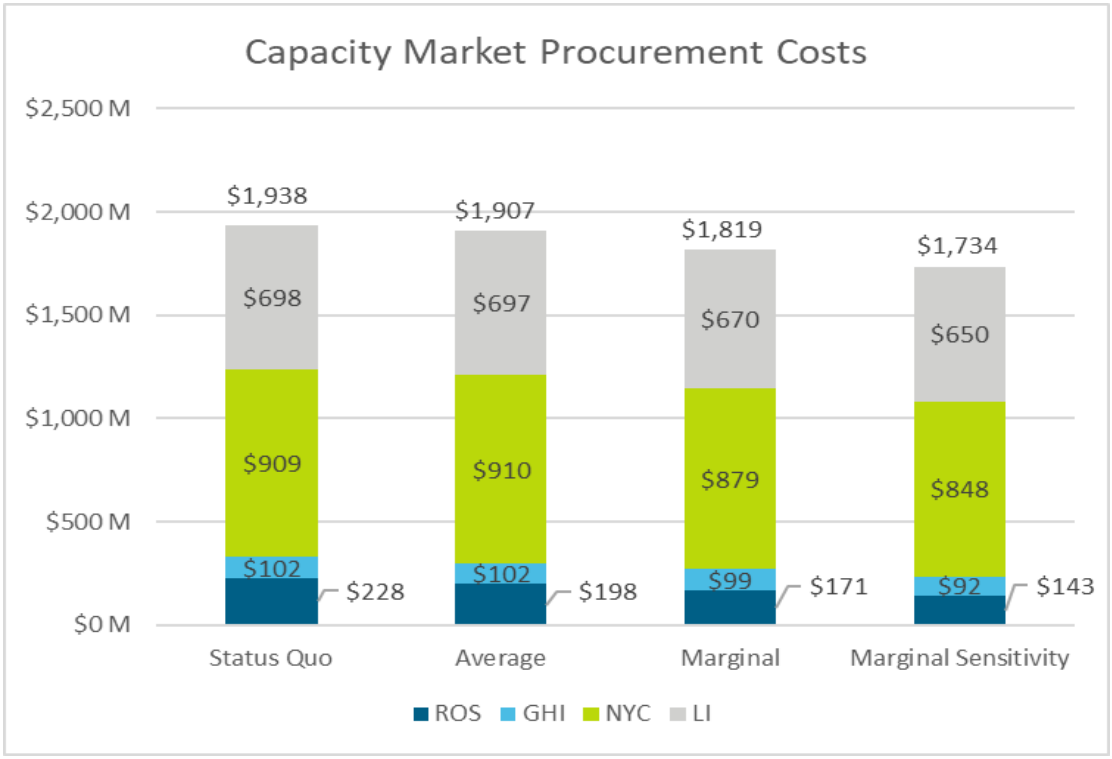
- The NYISO utilized the 2026 resource mix from the Grid in Transition study in all cases.
- The analysis is based on the load forecast, IRM, LCRs, and supply mix assumptions from the Analysis Group's CMR market impact study.
- Capacity values comparing the status quo, marginal and average methodologies are utilized.
    - Status quo values are based on the existing tariff
    - Marginal capacity values are from the Grid in Transition study
    - Average capacity values were derived from the marginal values above
- The proposed ICAP/UCAP Reference Price Translation update was utilized in all cases.
- The marginal accreditation sensitivity included an additional 5% and 2% derate to Upstate and Downstate fossil generation, respectively, on top of historic average EFORd.

Cost Impacts

Compared to status quo:

- Average accreditation cost savings: $31 million
- Marginal accreditation cost savings: $118 million
- Marginal accreditation sensitivity cost savings: $203 million

Figure 16: Capacity Market Procurement Costs



Clearing Quantities

Compared to status quo:

- Average accreditation results in 966 MW less UCAP in NYCA in the summer
- Marginal accreditation results in 1,729 MW less UCAP in NYCA in the summer
- Marginal accreditation sensitivity results in 2,367 MW less UCAP in NYCA in the summer

Figure 17: Clearing Quantities of Capacity

Comp	ICAP	Summer UCAP			
		NYCA	G-J	NYC	LI
Status Quo	48,015	38,398	13,123	8,871	5,193
Average		37,433	13,123	8,871	5,184
Marginal		36,670	12,977	8,724	5,088
Marginal Sensitivity		36,031	12,748	8,580	5,015

System Derating Factors

Compared to status quo:

- Average accreditation has a 2.2% higher summer NYCA system derating factor
- Marginal accreditation has a 4.0% higher summer NYCA system derating factor
- Marginal accreditation sensitivity has a 5.4% higher summer NYCA system derating factor

Figure 18: System Derating Factors

Comp	Summer System Derating Factors			
	NYCA	G-J	NYC	LI
Status Quo	20.55%	14.50%	17.42%	20.78%
Average	22.76%	14.50%	17.42%	20.96%
Marginal	24.51%	15.51%	18.90%	22.67%
Marginal Sensitivity	25.97%	17.08%	20.36%	23.99%

Figure 19: Accreditation Factors

Accreditation Approach	Onshore Wind		Offshore Wind		Solar		2-HR Storage		4-HR Storage	
	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter
Status Quo	16.0%	34.0%	30.5%	36.4%	46.0%	2.0%	49.1%	49.1%	90.2%	90.2%
Average	12.1%	33.7%	30.5%	36.4%	28.4%	1.0%	49.1%	49.1%	90.2%	90.2%
Marginal	10.6%	28.9%	29.1%	32.4%	18.6%	0.2%	39.0%	39.0%	78.1%	78.1%

Other Impacts

Reliability Impacts

By more accurately valuing each resource's contribution to reliability, Marginal Capacity Accreditation ensures an efficient and well-functioning ICAP Market that supports reliability and the achievement of public policy goals. Marginal Capacity Accreditation also provides signals to attract and retain the most efficient resources in New York.

Environmental Impacts

The use of marginal accreditation also results in the most economically efficient resources needed to reduce carbon emissions and help guide future state and LSE procurement decisions to achieve the CLCPA.

Impacts on Transparency

The Marginal Accreditation approach is critical in informing efficient public and private investment decisions by properly signaling which resources are best suited to support grid reliability.

Consumer Impact Analysis: Reserve Enhancements for Constrained Areas (Dynamic Reserves)

Operating Reserves Overview

Operating reserves are maintained to protect the operating system against contingencies. An example of these contingencies is a sudden loss of a generator and/or tripping of a network equipment (e.g., transmission line or transformer). Locational reserve requirements for EAST (Load Zones F-K), SENY (Load Zones G-K), NYC (Load Zone J) and Long Island (Load Zone K) help ensure reserves are located where needed due to limitations on the transmission system. The existing reserve requirements are essentially static.

Project Background

The current static modeling of reserve regions and their associated requirements may not optimally reflect the varying needs of the grid to respond to changes in system conditions, such as considerations of the following:

- Scheduling economic energy above 1,310 MW from individual suppliers when sufficient reserves are available and/or
- Shifting reserve procurements to lower-cost regions when sufficient transmission capability exists.

A more dynamic reserve procurement methodology could potentially improve market efficiency and better align market outcomes with how the power system is operated.

Study Approach

This study is focused on evaluating the feasibility of dynamically scheduling reserves in the SCUC, RTC and RTD intervals

- Studying the impact with current reserve products (10-minute spin, 10-minute total, 30-minute total)
- Studying the ability to apply to all current reserve regions and potential future reserve regions (e.g., certain NYC load pockets)

The study is comprised of two primary phases:

- Formulation phase
- Prototyping phase

Formulation Phase

The NYISO started with a theoretical approach by developing a generalized mathematical formulation to facilitate solving the procurement of operating reserves dynamically. This phase of the development

including external consultants and their feedback on the feasibility of the mathematical formulation.

Prototyping Phase

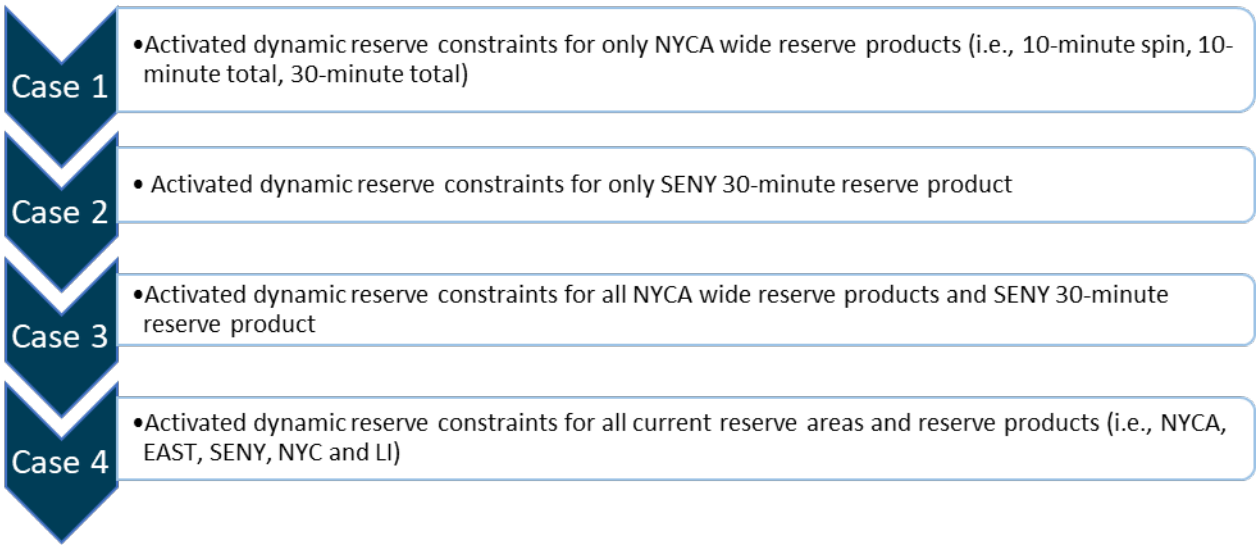
The NYISO prototyped the mathematical formulation that was developed to study the feasibility of the prototype on the day-ahead market solution. The prototype was stress tested under various scenarios to a) analyze the accuracy of the results; and b) test the effectiveness of incorporating it into the market software and its impacts on the market solution. These scenarios were used in performing the Consumer Impact Analysis (CIA) and are included in the study report.

Consumer Impact Methodology for Study

The NYISO performed a simplified version of the Consumer Impact Analysis (CIA) for this phase of the project. Typically, CIAs are performed prior to the Market Design Complete phase. The focus here is on Cost Impact/Market Efficiencies. The NYISO used the Dynamic Reserves prototype that was developed to run a few SCUC scenarios to demonstrate the applicability of dynamic scheduling of reserves and the impact on market efficiency:

- Using the market software, established a base case by re-running a Day-Ahead Market (DAM) day, based on the current static reserve requirements.
- Using the market software, re-ran the same DAM Day using the dynamic reserves prototype.
    - All the dynamic reserve constraints are detailed in the Appendix of this presentation.
- Used specific test cases for the dynamic reserves re-runs that were activated incrementally for the different reserve areas.
    - Allows for seeing the impact of introducing dynamic reserve constraints for different reserve regions and reserve products separately and in different combinations.
    - The test cases are outlined on below in Figure 20 below.
- A comparison of the re-runs based on the dynamic reserve prototype with the base case resulted in several outputs of the analysis.
    - The output of the analysis included total production cost changes, LBMP changes, operating reserve clearing price changes, and changes in consumer costs.

Figure 20: Consumer Impact Methodology — Test Cases



Approach used to select DAM Day for re-runs

Selected a day based on hot weather conditions during recent months (July through August 2021) so the simulations are based on updated software and market rules. For the day-ahead case, first ran a base case with the current static operating reserve requirements active for all 24 hours. Next, ran the case with dynamic reserve constraints active for all 24-hours.

Consumer Impact Analysis

The market day of August 5, 2021, was used to re-run all the cases listed above in Figure 20. This was to ensure that a hot summer day after the most recent market software changes was selected (e.g., Ancillary Services Shortage Pricing, Reserves for Resource Flexibility). The same day was used for all four cases to compare consistent sets of results.

Base Case

The first step in the analysis was to establish a base case by running the current static reserve requirements for all reserve areas. The same base case was used for all four scenarios. To ensure that typical operating conditions are simulated, all major transmission line outages were put back in service (i.e., Y-50 on Long Island). Additionally, the Upper Operating Limit (UOL) on 3 external transactions were increased to allow economic energy to flow into NYCA. By increasing the UOL on these transactions, the base case created more imports and, therefore, decreased the total system cost in the base case as compared to the previous production case.

Case 1: NYCA reserve requirements set dynamically

Only the NYCA wide reserve requirements (i.e., NYCA 10-minute spinning, NYCA 10-minute total and NYCA 30-minute total) were modeled dynamically. Energy was scheduled above 1,310 MW in the hours it was economic. To secure this increase, additional operating reserves were also scheduled.

The savings from energy outweighed the additional cost of procuring reserves, thereby resulting in a lower total system cost. On average, LBMPs decreased between $0.60/MWh and $2.55/MWh in the different load zones and reserve clearing prices increased by less than $0.10/MWh in the reserve areas.

Case 2: SENY 30-minute reserve requirements set dynamically

For Case 2, only the SENY 30-minute reserve requirements were modeled dynamically. The overall 30-minute reserve requirement of 2,620 MW was maintained as the NYCA region's static requirement. An average of 200 additional MWs of 30-minute reserves were held in the SENY reserve area based on economics offers and transmission limitations.

The changes in total production costs were less than the tolerance utilized in the optimization and, therefore, the results for the production costs, LBMPs, and operating reserve clearing prices were the immaterial.

Case 3: NYCA and SENY reserve requirements set dynamically

In Case 3, both NYCA wide reserve requirements (i.e., NYCA 10-minute spinning, NYCA 10-minute total and NYCA 30-minute total) and SENY 30-minute reserve requirements were modeled dynamically. In the hours it was economic, energy was scheduled above 1,310 MW. To secure the additional energy, additional operating reserves were also scheduled.

The savings from energy outweighed the additional cost of procuring reserves, thereby resulting in a lower total system production cost. On average, the LBMPs decreased between $0.50/MWh and $2.50/MWh in the different load zones and reserve clearing prices increased by less than $0.10/MWh in the reserve areas.

Case 4: Reserve requirements set dynamically for all reserve areas

For Case 4, all current reserve requirements were modeled dynamically. In the hours it was economic, energy was scheduled above 1,310 MW. Once again, to secure this additional energy, additional operating reserves were also scheduled.

This case resulted in the largest decrease in total production cost. Most of the decrease can be attributed to better modeling of transmission capabilities on Long Island. On average, LBMPs decreased between $0.60/MWh and $2.60/MWh in the different load zones and reserve clearing prices either

decreased or changed insignificantly even though additional reserves were secured.

Figure 21: Consumer Impact Analysis: Results

Summary Table [Dynamic Reserves Case - Base Case]			
	Total production cost delta [$]	Price cap load delta [MW]	LBMP delta (Ref bus) [$/MWh]
NYCA only	-47554.00	1330.00	-0.97
SENY only	858.00	-8.00	0.01
NYCA and SENY	-47230.00	1375.00	-0.63
Full Dynamic	-48645.00	1502.00	-0.69

Note:

- Negative values in any of the above columns imply the base case costs, load, or LBMPs were higher than the respective dynamic reserves case
- Positive values in any of the above columns imply the base case costs, load, or LBMPs were lower than the respective dynamic reserves case

Appendix I: Graphs

Figure 22: Average Reserve Clearing Price Deltas

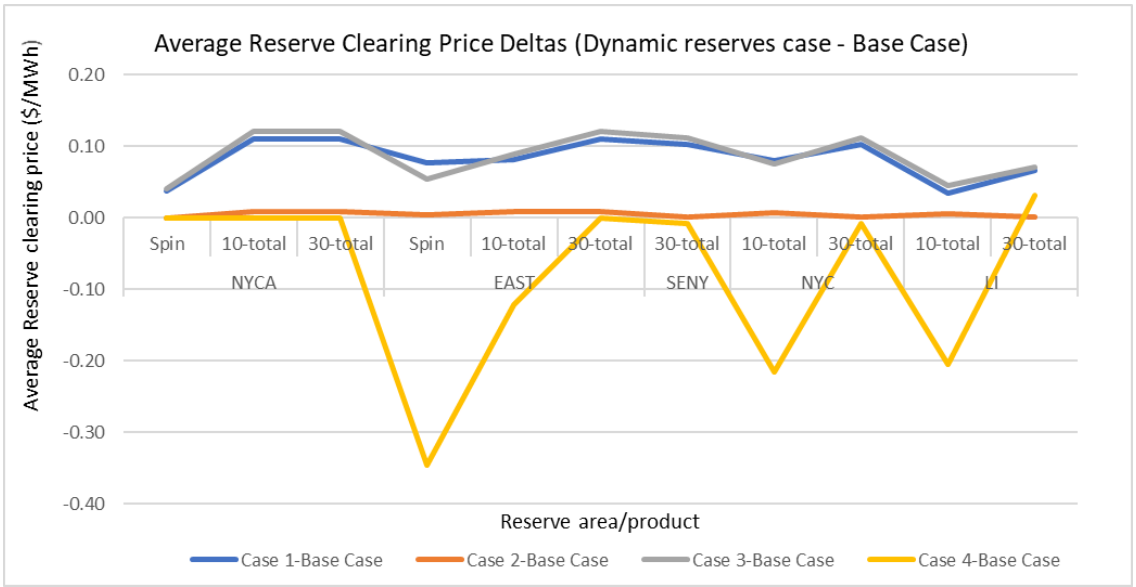
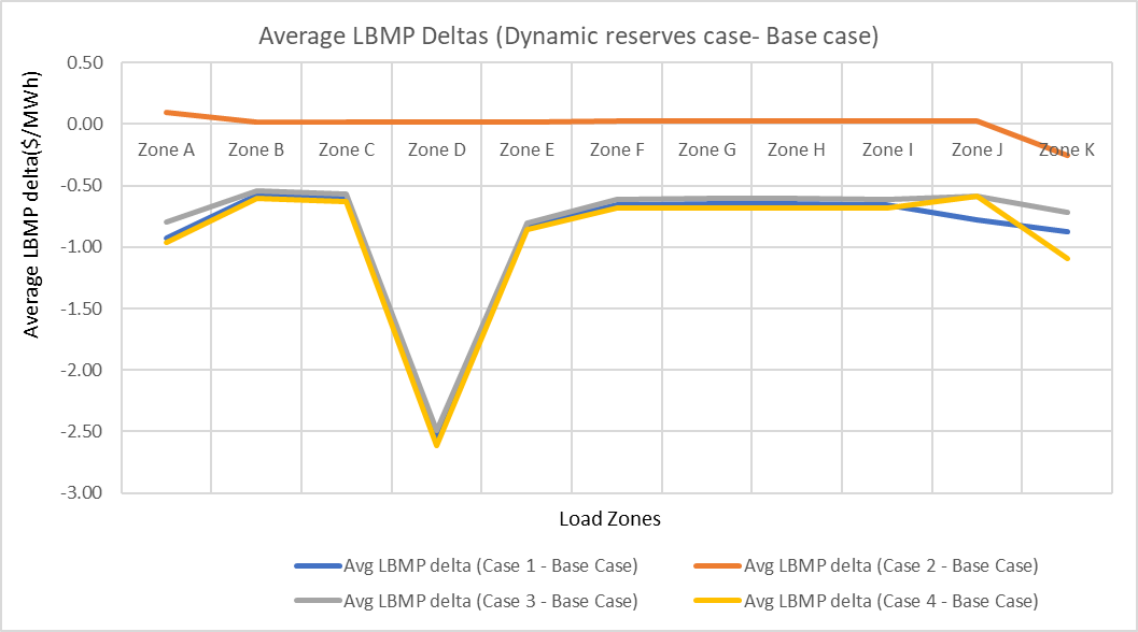


Figure 23: Average LBMP Deltas



Consumer Impact Analyses: 2022 Project List

Analysis Guidelines

In selecting projects for conducting Consumer Impact Analyses, the NYISO uses the following general 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 New York markets for first time.
- Allows or encourages a new type or category of market product.
- Creates a mechanism for out-of-market payments for reliability.

In addition to using the analysis guidelines listed above, the NYISO also considers the following:

- FERC directives (compliance filings) where the NYISO has implementation flexibility.
- Emerging stakeholder issues.

2022 Proposed Projects for Consumer Impact Analysis

- Improving Duct Firing Modelling
- Improving Capacity Accreditation
- Internal Controllable Lines

Improving Duct Firing Modeling

Description

Generators providing reserves and regulation are currently required to achieve their emergency response rate over the entire range of their operation. This can be problematic for combined-cycle gas turbines (CCGTs) since they cannot achieve the emergency response rate for their entire output as their response rate during the duct-firing portion (the upper 10-20% of capability) is typically slower than the baseload portion, hence limiting their availability to provide reserves and regulation. This project would seek to evaluate enhancements to the scheduling of a generator's capacity that would provide more flexibility to participate in the reserves and regulation markets. Consideration would be given to alternatives, such as: (1) testing response rates for each MW block and not just the emergency rate for the entire output of the plant or (2) allowing reserves and regulation to be provided for just the baseload output of the plant.

Expected Benefit

Gaining access to CCGTs full dispatchable capability will become increasingly important as generation from intermittent resources grows over the coming years. Enabling the participation of CCGTs, majority of which are duct firing and constitute a large portion of dispatchable resources, will provide consumer benefits as increased competition could result in lower market prices and greater availability of resource capability to provide various ancillary services.

Screen

Emergent stakeholder issue.

Improving Capacity Accreditation

Description

The increased participation of renewables in New York's electric generation market is leading to a rapid change in New York's resource mix. As the resource mix transitions to one more dependent on resources that rely on the sun or wind to produce energy and/or resources with energy limitations, each resources' contribution to reliability also evolves. The resource adequacy contribution of all resources, including the determination of capacity requirements as well as resources' contribution to reliability must be reviewed and accurately reflected in the Installed Capacity market and its processes.

Expected Benefit

Properly valuing the contribution of all resources in maintaining grid reliability, known as capacity accreditation, will provide the signals necessary to maintain a diverse resource mix. Enhancing these capacity accreditation measures will allows the Installed Capacity market to continue to support grid reliability as the transition of the resource mix unfolds.

Screen

Emergent stakeholder issue.

Internal Controllable Lines

Description

Currently, there are no internal controllable lines in operation within the NYCA and hence market rules for the scheduling and pricing of internal controllable lines within the Energy Market do not exist. However, the development of market rules for internal controllable lines that will support outcomes in the best interests of all stakeholders is needed. State and local initiatives such as Tier 4 REC procurements and NYC Local Law 97 provide incentives for developers to deliver renewable generation into congested areas

using HVDC lines. This project would begin with developing market rules for the scheduling and pricing of internal controllable lines within the Energy Market. Based on these newly developed rules, the NYISO would evaluate, and if necessary, revise, the existing ICAP market rules for Internal UDRs to ensure compatibility with the expected operation of internal controllable lines in the Energy Market.

Expected Benefit

Developing market rules for the scheduling and pricing of internal controllable lines would support state and local programs in delivering renewable generation to congested areas using HVDC lines.

Screen

Allows or encourages a new type or category of market product.

Key 2022 Electrical Industry Initiatives

Strategic Initiatives

To meet evolving regulatory requirements, and expected technical, financial and market challenges, the NYISO has identified six key strategic initiatives in addition to its core responsibilities and ongoing project plans. These initiatives provide guidance for projects and resource allocations in 2022 and in the future. The NYISO will work in collaboration with stakeholders to achieve these strategic initiatives.

Grid Reliability and Resilience

Maintaining power system reliability is the NYISO's primary responsibility, and the role of wholesale markets is critical in carrying out this responsibility. The changing portfolio of resources serving the electric needs of New York requires a comprehensive review of the NYISO's existing market products and operational and planning practices to ensure the continued ability to serve New York's electricity requirements efficiently and reliably.

Technology Transformation

The NYISO IT Strategy and technology investments will position the NYISO with the flexibility and agility to comprehensively respond to emerging industry trends like the integration of new resources. At the same time, the organization will continue to maintain reliable operations of the grid and market systems while being responsive to increased cyber security risks.

Efficient Markets for a Grid in Transition

The addition of new resources will create a more dynamic grid in the future. Accurately valuing the contribution of resources toward meeting reliability is critical. The NYISO will implement market enhancements to incent the attributes needed on the bulk power system to reliably meet New York's energy needs.

Authoritative Source

The NYISO will continue to emphasize our brand value as a trusted, independent, and expert source of information for the public, policymakers, and stakeholders.

Efficient and Flexible Business Delivery

In the current rapidly changing environment, a skilled workforce, product and service refinement, continuous process improvement, and business delivery focus will help maximize the value the NYISO delivers. The NYISO will enhance organizational effectiveness, modernize systems for faster, more flexible response to market and regulatory changes, and continuously scrutinize cost of operations. The NYISO will support and develop our workforce to ensure the organization has the professional talent and skills needed to fulfill the NYISO's mission.

Appendix

Sample Weekly Summary of NYISO Activity

NYISO Consumer Interest Liaison Weekly Summary

July 26 –July 30, 2021

Notices:

- The **ICAP Automated Market System User's Guide (UG-02)** has been updated and is now available on the **Manuals, Technical Bulletins & Guides webpage**, under the Guides folder. The Guide was updated for Project B627 External-to-ROS Deliverability Rights (EDR). Section 15 includes new interactive screens needed by the MP to configure monthly parameters associated with EDRs and UDRs
- This is to notify that the following **documents for Expedited Deliverability Study 2020 – 02 have been posted** on the NYISO website **(www.nyiso.com/market-monitoring** > ICAP Market Mitigation > Buyer Side Mitigation > Expedited Deliverability Study):
  - **ICAP Forecast BSM Inputs and Assumptions Document**
  - **ICAP BSM Test Data**

Meeting Summaries:

Tuesday, July 27, 2021

Joint Installed Capacity/Market Issues/Price Responsive Load Working Group

MDCP: Expanding Application of Peak Hour Forecasts

Ethan Avallone of the NYISO updated the Market Design Concept Proposal (MDCP) for the "Expanding Application of Peak Hour Forecasts" project.

Mr. Avallone began by contrasting the current and proposed process flow for the establishment and allocation of ICAP market requirements. The proposed changes focus on:

Number of peak load hours, or peak load days, used for the allocation.

Weighting of the peak load hours used by the TOs to construct a single ratio for the allocation to the LSEs.

Mr. Avallone explained that a methodology using loss of load probability values from the IRM study to weight the top three peak load days has been proposed for consideration by the NYISO and stakeholders, as described in Appendix V of the meeting materials. The NYISO has concerns with this approach, as the IRM study is based on high load scenarios that may not match the top three peak load MW values that are ultimately observed. There could be a 1,000 MW or 5,000 MW difference in the top three peak load days, and the proposed methodology would not recognize this difference.

The NYISO proposes to use the NYCA coincident peak load from the highest load hour on each of the top three unique peak load days, with the identification of these peak load days to include only non-holiday weekdays in July and August, consistent with design conditions. Actual load data would be used to identify the peak load hours, as opposed to reconstituted load data. The top three peak load days used in the allocation would be equally weighted.

"Expanding Application of Peak Hour Forecasts" is currently included as a project candidate for the 2022 project prioritization process. If prioritized, the NYISO would work toward a goal of Market Design Complete (MDC) in 2022.

To see the complete presentation, please go to:
https://www.nyiso.com/documents/20142/23319404/Expanding_Peak_Hour_Forecasts_7.27.2021_MDCP_FINAL.pdf/18b8258d-a3c8-ec08-a97a-e3fe4c77bc63

Transmission Congestion Contracts Manual Revisions

Gregory Williams of the NYISO presented updates to the Transmission Congestion Contracts (TCC) Manual. The TCC Manual was last updated in February 2020.

Mr. Williams detailed changes to the following topics:

- The ability to conduct a single round one-year Sub-Auction for TCCs with an effective period equivalent to the second year of previously sold two-year TCCs as part of the Centralized TCC Auction that immediately follows a Centralized TCC Auction in which the NYISO sold two-year TCCs
    - Related to TCC credit policy enhancements expected to be effective in October 2021 (FERC Docket No. ER21-486)
    - The first such auction round is scheduled to be conducted starting October 8, 2021
- The integration of TCC auction settlements (including the distribution of TCC auction revenue to the Transmission Owners that are subject to Attachment N of the OATT) as part of the typical Consolidated Invoice process
    - The first TCC auction scheduled for integrated settlements is the Autumn 2021 Centralized TCC Auction
- The ability for Market Participants to electronically submit various forms

- *Ministerial revisions and corrections*

Redline versions of the TCC Manual sections were provided with the meeting materials for stakeholder review. The NYISO will seek approval at the BIC in August or September 2021 for an effective date for the revisions of October 2021. To see the complete presentation, please go to: https://www.nyiso.com/icapwg?meetingDate=2021-07-27

Capacity Resource Interconnection Service (CRIS) Expiration Evaluation

Emily Conway of the NYISO updated the 2021 "*CRIS Expiration Evaluation"* project. The 2021 deliverable is a Q3 2021 Market Design Concept Proposed.

Ms. Conway reviewed stakeholder feedback received at and after the June 25, 2021, ICAPWG presentation and provided NYISO responses to the input.

Ms. Conway outlined the market design concept proposal for the notification process within the 3-year time period following retirement. Modifications would require retired units to notify the NYISO of either a same or different location transfer prior to each Class Year Deliverability Study. In addition, the NYISO proposed modifications with respect to same location CRIS transfers. The proposal would permit "same-location" CRIS transfers even if the transferor unit is not deactivating, which could allow for more flexibility and potentially more deliverability for new resources (*i.e.*, less likelihood of CRIS units requiring System Deliverability Upgrades). The proposed changes would make the rules for same location CRIS transfers consistent with the rules for different location CRIS transfers with respect to deactivation requirements.

Next, Ms. Conway presented the market design concept proposal for Partial CRIS and discussed the potential rule changes with stakeholders. Several stakeholders provided feedback for NYISO consideration.

Ms. Conway noted that if the 2021 "CRIS Expiration Evaluation" project is prioritized, the NYISO would work toward a goal of Market Design Complete (MDC) in 2022. To see the complete presentation, please go to: https://www.nyiso.com/documents/20142/23319404/CRIS%20Expiration%20for%20ICAPWG%2007272021.pdf/913e3d8c-2cf1-922f-53ed-5ac1c603f4f6

Wednesday, July 28, 2021

Management Committee

Motion#1:

Motion to approve the draft May 26, 2021, and June 15, 2021 Management Committee meeting minutes
Motion passed unanimously

Motion #2:
The Management Committee (MC) hereby determines that a new Cost of Service study should NOT be conducted during late 2021 and 2022. A Cost-of-Service study, if conducted, would inform a decision on whether to modify the Rate Schedule 1 cost allocation between Withdrawal Billing Units and Injection Billing Units, pursuant to OATT Section 6.1.2.3, as described in the Rate Schedule 1 – Allocation of NYISO Budget – Study Vote presentation made to the MC on July 28, 2021.

In Favor = No Study

Opposed= Study will be conducted

Motion approved unanimously with abstentions

Motion #3:
The Management Committee ("MC") hereby approves changes to the Market Administration and Control Area Services Tariff as more fully described in the presentation titled "Updates to Metering and Meter Data Services Requirements for Demand Side Resources" made to the MC on July 28, 2021, and recommends that the NYISO Board of Directors authorize NYISO staff to file such revisions under Section 205 of the Federal Power Act.
Motion passed unanimously

Thursday, July 29, 2021

Budget and Priorities Working Group

2021 Budget vs. Actual Results

Patrick Kelly of the NYISO presented the 2021 year-to-date budget vs. actual status, updated for June 2021. Rate Schedule 1 recoveries are $5.0M above budgeted revenues through June. Year-to-date budgeted costs vs. actual costs through June reflect a $2.4M budget under-run. To see the complete presentation, please go to:
https://www.nyiso.com/documents/20142/23414235/02%20June%202021%20Draft%20Budget%20versus%20Actual%20Results.pdf/1dc4f6f5-cfe4-a2e4-aea8-d6ea76745433

Proposed FERC Fee Recovery

Crystal Santos of the NYISO presented the proposed FERC fee recovery.
The billed amount for Fiscal Year 2021 FERC fee recovery was $14.2M, an increase of approximately 4% from the actual fee assessed for Fiscal Year 2020. The actual FERC invoice was $14.8M, which was an increase of approximately 8% from the actual fee assessed for Fiscal Year

2020. The true up, to be collected July through December 2021, is approximately $0.6M (~$637,000).
Ms. Santos provided a graph illustrating the historical fee amounts for 2011 to present.
The proposed amount for Fiscal Year 2022 FERC fee recovery is $16.3M. Ms. Santos noted that $16.3M represents an increase of approximately 10% compared to the actual fee assessed for Fiscal Year 2021. To see the complete presentation, please go to:
https://www.nyiso.com/documents/20142/23414235/03%202021-2022%20FERC%20FEE%20Estimate.pdf/e494b921-ec73-9a7e-8d2b-4cc73850bb12

2022 Initial Project Budget Recommendation

Brian Hurysz of the NYISO presented the 2022 initial project budget recommendation. Mr. Hurysz began with a review of the Project Priority Process to date.

Mr. Hurysz noted that the initial budget recommendation proposes adding 2 additional market design headcounts to reduce some professional service on market design projects, include Hybrid aggregation in the initial budget recommendation and keep DER Participation Model on track for 2022 deployment.

Mr. Hurysz highlighted proposed candidate projects. Wes Yeomans, VP NYISO Market Operations, was available to present an overview of the Alternate Control Center (ACC) upgrade. The ACC upgrade is a large portion of the 2022 project budget and deemed critical to the grid of the future.

Mr. Hurysz next led a comparison of the 2022 proposed budget to historical project budgets in previous years. Cheryl Hussey, VP NYISO Finance was available to discuss an increase to the 2022 project budget from previous years and to explain how the NYISO will fund the increase.

Mr. Hurysz led a review of the project candidates while responding to stakeholder feedback. In response to stakeholder questions, Mr. Hurysz explained how scoring results, combined with NYISO available resources, affected the selection of specific projects.

Mr. Hurysz repeated the process for the enterprise project initial budget recommendation, which is provided for informational purposes only.

The NYISO is still evaluating the recommended projects and costs in consideration of the NYISO overall budget. Written feedback on the 2022 Project Budget Recommendation is encouraged and any feedback provided by August 6, 2021, will be considered for discussion at the August 27, 2021, BPWG meeting. Comments should be sent to Brian Hurysz at bhurysz@nyiso.com, (518) 461-6405.

To see the complete presentation, please go to:
https://www.nyiso.com/documents/20142/23414235/2022%20Initial%20Project%20Budget%20Recommendation.pdf/ae029ae4-04eb-aa75-e14f-ace03449853c

Friday, July 30, 2021

Operating Committee

Motion #1:

The Operating Committee (OC) hereby approves the meeting minutes from May 2021.
Motion approved unanimously

Motion #2:

The Operating Committee (OC) hereby approves the Q#1115 Flat Creek Solar 2 Interconnection System Reliability Impact Study scope as presented and discussed at the August 12, 2021, OC meeting.
Motion approved unanimously

Motion #3:

The Operating Committee (OC) hereby approves the Q#1148 Agricola Wind Interconnection System Reliability Impact Study scope as presented and discussed at the August 12, 2021, OC meeting.
Motion approved unanimously

Motion #4:

The Operating Committee (OC) hereby approves the Q#1150 Moss Ridge Solar Interconnection System Reliability Impact Study scope as presented and discussed at the August 12, 2021, OC meeting.
Motion approved unanimously

Motion #5:

The Operating Committee (OC) hereby approves the Q#1153 Wood Street Battery Storage Interconnection System Reliability Impact Study scope as presented and discussed at the August 12, 2021, OC meeting.
Motion approved unanimously

FERC Filings
July 29, 2021

NYISO-RG&E joint filing of an Executed Engineering, Procurement, and Construction Agreement Among the New York Independent System Operator, Inc., Rochester Gas and Electric Corporation, and NextEra Energy Transmission New York for Empire State Line, SA No. 2635

July 28, 2021
NYISO-NYSEG Joint Filing of an Executed Transmission Project Interconnection Agreement Among the New York Independent System Operator, Inc., New York State Electric & Gas Corporation, and NextEra Energy Transmission New York for the Empire State Line

July 27, 2021
NYISO filing of tariff revisions in compliance with FERC Order No. 676 re: Standards for Business Practices and Communication Protocols for Public Utilities

July 26, 2021
NYISO filing of a comment on Long Island Power Authority (LIPA) request related to the one-time waiver of NYISO MST Section 17.1

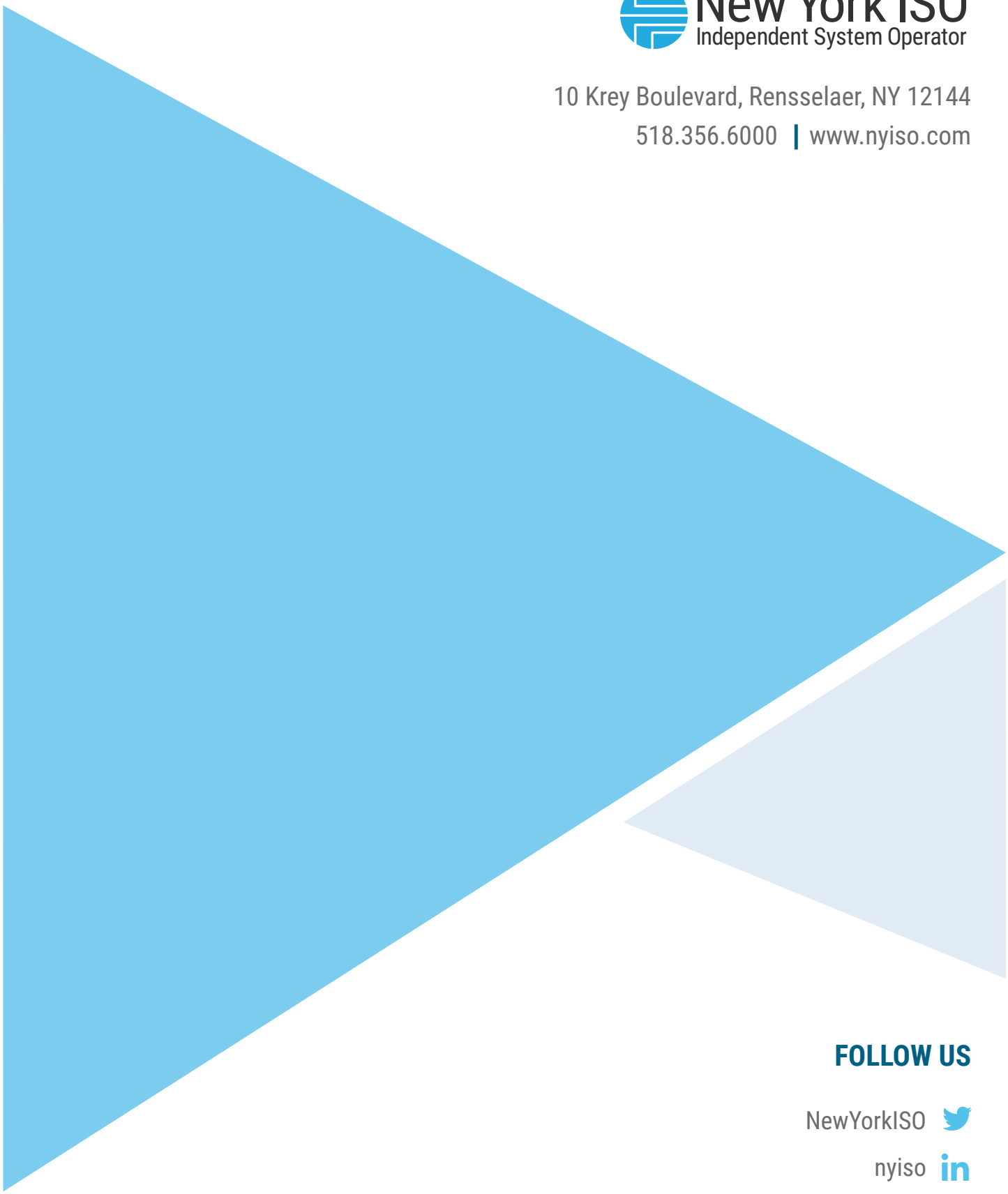
July 26, 2021
NYISO comments in response to the Request of Helix Ravenswood for clarification confirming the scope of the Commission's January 23, 2020, order granting waiver

FERC Orders
July 28, 2021
FERC letter order accepted NYISO notice of effective date and compliance filing re: Operating Reserve Demand Curves, effective July 13, 2021, as requested
ER21-1018-002

July 27, 2021
Letter order accepted NYISO compliance to clarify that municipally owned electric systems created by local governments are eligible for the self-supply exemption, effective 2/20/21 as requested
ER16-1404-008

July 27, 2021
FERC order accepted NYISO tariff revisions reflecting the results of its post-ICAP DCR review of exempt renewable technologies, effective August 9, 2021, as requested
ER21-2098-000

Filings and Orders
http://www.nyiso.com/public/markets_operations/documents/tariffviewer/index.jsp



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