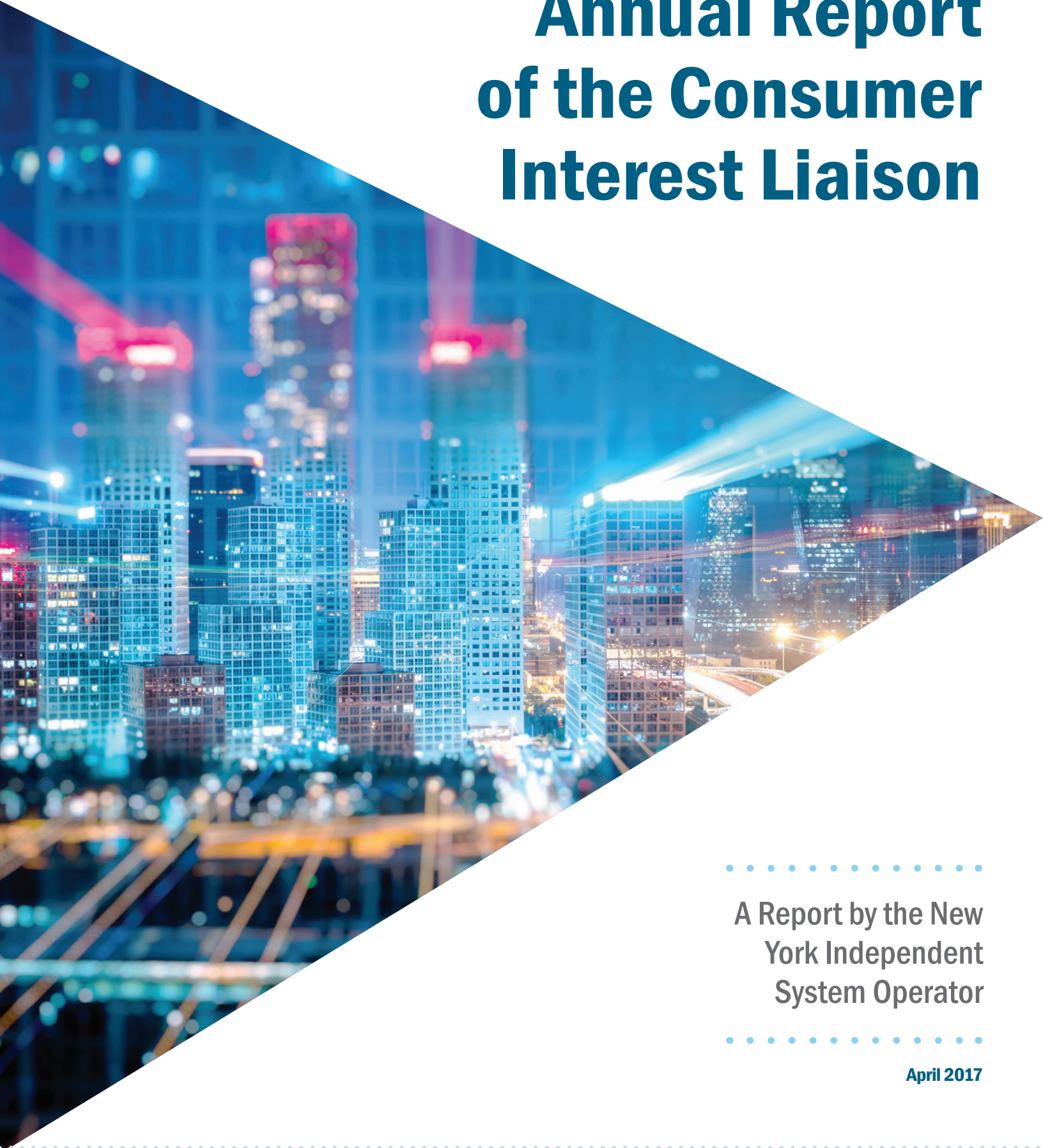




2016

Annual Report of the Consumer Interest Liaison



.....
A Report by the New
York Independent
System Operator
.....

April 2017

The mission of the NYISO, in collaboration with its stakeholders, is to serve the public interest and provide benefit to consumers by:

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

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MESSAGE FROM THE CEO

The NYISO maintains its commitment to provide objective and thorough consumer impact analyses to market participants that is transparent, balanced and accurate. Our pledge is to be an authoritative source of information that both facilitates and improves decision making in the stakeholder process. This past year turned out to be another very busy year for the NYISO's Consumer Interest Liaison activities. In addition to our normally scheduled impact analyses, we also responded to stakeholder requests for multiple Consumer Impact Analyses of the Demand Curve Reset project. NYISO also conducted impact analysis to assist stakeholders in evaluating rule changes associated with the potential export of capacity from New York to ISO-NE.

The New York electric industry is facing many major changes and we see an even greater need to measure the impact of these changes on consumers during 2017 and beyond. We will continue our vigorous support of the End-Use sector to ensure that entities representing consumers remain effectively engaged in the NYISO governance process. The penetration of large amounts of low carbon or carbon-free resources resulting from the State's public policy objectives could potentially have significant impacts on our markets. We will assess the impact of these changes on NYISO's energy and capacity markets and the overall efficiency of our wholesale markets. Similarly, as outlined in the Distributed Energy Resources (DER) Roadmap, the NYISO expects to integrate dispatchable DER resources into its Energy, Ancillary Services and Capacity markets over time. A fully integrated DER model could enhance the grid's reliability, reduce prices for consumers and improve our environment. As we transition to the grid of the future, we will study the impact of these changes on our markets and consumers and report our findings to stakeholders.

In addition to providing impact analyses on the NYISO's key initiatives, we will continue to support the End-Use sector in other areas as we have done in the past. This includes weekly summaries of working group and committee discussions, and monthly meetings to update you on future stakeholder meeting topics, provide opportunities to listen to your concerns and respond to your inquiries and questions.

I look forward to continue working with you and hope for another very productive year.

Sincerely,

Bradley C. Jones

Bradley C. Jones
President and CEO

MESSAGE FROM THE CONSUMER INTEREST LIAISON

The past year turned out to be exceptionally busy from the consumer interest perspective as the NYISO worked on the triennial Demand Curve Reset (DCR) process.¹ Stakeholders requested a consumer impact analysis based on the independent consultant's findings. The initial DCR consumer impact analysis led to two additional impact analyses. Between August and November 2016, we presented three separate consumer impact analyses of the DCR process to stakeholders. Our findings related to the 2015/2016 ICAP Demand Curve Reset are fully discussed in this report. In addition, we presented a consumer impact analysis on Capacity Exports from Localities. The Roseton plant, located in the G-J Locality, was awarded a Forward Capacity Market (FCM) obligation in ISO-NE. The Market Monitoring Unit (MMU) recommended that the NYISO modify its treatment of capacity exports from import constrained zones. The NYISO agreed and developed a proposal that addressed the concerns expressed by the MMU. Our findings are based on the NYISO proposal. The fifth consumer impact analysis that we presented during 2016 addressed Forecast Enhancements in the Buyer-Side Mitigation (BSM) Rules. This analysis demonstrated the impact of the NYISO's proposal on the accuracy of the BSM forecast using a hypothetical example. It characterized the short-run impact on costs to consumers of generic and hypothetical over-mitigation and under-mitigation scenarios. The NYISO's proposal is expected to increase the accuracy of the BSM forecast and, therefore, decrease the potential for over-mitigation and under-mitigation.

In addition to the impact analyses presented during 2016, we continued our support of the End-Use Sector's participation in other NYISO activities. The objective of this support is to enhance the effectiveness of the End-Use Sector's participation in the NYISO process. We provided weekly summaries of committee and working group meetings to representatives of the End-Use Sector (these summaries were also posted on the Consumer Interest Liaison webpage on the NYISO website). We also continued our monthly meetings with representatives of the End-Use Sector, mostly via conference call. The focus of these calls was to provide stakeholder committee and working group topics that we expect to be discussed over the next several months. This information helps the End-Use Sector plan and allocate its limited resources more effectively. Finally, we continued to send out email reminders of events and activities at the NYISO and respond to inquiries from the End-Use Sector representatives.

Given all the changes taking place in the industry, some of which we discuss towards the end of the report, we expect a busy and exciting 2017. This report goes on to describe the projects that we have identified for consumer impact analysis in 2017. We look forward to working on those projects and to continue supporting the work of the End-Use Sector.

Tariq N. Niazi
Consumer Interest Liaison

¹ The Demand Curve Reset process will become a quadrennial process in the future.

Role of the Consumer Interest Liaison

The services provided by the Consumer Interest Liaison include the following.

Consumer Interest Liaison/Sector Meetings

The Consumer Interest Liaison meets with each of the sectors engaged in the shared governance process to understand relevant issues from each sector's point of view. This input helps the Consumer Interest Liaison facilitate communication that is current, relevant, and useful. These meetings aid in determining the areas in which the End Use Sector members may require more support.

Weekly Summaries

Each week the Consumer Interest Liaison produces a weekly summary of activity and sends it to the End Use Consumer mailing list. This includes summaries of committee meetings and working groups, as well as FERC filings and FERC Orders for the week. Also, the weekly summary highlights relevant notices such as meeting reminders, deadlines for input, and NYISO manual revisions, just to name a few. To read an example of the weekly summary, please see the Appendix. These summaries also are posted on the Consumer Interest Liaison section of www.nyiso.com.

Monthly End Use Consumer Conference Calls

The Consumer Interest Liaison meets monthly with NYISO Product and Project Management to review committee and working group schedules. That information is then discussed in a monthly conference call with End Use Consumer stakeholders, who can use the information to track issue progress and milestones. Relevant projects, current issues and training topics also are discussed on the monthly call.

Consumer Inquiries

Frequently, End Use Consumers have questions and inquiries for the NYISO. 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. Inquiries range from providing basic committee status questions to in-depth inquiries clarifying complex proposal concepts.

Email Reminders

On a daily basis the NYISO sends emails through several email databases. The NYISO Technical Information Exchange (TIE) email list is the primary list for notices. There are also mailing lists for each committee and working group, as well as several specific mailing lists such as "Generator

Operators,” “Demand Response,” “Main Contacts,” etc. The Consumer Interest Liaison is a recipient of all these mailing lists and summarizes and resends important and relevant emails to the End Use Consumer email list. Although this acts as a duplicate mailing, it affords end users the security of not missing important information.

Consumer Interest Liaison Informational Sessions

Through discussions with the End Use Sector, the Consumer Interest Liaison determines if there is a need to provide consumer representatives an opportunity to more thoroughly understand specific areas of the NYISO markets. By meeting with Subject Matter Experts (SMEs) on NYISO markets, grid operations, and planning processes, End Use consumer representatives improve their understanding of current market issues and are better prepared to more effectively represent their interests.

An example of this occurred in 2016 when a very complex issue arose. A large generator, located in the G-J Locality, received an award for the sale of 511 MW of Installed Capacity into the ISO-NE forward capacity market for 2018. A rule change in the ISO-NE Capacity Market resulted in a possibility that the generator could export the 511 MW to ISO-NE for the 2017 Installed Capacity Market summer capability period. The loss of 511 MW in the G-J Locality in the NYISO capacity market would result in a drastic price increase for NYISO consumers. The resulting price increase would not be an efficient price signal as the generator would continue to participate in the energy market in the G-J Locality, and, in the event of an ISO-NE Capacity Call, would not export the full 511 MW across ISO-NE interfaces directly out of the G-J Locality.

The NYISO developed a proposal to properly reflect the effect of the export on the Installed Capacity market. A power flow study was performed by NYISO Planning to determine the amount of energy that would flow to ISO-NE and the paths it would take. It was determined that approximately 48% of the energy would flow out of the G-J Locality across the southern electrical interface with ISO-NE and approximately 52% would flow out of Zone F into ISO-NE. This meant that the remainder of the Capacity not flowing directly out of the G-J Locality into ISO-NE could be replaced with Rest of State (ROS) Capacity. This proposal to model the energy flow portraying actual flows would decrease the price impact to NYISO consumers and send a more accurate price signal to Developers. A Consumer Impact Analysis was performed to evaluate the impact of this proposal to consumers.

Due to the complexity of the issue, and several optional proposals from stakeholders, End Use Consumers requested a meeting with Installed Capacity SMEs to more fully understand the issue.

On September 16, 2016 a meeting was arranged at the NYISO for End Use Consumers to meet with Installed Capacity Market Operations personnel for a thorough discussion of the issue and proposal. A brief presentation was made by Joshua Boles, Manager of Installed Capacity Operations. The presentation was followed with a question and answer period that allowed End Use Consumer representatives to understand the issue and the potential impacts that the NYISO proposal could have on the NYISO Installed Capacity market. This understanding led to the End Use Consumer Sector voting to accept the NYISO proposal, with a minor amendment advanced by the Transmission Owner Sector.

The approved proposal to address the loss of G-J Capacity was acknowledged by all stakeholders to be a temporary change to the market with a mandate to further study the issue in 2017 and enact a permanent solution for the export of Installed Capacity from a constrained Locality. As a permanent solution may be very different from the temporary solution currently enacted, the End Use Consumer representatives requested a second meeting with NYISO Installed Capacity SMEs on the issue and possible ramifications of various solutions. On November 30, 2016, a second informational session was held at the NYISO and by teleconference with Mr. Boles and Vice President of Market Operations Emilie Nelson for the End Use Consumer Sector.

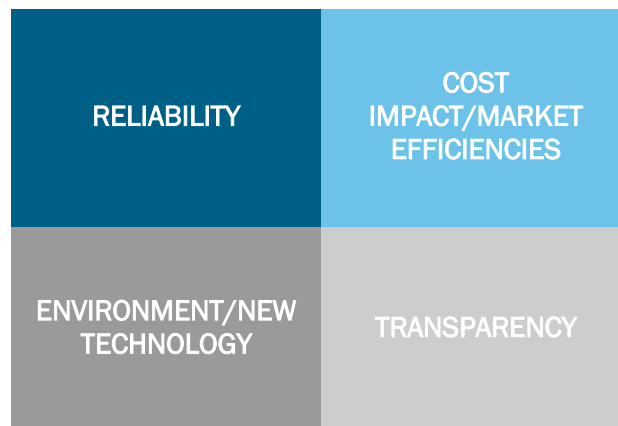
As 2016 came to an end, the process to reach a permanent solution for the issue of exporting Installed Capacity from a constrained Locality had begun in Installed Capacity Working Group meetings.

The Consumer Impact Analysis Process

A primary responsibility of the Consumer Interest Liaison is to evaluate the impact of major market design changes on consumers. How a new market rule will impact reliability of the bulk power system, and how a new market rule will impact the competitiveness and efficiency of the market are systematically analyzed using specific criteria.

The consumer impact analysis is a formal process for assessing a new market rule, designed to include qualitative and quantitative metrics for each of the areas analyzed. The analysis reviews impacts of new rules under four evaluation areas: Reliability, Cost Impact/Market Efficiencies, Environment/New Technology, and Transparency. Each study area is described below.

- The impact on **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.
- The impact on **Cost Savings/Market Efficiency** 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.
- The impact on **Market Transparency** assesses the extent to which the project will impact the transparency and clarity of market rules.
- The impact on the **Environment** reviews how the project may affect the environment, focusing primarily on emission levels.



Projects selected for Consumer Impact Analysis are a subset of all NYISO projects chosen during the annual Budget Project Prioritization Process. The Consumer Impact Analysis list is presented to the stakeholders annually for their input. This occurs during the annual Budget Project Prioritization Process. The annual Budget Project Prioritization Process typically begins in May and ends in the fourth quarter with the Board of Directors approval of the annual budget. Prior to the

Board's approval, NYISO staff and stakeholders discuss the proposed projects and budgetary costs for the year during Budget and Priority Working group 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 Impact Analyses Presented in 2016

1. 2015/2016 ICAP Demand Curve Reset
2. Capacity Exports from Localities
3. Additional Analysis of 2015/2016 ICAP Demand Curve Reset
4. Forecast Enhancements in the Buyer-Side Mitigation Rules
5. Impact of 2017/2018 ICAP Demand Curves on Annual Capacity Costs

2015/2016 ICAP Demand Curve Reset

Background/Overview

Section 5.14.1.2 of the Market Administration and Control Area Services Tariff (Services Tariff) requires that ICAP Demand Curves be established periodically through an analysis by an independent consultant and reviewed with stakeholders, the Market Monitoring Unit and the NYISO. The Analysis Group, Inc. (AGI), including its engineering consultant subcontractor Lummus Consultants International, Inc. (LCI), was selected by the NYISO to serve as the independent demand curve consultant (“Consultant”) and to lead market participant reviews during the Demand Curve Reset (DCR) process. The Consultant provided a Draft Report of its preliminary recommendations and findings on June 23, 2016 and presented an overview of the report at the June 27, 2016 ICAPWG meeting. Following the meeting, several stakeholders requested that the NYISO provide a consumer impact analysis focused on the impact of including and excluding dual fuel capability and selective catalytic reduction (SCR) emissions control technology from the proxy unit in the ROS and the G-J Locality.

Consumer Impact Approach

The June 23, 2016 Draft Report included preliminary reference point prices for all technologies studied and for the four capacity regions: Rest of State (ROS) [Load Zones C and F], the G-J Locality (Load Zones G [Dutchess and Rockland Counties]), New York City (Load Zone J) and Long Island (Load Zone K). The Draft Report also provided preliminary reference point prices for the technologies studied with and without dual fuel capability for ROS and the G-J Locality. In response to a request from stakeholders at the June 27, 2016 ICAPWG meeting, AGI subsequently provided preliminary reference point prices for a gas-only F Class frame unit without selective catalytic reduction (SCR) emissions control technology in ROS and Load Zone G (Dutchess County).

This presentation did not provide forecasts of capacity prices and/or revenues for future periods or future ICAP Demand Curves. Rather, the primary focus of the analysis was to provide an estimate of the potential annual capacity cost impact of including or excluding dual fuel capability for the peaking plant in ROS and the G-J Locality based on the preliminary reference point prices provided by AGI in its Draft Report. Based on stakeholder requests, information was also provided regarding the annual capacity cost impact of gas only units with and without SCR for the ROS and G-J Locality based on preliminary reference point prices provided by AGI.

Summary of Results

As is the practice, we presented the potential impact on all four evaluation areas:

<p>RELIABILITY</p> <p>Excluding dual fuel and/or SCR may have the potential to impact new entry negatively.</p>	<p>COST IMPACT/MARKET EFFICIENCIES</p> <p>Inclusion of dual fuel capability in ROS and the G-J Locality increases annual capacity costs by approximately \$80 million.</p> <p>Inclusion of SCR in ROS and the G-J Locality increases annual capacity costs by approximately \$231 million</p>
<p>ENVIRONMENT/NEW TECHNOLOGY</p> <p>Some potential negative impact if new entry is adversely impacted by excluding dual fuel and/or SCR.</p>	<p>TRANSPARENCY</p> <p>No Impact Expected.</p>

Cost Impact/Market Efficiencies

To illustrate the annual capacity cost impact of different preliminary reference point prices, simulations of one summer and one winter month spot auction were conducted using the 2016/17 base case. The 2016/17 base case was based on the most recent available auction data, including the relevant Capability Period derating factors, current IRM and LCRs, and the 2016 Gold Book forecasts. The monthly results were extrapolated to provide the estimated annual impact.

Cost Impact With and Without Dual Fuel Capability

The Consultant’s preliminary recommendation included dual fuel capability in all locations based on the market expectation that the recommended peaking unit technology (SGT6-5000F5) would more often than not be built with dual fuel capability. The annual capacity cost impact is based on the preliminary reference point prices calculated by AGI for dual fuel versus gas only configurations for the F Class frame unit. Preliminary reference point prices also include SCR in all locations. The preliminary reference point value used for each capacity region represents the particular peaking plant location that results in the lowest reference point price. Figure 1 below shows the total estimated annual capacity costs with and without dual fuel for the ROS and the G-J

Locality.

Cost Impact Gas Only -- With and Without SCR

The Consultant also recommended that the F Class Frame machine include SCR emission control technology across all locations based on permitting and other environmental requirement considerations. At the June 27, 2016 ICAPWG meeting, some stakeholders requested that AGI provide reference point prices for gas only units with and without SCR for ROS and the G-J Locality and also requested that the NYISO provide the cost impact associated with those preliminary reference point prices. Preliminary reference point prices for the ROS and Load Zone G (Dutchess County) were calculated by AGI for the F class frame unit without SCR. The preliminary reference point value used for each capacity region represents the particular peaking plant location that results in the lowest reference point price. Figure 2 below shows the total estimated annual capacity costs for gas only units with and without SCR for ROS and the G-J Locality.

Cost Impact With and W/O Dual Fuel Capability										
	ROS Reference Price	ROS Price Summer	ROS Price Winter	ROS Total Cost	Difference (in millions)					
Dual Fuel	\$10.99	\$5.93	\$1.74	\$827.72						
Gas Only With SCR	\$10.44	\$5.64	\$1.65	\$786.70						
					\$41.02	ROS				
	G-J Reference Price	G-J Price Summer	G-J Price Winter	G-J Total Cost						
Dual Fuel	\$14.57	\$10.70	\$4.76	\$458.73						
Gas Only With SCR	\$13.88	\$10.19	\$4.53	\$436.77						
					\$21.96	G-J				
	NYC Reference Price	NYC Price Summer	NYC Price Winter	NYC Total Cost						
Dual Fuel	\$18.33	\$11.65	\$4.76	\$927.95						
	\$18.33	\$11.65	\$4.53	\$914.36						
					\$13.60	NYC				
	LI Reference Price	LI Price Summer	LI Price Winter	LI Total Cost						
Dual Fuel	\$11.17	\$6.40	\$1.74	\$279.14						
	\$11.17	\$6.40	\$1.65	\$275.92						
					\$3.22	LI				
					<table border="1"> <tr> <td>Total Capacity Cost</td> </tr> <tr> <td>\$2,493.54</td> </tr> <tr> <td>\$2,413.75</td> </tr> <tr> <td>\$79.79</td> </tr> </table>		Total Capacity Cost	\$2,493.54	\$2,413.75	\$79.79
Total Capacity Cost										
\$2,493.54										
\$2,413.75										
\$79.79										

Figure 1

Reliability Impact

To the degree that AGI and LCI are correct that “the F Class machine would more often than not be built with dual fuel in all locations,” not including these costs in ICAP Demand Curve reference point prices could impact new entry negatively. Similarly, AGI and LCI stated, “to be economically viable and practically constructible, the F Class Frame machine would be built with SCR emission control technology across all locations.” Based on AGI and LCI’s assessment, not including the cost of SCR emission control technology in the ICAP Demand Curve reference point prices could present

additional permitting and environmental compliance risk for new entry and this could potentially also impact new entry negatively.

Environmental Impact

As discussed above, excluding dual fuel and/or SCR could potentially impact new entry negatively. If new entry were adversely impacted, some potential negative environmental impact could occur as this could perpetuate the use of less efficient plants that would otherwise have been replaced sooner.

Impact on Transparency

No impact on transparency was expected.

Cost Impact Gas Only with and W/O SCR						
	ROS Reference Price	ROS Price Summer	ROS Price Winter	ROS Total Cost	Difference (in millions)	
Gas Only With SCR	\$10.44	\$5.64	\$1.65	\$786.70		
Gas Only W/O SCR	\$8.78	\$4.74	\$1.39	\$661.53		
					\$125.17	ROS
	G-J Reference Price	G-J Price Summer	G-J Price Winter	G-J Total Cost		
Gas Only With SCR	\$13.88	\$10.19	\$4.53	\$436.77		
Gas Only W/O SCR	\$11.99	\$8.80	\$3.91	\$377.13		
					\$59.64	G-J
	NYC Reference Price	NYC Price Summer	NYC Price Winter	NYC Total Cost		
Dual Fuel	\$18.33	\$11.65	\$4.53	\$914.36		
	\$18.33	\$11.65	\$3.91	\$877.71		
					\$36.65	NYC
	LI Reference Price	LI Price Summer	LI Price Winter	LI Total Cost		
Dual Fuel	\$11.17	\$6.40	\$1.65	\$275.92		
	\$11.17	\$6.40	\$1.39	\$266.63		
					\$9.29	LI

Figure 2		Total Capacity Cost
		\$2,413.75
		\$2,183.00
		\$230.75

Capacity Exports from Localities

Background/Overview

The 2015 State of the Market (SOM) report recommended that the NYISO modify its treatment of capacity exports from import constrained zones (SOM Recommendation #8). The Roseton plant located in the G-J Locality was awarded a Forward Capacity Market (FCM) obligation of 511 MW in ISO-NE for 2018/19. Under a rule change that ISO-NE stakeholders approved and ISO-NE and NEPOOL filed with FERC on August 19, 2016, certain external capacity suppliers, such as Roseton, could potentially participate in reconfiguration auctions and bilaterals beginning in 2017/18. The NYISO agreed with the MMU that the treatment of capacity exports from constrained zones needed to be addressed. Given the possibility that ISO-NE's new rule could be accepted by FERC, the NYISO filed a limited protest with FERC seeking to delay the possibility of such exports for one capability year. Because it was uncertain that FERC would agree with the delay, the NYISO pursued an aggressive schedule to develop an immediate market design proposal to address the concerns expressed by the MMU.

Summary of potential impact on the following four evaluation areas:

<p>RELIABILITY</p> <p>The NYISO's proposal addresses the G-J Locality by recognizing that a generator that exports capacity continues to operate in the Locality and requirements can be satisfied by replacing a portion of the export capacity with generation located in ROS.</p> <p>This recognition avoids procuring more capacity than necessary to meet the Locational Minimum ICAP Requirements.</p>	<p>COST IMPACT/MARKET EFFICIENCIES</p> <p>Inefficient cost increases in G-J and J under the current ICAP Market design will be avoided or reduced under the NYISO's proposal.</p> <p>While NYISO's proposed ICAP market design avoids or reduces the increase in the G-J and J Locality, the impacts in ROS and LI are efficient.</p> <p>Cost increases in ROS and LI are the same under both the current ICAP market construct and the proposed ICAP market design.</p>
<p>ENVIRONMENT/NEW TECHNOLOGY</p> <p>No Impact Expected.</p>	<p>TRANSPARENCY</p> <p>No Impact Expected.</p>

Consumer Impact Approach

This analysis was divided into two steps. The first step was to compute the potential cost impact under the current ICAP market design. The second step was to compute the cost impact based on the NYISO's proposed ICAP market design. Sensitivities were also conducted based on changes to variables that could significantly impact the results. Additionally, the impact on reliability, the environment and transparency were also considered.

Analysis Assumptions

- Load forecast
 - 2016/17 Capability Year
- IRM/LCR Percentages
 - 2016/17 Capability Year
- ICAP Reference Point and Zero Crossing Point
 - 2016/17 Capability Year
- Supply
 - Summer: August 2016 ICAP Market Results
 - Winter: April 2016 ICAP Market Results
- ICAP/UCAP Locational Derating Factor
 - Summer: 2016 Capability Period
 - Winter: 2015/16 Capability Period
- Exports from the G-J Locality
 - 511 MW (Publically announced, Roseton's 2018/19 obligation to ISO-NE)
 - 362 MW (Headroom on the NY/NE Interface in 2017/18)
 - 200 MW (Lower volume sensitivity)
 - Generic 5% Resource EFORD
- Replace MW from ROS
 - 100%, 50%

Cost Impact under Current ICAP Rules

Table 1 below shows the capacity price impacts if no change was made to the current ICAP market construct. The price impacts were computed based on varying levels of exports from the G-J Locality. We start with an assumption of 362 MW export from the G-J Locality based on the available headroom on the New York AC Ties to New England for 2017/18 (1173 MW Capacity Transfer Limit minus 811 awarded obligations). The first sensitivity was an export level of 511 MW

from the G-J Locality based on the level of obligation Roseton was awarded in ISO-NE's FCM for 2018/19 and the possibility that bilaterals could increase the potential sales from the G-J Locality to New England for 2017/18. The second sensitivity was an export level of 200 MW from the G-J Locality. Figure 4 shows the capacity cost impacts based on the prices shown in Figure 3.

Capacity Market Impact Under Current Market Design (Do Nothing)				
Summer Market Clearing Prices				
	No Export	Do Nothing (511 MW Export)	Do Nothing (362 MW Export)	Do Nothing (200 MW Export)
NYCA	\$3.64	\$4.81	\$4.47	\$4.10
G-J	\$9.23	\$12.53	\$11.56	\$10.52
NYC	\$12.21	\$12.53	\$12.21	\$12.21
LI	\$4.42	\$4.81	\$4.47	\$4.42
Winter Market Clearing Prices				
	No Export	Do Nothing (511 MW Export)	Do Nothing (362 MW Export)	Do Nothing (200 MW Export)
NYCA	\$0.40	\$1.56	\$1.22	\$0.86
G-J	\$2.33	\$5.67	\$4.69	\$3.63
NYC	\$2.33	\$5.67	\$4.69	\$3.63
LI	\$0.41	\$1.56	\$1.22	\$0.86

Figure 3: Price Impacts under Current ICAP Market Design – Do Nothing
Blue Number Denotes Price Cascading

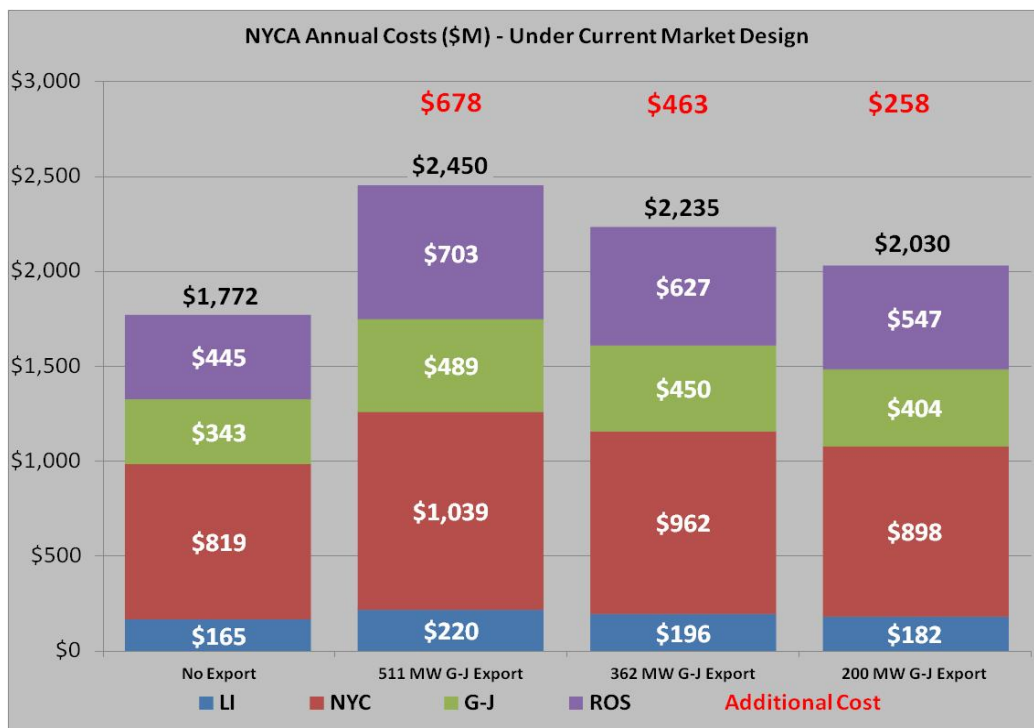


Figure 4: Annual Cost Impacts under Current ICAP Market Design - Do Nothing
(2017/2018 impacts can only be for 11 months based on the June 1 start of ISO-NE's capacity year.)

NYISO’s Proposal

Under the NYISO’s current capacity market design, a capacity export from a Locality would result in a matching decrease in supply in that Locality. However, not all the exported capacity needs to be replaced in the Locality to maintain the same level of reliability. A portion of the exported capacity from the G-J Locality can be replaced with capacity from the ROS. For example, exports from the G-J Locality to ISO-NE, take two paths: Directly over the Southern AC ties to ISO-NE, or over the interfaces along Zones G and F, creating counter-flows into ROS and over the Northern AC ties to ISO-NE. The NYISO proposal decreases the Locality ICAP requirement by the amount of G-J MW that can be replaced by ROS MW by the counter-flow created.

Price Impacts under NYISO’s ICAP Proposal

NYISO’s proposal recognizes that some of the exports from the G-J Locality can be replaced by ROS megawatts and that would avoid the inefficient cost impact of exporting capacity. The price impacts under the NYISO’s ICAP market design proposal are computed based on the assumption that 100%, and alternatively 50%, of the exports from the G-J Locality can be replaced by ROS megawatts. Figures 5, 6, and 7 show the price impacts for both the 100% replacement and 50% replacement assumptions; computed for the same assumed level of exports from the G-J Locality as shown in Figure 4 (511 MW, 362 MW and 200 MW respectively).

Capacity Market Impact Under 511 MW G-J Export				
Summer Market Clearing Prices				
	No Export	Do Nothing	NYISO Proposal 100% Replacement	NYISO Proposal 50% Replacement
NYCA	\$3.64	\$4.81	\$4.81	\$4.81
G-J	\$9.23	\$12.53	\$9.17	\$10.87
NYC	\$12.21	\$12.53	\$12.21	\$12.21
LI	\$4.42	\$4.81	\$4.81	\$4.81
Winter Market Clearing Prices				
	No Export	Do Nothing	NYISO Proposal 100% Replacement	NYISO Proposal 50% Replacement
NYCA	\$0.40	\$1.56	\$1.56	\$1.56
G-J	\$2.33	\$5.67	\$2.04	\$3.88
NYC	\$2.33	\$5.67	\$2.04	\$3.88
LI	\$0.41	\$1.56	\$1.56	\$1.56

Figure 5: Price Impacts under Proposed ICAP Market Design - 511 MW Export
Blue Number Denotes Price Cascading

Capacity Market Impact Under 362 MW G-J Export				
Summer Market Clearing Prices				
	No Export	Do Nothing	NYISO Proposal 100% Replacement	NYISO Proposal 50% Replacement
NYCA	\$3.64	\$4.47	\$4.47	\$4.47
G-J	\$9.23	\$11.56	\$9.19	\$10.39
NYC	\$12.21	\$12.21	\$12.21	\$12.21
LI	\$4.42	\$4.47	\$4.47	\$4.47
Winter Market Clearing Prices				
	No Export	Do Nothing	NYISO Proposal 100% Replacement	NYISO Proposal 50% Replacement
NYCA	\$0.40	\$1.22	\$1.22	\$1.22
G-J	\$2.33	\$4.69	\$2.13	\$3.43
NYC	\$2.33	\$4.69	\$2.13	\$3.43
LI	\$0.41	\$1.22	\$1.22	\$1.22

Figure 6: Price Impacts under Proposed ICAP Market Design - 362 MW Export
Blue Number Denotes Price Cascading

Capacity Market Impact Under 200 MW G-J Export				
Summer Market Clearing Prices				
	No Export	Do Nothing	NYISO Proposal 100% Replacement	NYISO Proposal 50% Replacement
NYCA	\$3.64	\$4.10	\$4.10	\$4.10
G-J	\$9.23	\$10.52	\$9.20	\$9.87
NYC	\$12.21	\$12.21	\$12.21	\$12.21
LI	\$4.42	\$4.42	\$4.42	\$4.42
Winter Market Clearing Prices				
	No Export	Do Nothing	NYISO Proposal 100% Replacement	NYISO Proposal 50% Replacement
NYCA	\$0.40	\$0.86	\$0.86	\$0.86
G-J	\$2.33	\$3.63	\$2.21	\$2.93
NYC	\$2.33	\$3.63	\$2.21	\$2.93
LI	\$0.41	\$0.86	\$0.86	\$0.86

Figure 7: Price Impacts under Proposed ICAP Market Design - 200 MW Export)
Blue Number Denotes Price Cascading

Cost Impacts under NYISO's ICAP Proposal

Figures 8, 9 and 10 show the cost impacts under the NYISO's proposed ICAP market design for capacity export levels of 511 MW, 362 MW and 200 MW respectively, with both the 100% and 50% replacement assumptions.

- Capacity cost impacts based on the NYISO's ICAP market proposal with 100% replacement:
 - The cost increases under the different MW export assumptions that G-J and NYC consumers may incur under the current ICAP market construct (shown in Figure 4) would be avoided under the NYISO's proposal
 - A change in exports from any Locality is accounted for in the NYCA requirements. While the NYISO's ICAP market design proposal avoids the increase in the G-J Locality and NYC, it appropriately does not address the impact in the NYCA-wide and Long Island clearing prices
 - The cost increases under the different MW export assumptions that customers may incur for satisfying NYCA-wide and Long Island requirements are the same under both the current ICAP market construct and the proposed ICAP market design
- Capacity cost impacts based on the NYISO's ICAP market proposal with 50% replacement:
 - The cost increases under the different MW export assumptions that G-J and NYC consumers may incur under the current ICAP market construct (shown in Figure 4) would be reduced under the NYISO's proposal
 - A change in exports from any Locality is accounted for in the NYCA requirements. While the NYISO's ICAP market design proposal reduces the increase in the G-J Locality and NYC, it appropriately does not address the impact in the NYCA-wide and Long Island clearing prices
 - The cost increases under the different MW export assumptions that customers may incur for satisfying NYCA-wide and Long Island requirements would be the same under both the current ICAP market construct and the proposed ICAP market design.

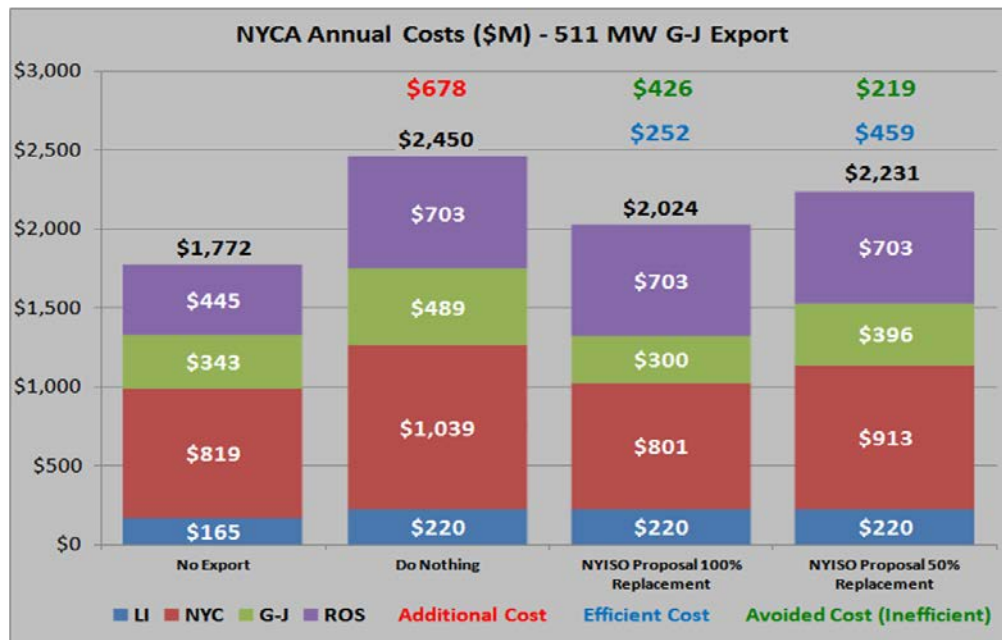


Figure 8: Annual Cost Impacts under NYISO Proposed ICAP Market Design - 511 MW Export (2017/2018 impacts can only be for 11 months based on the June 1 start of ISO-NE's capacity year.)

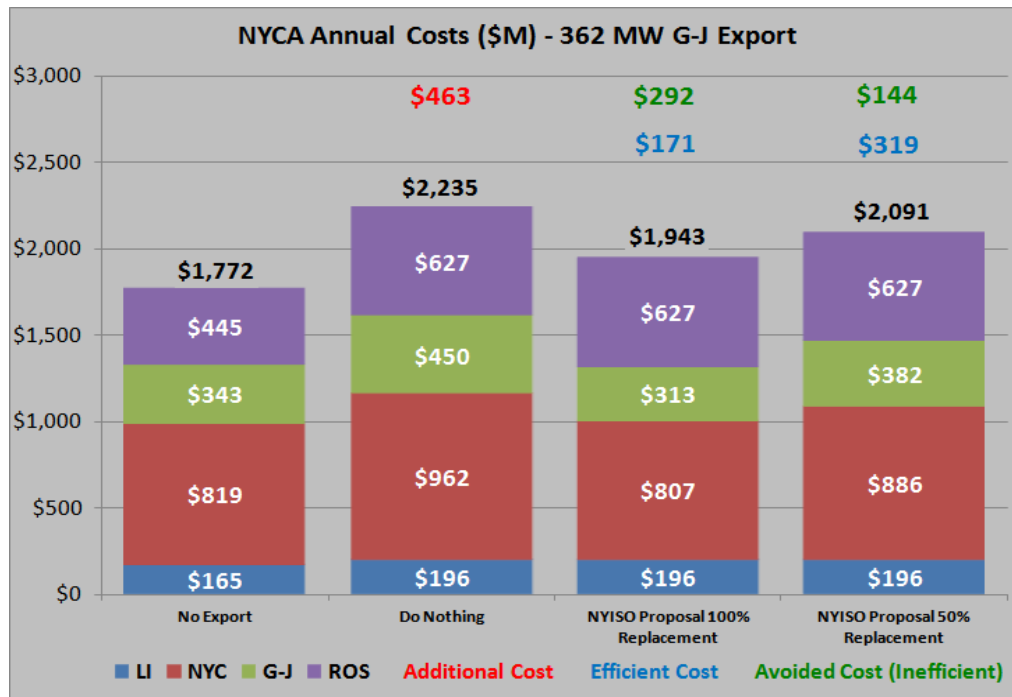


Figure 9: Annual Cost Impacts under NYISO Proposed ICAP Market Design - 362 MW Export (2017/2018 impacts can only be for 11 months based on the June 1 start of ISO-NE's capacity year.)

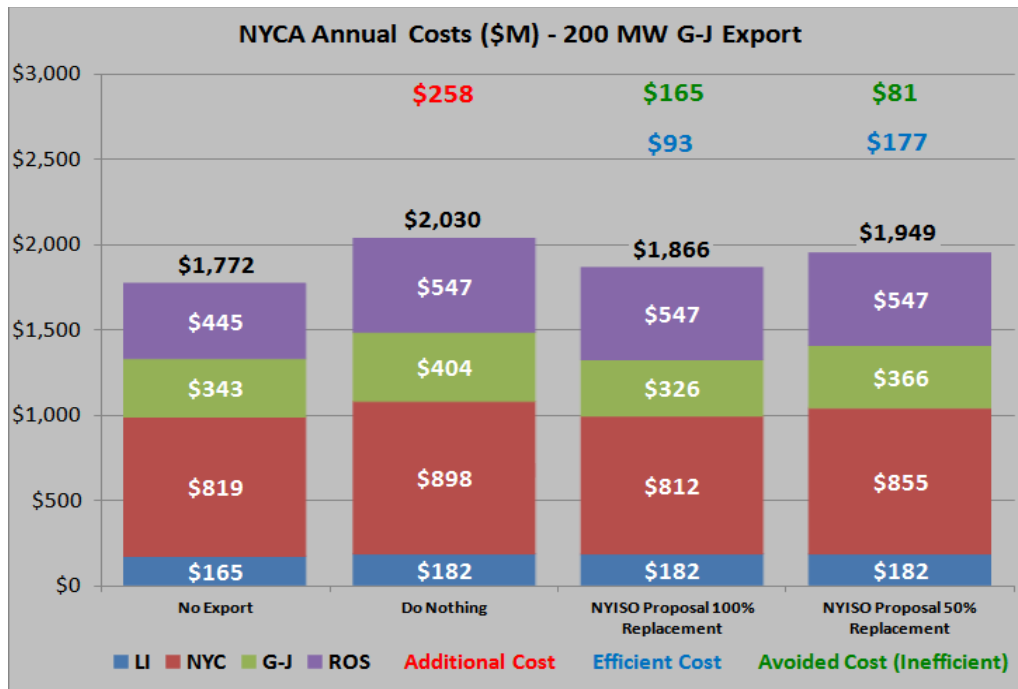


Figure 10: Annual Cost Impacts under NYISO Proposed ICAP Market Design - 200 MW Export (2017/2018 impacts can only be for 11 months based on the June 1 start of ISO-NE's capacity year)

Reliability Impact

Under the NYISO's current capacity market design, the impact of a generator exporting capacity from a constrained Locality is not accurately reflected. The NYISO's proposal addresses the G-J Locality requirement by recognizing that a generator that exports capacity continues to operate in the Locality and requirements can be satisfied by replacing a portion of the export capacity with generation located in ROS:

- No additional need is created by the portion of the locational export capacity that can be substituted with ROS capacity
- Continue to be available for SRE by the NYISO

This recognition avoids procuring more capacity than necessary to meet the Locational Minimum ICAP Requirements.

Environmental Impact

No environmental impact is expected.

Impact on Transparency

No impact on transparency is expected.

Additional Analysis of 2015/2016 ICAP Demand Curve Reset

Background

Based on stakeholder requests, a consumer impact analysis was presented at the August 2, 2016 ICAPWG meeting on the potential annual capacity cost impact of including or excluding dual fuel capability for the peaking plant for the NYCA and the G-J Locality ICAP Demand Curves. The consumer impact analysis was based on the preliminary reference point prices provided by Analysis Group (AGI) in its Draft Report issued on June 23, 2016. In response to stakeholder requests, the consumer impact analysis also included the annual capacity cost impact of gas only units with and without selective catalytic reduction (SCR) emissions control technology for the NYCA and G-J Locality ICAP Demand Curves.

Additional Stakeholder Requests

Some stakeholders requested certain sensitivity analysis based on the estimates provided at the August 2, 2016 ICAPWG meeting. Specifically, stakeholders asked for the impact of varying capacity resource additions and reductions on the analysis provided. An additional request was made to assess the potential impact on consumers if there is no dual fuel capability assumed for the NYCA and G-J Locality ICAP Demand Curves and gas prices spike.

Figures 11, 12 and 13 provide updated estimates of the potential annual capacity cost impact of including or excluding dual fuel capability for the peaking plant in ROS for the NYCA and the G-J Locality ICAP Demand Curves, based on the final reference point prices provided by AGI in its Final Report as updated on September 13, 2016.

- Figure 11 – Updated base case using reference point prices provided by AGI in its September 13, 2016 Final Report
- Figure 12 – Sensitivity analysis of the updated base case assuming a capacity resource addition of 400 MW in the G-J Locality
- Figure 13 – Sensitivity analysis of the updated base case assuming a capacity resource reduction of 400 MW in the G-J Locality

Data from past winters was reviewed to determine if one could reach some conclusion regarding the potential impact on consumers if gas prices spike and there is no dual fuel capability assumed for the NYCA and G-J Locality ICAP Demand Curves. Figures 17 and 18 provide a comparison of data from winter 2013/14 and 2014/15. It shows all days when the maximum temperature was below 20 degrees. As evident from the data, both winters were similar as far as temperatures. However, gas prices were much higher in winter 2013/14 compared to winter 2014/15. This seems to indicate a lack of clear correlation between cold days and high gas prices.

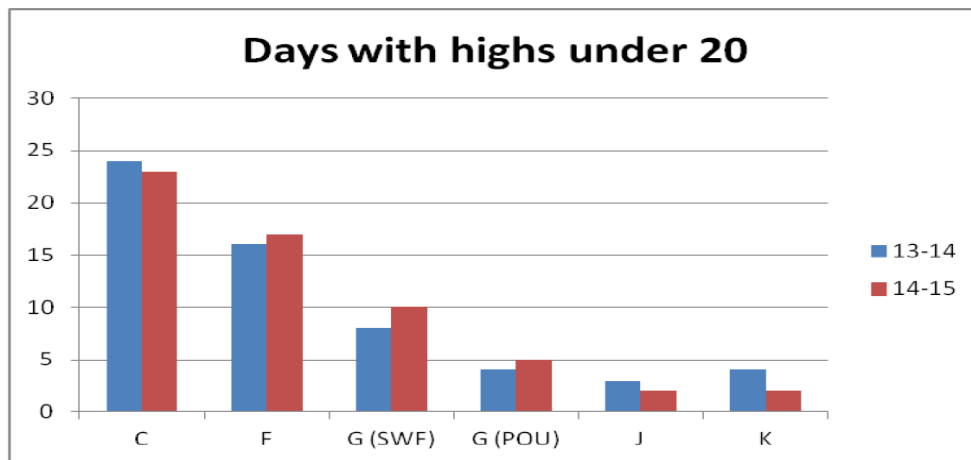


Figure 17

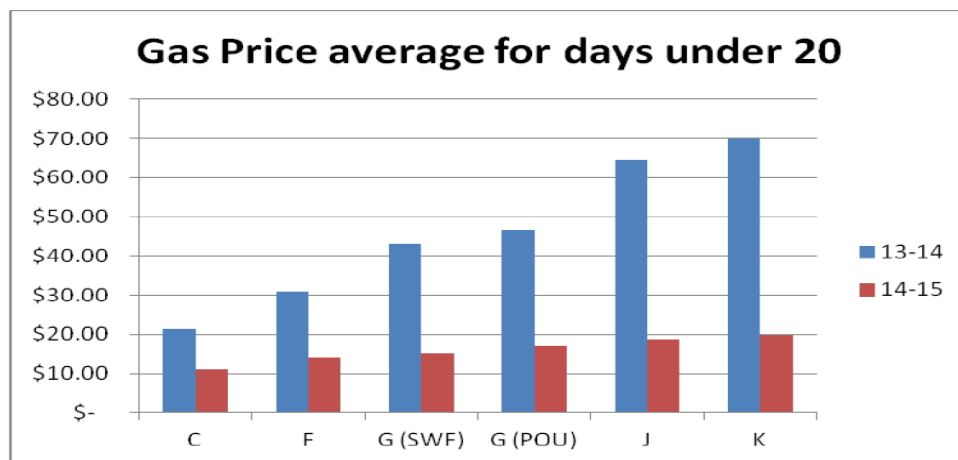


Figure 18

Figure 19 shows reference point prices that would result from the net Energy and Ancillary Services (EAS) revenues received by the peaking plant in each individual year (in contrast to a 3 year average) over the last five years (calculated for 12-month periods from August to July) using AGI’s net EAS revenues model. From this dataset, it can be concluded that the only year when reference point prices were lower for dual fuel, occurred in the year of Aug 2013-July 2014. This resulted from extremely high gas prices and, therefore, the benefits of dual fuel were greater than the increase in capital cost for dual fuel. Notably, other relevant factors should also be considered in assessing whether dual fuel capability is warranted.

Capability Year	Monthly Reference Point for Dual Fuel				Monthly Reference Point for Gas Only Fuel			
	Central	Capital	Dutchess	Rockland	Central	Capital	Dutchess	Rockland
Aug2011-July2012	\$14.37	\$13.49	\$16.04	\$16.28	\$13.15	\$12.29	\$14.55	\$14.73
Aug2012-July2013	\$13.82	\$11.36	\$15.64	\$15.88	\$12.60	\$10.18	\$14.17	\$14.35
Aug2013-July2014	\$10.10	\$8.90	\$12.69	\$12.92	\$9.93	\$9.43	\$13.16	\$13.34
Aug2014-July2015	\$13.16	\$12.60	\$16.23	\$16.49	\$12.02	\$11.76	\$15.03	\$15.23
Aug2015-July2016	\$12.15	\$12.52	\$15.95	\$16.20	\$10.93	\$11.32	\$14.46	\$14.65

Figure 19: Reference Point Prices Calculated Using a Single Year’s Net EAS Revenues

Forecast Enhancements in the Buyer-Side Mitigation Rules

Background/Overview

Under current rules, only units that have provided a written retirement notice to the PSC are excluded from Buyer-Side Mitigation (BSM) revenue forecasts. All Mothball Outage (MO) units, even though some units may not re-enter service, are included in BSM forecast. All ICAP Ineligible Forced Out Units (IIFO), even though some may not re-enter service, are also included in BSM forecasts.

Potential Issues with the Current Rule

Assumptions related to in-Service generating units and UDR projects are important factors in revenue forecasts used for BSM determinations. Including all Mothball Outage (MO) & IIFO units² in the BSM forecast could potentially:

- Over estimate the level of in-service capacity
- Understate forecasted prices
- Lead to over mitigation

Excluding all Mothball Outage (MO) & IIFO units in the BSM forecast could potentially:

- Under estimate the level of in-service capacity
- Overstate forecasted prices
- Lead to under mitigation

NYISO's Proposal³

Include in forecast:

- Currently operating units (i.e., Gold Book⁴)
- Units with “positive indicators” of repair and return to service⁵

Do not include in forecast:

- Retired
- Relinquishing/Transferring of CRIS
- Other publicly available information definitely indicating that a unit will cease operation

² Similar outage states for UDR projects have the same issues and are proposed to be similarly addressed.

³ The NYISO proposal presented in this report was voted on and rejected by stakeholders at the December 14, 2016 BIC. The NYISO will introduce a revised proposal for 2017 based on additional stakeholder feedback received following the 2016 effort.

⁴ Load Capacity Data Report, aka: Gold Book, NYISO Planning Website, Planning Documents and Resources

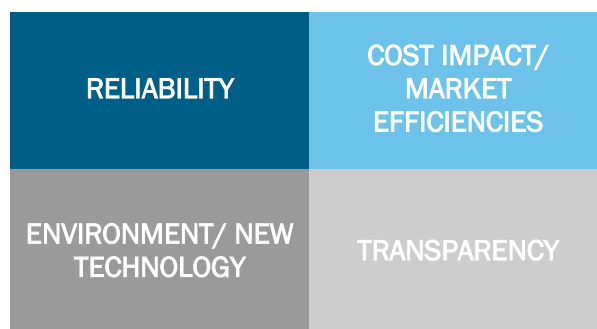
⁵ This Includes: 1) ICAP Ineligible Forced Outage (IIFO) including catastrophic Failure units; 2) Mothball Outage (MO); and 3) Retired and Partial long-term derate

Include in forecast if “inclusion test” is passed:

- Units without “positive indicators” of repair and return to service⁶
- RMR (RSSA) with an expiration date before or during Mitigation Study Period
- Any of the existing and noticed (as applicable) IIFO, MO, and Retired

Consumer Impact Analysis (IA) Evaluation Areas

Present the potential impact on all four evaluation areas.



Cost Impact of NYISO’s Proposal

The BSM forecast does not have a direct impact on price formation. Therefore, the impact on costs to consumers from adjustments made to enhance its accuracy cannot be directly measured. The NYISO’s proposal is expected to increase the accuracy of the BSM forecast and, therefore, decrease the potential for over-mitigation and under-mitigation. The accuracy of the BSM Forecast is inversely correlated with the potential for over-mitigation and under-mitigation.

The impact analysis presented here demonstrates the impact of the NYISO’s proposal on the accuracy of the BSM forecast (also referred to as “Mitigation Assessment”) using a simplified example. It characterizes the short-run impact on costs to consumers of generic and hypothetical – over-mitigation and under-mitigation scenarios. It also discusses, qualitatively, other potential long-term effects of over-mitigation and under-mitigation the significance of which may be reduced under the NYISO’s proposal.

The impact analysis presented does not provide a specific predicted impact on the costs to consumers associated with this proposal. The estimates presented here are purely hypothetical to demonstrate the potential impacts of over-mitigation and under-mitigation.

⁶ Any of the existing and noticed (as applicable) IIFO, MO, and Retired

Impact of Historic Mothball Levels on the ICAP Revenue Forecast⁷

For CY2012 the price (\$/kW-yr) impact of including 100MW of “mothballed” UCAP into the ICAP forecast constituted:

- 11% of NYC Default Net Cost of New Entry ⁸ (CONE)
- 9% of G-J Locality Default Net CONE

For CY2012 the price (\$/kW-yr) impact of including the total “mothballed” UCAP into the ICAP forecast constituted:

- Up to 50% of NYC Default Net CONE
- Approximately 40% of G-J Locality Default Net CONE

Impact on Mitigation Assessment

Figure 20 uses a hypothetical numerical example to illustrate the potential impact of including “mothballed” units in the revenue forecast on the Mitigation Assessment outcome. It shows forecasted UCAP prices both with and without including the “mothballed” units in the BSM determinations. The forecasted UCAP price that includes 200 MW of “mothballed” units in the forecast is \$147.85/kW-year and that falls short of the assumed default net cone of \$170.00/kW-year, hence a new CY unit does not pass the Part A test. Removing the 200 MW of “mothballed” units from the forecast results in a forecasted UCAP price of \$175.19/kW-year, which is above the assumed default net cone of \$170.00 kW-year and hence a new CY unit passes the Part A test.

⁷ This analysis does not consider UDR projects

⁸ Default Net CONE is defined as 75% of Mitigation Net CONE

Hypothetical Example of UCAP Price Forecast		
Demand Curve	Summer	Winter
Load Forecast	12,050.0	12,050.0
LCR/IRM Percentage	85.0%	85.0%
Demand Curve ICAP Reference Point	\$18.95	\$18.95
ICAP/UCAP Derating Factor	5.00%	5.00%
UCAP Reference Point	\$19.95	\$19.95
UCAP Requirement	9,730	9,730
Demand Curve Zero Crossing	118%	118%
UCAP at \$0	11,482	11,482
Demand Curve Slope	-0.0114	-0.0114
Supply Curve		
Previously Existing UCAP	9,800.0	10,400.0
Class Year Project	100	100
Mothball MWs	200	200
Total UCAP	10,100.0	10,700.0
Auction Results		
MCP, Current approach (including Mothballed unit)	\$15.74	\$8.90
MCP without Mothballed unit	\$18.02	\$11.18
Mothballed Included (Current Approach): Total \$kW-year		\$147.85
Mothballed excluded: Total \$kW-year		\$175.19
Default Net Cone		\$170.00

Figure 20

Impact on Capacity Prices

Figures 21 and 22 illustrate the impact of hypothetical over or under mitigation on future capacity prices in Zone J and the G-J Locality, respectively. They show marginal clearing prices and associated total annual capacity costs with and without a hypothetical new 100 MW unit. The difference in total capacity costs with and without the hypothetical new 100 MW unit would result from both over and under mitigation and cause harm to different market sectors.

On the one hand, if “mothballed” MW that are not likely to return to service are included in the forecast for BSM determination, this could result in over mitigation. Over mitigation could potentially cause a new economic unit to not be able to clear the market, or not enter at all, and thereby increase capacity costs (\$1,772.1 million compared to \$1,567.6 million and \$1,643.4 million if a new economic 100 MW unit had entered Zone J or the G-J Locality, respectively). If a new economic 100 MW had entered the market in Zone J (NYC), the total NYCA capacity cost would have been \$204.5 million lower (Figure 21) while the total NYCA capacity cost would be \$128.7 million lower in the new economic 100 MW unit had entered the market in the G-J Locality (Figure 22).

Conversely, if “mothballed” MW that are likely to return to service are excluded from the forecast for BSM determination, this could result in under mitigation. Under mitigation could potentially lead to a hypothetical uneconomic new unit being exempt and thus entering the market

without an Offer Floor and thereby artificially suppress capacity costs (\$1,567.6 million and \$1,643.4 million compared to \$1,772.1 million if a new uneconomic 100 MW unit had not entered Zone J or the G-J Locality, respectively). As a result of a hypothetical new uneconomic 100 MW entering the market in Zone J (NYC), the total NYCA capacity cost are \$204.5 million lower (Table 2) while the total NYCA capacity cost are \$128.7 million lower as a result of a hypothetical new uneconomic 100 MW unit entering the market in the G-J Locality (Figure 22).

Artificial capacity price suppression as a result of under mitigation will: 1) Harm investor confidence and disincentivize new investment, including new entry; 2) Potentially displace otherwise economic existing units with more expensive new ones, thus increasing total production costs; or 3) Increase cost to consumers in the long-run as a result of higher production costs.

Capacity Cost -- With and Without New Entry NYC 2016/2017				
Demand Curve	Summer	Winter		
Load Forecast	11,793.5	11,793.5		
LCR/IRM Percentage	80.5%	80.5%		
Demand Curve ICAP Reference Point	\$19.37	\$19.37		
ICAP/UCAP Derating Factor	9.53%	10.49%		
NYC UCAP Reference Point	\$21.41	\$21.64		
NYC UCAP Requirement	8,589	8,498		
Demand Curve Zero Crossing	118%	118%		
UCAP at \$0	10,135	10,027		
Demand Curve Slope	-0.0138	-0.0141		
Supply Curve				
Previously Existing UCAP	9,253	10,092		
New Build MWs	100	100		
Total UCAP	9,353	10,192		
Auction Results				
NYC MCP with New Build MWs included	\$11.88	\$1.64		
NYC MCP without New Build MWs included	\$12.21	\$2.33		
Total Capacity Cost without New Build			\$1,772.1	Difference
Total Capacity Cost with 100MW New Build			\$1,567.6	\$204.5

Figure 21

Capacity Cost -- With and Without New Entry G-J 2016/2017				
Demand Curve	Summer	Winter		
Load Forecast	16,309.4	16,309.4		
LCR/IRM Percentage	90.0%	90.0%		
Demand Curve ICAP Reference Point	\$12.68	\$12.68		
ICAP/UCAP Derating Factor	7.93%	8.45%		
G-J UCAP Reference Point	\$13.77	\$13.85		
G-J UCAP Requirement	13,514	13,438		
Demand Curve Zero Crossing	115%	115%		
UCAP at \$0	15,542	15,454		
Demand Curve Slope	-0.0068	-0.0069		
Supply Curve				
Previously Existing UCAP	14,183	15,114		
New Build MWs	100	100		
Total UCAP	14,283	15,214		
Auction Results				
G-J MCP with New Build MWs included	\$8.55	\$1.65		
G-J MCP without New Build MWs included	\$9.23	\$2.34		
Total Capacity Cost without New Build			\$1,772.1	Difference
Total Capacity Cost with 100MW New Build			\$1,643.4	\$128.7

Figure 22

Environmental Impact

Realistic assumptions regarding Mothball Outage and IIFO units would reduce the potential for over and under mitigation in BSM determination. Newer equipment with advanced technology should lead to higher efficiency, better fuel utilization and emission reductions.

Reliability Impact

Realistic assumptions regarding Mothball Outage and IIFO would avoid disincentives for new entry and potential incentives for some existing units to not invest towards remaining in the market or to prematurely leave the market. Newer units should lead to an increase in reliability.

Impact on Transparency

No impact on transparency is expected.

Impact of 2017/2018 ICAP Demand Curves on Annual Capacity Costs

Background/Overview

The discussion regarding the 2015/2016 Demand Curve Reset focused on providing the potential annual capacity cost impacts of including or excluding dual fuel capability and selective catalytic reduction (SCR) emissions control technology in the peaking plant designs for the NYCA and the G-J Locality ICAP Demand Curves. This analysis is focused on the total NYCA-wide annual capacity cost impact of the 2017/18 NYISO Demand Curve recommendations compared to the 2016/17 Demand Curves based on the 2016/17 load forecast.

Analysis Assumptions Underlying Figure 23

- The analysis discussed assumes no changes in plant additions or retirements, the current IRM/LCRs (2016/17) and no changes in exports or imports
- **First Bar (2016/2017 Base Case):**
 - Load forecast
 - 2016/17 Capability Year
 - IRM/LCR Percentages
 - 2016/17 Capability Year
 - ICAP Demand Curve Reference Point Value
 - 2016/17 Capability Year, as approved by FERC during the 2013 DCR
 - i. NYC: With Dual Fuel/SCR
 - ii. LI: With Dual Fuel/SCR
 - iii. G-J: With Dual Fuel/SCR
 - iv. ROS: Without Dual Fuel and Without SCR
 - Supply
 - Summer: October 2016 ICAP Market Results
 - Winter: April 2016 ICAP Market Results
 - ICAP/UCAP Locational Derating Factor
 - Summer: 2016 Capability Period
 - Winter: 2016/17 Capability Period
- **Second Bar:** Same assumptions as First Bar, except:
 - ICAP Reference Point
 - 2016/17 Capability Year, as approved by FERC during the 2013 DCR

escalated by 2.2%

- i. NYC: With Dual Fuel/SCR
- ii. LI: With Dual Fuel/SCR
- iii. G-J: With Dual Fuel/SCR
- iv. ROS: Without Dual Fuel and Without SCR

- **Third Bar:**

- Same assumptions as Second Bar, except
- ICAP Reference Point
 - 2017/18 Capability Year
 - i. NYC: With Dual Fuel/SCR (NYISO Staff's Recommendation)
 - ii. LI: With Dual Fuel/SCR (NYISO Staff's Recommendation)
 - iii. G-J: With Dual Fuel/SCR (NYISO Staff's Recommendation)
 - iv. ROS: Without Dual Fuel and With SCR (NYISO Staff's Recommendation)

Explanation of Figure 23

- The first bar (far left) shows total NYCA-wide annual capacity costs (\$2,303 million) for the 2016/2017 Capability Year based on the current 2016/17 ICAP Demand Curves and the 2016/17 load forecast.
- The center bar shows an increase of \$52 million from the base case in total NYCA-wide annual capacity costs based on the 2016/17 Demand Curves escalated by 2.2%. All other assumptions, including the 2016/17 load forecast are the same as Bar 1.
- The right-side bar shows an increase of \$239 million from the base case in total annual NYCA-wide capacity cost based on the NYISO staff recommended Demand Curves for 2017/18. All other assumptions, including the 2016/17 load forecast are the same as Bars 1 and 2.

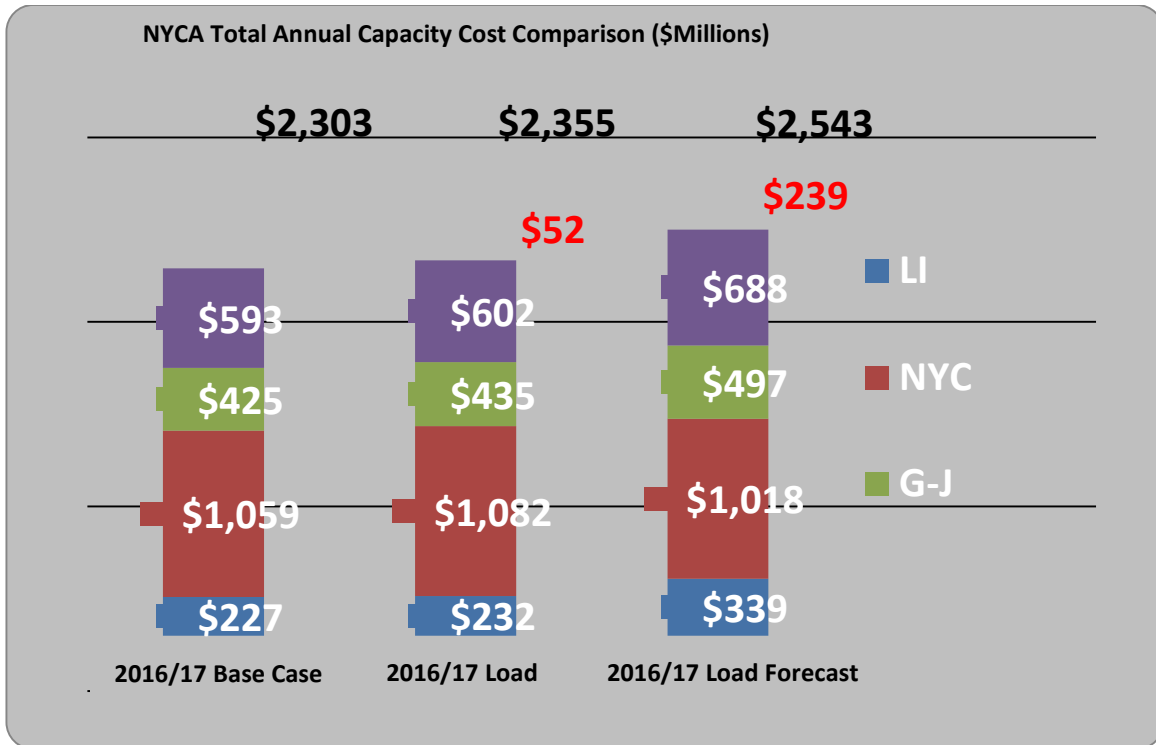


Figure 23

Consumer Impact Analyses: 2017 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 NY 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

2017 Proposed Projects for Consumer Impact Analysis

- Possible Mechanisms to Determine Need to Eliminate Capacity Zones Model Zone K as Export Constrained
- Alternative Methods for Calculating the Locational Capacity Requirements
- Integrating Public Policy
- Treatment of Capacity Exports from Localities
- On Ramps and Off Ramps for Zones
- Model 100+KV Transmission Constraints

Possible Mechanisms to Determine Need for Elimination of Capacity Zones

- *Description:* Consistent with the FERC's August 2013 New Capacity Zone (NCZ) Order, the NYISO will work with stakeholders to consider if a mechanism is needed to eliminate a Locality created pursuant to the NCZ process
- *Benefit:* Providing clarity regarding the potential elimination of certain Localities and the rules of such assessments if it is determined that a mechanism to eliminate is necessary
- *Screen:* Significant market design concept

Alternative Methods for Calculating the Locational Capacity Requirements

- *Description:* This project would consider alternative methods for calculating Locational Capacity Requirements (LCRs) for the G-J, J and K localities
- *Benefit:* Enhance market efficiency. May reduce the costs of meeting the LCRs
- *Screen:* Significant Market Design Concept

Integrating Public Policy

- *Description:* Explore market design changes that provide generators incentives to be available, especially during times when the risk of reduced real-time resource availability is high due to interchange and fuel supply uncertainty
- *Benefit:* Provide incentives for intra-day operational flexibility and promote increased resource availability and performance
- *Screen:* Significant Market Design Concept

Treatment of Capacity Exports from Localities

- *Description:* Modify the capacity and planning process to better account for capacity that is exported to neighboring Control Areas from Localities
- *Benefit:* Establishes rules to properly recognize the reliability benefit to a Locality from a generator that exports capacity from import constrained Localities
- *Screen:* Significant Market Design Concept

On Ramps and Off Ramps for Zones

- *Description:* Develop process changes to allow for timely development of reference prices, identification of representative peaking units and other related changes associated with the potential elimination (off-ramp) and creation (on-ramp) of capacity zones (i.e., Localities created pursuant to the NCZ process) between Demand Curve resets
- *Benefit:* May result in more timely creation or elimination of Localities pursuant to the NCZ process
- *Screen:* Significant Market Design Concept

Model 100+KV Transmission Constraints

- *Description:* This project would investigate the feasibility of the NYISO managing the up-state 115kV transmission constraints in the Day-Ahead and Real-Time markets
- *Benefit:* Currently, these constraints are managed through out-of-market actions which contribute to the need for cost-of-service contracts to keep existing capacity in service. Reflecting these constraints in the market scheduling system could improve the efficiency of real-time dispatch and day-ahead commitment decisions
- *Screen:* Incorporates new technology into NYISO markets for first time

Key 2017 Electrical Industry Initiatives

NYS Clean Energy Standard

The New York Public Service Commission (PSC) adopted a Clean Energy Standard (CES) in August 2016, instituting a timeline for the load serving entities (LSE) in the state to procure at least 50% of the electricity consumed in the state from renewable energy resources by 2030. The Clean Energy Standard is designed to succeed the New York Renewable Portfolio Standard (RPS).⁹

The Clean Energy Standard is divided into three Tiers. Tier 1 and Tier 2 constitute the Renewable Energy Standard (RES) component of CES with the goal of serving 50% New York State's load from renewable energy resources by 2030. Tier 3 is an additional component of CES, which is designed to support the state's existing nuclear facilities as a bridge to 50% renewables to ensure that New York State does not backslide on greenhouse gas emission reductions. The emission credits from nuclear sources cannot be used for compliance towards the State's RES goals.¹⁰

50 X 30

The Clean Energy Standard will require 50 percent of New York's electricity to come from renewable energy sources like wind and solar by 2030, with an aggressive phase in schedule over the next several years. In its initial phase, utilities and other energy suppliers will be required to procure and phase in new renewable power resources starting with 26.31 percent of the state's total electricity load in 2017 and grow to 30.54 percent of the statewide total in 2021.¹¹

The 2030 target of serving 50% of load from renewable resources is allocated to individual Load Serving Entities (LSEs) and others based on an allocation formula tied in part to the LSE customer's percentage contribution to the total System Benefits Charge (a DPS mandated charge to customers that is levied by distribution utilities and used to fund renewable energy incentives among other programs). The actual target of MWh in any period may be adjusted based on a number of factors. Among other things, LSE targets may be impacted by other market activity that includes retail, end-user participation in opt-in or other voluntary programs, energy efficiency, behind the meter third party renewable investments, conservation and other variations in demand

⁹ <http://programs.dsireusa.org/system/program/detail/5883>

¹⁰ <http://programs.dsireusa.org/system/program/detail/5883>

¹¹ Governor Cuomo Announces Establishment of Clean Energy Standard that Mandates 50 Percent Renewables by 2030, <https://www.governor.ny.gov/news/governor-cuomo-announces-establishment-clean-energy-standard-mandates-50-percent-renewables>

and supply.¹²

In coordination with the Clean Energy Standard order, New York State is also moving forward with an offshore wind plan. The New York State Energy Research and Development Authority (NYSERDA) released an offshore wind blueprint to lay out a long-term statewide plan for developing this invaluable resource. Recently, NYSEDA announced its intent to bid into a federal leasing process for New York's Wind Energy Area and the Long Island Power Authority announced its support for building New York State's first offshore wind farm and the largest offshore wind project in the country, 30 miles off the coast of eastern Long Island.

Making a long-term commitment to a pipeline of offshore wind projects will be crucial to achieving the governor's 50 percent by 2030 goal while also establishing New York as a regional offshore wind hub.

ZECs

The Governor of New York State has said that maintaining zero-emission nuclear power is a critical element to achieving New York's ambitious climate goals¹³. Starting in April 2017, the Clean Energy Standard requires all six New York investor-owned utilities and other energy suppliers to pay for the intrinsic value of carbon-free emissions from nuclear power plants by purchasing Zero-Emission Credits. The New York Power Authority and the Long Island Power Authority are also expected to adopt the same requirements.

NYSERDA will administer multiyear contracts with eligible plants. The contracts will be administered in six two-year tranches. The price to be paid for ZECs will be administratively determined and not market based. The formulaic price will be based on the projected social cost of carbon as published by the US Interagency Working Group less social costs already captured through the Regional Greenhouse Gas Initiative and anticipated energy and capacity prices that exceed \$39 MWh.

Based on estimates available at the time of writing, the ZEC price will begin at \$17.48 for the first tranche for the period April 1, 2017 through March 31, 2019 and will escalate to \$29.15 in the sixth tranche for the two-year period April 27, 2027 through March 31, 2029, although the uplift could be significantly lower based on market prices. The facilities will have an obligation to produce the ZECs and sell them to NYSEDA through March 31, 2029, except during periods when the

¹² Energy Finance Report; <http://blog.sandw.com/energyfinancereport/topic/clean-energy-standard>

¹³ <https://www.governor.ny.gov/news/governor-cuomo-announces-establishment-clean-energy-standard-mandates-50-percent-renewables>

calculated price is \$0. There will be financial penalties for not meeting the obligation to produce.¹⁴

Distributed Energy Resources

DER Workshop

Technological advancements and public policy initiatives are encouraging greater adoption of Distributed Energy Resources (DERs) to meet consumer energy needs as well as system needs. DERs offer the potential to make load more dynamic and responsive to wholesale market price signals, potentially improving overall system efficiencies.

A DER workshop was initiated and held by the NYISO on September 22, 2016 at the Radisson Wolf Road to assist with the NYISO's efforts to develop and prioritize its work on the DER Roadmap.

NYISO President and CEO Brad Jones said New York is leading the country when it comes to integrating DER into the grid. Distributed energy, he said, "is a natural extension of our mission."

PSC Chair Audrey Zibelman delivered a keynote address on the importance of energy innovation in New York. She thanked the NYISO for hosting the workshop and beginning the discussion of how to move forward with a roadmap. "We appreciate the ISO showing its leadership."

The workshop allowed participants to share perspectives and feedback on the NYISO's draft report, "Distributed Energy Resource Roadmap for New York's Wholesale Electricity Markets"¹⁵. Released in August, the draft DER Roadmap solicits stakeholder comment on actions the NYISO may take to integrate DER into wholesale electricity markets over the next three to five years.

Panelists representing various NYISO customers agreed communication is a top concern when it comes to integrating new resources through the roadmap. Shelly Lyser, Project Specialist in the Energy Markets Policy Group at Con Edison, said enabling new types of resources will require communication and coordination from the wholesale level to the customer level. "If you don't have visibility and transparency, you won't be able to measure the value of these resources."¹⁶

The DER Workshop was attended by several stakeholders and a large number of suggestions and comments were received in the effort to provide direction and consensus on the pending

¹⁴ https://nuclearstreet.com/nuclear_power_industry_news/b/nuclear_power_news/archive/2016/07/21/fitch-ratings-weighs-in-on-new-york_2700_s-zero-emissions-credit-plan-072102#.WDW-A7Am7IU

¹⁵ Distributed Energy Resources Roadmap for New York's Wholesale Electricity Markets
http://www.nyiso.com/public/webdocs/media_room/press_releases/2017/Child_DER_Roadmap/Distributed_Energy_Resources_Roadmap.pdf

¹⁶ Connection --
http://www.nyiso.com/public/webdocs/media_room/publications_presentations/NYISO_Connection/NYISO_Connection/nyiso_connectionQ3_2016%20Final.pdf

finalized DER Roadmap.

DER Roadmap

Technological advancements and public policies, particularly New York State Public Service

Commission's (PSC) Reforming the Energy Vision (REV), are encouraging greater adoption of Distributed Energy Resources (DER) to meet consumer energy needs as well as system needs. DER offer the potential to make load more dynamic and responsive to wholesale market price signals, potentially improving overall system efficiencies.

In August, 2016 the NYISO released a draft of the Distributed Energy Resources Roadmap for New York's Wholesale Electricity Markets. The DER Roadmap is a plan for the next 3-5 years for integration of DER and evolution of existing Demand Response (DR) programs. The DER Roadmap is an effort in progress to:

- Integrate DER into energy markets
- Align with goals of NYS REV
- Measurement and verification
- Align payments with performance

Through the DER program, the NYISO will accommodate controllable resources with various capabilities and a desire to participate in the wholesale markets. Integrating DER in this manner will require enhancements to wholesale market design, system planning, and grid operations to better align resource investments and performance with system needs and conditions.

The DER Roadmap discusses the NYISO's proposed approach for enhancing the integration of DER into New York's wholesale electricity markets with a design to increase DER participation in economic-based DR programs. The discussion presents proposals to enable the participation of many types of behind-the-meter resources in the NYISO markets and provides a framework for developing specific market designs and rules over the next three to five years. With the guidance of this roadmap, the NYISO envisions integration of DER into its markets through the economic dispatch of such resources in a manner that aligns compensation with system requirements. Realizing this goal will require an examination of DER performance obligations, operating characteristics, metering and telemetry requirements, measurement and verification of baselines and performance, market modeling, and an understanding of how to balance the simultaneous participation.

The NYISO continues to discuss the DER Roadmap with stakeholders and anticipates the Final

Draft to be posted in early 2017.

Energy Storage

NYISO is addressing proposed market design concepts to incorporate energy storage into the wholesale markets. The NYISO initiative is for wholesale grid connected storage resources only (i.e., resources in front of the meter on the transmission system without any load), and all other storage resources to be addressed as part of the NYISO's Distributed Energy Resource (DER) program initiative. The current storage participation options include the Energy Limited Resource (ELR) and the Limited Energy Storage Resource (LESR) options. The proposed market design concept will seek to reduce barriers for storage resources to participate in the wholesale markets by enhancing the current LESR product.

Long-term concepts the NYISO will be considering in the market design for energy storage will include:

- Single incremental energy storage offer
- Transition Constraints
- Transition Time Constraint
- RTC Selection Method
- Option for RTC or RTD to select the charging or injection state
- Forbidden Operating Region Constraint

There is a proposed project for 2017, Energy Storage Optimization and Integration, to continue this effort and assess further opportunities to optimize and integrate grid connected energy storage resources in the wholesale market. The NYISO anticipates seeking stakeholder approval for the initial Energy Storage Market Design concepts in early 2017 with a targeted implementation in 2018.

Effects of AC Transmission on the Penetration of Renewable Resources

In 2013, The Brattle Group, an international economic consulting firm, conducted a comprehensive study of the value of transmission investments. It identified benefits that included enhanced system reliability, more effective market competition, capacity cost savings, environmental benefits resulting from expanded use of cleaner resources, and reduced costs of meeting public policy goals.¹⁷ A 2015 update of that study stated, "Ultimately, our transmission grid

¹⁷ The Benefits of Electric Transmission: Identifying and Analyzing the Value of Investments, The Brattle Group, July 2013.

is the backbone that supports all future policy changes in the electricity sector.”¹⁸

Over the past several years in New York, the NYISO, New York Transmission Owners, and New York State government have identified the need for transmission investments.

New and upgraded transmission capacity would help to address concerns about maintaining or replacing aging infrastructure; provide greater operational flexibility for dispatching resources; enhance access to operating reserves and ancillary services; and facilitate the ability to remove transmission and generation resources for maintenance when needed. Increased transmission capability can further advance the integration of renewable energy resources by enabling wind resources and potential solar installations in western and northern New York to serve the more populous southeastern region of the state. Enhanced upstate/downstate transmission capability would likewise help to more efficiently serve southeastern New York’s electricity demands when environmental regulations limit the production of local fossil-fueled generation.¹⁹

Solar and Wind penetration

The NYISO’s innovative market design and pioneering work in wind forecasting made New York a leader in wind power integration, and the next step is applying that success to solar energy.

The establishment of the NY-Sun Initiative, its ambitious goal, and the success of the program to date has prompted the NYISO to investigate a number of specific potential grid operation needs presented by the increasing penetration of intermittent solar and wind resources. Specifically, this study has four primary areas of investigation:

- Development of hourly solar profiles and a 15-year solar PV projection in the NYCA;
- “Lessons learned” and integration studies from other regions experiencing significant growth in solar PV and wind resources;
- Potential reliability concerns associated with the frequency and voltage ride-through characteristics of solar PV installations; and
- The impact of various levels of solar PV and wind penetration on NYCA’s regulation requirements used to balance the system and maintain frequency and other key parameters in grid operations.²⁰

¹⁸ Toward More Effective Transmission Planning: Addressing the Costs and Risks of an Insufficiently Flexible Electricity Grid, Brattle Group, April 2015.

¹⁹ Power Trends – http://www.nyiso.com/public/webdocs/media_room/publications_presentations/Power_Trends/Power_Trends/2016-power-trends-FINAL-070516.pdf

²⁰ Solar Integration Study; http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_espwg/meeting_materials/2016-06-07/Solar%20Integration%20Study%20Report%20Draft%20060716%20ESPWG.pdf

The NYISO solar integration study lays the groundwork for reliably managing projected growth in solar resources. The report, *Solar Impact on Grid Operations: An Initial Assessment*, examines the potential for growth in solar power, the impact of increasing intermittent resources on grid operations, and forecasting issues that must be addressed to make effective use of solar resources in the future.

The study finds the New York electric system can reliably manage the increased variability in five-minute loads associated with the solar PV and wind penetration levels studied -- up to 4,500 MW of wind and 9,000 MW of solar photovoltaics (PV) -- through modest increases in regulation service requirements. Regulation service corrects for changes in electricity use affecting the stability of the power system.

Large-scale deployment of behind-the-meter solar PV will impact the NYISO's load profile and system operations. Although these impacts may be mitigated in the future by on-site storage technology, the study recommends the incorporation of real-time and day-ahead solar forecasts into its control room operations and markets as soon as practicable. Similar to its pioneering work in the area of wind forecasting, the NYISO began evaluating potential solar forecasting systems earlier this year and is on track to have a system in place by summer 2017.

Integrating Public Policy

New York State has undertaken a very strong stance on being a leader in the Clean Energy and Renewable Energy forum. With the 2016 introduction of the Clean Energy Standard, the New York State Public Service Commission has put forward an aggressive plan to reduce the level of greenhouse gases produced through energizing the state electric grid. The NYISO supports the transition to a cleaner energy system and, in anticipation of a new way of doing business, has scheduled a project entitled *Integrating Public Policy*, beginning in 2017.

The project is currently underway with the assistance of a consultant, the Brattle Group. Under this initiative the NYISO will investigate potential market designs that can fully incorporate the cost of carbon into the wholesale markets. It will also aid in the determination of whether other wholesale products or alternatives for incorporating the cost of carbon into the wholesale market could improve market efficiency and address potential market impacts.²¹

The Brattle Group will produce a white paper in support of the *Integrating Public Policy*

²¹ http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_miwg/meeting_materials/2017-01-31/NYISO%20Integrating%20Public%20Policy%20Project.pdf

initiative in 2017. The whitepaper will qualitatively and quantitatively examine if adding a carbon charge (on top of CES and other existing mechanisms) would help New York State achieve its decarbonization goals more cost effectively.²²

The white paper will investigate:

- Motivation – providing background on decarbonization efforts and approaches to addressing the environmental externality
- Lessons Learned from Other Jurisdictions – reflect on several developing programs from around the world
- Options for Pricing CO₂ in the NYSIO Wholesale Markets
- Market Design Aspects of Implementing a Carbon Charge – issues such as determining the appropriate CO₂ price, allocation of collections, external/import pricing, DER
- Effect on Customer Costs

NYISO's goal is to provide stakeholders with information regarding potential market conditions with the incorporation of renewable resources to meet New York State's mandate of 50% of the NYCA load. The Consumer Interest Liaison will continue to monitor progress throughout this developing initiative and provide analysis where necessary.

NYISO Governance

Stakeholders, including end use consumer representatives, play a significant role in decision making through the NYISO's shared governance process. Stakeholders participate in 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 have discussion, debate and vote on issues regarding the administration of the markets, the operation of the New York's bulk power system, and the planning for system reliability.

In 2016, 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 governing agreements establish specific responsibilities for all three standing stakeholder committees. These committees perform their responsibilities in accordance with their

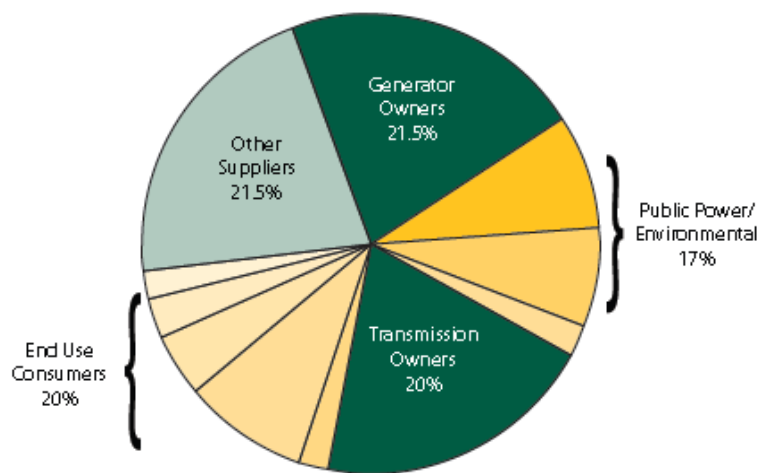
²² CO₂ Pricing in NYISO's Wholesale Energy Market, Brattle Group, December 14, 2016 presentation to NYISO MIWG; http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_miwg/meeting_materials/2016-12-14/2016-12-06%20NYISO%20Carbon%20Charge%20Project%20Introduction.pdf

bylaws and in coordination with work performed by NYISO management and staff. 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 and
- Reviewing the preparation of and approving the NYISO’s annual budget.

The NYISO stakeholders and the NYISO Board of Directors share the responsibility for developing and approving proposed changes to the NYISO’s governing documents and federally-approved 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 the Federal Energy Regulatory Commission (FERC) under Section 205 of the Federal Power Act¹⁶. The FERC has 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...”¹⁷

Transmission Owners, Generation Owners, Other Suppliers, End Use Consumers, and Public Power/ Environmental interests. Sector representatives vote in the stakeholder committees. Each stakeholder’s vote in a committee is equal to a percentage of its sector’s allocated voting shares. Actions by the committees require a 58% vote of approval to pass. The voting shares in all three standing committees are allocated among the sectors and subsectors as follows:





Generation Owners (21.5%), Other Suppliers (21.5%), Transmission Owners (20%), Large Consumer (9%), Large Consumer - Government Agencies (2%), Small Consumer (4.5%), Government - Statewide Consumer Advocate (2.7%), Government - Small Consumer & Retail Aggregators (1.8%), Public Power and Environmental Parties (17%), State Power Authorities (8%), Municipal and Cooperatively Owned Electric Systems (7%), Environmental Parties (2%)



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 New York State Public Service Commission (PSC) and the Federal Energy Regulatory Commission (FERC) regularly participate in and monitor issues addressed by the NYISO committees.

Appendix

Process Improvements in the Communication of Consumer Impact Analyses

Background

During the last quarter of 2014 and continuing into the first quarter of 2015, the NYISO received extensive feedback on the manner in which it communicates and conducts its Consumer Impact Analyses. Some of this feedback came at the October 30, 2014, Market Issues Working Group (MIWG) meeting during the presentation of the Comprehensive Shortage Pricing Consumer Impact Analysis. Additional feedback was received at the December 17, 2014, Management Committee meeting during the presentation of the Comprehensive Shortage Pricing proposal.

To obtain additional feedback, the Consumer Interest Liaison met with representatives of all sectors in small group discussions. These meetings took place in January and February 2015:

- January 14: Generator and Other Supplier
- January 28: TO and Public Power
- February 10: DR and Environmental Interests
- February 12: End-Use Sector

The Consumer Interest Liaison also had a meeting on February 5, 2015, with the Department of Public Service (DPS) staff to get their feedback.

Response to Stakeholder Feedback

Based on feedback from stakeholders, the NYISO proposed a number of changes/additions to the manner in which Consumer Impact Analyses (CIA) are conducted and presented. The focus was on actionable suggestions while also taking note of other comments.

Proposed Changes

- The Consumer Interest Liaison will continue to maintain its independence in conducting and presenting CIAs
- Provide stakeholders a preliminary indication at the outset of a market design initiative whether a project is expected to have a major consumer impact to exceed \$50 million per year
- Present to stakeholders a description of the methodology to be used for CIAs before conducting the impact analysis

- CIA presentations will provide greater detail on how estimates are computed
- With the exception of confidential information, MPs would have information required to reproduce (duplicate) results
- *Present to stakeholders the final CIA at least 30 days prior to submission of the market design initiative to BIC, OC and/or MC for approval*
- Present CIAs as a total package rather than just a focus on numbers
 - The analysis to include, in detail, the reasons why a project is being undertaken
 - List the benefits of the project
 - Attempt to estimate the impact of major market design changes over both the short-term and long-term, if warranted
 - The presentation will attempt to account for countervailing conditions and opinions from other parties and differing assumptions
- CIAs to clearly state all the assumptions underlying the impact analysis
 - Emphasize that the values presented are strictly estimates based on the assumptions used in the analysis
 - The time frame over which the estimates are computed to be clearly defined, e.g., estimates are based on an identified snapshot in time
 - The major driver(s) of the impact would be highlighted in the final analysis
 - Impact estimates to be presented as a range
- The process of conducting and presenting CIAs to be incorporated into the 2016 project schedule from the outset
- Evaluate alternative implementation options for stakeholder consideration
 - Present the alternative of not doing a project and the associated consequences
 - Utilize scenario analysis in reporting the results of CIAs when relevant

Impact of Suggested Changes on Project Schedule

The suggested changes will have a significant impact on both the work load and the project schedule. The first column in Figure 24 shows the current timeline for completing a typical consumer impact analysis and the deliverables. The second column shows both the lengthening of the project schedule and the increase in the number of deliverable items.

Impact on Project Schedule		
	Current Process	Proposed Process
May		BPWG: Present Project Candidate List to MPs
June		Internal: Identify Projects for CIA
July		MIWG: Present CIA Topics and Initial Estimate
August		
September		
October	Internal: Identify Projects For CIA	
November	MIWG: Present Project List to MPS	
December		
January	Internal: Perform Consumer Impact Analysis	MIWG: Present CIA Methodology
February		Internal: Perform Consumer Impact Analysis
March		
April		
May		
June		
July		
August	BIC/OC: Project Approval Vote	
September	MC: Project Approval Vote	MIWG: Present CIA 30 Days Prior to BIC/OC
October		
November		BIC/OC: Project Approval Vote
December		MC: Project Approval Vote

Figure 24

Consumer Impact Analysis - Process Map

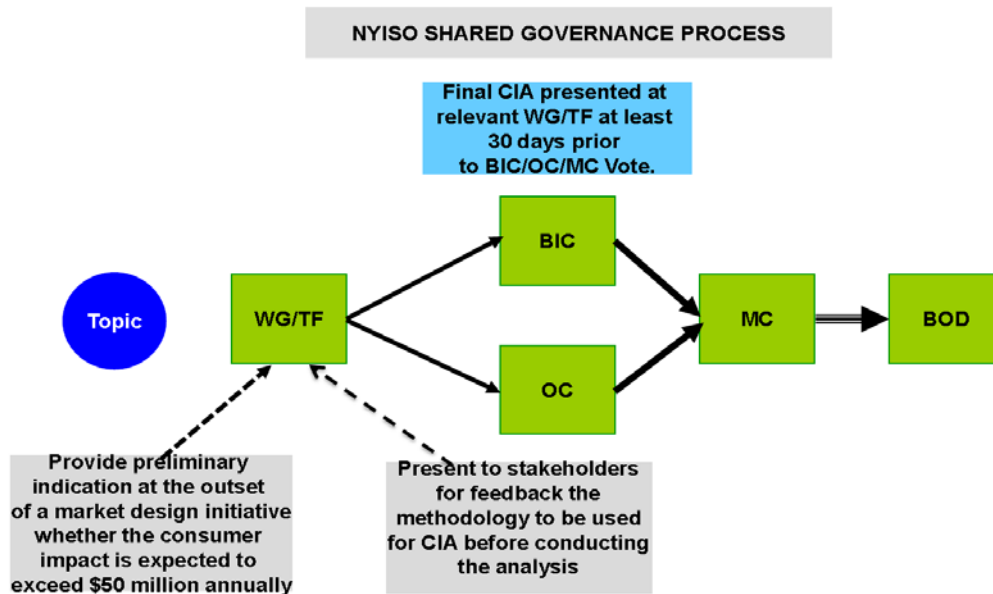


Figure 25

Sample Weekly Summary of NYISO Activity



Please note: This summary is provided for informational purposes only. It is not intended to be a substitute for the presentations and other information provided by the NYISO or the discussions that take place at the meetings

NYISO Consumer Interest Liaison Weekly Summary

September 12 – September 16, 2016

Notices:

- *Stakeholder comments on the **Proposed 2017 Project - Integrating Public Policy** have been posted to the NYISO website under the link below:
[Stakeholder Comments](#)*
- *A BPWG meeting has been scheduled on **October 26, 2016** following the Management Committee Meeting. Additional details will be provided in advance of the meeting.*
- *The New York Independent System Operator (NYISO) announced on September 16, 2015 that it has **promoted Zachary G. Smith to vice president of system and resource planning** effective September 15, 2016. Mr. Smith joined the NYISO as an associate engineer in 2004 and has since held positions of increasing responsibility. Most recently he was director of transmission planning, overseeing the public policy transmission planning process and implementing numerous initiatives for the North American Electric Reliability Corporation, the Northeast Power Coordinating Council (NPCC), and the New York State Reliability Council.*

Meeting Summaries:

Monday, September 12, 2016

Budget and Priorities Working Group

2017 to 2019 RS-1 Budget: Energy Forecast

Arthur Maniaci of the NYISO presented the energy forecast for the Rate Schedule 1 (RS1) budget formation. The forecast methodology employs three components:

- Net Energy
- Exports
- Wheels



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Mr. Maniaci displayed several illustrations to show trends and to explain how the forecast values are derived. The RS1 budget forecasts for 2017 – 2019:

- 2017 -- 158,350MW
- 2018 – 157,570MW
- 2019 – 156,800MW

Mr. Maniaci also explained that the forecasts are provided in a monthly format to provide a measure for the budget process. To see Mr. Maniaci's complete presentation, please go to: http://www.nyiso.com/public/webdocs/markets_operations/committees/mc_bpwg/meeting_materials/2016-09-12/2017%20to%202019%20RS1%20Budget%20Energy%20Forecast.pdf

NYISO 2017 Budget Overview

Cheryl Hussey of the NYISO presented an overview of the draft annual budget for 2017. Ms. Hussey also provided a timeline for the budget cycle with Board of Director approval anticipated for November 15, 2017. Key priorities and projects were highlighted for 2017. The draft budget totals \$148.2M, allocated across a forecast of 158.3 million MWhs, for a Rate Schedule 1 charge/MWh of \$0.936. Comparatively, the 2016 budget was \$148.1M, allocated across 159.5 million MWhs for a Rate Schedule 1 charge/MWh of \$0.928. NYISO's draft 2017 budget represents the fourth consecutive year of a flat revenue requirement (excluding FERC fees). To see the complete presentation, please go to:

http://www.nyiso.com/public/webdocs/markets_operations/committees/mc_bpwg/meeting_materials/2016-09-12/NYISO%202017%20BUDGET%20OVERVIEW.pdf

2017 Integrating Public Policy -- Scope Update

Mike DeSocio of the NYISO presented an overview of the proposed scope for integrating Public Policy into the NYISO wholesale markets. The 2017 project on Integrating Public Policy proposed scope will include determining:

- *The impact of New York's Clean Energy Standard goals on the current NYISO energy and capacity markets*
- *Whether a redesign is needed in the wholesale market*
- *The impacts of other regional efforts for integrating public policy on the NYISO wholesale markets*

Throughout Fall 2016, there will be discussion in the Market Issues Working Group regarding the action plan for studying impacts from the high penetration of low carbon or carbon-free resources on the current NYISO energy and capacity markets. A summary of stakeholder feedback from the August 17, 2016 BIC presentation was provided and indicates a high degree of stakeholder interest in the project. Comments will be encouraged throughout the process. To see Mr. DeSocio's presentation, please go to:

http://www.nyiso.com/public/webdocs/markets_operations/committees/mc_bpwg/meeting_materials/2016-09-12/2017%20Integrating%20Public%20Policy%20Scope.pdf



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Monday, September 12, 2016

Load Forecasting Task Force

Update on Load Forecast Manual Changes for Behind the Meter Normalization

Arthur Maniaci of the NYISO presented several topics for discussion with stakeholders. The first was an announcement that the Fall Economic Conference, presented by Moody's, will be held on October 28, 2016. Mr. Maniaci next presented a Load Forecast Manual update to incorporate changes for the Behind the Meter Net Generation (BTM:NG) program. This was followed by the preliminary estimates of the weather adjustments to the 2016 Actual Peak load. Mr. Maniaci polled the attending Transmission District personnel for preliminary verification of peak data. The final topic was a discussion with stakeholders on Transmission Owner's reporting requirements for the local Demand Response programs. To see the data provided for discussion, please go to:

http://www.nyiso.com/public/committees/documents.jsp?com=bic_icapwg_lftf&directory=2016-09-12

Tuesday, September 13, 2016

Business Issues Committee

Motion #1:

Motion to approve the July 13, 2016 meeting minutes

Motion passed unanimously

Motion #2:

The Business Issues Committee (BIC) hereby approves the proposed changes to the Installed Capacity Manual as at the BIC meeting on this date.

Motion passed unanimously

Motion #3:

The Business Issues Committee (BIC) hereby approves the proposed changes to the Installed Capacity Manual as described in the presentation and accompanying materials made to the BIC on this date; provided, however, that these Installed Capacity Manual changes shall only become effective on the day after the effective date for all of the Behind-the-Meter Net Generation tariff revisions accepted by the Federal Energy Regulatory Commission on May 17, 2016.

Motion passed unanimously

Motion #4:

The Business Issues Committee (BIC) hereby approves the proposed changes to the Ancillary Services Manual as described in the presentation and accompanying materials made to the BIC on this date; provided, however, that these Ancillary Services Manual changes shall only become effective on the day after the effective date for all of the Behind-the-Meter Net Generation tariff revisions accepted by the Federal Energy Regulatory Commission on May 17, 2016.

Motion passed unanimously



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Motion #5:

The Business Issues Committee (BIC) hereby approves the proposed changes to the Revenue Metering Requirements Manual as described in the presentation and accompanying materials made to the BIC on this date; provided, however, that these Revenue Metering Requirements Manual changes shall only become effective on the day after the effective date for all of the Behind-the-Meter Net Generation tariff revisions accepted by the Federal Energy Regulatory Commission on May 17, 2016.

Motion passed unanimously

Motion #6:

The Business Issues Committee (“BIC”) hereby recommends that the Management Committee approve changes to the NYISO’s Market Administration and Control Area Services Tariff (MST) related to the Hybrid GT Pricing Improvements proposal, as more fully described in the presentation entitled “Hybrid GT Pricing Improvements” made to the BIC on September 13, 2016.

Motion passed unanimously with abstentions

Tuesday, September 13, 2016

Joint Electric System Planning/Market Issues/Installed Capacity Working Groups/Transmission Planning Advisory Subcommittee

RMR Credit Rules

Sheri Prevratil of the NYISO presented the updated credit requirement for a generator with a Reliability Must Run (RMR) “clawback” obligation. The credit requirement will equal eight times the amount of the monthly clawback payment required. When the payment term remaining becomes less than eight months, the credit requirement will be adjusted accordingly. Unsecured credit will not be accepted.

RMR Tariff Revisions

Representatives of the NYISO Market Mitigation and Analysis (MMA) department presented tariff revisions resulting from stakeholder feedback for the impending Reliability Must Run (RMR) compliance filing. Minor revisions were presented and discussed with stakeholders to prepare the final tariff language prior to the September 19, 2016 compliance filing. Redline tariff sections presented are available for perusal at:

http://www.nyiso.com/public/committees/documents.jsp?com=bic_espwg

FERC Filings

September 13, 2016

NYISO filing of Order No. 1000-related revisions to its OATT and Services Tariff in compliance with the directives of a December 23, 2015 order



Please note: This summary is provided for informational purposes only. It is not intended to be a substitute for the presentations and other information provided by the NYISO or the discussions that take place at the meetings

FERC Orders

September 12, 2016

FERC Letter Order accepting a Small Generator Interconnection Agreement (Service Agreement No. 2293) among Niagara Mohawk and Innovative/Colonie

Link to FERC Filings and Orders:

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



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